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# Environmental Peacebuilding: Moving beyond resolving Violence-Ridden conflicts to sustaining peace

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## ABSTRACT

The literature on environmental peacebuilding (EP) is focused on overcoming or preventing violent conflict using environmental collaboration (EC), typically on common environmental issues between two or more parties. When environmental peacebuilding focuses on international conflicts, parties involved are mostly neighboring states. In this article, we examine whether the concept of environmental peacebuilding can be used in contexts where violence is not a major issue, and for other purposes such as to sustain a peace agreement and reduce the existential threat of climate change. Another contribution to extant literature is the analysis of EP between states with no contiguous borders, which is critical around issues of climate change and international cooperation on it. We include the concept of 'Climate Resilient Peace' into our framework, highlighting the importance of climate resilience for nations and communities as a foundation for promoting lasting peace. EC between Israel and the United Arab Emirates serves as our empirical test. Through expert interviews and media analyses, we researched the multifaceted value of EC. Such EC, we believe, has the potential to lead to symbolic rapprochement between states, the reduction of climate risks, and can ultimately move to substantial integration. Substantial integration being the coordination and interdependence with tangible international institutional and *trans*-societal links. Acknowledging each other as mutually beneficial partners allows the seizing of environmental, political, and social spillovers from EC. Ultimately, it increases satisfaction with the peace agreement. The Israel-UAE case demonstrates how EC can enhance regional stability and facilitate cooperation. This could be applied to other climate change-affected and conflict-torn regions, in the Middle East, North Africa, and beyond.

## 1. Introduction

Environmental peacebuilding (EP) refers to multiple approaches and pathways through which the management of environmental issues is integrated into peacebuilding (Ide et al., 2021, p.2-3). Evidence that EP can positively affect peace is mixed (Dresse et al., 2018) and depends on contextual factors (Dresse et al., 2018; Ide, 2018; Ide, 2019). The EP literature can be divided into intranational and international cases. Intranational peacebuilding occurs, for example, between governments and guerilla groups or between different armed groups inside a country (Dresse et al., 2018). For the purposes of this article, however, we focus on international EP, which with few exceptions (Huda and Ali, 2018; Krampe, 2016; Krampe et al., 2021), mostly looks at heavily militarized conflicts between nations (Ide et al., 2021, Krampe et al., 2021, p.1-4). Exploring how EP can be applied to low-conflict cases and as a tool to consolidate newly established peace instead of overcoming violent conflict has several benefits. *Inter alia*, such benefits include better policy

and a larger pool of cases where EP can be applied as a useful framework. This is particularly important in the context of sustainability and climate change.

Israel and the United Arab Emirates (UAE) formalized their relationship with the signing of the Abraham Peace Accords in September 2020. The Accords notably underscored environmental collaboration (EC) as an "integral part of their commitment to peace" (Abraham Accords Peace Agreement, 2020). However, the intricacies of how EC influenced the budding diplomatic relations between these nations remain largely unexplored. Despite the Accords, mistrust, feelings of alienation, and cultural misunderstandings have persisted at both elite and grassroots levels. The recent surge in violence between Israelis and Palestinians in early 2023, catalyzed by the election of a far-right government under Prime Minister Netanyahu, further underscores the fragility of relations. Given these developments, it is vital to discern how EC might reinforce the ongoing peace process, ensuring that previous gains are not lost and averting a "cold peace" reminiscent of the limited

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cooperation seen between Israel and Jordan or Egypt (Moshe Dayan Center & Hoffman, 2020; Guzansky & Feuer, 2020; Pollock & Cleveland, 2020; Rahman, 2022).

Despite these challenges, the ties remain relatively robust and it seems that the normalization between the countries is here to stay (Vakil & Quilliam, 2023). While it is premature to predict the long-term peace ramifications, the Israel-UAE dynamic presents a compelling case to study the impact of EC on peace for several reasons. First, it offers a context mostly overlooked in EP literature: the study of nations not mired in direct violent conflicts and not engaging in EC due to shared resources or borders. Additionally, this case signifies the rising internationally acknowledged importance of collaborating to combat the threat of climate change. Unlike traditional EC endeavors discussed in prior EP literature, this cooperation does not hinge on shared borders or resources. Rather, it pivots to a large extent around joint climate change mitigation and adaptation efforts.

## 2. Roadmap

We first delve into key concepts of international EP, touching on the significance of EC, various dimensions of peace, and the emergence of climate change as a vital component of peace. Next, we explore historical EP efforts in the region to elucidate our argument that the absence of violence, combined with the increasing importance of climate change, enhances the role of EC in peacebuilding.

We then provide an overview of the climate priorities of both Israel and the UAE, followed by an in-depth analysis of how EC impacts the EP dimension. This analysis draws on expert interviews and discussions, media assessments, and literature reviews. To conclude, we summarize our findings and offer insights into potential future directions of EP research and its impact on the region.

## 3. Concepts of Environmental Peacebuilding

We adopt the definition of Environmental Peacebuilding (EP) as articulated by Ide et al., (2021, p.2-3). It portrays EP as the integration of environmental issue management into peacebuilding initiatives. Cooperation on environmental matters at the interstate level could contribute to peace through positive spillover effects. (Ide, 2018). Several scholars have delved into the mechanisms that link EC to different dimensions of peace (Dresse et al., 2018; Ide, 2018; Johnson et al., 2021). Our study aligns closely with Ide's (2018) model, which examines the relationship between EC and peace. However, we also find Johnson's insights into intrastate conflicts, to be particularly valuable and aim to incorporate these into our analyses. Ide (2018) associates EC (cooperation between conflict parties that centers on jointly addressing environmental issues) with mechanisms that connect to three dimensions of peace:

1. Absence of Violence (Negative Peace): Refers to preventing conflicts, especially those due to resource exploitation or ecosystem degradation, where states actively avoid threats or uses of force.
2. Symbolic Rapprochement: Beyond mere non-violence, this peace dimension represents the shift in perceiving adversaries from threats to allies, emphasizing the inconceivability of conflict due to positive symbolic relations.
3. Substantial Integration (Positive Peace): This positive peace dimension signifies deep coordination and interdependence between social groups and states, with tangible institutional and *trans*-societal connections.

In light of our investigation into Environmental Peacebuilding, we propose adding 'Climate Resilient Peace' (Barnett, 2018) as a fourth dimension to the established peace models. This concept, pioneered by Barnett (2018), dimension extends beyond the traditional frameworks of international EP debates, which primarily focus on promoting peace on inter-state relations, and instead addresses the resilience of nations and

communities in the face of environmental changes and stresses (Barnett, 2018; Daoudy, 2021; Daoudy et. al 2022).

It argues that the resilience of nations and societies to environmental changes, particularly through shared environmental resource cooperation but also global climate cooperation, can be a foundational pillar for lasting peace. This resilience transcends the mere absence of violence or symbolic integration; it addresses one of the root causes of conflict by reducing the vulnerability of states to climate-induced economic and environmental stresses. Effective and fair governance and transparent management of environmental challenges are crucial in this context, as they enhance state legitimacy and social stability (Barnett, 2018; Daoudy, 2021; Daoudy et. al 2022). By integrating 'Climate Resilient Peace' into our study, we recognize the critical importance of environmental cooperation in preventing conflict.

### 3.1. Mechanisms linking EC to peace

Ide (2018) delves into comparable mechanisms that link EC to peace, encompassing areas such as sustainability, trust, cooperation, cultivating interdependence, and the establishment of robust institutions. Given our emphasis on the 'Climate Resilient Peace' dimension (Barnett, 2018), and the elaboration of how state capabilities through economic development and knowledge of sustainable practices can lead to more climate resilience (Daoudy, 2021; Daoudy et al., 2022), we believe it is necessary to add two additional mechanisms: economic development and environmental knowledge. These mechanisms increase the state's ability to build resilience and mitigate environmental and economic stresses resulting from climate change and environmental degradation.

### 3.2. Israel and historic EC attempts in the region

Before delving into EC between Israel and the UAE, it is of paramount importance to explore past attempts and their upshot, thereby illuminating the prospective trajectory of the Israel-UAE EC. This analysis centers on Israel's historical EC with neighboring nations and entities such as Jordan, Egypt, and the Palestinian Authority. Additionally, we spotlight institutional EC through the Middle East Desalination Research Center (MEDRC).

Israel's EC with neighboring countries gained momentum after the peace agreements with Egypt (1979) and Jordan (1994), along with the interim agreements with the Palestinians between 1993 and 1998. These accords encompassed EC in areas like water management, pollution control, wastewater treatment, nature conservation, arid land development, and green tech exchange (Feitelson and Levy, 2006).

A significant amount of EC between Israel, Jordan, Egypt, and the Palestinians has arisen from the pressing need to address environmental concerns with pronounced cross-border ramifications. This is particularly evident around shared resources such as the Gulf of Aqaba, shared aquifers, and other water resources like the Jordan and Yarmouk rivers, the Dead Sea, and the Arava Valley. However, any EC perceived by Jordanians, Egyptians, and Palestinians as potentially infringing on national sovereignty or delving too deeply into internal affairs was often either not addressed at all, or if addressed, lacked clear delineation in EC agreements. For instance, the EC agreements between Jordan and Israel did not precisely delineate how water pollution would be managed across borders. This hesitancy was rooted in concerns of national sovereignty infringement by Israel and often overshadowed the environmental importance and political prominence of specific environmental issues that needed cooperation (Feitelson and Levy, 2006).

Egypt's collaboration was primarily propelled by economic incentives, aiming to harness Israel's prowess in desertification technologies (desert tech) and agricultural technologies (agri-tech). The influence of global agencies and local and international environmental discourse also played a part in shaping the collaboration agenda. On the part of Israel, international relations, garnering legitimacy, and

streamlining transboundary water management were principal motivations to collaborate with all three neighboring actors.

One notable product of the Middle East peace process initiated in Madrid in 1991 was the Working Group on Water Resources, metamorphosing into the MEDRC in 1996. Hosted by Oman, MEDRC uniquely persisted as a vestige from the Madrid process. It included participants such as Israel, the Palestinian Authority, Jordan, Qatar, and Oman, with the U.S. being instrumental in its facilitation and funding. MEDRC's mission centered on combating water scarcity through avenues like desalination, research, and scientific diplomacy.

Yet, despite international optimism, EC has had a limited role in bridging peace between Israel and neighboring nations. Many EC between Israel, Jordan, the Palestinians, and Egypt, were to a large part stymied in the early 2000s due to escalating regional tensions, notably the second Intifada in October 2000. Critics, including Egyptian opposition and civil society movements, perceived the sustained EC as a potential compromise of national identity and a pathway to Israeli dominance. Subsequently, in 2011, Egypt's Muslim Brotherhood administration terminated existing ECs (Arieli, 2012; Angert et al., 2022; Djernaes et al., 2015). While MEDRC has endured, its visibility and impact, even within the EP sector, have been limited, often labeled as a 'talking shop' with member states exhibiting lackluster engagement (Smith & Winterman, 2022). Oman's hosting of MEDRC has not ameliorated its relationship with Israel. Instead, relations have deteriorated, often attributed to the Israeli-Palestinian conflict (Oxford Analytica, 2022).

Since 2020, there has been a resurgence of collaborative efforts centered around water security, hydrogen, renewables, and the Red Sea involving the Israeli, Egyptian, and Jordanian governments, as well as other Abraham Accords countries like Morocco and Bahrain (Angert et al., 2022; Mahmoud, 2021). Additionally, environmental regional NGOs have been spearheading initiatives particularly focused on education, diplomacy, and policy initiatives. However, constraints on these stem from boycotts and anti-normalization campaigns. It is notable that since the latest escalation of conflict between Israel and the Palestinians, coupled with the new far-right government led by Netanyahu, certain initiatives have been halted and there is a shortage of participants on the Jordanian and Palestinian sides to follow through with such efforts.

In sum, historical ECs were often mired by mutual distrust, with collaborations primarily catalyzed by Israel's resource control or external incentives. This resulted in a focus on technical solutions while sidelining core conflict issues, sometimes even leading to governmental delegitimization (Ide, 2020). The collaborations were and still are tied to regional conflicts, which often reduce their EP impact, especially given the public's general aversion to them. However, enduring entities like MEDRC, coupled with recent EC undertakings, suggest a potential revival of EC in the region, warranting a deeper probe into factors that could improve regional peace and environmental synergy.

### 3.2.1. The Abraham Accords

Signed in September 2020, the Abraham Peace Accords pivoted from a long-held view that required Israel to resolve its conflict with the Palestinians before relations could be normalized with other Arab neighbors (Friedman, 2021; Köprülü, 2021; Winter & Esser, 2021; Zisser, 2020). In Israeli eyes, the Accords marked a transformative moment, greatly boosting regional and global standing and legitimacy (Friedman, 2021; Fulton and Jellinek, 202; SWP et al., 2008; Johannsen, 2017). Conversely, the UAE's motivation for joining the Accords rested on security, political, and economic grounds, forecasting increased regional clout upon normalizing ties with Israel and reinforcing connections with the U.S. (Barany, 2020; Ketbi, 2020; Jones & Guzansky, 2020).

However, fissures surfaced, both at the leadership and grassroots levels. Lingering grievances tied to the Israeli-Palestinian conflict were reflected in social media outpourings and survey data, revealing discomfort among Emiratis regarding normalization (Moshe Dayan

Center & Hoffman, 2020; Pollock & Cleveland, 2020; Washington Institute, 2023). The Accords emerged primarily as a top-down initiative, born out of political and economic agendas rather than alignment at the level of the grassroots. This hierarchy fostered cultural misunderstandings, occasionally sparking Israeli disillusionment and Emirati resentment (Boms & Khuzaie, 2022).

Political elites in the UAE have largely hailed the Accords as a triumph in economic and security terms (WAM et al., 2022). However, the initial optimism has waned, primarily due to the ever-present Israeli-Palestinian tension (Ministry of Foreign Affairs & International Cooperation, 2021; Rahman, 2022; Guzansky & Feuer, 2020). Moreover, unfulfilled promises, such as defense deals involving F-35 jets and MQ-9B Reaper drones, have stoked further discontent (Dagres, 2021). The actions and policies of Netanyahu's far-right coalition, marked by annexation bids and a refusal to back a two-state solution accompanied by deadly raids in the West Bank have strained Israel-UAE ties. The UAE's public reproach of Israel and a subsequent decline in collaborative initiatives highlight this tension (Katulis et al., 2023; Vakil & Quilliam, 2023). This underscores the imperative for sustained peace. The effectiveness of EC within the Accords' ambit serves as a crucial barometer. Both the leadership and the masses offer critical insights into the challenges stalling peace. Our project probes the potential of EC in mitigating such hurdles.

### 3.3. Israel and UAE: Environmental challenges and climate action

Drawing on EP literature, it is essential to assess climatic and environmental markers to understand the connection between peace efforts and EC (Morales-Muñoz et al., 2022). This analysis commences with the climate profiles of Israel and the UAE before examining EC's implications.

Both Israel and the UAE face growing climate threats, including rising temperatures, shifting sea levels, and resource depletion, with water scarcity being the most urgent of all. Innovative solutions like desalination and wastewater treatment are in place (Szabo, 2011; Mission of Israel to the EU and NATO, 2018). However, challenges like the UAE's diminishing surface water and Israel's amplified water demands due to population growth and regional water-sharing persist (Madani & Hipel, 2007; Zeitoun et al., 2020; Tal, 2021).

Desertification threatens agriculture and biodiversity. Israel's food security is stressed by expected population growth, from 9 to 19 million in four decades, and its geographical limits. Through advanced farming expertise and a robust water management framework, Israel has successfully sustained its agricultural sector amidst significant water stress, fortifying its resilience against potential water risks in the future (Hadas & Gal, 2018; Tal, 2021). The UAE, aware of food security, is investing in food technology and diversifying supply chains (Alalawi et al., 2022). Both countries face biodiversity risks due to urbanization, economic growth, and population surges (Tal, 2021). The UAE's marine ecosystems additionally suffer from oil production and desalination side effects (Sale et al., 2010).

In its Second Biennial Update Report to the UNFCCC, the nation's deviation from its 2030 climate goals under the Paris Agreement were notable. Despite committing to a 27 % reduction in GHG emissions by 2030, current projections show only a 12 % potential decrease. Israel's aspirations for renewable energy are similarly lagging. Whereas the country targeted a 30 % renewable contribution by 2030, current trajectories suggest a mere 19 % achievement. In 2021, Israel reversed its increasing emissions trend, notably by reducing coal usage. Still, sectors like waste and manufacturing are yet to meet emissions reduction targets (Israel's Ministry of Environmental Protection, 2023).

Conversely, the UAE, with its "Net Zero by 2050" ambition, stands out in the MENA region. Having invested over \$40 billion in clean energy over 15 years, they target 14 GW of clean energy by 2030 and sponsor renewable projects globally (The Official Portal of the UAE Government, 2023). The new NDC update builds on the UAE's previous

one, submitted in September 2022, which laid out its objective of reducing total greenhouse gas emissions by 18 % as compared to the business-as-usual level (Khamis, 2023). However, criticisms arise over unclear objectives, fossil fuel dependency, the influence of UAE's oil lobby, hindering its commitment to limit warming to 1.5 °C. While recent climate commitments improved UEA's climate strategies, concerns linger about feasibility given the UAE's fossil fuel trajectory. A comprehensive long-term strategy for the UNFCCC is anticipated from the UAE before COP28, signaling its intent in the climate dialogue (Climate Action Tracker, 2023; Khamis, 2023).

In sum, both Israel and the UAE face substantial environmental challenges. Despite setting ambitious climate targets, they do not meet several objectives. Both exhibit a strong focus on technological solutions for climate change and resource insecurities, suggesting potential collaboration under the umbrella of the Paris Agreement.

### 3.4. Data and methods

Two key components constitute the empirical portion of this project. Taking advantage of the approximately 36 months since the Accords were signed, the first is secondary literature analyses of EC between Israel and the UAE based on newspaper articles, press releases and issued policy papers and reports. The second is the analysis of 22 semi-structured expert interviews conducted approximately 18 months after the Accords were signed, between January-June 2022, with individuals with a range of relevant expertise. Those areas of expertise include environmentalists, academics from the international relations and environment fields, politicians and policymakers (Misoch, 2019). We further incorporated insights from discussions between June 2022 and August 2023 with crucial environmental policymakers from the MENA and Europe. A strategic selection of experts ensured the inclusion of individuals with substantial knowledge on the topic, facilitating in-depth discussions (Helfferich, 2011) and enabling exploration into how EC could influence peace (Ide, 2018; Johnson et al., 2021). The selection criteria for newspaper and press materials were that the selected pieces had to refer to at least one type of EC between Israel and the UAE, present or future, and with a publication date after the signing of the Accord. We first scanned academic articles and policy reports. Second, we looked at press releases from the Israeli government and articles by UAE's state-owned news channel, WAM. Next, we added news articles from Israeli, American, and Saudi sources. Analyses of the written material included their main contributor, methods, debates, and arguments using a deductive category system (Gläser & Laudel, 2010).

Though the Accords were signed three years ago, many projects are still in their planning stages. Hence, any attempt to quantify the implications would be premature. We perceived the experts as knowledge bearers with relevant expertise (Misoch, 2019). These experts, both those directly involved in the cooperation and those with specializations in diverse research areas like Middle Eastern economics, international relations, environmental politics, and environmental sciences, contributed invaluable perspectives. They approached the topic as informed observers, and their varied backgrounds enhanced the breadth of our analysis.

The majority of our insights were derived from semi-structured interviews, where questions revolved around themes such as sustainability, economic development, enhanced knowledge, trust, cooperation, and institutions (Ide, 2018; Johnson et al., 2021). We also probed into their perceptions of how EC might influence domestic and international satisfaction with the peace agreement. Practitioners were further queried about potential challenges and pitfalls related to the EC between the nations (Ide, 2020). In our discussions with experts between 2022 and August 2023, we delved into the progression of various EC initiatives, posed questions on the overarching peace process in the region, discussed EC in light of the Abraham Accords, the impact of the far-right coalition government under Netanyahu as a potential barrier to collaboration, and the growing political momentum for climate

cooperation within the region. Post interviews, we revisited mentioned events and topics using secondary sources for verification and to supplement data, viewpoints, and evidence. Our primary analytical tool for the data was content analysis (Mayring & Fenzl, 2014).

### 3.5. Environmental collaboration between Israel and the UAE: A literature review

In the wake of the Abraham Accords, a strong consensus has emerged from press releases, media sources, policy papers, and government statements regarding the positive potential of EC between Israel and the UAE. This consensus centers on the impact of EC on sustainability, economic development, and regional cooperation. Explicit goals for ecological collaboration were embedded in the Accords, leading to the signing of various Memorandums of Understanding (MoUs) for joint environmental projects, and the establishment of numerous bilateral and multilateral initiatives.

### 3.6. Analysis of academic and policy papers

During the first two years following the signing of the Accords, academic and policy papers perceived EC largely as ancillary. Nonetheless, there were anticipations of promising collaboration in water and agrotechnology sectors, and expectations of increased trade in these technologies (Barany, 2020; Evental et al., 2020; Egel et al., 2021; Fernandez, 2021; Rivlin, 2021). From the end of 2022, the focus of many publications, especially from policy institutes, shifted towards EC involving both nations (Katulis 2023; Goren 2023; Chathamhouse; Schaefer böll 2023). These papers predominantly discussed collaborations aimed at climate change adaptation and mitigation, touching upon potential areas of cooperation such as food security, the blue economy, energy transitions, and renewable energy collaboration. Emphasis was also placed on the role of multilateral platforms in fostering regional cooperation. Both UAE and Israel are identified as pioneers in green technology and optimal partners for technology-driven adaptation and mitigation measures. An upcoming event, COP28 in the UAE, was pinpointed as pivotal for climate mitigation initiatives. Furthermore, these papers shed light on the nexus between climate and conflict, underscoring the necessity for collaboration to mitigate climate-related socio-political risks.

#### 3.6.1. Government and media narratives

Conversely, government press releases and newspapers primarily spotlighted the advancement of EC in enhancing both countries' roles in green technology, space science, and the energy sector (CFTIC, 2022; Stub, 2021). They also stressed on adherence to climate targets (Asharq Al-Awsat, 2021). EC bolstered intergovernmental ties, as seen in public events like the EXPO. Both Emirati and Israeli Ministers, along with American, Jordanian, and Egyptian officials, have been referenced in relation to EC. The prevailing discourse emphasized the potential of EC to foster warmer bilateral relations and further economic development and sustainability. For instance, Oded Forer, the former Minister of Agriculture, heralded an MOU emphasizing the merits of cooperation for sustainable agriculture and food security amid global warming challenges (CFTIC, 2022). A major point highlighted is the prospects of EC to enhance regional stability by ensuring food, water, and energy availability. This, in turn, could deter conflicts and migration, and strengthen inter-nation bonds. Israel's President Isaac Herzog's vision of a renewable Middle East also garnered attention.

Post-January 2023, the primary discourse in Emirati media around EC has been the upcoming COP28, regional collaborations like the Negev Forum and the I2U2 initiative, and potential synergies in clean energy and food sectors, interlinked with economic growth narratives (Wam & Amir, 2023).



### 3.6.2. Reflections and areas of concern

It is notable that a substantial number of articles were disseminated by the UAE's state-owned news outlet, WAM. Many news platforms, in Israel, the US, and the UAE, adopted the narratives of government officials, either through interviews or quotes. This observation is crucial, given limited freedom of the press in the UAE (Freedom House, 2023). However, the beginning of 2023 marked an uptick in policy papers offering nuanced discussions on environmental collaborations. These papers, although not rooted in academic literature on environmental peacebuilding, were targeted at political leaders in the Middle East, as well as policymakers in the US and EU, suggesting their roles in facilitating these collaborations.

The current literature review underscores the significance of increased academic research in this domain. While media and policy attention are substantial, a deeper, academic exploration is essential to comprehend and enhance the potential of EC for peacebuilding.

### 3.7. Analysis of expert interviews

The interviews reveal four chief types of EC: commercial collaboration, webinars and conferences, academic and research collaboration, and multilateral and institutional collaboration.

#### 3.7.1. Commercial EC

The first type of collaboration gleaned from the interviews was bilateral and multilateral commercial EC. The emphasis on the private sector has been usually atypical in international EP cases, where most of the literature focuses on state level and civil society EC. On the Israeli side, the main parties involved in commercial EC are Israel's green tech sector, which consists of startups and more established companies such as Fluence and EDF Israel renewables. Israel is known for its advanced water technologies (waste-water treatment, drip irrigation, and desalination) and innovative desert tech and agri-tech. In contrast to Israel's startup environment, many companies involved in the EC in the UAE are state-owned, like the renewable energy company Masdar power, which operates in 70 countries (WAM, Ismail et al., 2022), and the investment fund Mubadala. The UAE is also heavily involved in R&D in green technologies. Masdar City, for instance, is dedicated to sustainable architecture and is a clean tech hub with research centers and testing sites. IRENA, the most prominent international renewable energy institution, is also in the UAE.

From the interviews, the Israeli side predominantly features its green tech sector in commercial EC, encompassing startups and well-established companies, notably Fluence and EDF Israel renewables. Israel's acclaim largely arises from its advanced water technologies, which cover wastewater treatment, drip irrigation, and desalination, as well as its innovations in desert and agri-tech. In contrast, the UAE's commercial EC landscape is characterized by the presence of state-owned enterprises. Entities like the renewable energy company Masdar Power, which operates in 70 countries (WAM, Ismail, et al., 2022), and the investment fund Mubadala take center stage. Masdar City, dedicated to sustainable architecture and acting as a clean tech hub with research centers and testing sites, stands out as a hallmark of the UAE's commitment to green technologies. Additionally, the UAE proudly hosts IRENA, a leading international renewable energy institution.

Interviewees emphasized the multifaceted impact of commercial EC. One prominent outcome is enhancing climate change adaptation (Fleischer et al., 2008; Shahin & Salem, 2015). Policies in both Israel and the UAE focus on bolstering internal food production (Hadas & Gal, 2018; Tal, 2021; UAE Government, 2021; Wu & Li, 2019). Emirati experts referenced the UAE's challenges during the COVID pandemic, particularly food import shortages (Rahaman et al., 2021), as a motivation for the interest of Emirati leadership in Israeli agri-tech. This collaboration is not only driven by necessity but also by the mutual recognition of the economic potential in green tech leadership.

A testament to the marriage of commercial EC and the broader vision

of enhancing climate adaptation and mitigation through food tech is the partnership between the Israeli vertical farming company, VerticalField, and Emirates Smart Solutions & Technologies, established in January 2021 (Tress, 2021). VerticalField's pilot project in the Emirate of Umm Al Quwain aimed to determine suitable crops for the regional market. With its geoponic platform, vertical farms in urban settings can produce crops with 90 % less water and free from seasonal constraints (VerticalField, 2022). Such initiatives not only enhance sustainability through reduced water and transportation costs but also decrease global supply chain reliance. The significance of this strategic collaboration was further emphasized by a public appearance involving VerticalField's CEO, Dr. Mirilashvili, UAE's Minister of State for Food & Water Security, Mariam Almheiri, and H.E. Mohamed Al Khaja, UAE Ambassador to Israel, at the Moshe Mirilashvili Center for Food Security in the Desert by Ben-Gurion University (Chamovitz, 2021). Moreover, an MOU on agricultural cooperation between Minister Mariam Almheiri and the former Israeli Agricultural Minister in March 2022 accentuated the vital role of both nations' private agri-tech sectors (CFTIC, 2022). EC is therefore integral to national food security strategies. The nature of commercial EC thrives on the green tech innovations of both countries, supported and encouraged by their governments.

Another ripple effect of commercial EC is the generation of sustained revenue streams and fostering economic diversification. Both Israel and the UAE aspire to propel green tech knowledge, in turn facilitating economic diversification. Predictions indicate that by 2030, the green technology sector could be worth 9.38 trillion euros, growing at an average annual rate of 7.3 % (BMUV, 2021). This translates to potential benefits like enhanced trade opportunities, increased employment prospects in the sustainability sector, and the creation of a more climate-resilient socio-economic landscape, all of which promise to adapt and mitigate climate change and enhance people's quality of life.

The synergy in renewable and clean energy between both nations was a recurrent theme among most interviewees. Collaborations primarily gravitate around solar energy, research and development in photovoltaics, battery storage, and multiple forms of hydrogen. A noteworthy alliance in this realm is the partnership between EDF Renewables Israel and Masdar Power. The energy renewable collaboration between Israel and the UAE holds promise because both nations have made significant technological strides, backed by substantial financial resources crucial for kickstarting and sustaining major projects. Given the substantial capital requirements in the renewable energy sector, their combined financial muscle and expertise position them as strong collaborators, especially suited for the Middle Eastern context. Their joint knowledge of the regional climate, intricate business cultural nuances, and shared dedication to countering climate change presents them as formidable partners in this endeavor. Other notable collaborations spotlight water tech and agri-tech, featuring initiatives like desalination, sewage treatment, vertical farming, and research in hydroponics and drip irrigation. Such partnerships are pivotal in combating environmental challenges and climate change by enhancing food and water security. Commercial EC also explores avenues to minimize environmental footprints, with research focusing on carbon capture, electricity storage, efficiency, circular economy, sustainable plastic types, and waste reduction. While these areas hold significance, energy, energy efficiency, water, and agri-tech have been prioritized. Most experts acknowledged Israel as a leader in agri- and water tech, while the UAE's strengths lie in renewable energy, hydrogen, and carbon capture.

Several experts highlighted the potential of evolving bilateral EC into a multilateral framework, leveraging each country's unique market access in other countries. Dr. Zumbärgel, a CARPO researcher specializing in Middle Eastern sustainability, mentioned two primary types of multilateral partnerships.

The first encompasses cooperation with countries rich in technological capabilities or human capital, such as South Korea, China, India, the US, and European nations. An illustrative case of such partnership is

the relationship between the UAE and Israel, as well as India. Dr. Janardhan, a senior economist at the Anwar Gargash Diplomatic Academy, pinpointed the UAE's enduring ties with India and the potential opportunities presented by the Abraham Accords to include Israel. This form of partnership turned tangible with the collaboration between Ecopia, an Israeli pioneer in robotic cleaning solutions for solar panels with an operational base in India, and the UAE. In 2021, the entities inked a significant deal revolving around a solar energy initiative (GN Focus, 2021).

The second form of multilateral EC focuses on countries requiring investments and expertise in green tech and renewables, typically those less economically developed and predominantly situated within the MENA region. Nations like Jordan, Egypt, other Gulf countries, and various African countries emerge as promising candidates for such collaborations. A testament to this model is the Water-Energy Nexus agreement from 2021, where Israel agreed to purchase solar energy from a Jordanian power plant that was planned to be constructed by an Emirati state owned company. Simultaneously, Jordan committed to buying desalinated water from a planned Israeli desalination plant along the Mediterranean coast. Such a collaboration augments renewable energy and water resources for both nations, rendering economic benefits to all stakeholders. The initiative was inspired by a study from EcoPeace Middle East in 2017, with the Abraham Accords playing an instrumental role in facilitating a previously unthinkable collaboration between Israel and Jordan (EcoPeace Middle East & Konrad-Adenauer-Stiftung, 2017). The UAE's involvement provided an invaluable confidence boost, especially considering the tepid relations and trust deficit between Israel and Jordan.

Such collaborations illustrate how commercial EC can offer broader market access and diversify financial risks. Such partnerships, especially for Israel, offer routes to nations traditionally averse to formalizing ties. Alon Tal, a former member of the Knesset and renowned environmentalist, underscored the UAE's legitimizing influence on Israeli engagement within the region.

However, commercial EC is not without its drawbacks and challenges. Critics argue that EC projects can sometimes inadvertently harm the environment. The sustainability approaches of Israel and the UAE are largely technology and innovation-driven, often sidelining discussions on consumption patterns and sufficiency. This deficiency is particularly evident in collaborations centered on oil and gas extraction (Ide, 2020, Glover, 2021). Additionally, some experts believe that the financial prospects of EC may be exaggerated. The CEO of an Israeli green tech venture capital, opined that the UAE could serve as a secondary market for startups, given its limited size. For the UAE to be genuinely appealing, it must extend its market reach to encompass other regional countries. Collaborations between countries that have recently opened their business sectors to one another also face obstacles. For instance, when EDF Israel and Masdar collaboratively bid on an Israeli renewable energy project, they encountered logistical and communication barriers due to the banking sectors' unfamiliarity. Cultural and economic discrepancies between the two nations also pose challenges. Israel's innovation landscape is predominantly bottom-up, fostered by government policies encouraging R&D and high tech sectors. In contrast, the Emirati environment is more hierarchical, emphasizing long-term and stable investments and placing a high premium on relationship-building. Equity concerns, particularly the distribution of financial gains from EC within society, constitute yet another significant challenge (Shoshana, 2015; Kelley & Ovchinnikov, 2019; Gamss, 2021).

### 3.7.2. Webinars and conferences

One of the most accessible and, at the same time, novel forms of EC were conferences, webinars, and seminars on environmental issues. The organizers ranged from think tanks, NGOs, and universities to the private sector. Similarly diverse were the topics. Those varied from educational events on environmental topics to creating a platform to bring green tech entrepreneurs from both countries together to promote

solutions.

The mentioned effects of the conferences depended on the topic. From an interpersonal perspective, experts repeatedly mentioned that the events brought people from the UAE and Israel together with a similar mindset on environmental problems, often a comparable professional or educational background, and a similar vision for future cooperation and action on environmental issues. People participating in those conferences often had a similar perception about the urgency of climate action and a similar mission to combat climate change and make their countries more sustainable. One of IRENA's policy experts, adds to the notion of moving beyond ideological conflicts and collaborating to fight the existential threat of climate change: "My enemy is climate change. So, I will not spend resources and efforts fighting you because you're not my threat."

The effects of bringing people with similar educational and professional backgrounds together were twofold. Firstly, it facilitated communication, making it easier to understand and identify with each other. The high educational levels often aligned with English proficiency, which was another enabling factor: "[...] currently, the similarities of us [Israel and the UAE] sharing a common goal and acting towards the higher purpose of overcoming these climate change obstacles. I think that's what's going to drive us together because it's been scientifically proven that collaborating yields better results[...] (Dr. Maman, director of the Earth and planetary image facility at Ben-Gurion University).

Secondly, many people with similar professional visions and experiences, like green tech entrepreneurs or academics, took part. These similarities created a foundation for developing joint projects and personal relationships. Recalling an event where Emirati and Israelis working in renewable energy and green tech met at the annual conference of the Dubai Water and Energy Authority, the Israeli entrepreneur, Mr. Barak, said: "The Emiratis had met zero Israelis; if you're an Emirati in that field, and suddenly a thousand Israelis come to your door, and they're doing amazing stuff, and it aligns totally with your vision, you develop interpersonal relationships. That's the foundation of peace."

In contrast to political or security-related cooperation, engaging on environmental topics has the advantage of being less controversial. Furthermore, it is more widely accessible, which paved the way to enhanced interpersonal relations. "So, I think consensus building on environmental issues is easier than consensus building on political security and economic issues" (Dr. Janardhan, Senior Research Fellow, Anwar Gargash Diplomatic Academy). These events often also acted as an educational space and aimed to advance knowledge about sustainability, setting the foundation for concrete EC projects (Neaman, 2022).

Conferences in which Israel and the UAE participated on environmental topics also had the ambition to enhance both countries' reputations as leaders in climate action and showcase their expertise in the green tech and renewable energy fields. Besides, experts emphasized that these events were used to communicate to their allies in the US and EU their commitment to fulfill climate targets (Zumbragel, 2023). An example is the signing of an MOU at Abu Dhabi's annual sustainability week between the Israeli renewable energy company EDF Renewables Israel and the state-owned Emirati renewable energy company Masdar. The companies agreed to collaborate on existing and future renewable energy projects (Leichman, 2022).

While many of these events were designed to unite Israelis and Emiratis, several regional conferences occurred too. The UAE hosted major regional events, including the first-ever MENA climate week in 2022 that focused on resilience against climate risks and the transition to a low-emission economy, including also Israeli speakers and participants. At the same time, one of the event's main partners was the League of Arab States (LAS) Secretariat and the Islamic Development Bank (IsDB) (MENACW, 2022), connecting countries and entities with ideological differences and conflict through climate action.

EXPO 2020 hosted by the UAE also provided an important public platform for the Israeli and Emirati environmental communities to meet

and to showcase this alliance to the rest of the world. Sustainability was a key priority for the UAE's design of the EXPO. One of three key themes was "sustainability", and also the aesthetic of the EXPO was dominated by green architecture. An example was one of the main attractions, the Terra Pavilion, which was built to capture energy from sunlight and fresh water from humid air. Additionally, the EXPO featured thematic weeks, where four out of ten weeks were about environmental topics, such as the "climate and biodiversity week" or the "food, agricultural and likelihood week" (World Expo, 2021). Israel held one event during the latter week, in which Israel's agricultural tech sector and its research on producing healthy food under extreme weather events and in the midst of the climate crisis were discussed. The event featured senior officials of the Ministry of Agriculture, KKL-JNF, green tech entrepreneurs and researchers (TradeArabia, 2022).

Israel, Jordan, and the UAE held a signing ceremony for an MOU on a sustainable infrastructure project between the three countries (Times of Israel, 2021). The EXPO, therefore, was also used to express public commitment to sustainability and EC. The upcoming COP28 in Dubai emerges as a crucial juncture in regional diplomacy. Significantly, this conference will herald the first official visit of Prime Minister Netanyahu to the UAE since his far-right coalition came into power in December 2022. The intensifying discord between Israel and the Palestinians has prompted the UAE to defer previously planned visits, indicating a discernible pivot in their stance towards Israel.

Key stakeholders from the international community, including representatives from EU nations and the US, have been galvanized. They are actively devising strategies to enhance EC among Israel, the UAE, and other regional counterparts. In light of the mounting strains and ebbing diplomatic ties between Israel and the UAE, COP28 is poised to act as a bridge, aiming to foster dialogue and boost climate collaboration throughout the Middle East. Both Israel and the aforementioned third-party nations are deeply committed to this endeavor.

The upcoming events will provide insight into the diplomatic calculus of the region. It remains to be seen whether the UAE, reminiscent of their participation in the EXPO or Climate Week, will publicly endorse or further nurture their alliances with Israel.

### 3.7.3. Academic and research collaboration

Most academic collaboration schemes include guest lectures by professors from Israel and the UAE. The interviewees also suggested or mentioned future student and professor exchanges and joint environmental research projects. While some institutionalized agreements between universities have already been signed, such as the marine sciences and natural resource management cooperation between the University of Haifa and Zayed University in Dubai in November 2021 (University of Haifa, 2021), most initiatives seem to be the product of effort by individual professors. One of the main effects of these collaborations and proposed research projects is enhanced knowledge of environmental issues by increasing the pool of expertise and access to data and capacities. International reputation, university ranking and funding opportunities also improve.

Student exchange programs are also expected to have a significant impact on EC. A Qatar-based sustainability researcher, and climate youth educator, emphasized that more should be done in ecological collaborations on the grassroots and youth levels. He argues that it is especially crucial to involve the young generation in the exchange between the countries, as their perception of the Israel-Arab conflict is still malleable and as they will be the generation most affected by climate change.

Several professors discussed failed initiatives for interinstitutional collaboration. The reasons mentioned were meager capacity, lack of funding, or unclear processes for officially establishing academic collaborations. While commercial environmental projects have revenue streams to push projects forward, scientific exchange depends on donors, university endowments and state money. The willingness of both sides to launch joint academic projects was repeatedly emphasized,

despite the absence of sufficient resources. Dr. Boldi and Dr. Alghafli, professors at Zayed University in Dubai advocated starting a project: "[...]you will get half a dozen faculty members right here that are willing to contribute to a project [...]".

### 3.7.4. Multilateral and institutional collaboration

Experts emphasize the importance of institutional EC as a peace-building tool for both Israel and the UAE, as well as the broader region. Both nations have engaged with global environmental institutions such as IRENA, UNDP, and UNEP even before the Abraham Accords. However, post-2022, in the wake of the Abraham Accords, several new collaborative platforms have emerged.

The Negev Forum, comprising the US, Bahrain, Egypt, Israel, Morocco, and the UAE, was established to bolster regional relations and integration. It emphasizes economic and diplomatic collaboration, with a distinct focus on EC areas, notably food, water security, and clean energy. Notably, however, there has not been a distinct climate change working group.

Another significant platform is the I2U2 Group, a collaboration between India, Israel, the UAE, and the US. This group is predominantly economically driven, honing in on water, energy, and food security collaborations. Furthermore, the MENA Climate Week (MENACW) is part of the UN's Regional Climate Weeks. The inaugural MENACW was held in the UAE in 2022, with Israeli participation. The upcoming 2023 edition is slated for Riyadh, with Israel's participation still pending. (UNFCCC, 2023).

These platforms signify a growing regional and international emphasis on collaborative efforts targeting climate issues, especially surrounding food, water security, and renewable energy. However, there is an evident lack of a unified, comprehensive structure. Within the Negev Forum, the exclusion of crucial stakeholders, such as Jordanian and Palestinian entities, poses concerns regarding thorough regional integration.

Amid these emerging platforms, enduring historical challenges persist and may even amplify. Regional EC initiatives often face resistance due to the ongoing Arab-Israeli and Israeli-Palestinian conflicts. The Negev Forum faced setbacks; notably, Morocco canceled the annual meeting a year after its inception. Reports suggest this was influenced by Israel's decision on a streamlined process for settlement construction and the far-right coalition government under Netanyahu. Previous endeavors, like the Middle East Desalination Research Center (MEDRC), highlight the interplay of EC's impact and these geopolitical tensions. External support is paramount to navigate these challenges. Experts recommend EU and US intervention and endorsement. The involvement and reaction of Saudi Arabia towards the institution will play a critical role. Next to Israel, the UAE, and Qatar, Saudi Arabia aims to become a regional leader on climate action. (Katulis et al., 2023) Several experts suggested that successful collaboration between the UAE and Israel on sustainability projects could also persuade Saudi Arabia to collaborate with Israel on such issues. Other experts believed that Saudi Arabia could feel threatened by the increased influence of the Israel-UAE EC and therefore try to sabotage it (Times of Israel, 2021b).

### 3.7.5. Obstacles to Collaboration: The Israeli-Palestinian conflict in comparison with historic EC attempts

A pivotal question to consider is the fragility of the EC between Israel and the UAE in light of past EC attempts between Israel and its neighbors. Significantly, the nature of EC between Israel and the UAE is different from past EC attempts. As discussed earlier, many historic EC arose from shared transboundary challenges that could only be addressed through mutual cooperation between Israel and Jordan, the Palestinian Authority and Egypt respectively. Often, these ECs were constrained by mutual distrust and fears of national sovereignty violations, thereby limiting their scope (Feitelson & Levy, 2006). A notable distinction from past EC attempts lies in the balance of interests, expertise, and power, which is different from Israel's relations with

Egypt, Jordan, and the Palestinians.

The EC between the UAE and Israel intertwines with political, economic, and civil motivations. Both Israel and the UAE are at the forefront of environmentally sustainable technologies and prioritize R&D investments in this domain. Both nations aim to spearhead climate action in the Middle East, bolster regional influence, achieve legitimacy, and stabilize ties with the EU and US. Economically, they acknowledge the shared benefits of EC in fortifying livelihoods and diversifying economies. Both countries seek to combat similar environmental issues and diversify their energy sectors. Especially the political and economic elites but also a significant part of the civil society in both nations discern the advantages of collaboration in realizing these visions. Thus, EC stems not from necessity but from overlapping interests across various domains. Conversely, historic EC between Israel and its neighbors was often a result of the necessity to address specific issues. Moreover, in these historic relationships, the power dynamics, especially concerning resources and expertise, largely favored Israel. In the Israel-UAE context, there is a more balanced relationship motivated by shared interests.

A pivotal consideration is the role the Israeli-Arab and Israeli-Palestinian conflict plays in determining the success of EC as a peace-building tool. One must discuss the extent to which the deteriorating Israeli-Palestinian conflict might impact EC's potential as a bridge between Israel and the UAE. A salient difference between the UAE and Israel's historic neighbors lies in the UAE's unique relationship with the Israeli-Palestinian conflict. The UAE, unlike Egypt or Jordan, has never been militarily engaged with Israel. Furthermore, the UAE's disillusionment with the Palestinian Authority, their regret over supporting Iraq in the Gulf War, and their concerns over Hamas's proximity to Iran have been cited as reasons for their openness to cooperation (Barany, 2020; Ketbi, 2020; Jones & Guzansky, 2020, p.82–91). The significant expatriate community in the UAE, which remains detached from the conflict, further diminishes public resentment towards Israel (Guzansky and Feuer, 2020).

Actions of the Israeli government in late 2022 and in 2023 elicited negative responses from several countries in the region, the UAE included. This led the UAE to publicly denounce Netanyahu and to suspend several collaborations, including those in the environmental domain. Such impacts are palpably evident in high-profile, multilateral ECs involving other regional countries, as observed in the stagnation of the Green-Blue prosperity deal—a solar-energy collaboration involving Israel, Jordan, and the UAE. This initiative has not seen significant progress mainly due to resistance from both the Jordanians and the UAE. Another noteworthy example is the Negev Forum. This EC initiative encountered setbacks when Morocco first postponed, and then in June 2023, canceled the annual meeting, arguably influenced by Israel's pro-settlement policies and the staunch stance of the Netanyahu administration. Nonetheless, while several EC partnerships have been temporarily halted, many continue to progress, especially on the commercial front. Notably, there has not been a sweeping public announcement on retractions from EC. Experts from Israel, and the EU continue to hold a positive outlook on the UAE's eagerness to collaborate with Israel, both bilaterally and multilaterally, especially on environmental and climate-related matters. Experts highlight the imperative of forging more substantial collaborations that go beyond mere symbolic agreements to realize the complete potential of EC. (Katulis et al., 2023).

Past initiatives, such as the Middle East Desalination Research Center (MEDRC), underscore the intricate relationship between EC and broader regional geopolitical challenges. While the present ECs between Israel and the UAE are comparatively less influenced by the conflict, they offer a meaningful avenue for dialogue spanning political, economic, and civil society dimensions. For a more profound and enduring cooperation to take root, it is essential to address the underlying Israeli-Palestinian conflict. In the absence of a resolution, collaborations are likely to remain surface-level, restricted largely to ventures that offer immediate economic gains.

Overcoming these challenges requires external assistance. Experts advise seeking EU and US intervention and support. Government officials in the EU and US have been considering ways to bolster regional EC. Regional organizations are actively approaching EU and US entities for capacity-building, and political, and diplomatic assistance in this challenging scenario.

The main differences between the Israel and UAE EC and past historic EC attempts are threefold. First EC between Israel and the UAE is far less negatively affected by the Arab-Israeli and Israeli-Palestinian conflicts. Second, Israel-UAE EC benefits from symmetries in power relations, mutual interests, and expertise and capacities. Consequently, these positive attributes ensure that cooperative intentions are not hampered by distrust. Lastly and perhaps most significantly, the heightened importance of climate action on the international stage positively influences the EC between these countries. The prominence of this influence is underscored by events such as COP28. Moreover, international stakeholders show a keen interest in supporting regional and multilateral collaborations, especially between the UAE, Israel, and recognizing the mutual economic advantages acknowledged by both nations.

#### 4. Mechanisms & peace dimensions

Based on our empirical examination and prior experiences with EC in the MENA, we connect our findings to EC mechanisms and peace dimensions. We initiate our analysis with the five mechanisms delineated in our framework, as illustrated in Diagram 1, which we employ to scrutinize the pathways through which EC can guide the peace dimensions: symbolic reconciliation, climate change capabilities, and substantial integration (Ide, 2018; Johnson et al., 2021).

##### 4.1. Trust and cooperation

Through interviews with experts, it becomes evident that EC has played a pivotal role in enhancing trust and collaboration on various societal levels. This has significantly contributed to the evaluation of peace agreements between nations.

At the civil society level, EC has demonstrated its capacity to foster trust and collaboration between countries. Specifically, platforms such as webinars, conferences, student exchanges, and academic partnerships have facilitated interactions between residents, enabling the exchange of ideas and connections. Interviewees emphasized the power of collaboration in sharing common visions regarding climate change and green tech entrepreneurship, thereby reducing stereotypes and fostering trust. Experts have also suggested potential pathways to further augment this civil-level collaboration. For instance, the exchange of women professionals within the environmental sector has proven to expand networks and serve as a source of inspiration. This is particularly true in regions like the MENA where female environmental experts are scarce. Additionally, experts recounted instances of securing funding through EC partnerships, highlighting opportunities that may not have been feasible within their respective countries.

EC also serves as a moral underpinning for peace agreements, particularly in conflict-prone contexts, by promoting a narrative of cooperation and shared goals in combating climate change. This foundation facilitates positive economic and environmental spillover effects, leading to increased revenues, trade prospects, and employment opportunities within the sustainability sector.

Dr. Janardhan elaborates on how EC resonates deeply with ordinary lives, transcending mere economic impact. He emphasizes that matters such as food security, renewable energy, and desalination hold significant relevance for the well-being of individuals.

These observations are consistent with Krampe et al. (2021), who applied the psychological concept of the "contact hypothesis" to environmental peacebuilding (EP). The hypothesis posits that, under the right conditions, interpersonal contact is an effective method to



diminish prejudice between conflicting groups. Cooperation and contact encourage perspective-taking and understanding of a shared goal. It also deepens knowledge about the opposing side and alleviates anxiety.

Furthermore, EC contributes a moral foundation to peace agreements, which proves especially significant in light of historical tensions and perceived betrayals. In contrast, EC introduces a narrative wherein both nations collaborate for the collective objective of addressing climate change and advancing regional climate resilience. Such shared endeavors foster a sense of unity and common purpose, countering existing divisions.

Transitioning to the private sector, EC offers avenues for entrepreneurs, employees, and businesses to reap financial benefits through green technology partnerships and trade. This approach transforms collaboration with Israel into an innovative pursuit that aligns with shared ambitions, creating greater sympathy, trust, and incentives for further cooperation.

Kacowicz et al. (2000) propose that a stable peace relies on direct benefits for elites. EC accomplishes this by involving Emirati elites in environmental initiatives, through partnerships with prominent companies like Mubadala Development Company and Masdar power. Members of political and economic elites are key players in these organizations, ensuring their vested interest in EC's success.

Moreover, EC grants countries international legitimacy by embracing climate action. Achieving net-zero emissions or implementing green infrastructure projects signals alliance with global agendas, strengthening relations with key allies such as the US and EU. The Green New Deal of the Biden administration and the European Green Deal further emphasize this commitment. Consequently, experts assert that EC reinforces Israel and the UAE's alignment with climate action visions, enhancing their standing on the international stage.

In terms of regional legitimacy, environmental assistance from both nations aids climate resilience and sustainable job creation, positively influencing perceptions of the Abraham Accords. This approach underscores the impact of EC on regional dynamics and attests to its role in fostering collaboration and trust (Dubai Electric and Water Authority, 2019; Federbush & Muys, 2012; Oded, 2009; Krzymowski, 2022; Trends Research & Advisory, 2021; WAM & Saleh, 2022).

#### 4.2. Sustainability

Partnerships have been formed in the realm of water and food security, green technology, extending to collaborations in transitioning to renewable energies and hydrogen partnerships. Given the interconnectedness of most partnerships with economic motives, there is, however, a tendency to overlook environmental projects that offer fewer financial benefits, such as nature conservation and circular economy solutions, which if addressed could further enhance the sustainability of both countries.

In the EP literature, the majority of collaborations revolve around shared resource management, aimed at alleviating or preventing conflicts stemming from, for example, disputes over water and land resources (Feitelson & Levy, 2006; Ide, 2018; Johnson et al., 2021). In contrast, Israel-UAE collaborations predominantly center on green technologies and research and development (R&D), enabling both nations to enhance their capabilities and expertise in managing environmental challenges. Consequently, many of these collaborations contribute significantly to the Climate Resilient Peace Dimension.

#### 4.3. Economic development

Economic development from EC derives from well-governed natural resources, which are critical to sustaining livelihoods and providing public infrastructure and services. They can also attract foreign investments and international aid (Johnson et al., 2021). In the case of Israel-UAE, on a micro-scale, trading, and collaboration on green tech leads to financial dividends for the companies and their employers but

also enhances the governance of natural resources and secures livelihoods. Experts we interviewed, however, state that the larger economic potential derives from acquiring proficiency in green technology, given the anticipated surge in global demand for such innovations. Furthermore, the green tech and renewable energy sector diversifies UAE's oil-based economy. EP literature largely ignores the potential of private sector cooperation for environmental peacemaking and also the macroeconomic implications of EC, which in the case of the UAE and Israel are significant since trade with third countries is expected to increase.

#### 4.4. Environmental knowledge

EC between Israel and the UAE currently enhances knowledge at two levels. First, conferences, webinars, and lectures are advancing education on environmental issues and relevant solutions. They facilitate knowledge by inviting speakers from both countries and from different disciplines. Secondly, collaborating on environmentally sustainable technologies enhances technical knowledge on renewable energies, green tech and better governing resources and becoming climate-resilient.

#### 4.5. Institutions

Israel and the UAE are forging a stable pathway toward institutionalizing their EC. Most collaborations between the countries have taken shape through formal agreements, such as partnership initiatives signed between the governments or the private sector, and joint endeavors in research and development. These joint efforts have emphasized areas like desertification, water scarcity, renewable energy, climate data sharing, and numerous other challenges.

There has been a focus on establishing joint research organizations, platforms, and regional forums. Although many of these initiatives have been agreed upon, they remain either unimplemented or are currently on hold or canceled. Noteworthy regional initiatives include the Negev forum and the Middle East Climate Week. Additionally, multilateral long-term projects, such as the Water-Energy Nexus, hold potential for fostering stable and lasting collaboration when implemented.

The true challenge lies in strengthening long-term diplomatic ties and securing these regional platforms, which are currently the ones most vulnerable to dissolution.

Based on the analysis, we argue that EC through a combination of all mechanism has a significant potential to enhance climate resilient peace in both countries and enhance both countries relations through symbolic reproachment. These relations are visualized in Fig 1, which also gives a short description of the peace dimensions.

#### 4.6. Symbolic rapprochement

UAE's government and parts of Israel's civil society and political leadership perceive themselves as leaders in modernization, innovation, and technology in the Middle East. This is also reflected in their sustainability strategy. Both countries have recognized the potential to increase domestic and international legitimacy by committing to climate targets, participating in environmental international institutions, and developing innovative green technologies and sustainable "mega" projects, such as huge solar parks or sustainable cities (Zumbragel (2023)). Both countries recognize each other as partners to further build their reputations as climate action leaders. The leadership promotes this shared self-understanding through media reports, press releases, and public signing ceremonies. Since Emirati leadership is currently distancing itself quietly from Israel's government, we believe EC can still provide a platform for continued public collaboration, because of the symbolic meaning of climate change collaboration, international engagement and the economic spillovers of EC.

The numerous conferences, webinars, and private-sector collaborative platforms between Israelis and Emiratis have been instrumental. We

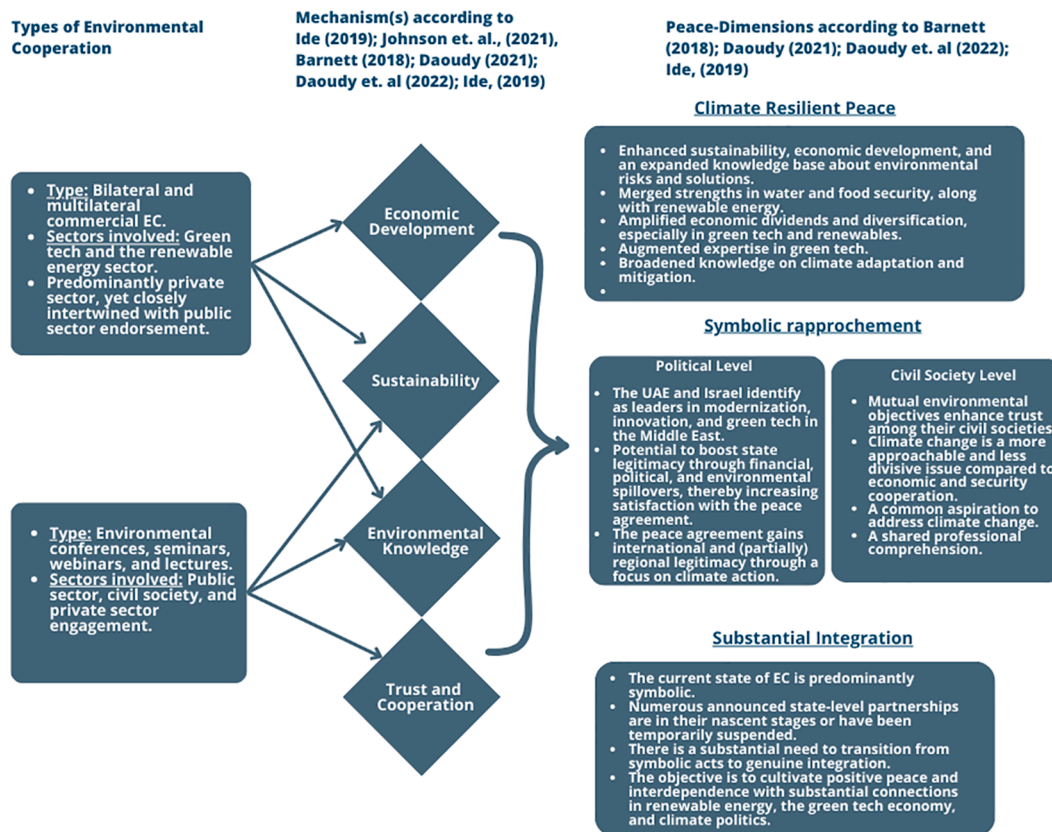


Fig. 1. Connecting EC with mechanism(s) and dimensions of peace.

find that collaboration on environmental issues is perceived as less controversial than commercial collaboration and is more accessible to most people than security cooperation. The interviewed experts indicate that the people who take part in environmental events often align with their vision and mission to combat climate change and support each other in creating innovative and profitable green technologies. This shared professional and educational vision also leads in the opinion of experts to more understanding, and trust between the civil societies in both countries. Nonetheless, as most of UAE's sustainability strategy is driven by political and economic elites, currently only a limited circle of the most educated and financially and politically powerful are a part of this process. Making UAE's sustainability strategy more participatory, just and equitable would further increase and strengthen a symbolic rapprochement also on a civil society level and more acceptance of and satisfaction with the peace agreement. Our findings, nonetheless, suggest that EC can be a beneficial tool for both countries to consolidate peace through the real and symbolic benefits of cooperation.

#### 4.7. Climate resilient peace

The pressing challenges of climate change have catalyzed a collaboration between Israel and the UAE. Their synergized expertise in key areas such as water and food security, as well as renewable energy, underscores the potential of both bilateral and multilateral environmental partnerships in the MENA region. By merging their technological expertise, financial capital, alignment with international treaties like the Paris Agreement, and leveraging strong ties with global powers like the EU, US, and India, both countries are emerging as important actors in the global climate arena.

The UAE's standing and credibility in the MENA region legitimize Israel's collaborative overtures with other regional partners, especially for environmental projects. For more impactful regional climate action, there's a pressing need to establish institutions and platforms that not

only share environmental data but also coordinate emergency responses to environmental disasters. Enhanced dialogue and a coordinated regional strategy for climate change are also essential. Historical forums such as MEDRC, the Negev forum, and the I2U2 forum offer a glimpse into the potential of such collaborative platforms. A holistic climate platform that caters to the extensive regional interests, without being scattered across various formats, can amplify these efforts.

#### 4.8. Substantial integration

Currently, the established Economic Cooperation between the countries remains largely symbolic. While there is EC occurring especially at the private sector, large-scale state-level initiatives have been mostly symbolic, with many announced partnerships, institutions, and joint research centers only at formative stages. Implementing these initiatives demands elaborate coordination between the countries and a commitment of public resources. However, these commitments have yet to materialize, with many collaborations and agreements on hold. On the multilateral front, initial steps towards integrating the UAE and Israel into regional and international EC frameworks are evident, such as in the Negev forum or the trilateral deal among Israel, Jordan, and the UAE. Yet, these initiatives are either not fully realized on hold, or canceled. The aim is to shift from symbolic actions to true integration, promoting positive peace and interdependence between the states, underlined by tangible institutional and *trans*-societal ties. However, the ongoing Israeli-Palestinian conflict and the actions of the far-right coalition government in Israel present significant obstacles to this integration, especially in the context of broader multilateral goals. To maximize the benefits of EC, it is essential to address the Israeli-Palestinian conflict, accompanied by enhanced incentives for climate collaborations that consider Palestinian concerns.

## 5. Discussion and conclusions

In the wake of the Abraham Accords, the Israel-UAE relationship offers a fresh perspective on EP. While traditionally climate change has often been seen as a catalyst for conflict escalation, the interactions between Israel and the UAE in the first three years post-accords suggest that climate change and EC can also help bolster peace. This becomes a particularly intriguing case in EP studies when considering that these nations do not share borders or resources and have never engaged in direct violent conflict.

Israel and the UAE have shown the intertwining of EC with economic progress, notably in the green technology and renewable energy sectors. Both countries, with their advanced environmental technologies and substantial investment in R&D, exemplify how EC underpins economic diversification. Their ambitions to lead in Middle East climate action and gain regional influence coincide with a mutual desire to solidify relations with global powers like the EU and US. This displays the financial incentives of EC, coupled with the geopolitical benefits. The role of private sector cooperation should be further explored in EP literature since the case study here points to its potential, but most of the international EP papers focus on state and civil society as the main actors in EP.

The International momentum towards climate action has grown considerably, seen as a key pillar to secure international stability and human wellbeing. It is also seen as essential in the fourth industrial revolution and vital for a shift from oil-dependent to green economy. Our study emphasizes the importance of incorporating “climate resilient peace” as a peace dimension. This is because such measures directly impact livelihoods, national security, and numerous other peace-related aspects.

Yet, challenges persist. While initiatives like the Negev Forum and I2U2 Group signal a growing commitment to address environmental issues collaboratively, the lack of participation from other regional players and the overshadowing Israeli-Palestinian conflict present significant hurdles. Expert opinions highlight the need for external involvement, especially from the EU and the US, to maneuver these complexities and enable not only bilateral EC but multilateral EC.

Factors accentuating the success of the Israel-UAE collaboration include the symmetry in their power and expertise, their genuine motivation to cooperate, and the absence of any historical violent confrontations. These dynamics allowed for the effective promotion of EC and public awareness, fortifying the impact of EC on symbolic rapprochement between the nations.

The limitations of this study, to be addressed in future work, relate to insufficient diversity among the interviewees, especially on the Emirati side. Social desirability may also be a concern (Salazar, 1990) as well as economic interest. Speech may be limited on the Emirati side due to a lack of political freedoms. Certain negative effects of EC are also discussed in the literature and should be further considered in future work, such as depoliticization of the conflict, displacement of people, discrimination of marginalized groups, and deterioration into conflict (Aggestam & Sundell, 2016; Ide, 2020; Johnson et al., 2021). While we delved into national capabilities built through EC, how these efforts trickle down to individuals remains an open question too.

Drawing on our findings, we posit that EC has the potential to influence not only bilateral but larger, multilateral contexts. As we look beyond the Israel-UAE case, it indicates that EC’s potential goes beyond immediate economic benefits. It paves the way for broader collaborations, potentially roping in major regional players like Saudi Arabia and global powerhouses like the EU and US. Emphasizing the exploratory nature of our research, it becomes imperative to continue examining these dynamics, as they can shed light on the wider applications of EP across the region and beyond.

## CRedit authorship contribution statement

**Udi Sommer:** Data curation, Formal analysis, Funding acquisition, Investigation, Supervision. **Francesca Fassbender:** Writing, Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

Data will be made available on request.

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## *Environmental Peacebuilding Reconfigured*

Moving Beyond Resolving Violence-Ridden Conflicts to Sustaining Peace

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