THE SHARED HOMELAND PARADIGM

ארץ לכולם بلاد للجميع
A Land for All

Background Paper for
The Shared Homeland Paradigm Project[i]:

Searching for Mutual Partnership Beyond Borders through an Embrace of the Non-human Commons

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Abstract

This essay asks whether and how ecological conditions can form the basis for cooperation across social, spatial, and political borders and boundaries. Using case study materials from various parts of the world, and with a particular focus on water, this paper seeks to identify the social, political, economic, and ecological conditions under which cooperative water practices might strengthen collective partnerships or shared habitability goals across political boundaries. To answer this question, we not only focus on water infrastructures and how they are managed. We also examine power differentials and the institutional and scalar context in which political authority over water infrastructure is embedded. Beyond identifying the jurisdictional scales at which water cooperation versus conflict is most likely to emerge, using a comparison of local, regional, national, and transnational territorialities of action, we ask whether the formal acknowledgement of political authority at one or more of these scales may be a necessary pre-condition for cooperation to emerge. We use these reflections to generate new questions about the relationship between sovereignty, or governance arrangements, and ecological cooperation -- both as analytic subjects of inquiry and as normative prototypes for securing more peaceful futures. By so doing, we consider whether shared ecological precarity might form the basis for new forms of socio-territorial unity transcending existent socio-political divides, at what cost and with what temporal durability. We ask what forms or scales of governance and sovereignty are most effective in addressing water, and consider that such knowledge might provide the basis for the formation of new territorialities of governance in the Anthropocene that are better positioned to secure a more sustainable, cooperative, and just future? In addition to highlighting the possibility that ecological agreements may be more easily forged between distinct sovereign nations than within existing states and their citizens, where authority is often fragmented across municipal and sub-national jurisdictions lacking enforcement capacity, the paper concludes with a discussion of the ways that centering ecological governance and the embrace of an ecological commons at a regional scale (larger than a locality but smaller than the nation-state) might be marshalled to advance greater citizen cooperation, solidarity, existential security, and thus a shared ecological future.

Introduction

Water is the basis for life. Without water, there is no human existence. But water is also difficult to manage, let alone govern. It does not confirm neatly to political boundaries, it has no ethno-national or social identity, and it establishes its own territorialities – often in the form of constantly shifting riverine ecologies, aquifers, or coastlines that transcend or extend beyond man-made jurisdictional boundaries even as they shift over time. Water, in short, exhibits a form of agency that cannot be easily controlled through fixed jurisdictional mandates and conventional political logics. This is especially so in

the contemporary context of climate crisis, where cities, regions, and nations around the world are struggling with either too much water, too little water, or at times both. The question is whether water as a resource has sufficient agency to enable or sustain human cooperation, shared co-existence, or mutual guarantorship across fixed politico-jurisdictional boundaries, particularly among those whose governance aims, identities, and/or territorial aspirations may otherwise be defined by conflict.

In exploring these questions, we acknowledge that states have long exploited nature to supplant their hegemonic aims --often at the expense of human and non-human existence and with minimal attention to goals other than the accumulation of political and economic power. The histories of empire, colonialism, and even modern capitalist state formation are predicated on efforts to extract, control, or monopolize ecological resources of peoples and territories, often beyond the occupiers' sovereign reach and in ways that often make human existence even more precarious.[ii] Yet at the same time, recent writings on hydrosolidarity and hydrosocial territoriality suggest that ecological conditions can sometimes mobilize citizens to organize around common aspirations for habitability,[iii] thus laying some groundwork for cooperation even within established governing authorities that might dictate otherwise. The question, then, is which political logics or territorial scales of action are more or less likely to generate cooperative water governance, how and why?

This background report prepared for the Shared Homeland Paradigm project addresses these questions with a preliminary overview of evidence drawn from four different regions of the world where water management has required some sort of cross-boundary cooperation – India and Pakistan; Texas, the US Southwest, and Northern Mexico; the Nile River Valley; and Israel and Jordan. We seek to identify the social, political, economic, and territorial conditions under which concerted efforts to secure access to water flowing beyond established political boundaries will strengthen -- as opposed to weaken – cooperation and a shared existential future. Among the factors we analyze are the distinctive water ecologies and political geographies under contestation, as well as the resource levels, bargaining powers, and governance priorities embedded in efforts to manage water. In addition to identifying the politico-jurisdictional scale at which water cooperation versus conflict is most likely to emerge -- using a comparison of local, regional, national, and transnational territorialities of action -- we ask whether formal recognition of political authority at one or more of these jurisdictional scales may be a necessary pre-condition for shared partnership or cooperation to emerge.

In a preliminary overview of our four regions, we arrived at a somewhat paradoxical -- or at least counter-intuitive -- conclusion: water conditions that bring vying nations to the table may actually set the basis for more cooperation than water conditions that engage actors and institutions within a single nation. We use the term

paradox because many scholars assume that different countries will inevitably hold divergent political needs or even competing existential urgencies, built on nationalist priorities that can get in the way of cooperation, leading to what one political theorist of hydro-politics calls "water nationalism."[iv] In contrast, residents of the same country might be expected to identify a common national history, fate, or shared concern about existential futures, thus laying the groundwork for greater cooperation. Based on that logic, one might expect water resources inside a single country would be easier to manage cooperatively than water resources that cross sovereign borders. However, our cases suggest that cross-national border settings are more likely to facilitate cooperation, in no small part because of the higher stakes that elevate disputes to formal negotiating exercises monitored by rules-based expectations. In contrast, sub-national settings have been more likely to be riddled by a multiplicity of institutional mandates that lay the groundwork for conflict that is difficult to avoid, particularly at the municipal scale where local pressures for accountability often impede cross-boundary cooperation, leading to less coordination and greater conflict fueled by zero-sum local politics.

The bulk of this report elaborates on these and other findings to reveal how and why cross-boundary cooperation between national states has been more likely than cross-boundary cooperation within a single nation.[v] In addition to identifying which scale of governance is more likely to accommodate multiple forms of knowledge, a willingness to accommodate forces beyond human dominion, and an understanding that water systems have their own territorial logics, we examine the role of formal treaties, political negotiations, and third-party actors in generating these outcomes. Our aim is to theorize how the existence of these and other political and institutional conditions reinforce or reduce competition and conflict over water. In the process, we identify the strategies and tactics frequently used to frame cross-national cooperation over water, ranging from the formation of ephemeral versus fixed treaties and agreements, the formulation of legal discourses that embody inclusive rhetorics and acknowledge difference, the existence of legal pluralism, and the reframing of water cooperation as the basis for benefit-sharing rather than for strict allocation goals.

In the final section of this report we revisit larger questions of sovereignty and governance, suggesting that both fragmented governance and drastically unequal power balances across jurisdictions are barriers to cooperation, whether within or between sovereign nations. Beyond supplanting the argument that not all national sovereignties are alike with respect to shared water governance, we discuss the ways that `hard' national sovereignty may, under certain conditions like war or economic crisis, reduce the potential for cooperation or partnership if not foreclose it entirely, even as `softer,' more negotiable, and less stridently hegemonic forms of national sovereign interaction will be more likely to generate cooperation. We use these final

insights to turn our focus to other territorialities of governance that may be better suited for simultaneously overcoming the limits of both hard and soft sovereignties and local versus national scales of policy action. Specifically, we suggest that governance arrangements at the regional scale are more likely to generate hydrosocial solidarities that can offset the power dynamics attached to both local and national political decision-making, thus providing another pathway for robust and effective cooperation over water in a world where longstanding forms of national sovereignty may be edging into crisis and under threat from both within and without.

Human Flourishing in a World of Precarity: Water as Life

In recent years some of the most extreme and traumatic disruptions to everyday life and livelihood have been set in motion by climate change, with war and violence a close second. In both cases, external forces wreak havoc on territory and land use in ways that impede human flourishing.[vi] With respect to climate change, challenges set in motion by shifting hydrological conditions have been among the most devastating impacts on the territory, with too much or too little water actively transforming peoples' capacities to maintain longstanding relationships to land, work, and home. Whether set in motion by hurricanes, sea-level rise, flooding and landslides or by extreme heat and draught, unprecedented water patterns can render destruction and foreclose futures in ways that often parallel the obliteration of people and places at war. And while not all parts of the world have experienced both these challenges, it is noteworthy that in some locations – consider Sub-Saharan Africa, Syria, and other parts of the greater Middle East – struggles to secure water for production and consumption have fueled and been fueled by conflicts over sovereignty, even as they have both driven migration and displacement. This has been particularly the case in settler colonial contexts but is also a larger trend as ecological changes set in motion by the Anthropocene reinforce the slow violence that is producing increasing numbers of climate refugees among the world's poorest, particularly in the global south.[vii] Controlling territory in these settings is key not just to political hegemony, it also guarantees access to natural resources necessary for agriculture, industry, and other economic activities that sustain other nation's economies and build individual and collective futures in one country on the backs of others.[viii]

Among those resources that have become more scarce -- but also more necessary for individual and collective flourishing, not to mention economic advancement -- water stands out. This is so not just because water is the key to human life and central both to the production of food and agriculture as well as industry and concentrated urbanization. In recent years demand for water is increasingly tied to accelerating demands for energy, which adds yet another urgency to securing or managing water resources. While historically, energy requisites have long driven conquest of land and territory, with demand for oil and gas leading the way, in the current era the search for

lithium and other minerals needed to fuel the IT revolution have recently turned water into a key resource in the growing global demand for energy. This in turn means that struggles to access, manage, or govern water are likely to lead to political tensions on multiple territorial scales, from the local to the national to the global. In this context, scarcity of water has accelerated political conflicts over who should control water and for what purposes.

A brief overview of water management practices shows that in most countries water is addressed by both local and national authorities, although their responsibilities may differ. National states are often responsible for major infrastructural investments in water management, such as dams and hydroelectric and even port facilities whose operations are critical to national economic growth, while municipalities are more focused on water conditions that mediate supply and demand of water in order to foster local economic growth, whether in rural or urban areas. Likewise, managing, controlling, or providing water for energy purposes is more likely to fall into national hands, while the tasks related to filtration, sewage, and underground access to water for public and private sector use tend to fall under the purview of local authorities. Depending on how centralized or decentralized a political system is, there may also be a third layer of governance that complicates the mix. In federal systems, for example, county, state or provincial authorities may have powers of their own with respect to water governance, which often means they mediate between municipal and national priorities. That different scales of governance have responsibility for water management thus raises a question: how do differentially scaled authorities manage the new challenges that come with climate-induced changes in water supply? Given the fact that water itself knows no political or jurisdictional boundaries -- despite the fact that it certainly has ecological boundaries defined by watersheds, aquifers, and hydrological systems that rarely align neatly with administrative borders -- the question of water management has increasingly become a cross-boundary endeavor. Precisely because of this we are beginning to see new conflicts and tensions over water sharing, many of which are set in motion by the mismatches in scale. So beyond asking about the extent to which 19th century institutional jurisdictions be used to offer policies and practices that enable human flourishing by managing a scarce resource like water, we must also consider whether one or the other scale of governance is better positioned to advance multiscale coordination so as to ensure water access in just and equitable ways, even if that entails serving constituencies beyond a given jurisdictional border?

To ask this question is to lay the groundwork for thinking about the role of ecological conditions in providing for shared and sustainable futures built on the collective embrace of human life, even when the resources for flourishing or the lives that will be enhanced are territorially situated outside one's formal governance mandate. And the ecological logics are key here: water may know boundaries, but not

political and jurisdictional boundaries, meaning that the task at hand is to align governance decisions with water ecologies, rather than vice-versa.

Again, if one were to situate questions about which scale of political decision-making would be most responsive to human concerns about sustainable water futures in the context of most social science literatures, such as political science for example, the standard argument would be that localized, democratic institutions offer the most capacities for doing so. Among scholars of democracy, moreover, let alone for most planners, the most decentralized forms of decision-making are considered to be the most inclusive and accountable with respect to promoting better and more just futures.[ix] These views are built on the assumption that the more localized the context of deliberation, the less scope for elite capture and the more likely the scope for inclusive voices and negotiation. However, such theories may not translate well into the water sector, precisely because most water management practices by definition will require some sort of cross-boundary deliberation; and while local municipalities may be well-positioned to respond to *in situ* demands from their residents about local conditions, they are less able to govern resources that involve or flow through other jurisdictions. Further complicating matters, as climate crisis accelerates and water becomes an ever more valuable resource, efforts to control access are becoming linked to fundamental struggles for economic and political dominion. This is especially clear in war contexts and/or regions of the world where control of water resources becomes the basis for asserting national political power.[x]. It thus may not be surprising that in a brief overview of water management practices across a variety of countries, we have found that municipalities are far less motivated to engage in water sharing practices with their neighbors than are national states, perhaps because for the latter jurisdictions the political and economic stakes are far greater, and thus the urgency to cooperate is more palpable.[xi]

A reformulated question thus might be: What specific conditions will enable or constrain cross-boundary cooperation in the service of shared futures; and might there be examples of water management practices that transcend entrenched political jurisdictions in ways that serve as a means for overcoming other forms of division and conflict that if left unresolved will foreclose human futures or derail human flourishing?

Cross-boundary Water Agreements: Differences Among Municipalities, States, and Nations

In the search for answers to these questions, we cursorily examined four different contexts where authorities were presented with water challenges that required cross-jurisdictional cooperation. We not only compare cross-boundary water management practices established by nations, undertaken by different states/provinces within a single nation, and those advanced by municipalities in a single state. We also identify

water practices in parts of the world where ethnonational tensions, nationalist rivalries, or class and cultural divisions held the potential to impact cross-boundary practices. For our cross-national examples, we analyzed warring neighbors (India-Pakistan), neighbors with historically tense relations (Israel-Jordan), and neighbors with relatively stable but asymmetric relations (US-Mexico). Our US examples focus on sites with uneasily co-existing jurisdictions, as between contiguous municipalities in Massachusetts and Texas, and between the southwestern states of the US impacted by a single riverine ecology, the Colorado River Basin. Our aim was to determine whether certain scales of governance – from local to national – were more or less likely to cooperate over water futures. In what follows, we examine these different scales starting with the most localized, Cape Ann Massachusetts, where municipalities within a single state are under pressure to coordinate over water management in the face of sea-level rise and flood disaster. We discuss the barriers to cooperation in a context where the fates of different municipalities are tied to each other, but where agreement remains elusive.

Cape Ann, Massachusetts. Cape Ann, Massachusetts (shown in Figure 1 below) is a seaside community of New England facing a range of water challenges set in motion by sea-level rise, ongoing flooding, an outdated sewer system, and immanent threats associated with changing sea temperatures making major storms increasingly common. As the US's oldest working port, as well as its oldest artist colony, Cape Ann has a visibility that generates considerable pride and a shared cultural identity, reflected in a nomenclature (Cape Ann) that has no political-jurisdictional equivalent but that exists in the cultural imaginary. As a region comprised of four socio-economically distinct municipalities, however, there exist several barriers to comprehensive or systematized cross-municipal cooperation.[xii] The four cities (Essex, Gloucester, Manchester-by-the-Sea, and Rockport) that comprise Cape Ann host competing industries, identities, ecologies, land use patterns, fiscal resource capacities, population demographics, and economic as well as social histories. Just as important, in some of these municipalities neighborhood-level activism is more vibrant than in others, and in some municipalities – particularly lower-income municipalities where authorities are frequently seen as advancing elite interests -- skepticism and mistrust of formal political authority, not just the municipality but also the state of Massachusetts, abounds. These attitudes have undermined efforts to cooperate across municipal borders. Likewise, within and across the four municipalities there are myriad yet distinct organizations that operate at very different scales and around very different concerns, further dividing civil society in ways that make municipal cooperation around climate concerns more difficult. To the extent that the majority of these organizations articulate their reasons for existence on the basis of work and/or social conditions in their communities rather than climate, they are also more committed to struggle over these problems – including housing and jobs -- rather than their municipality's, or the region's longer-term ecological future.

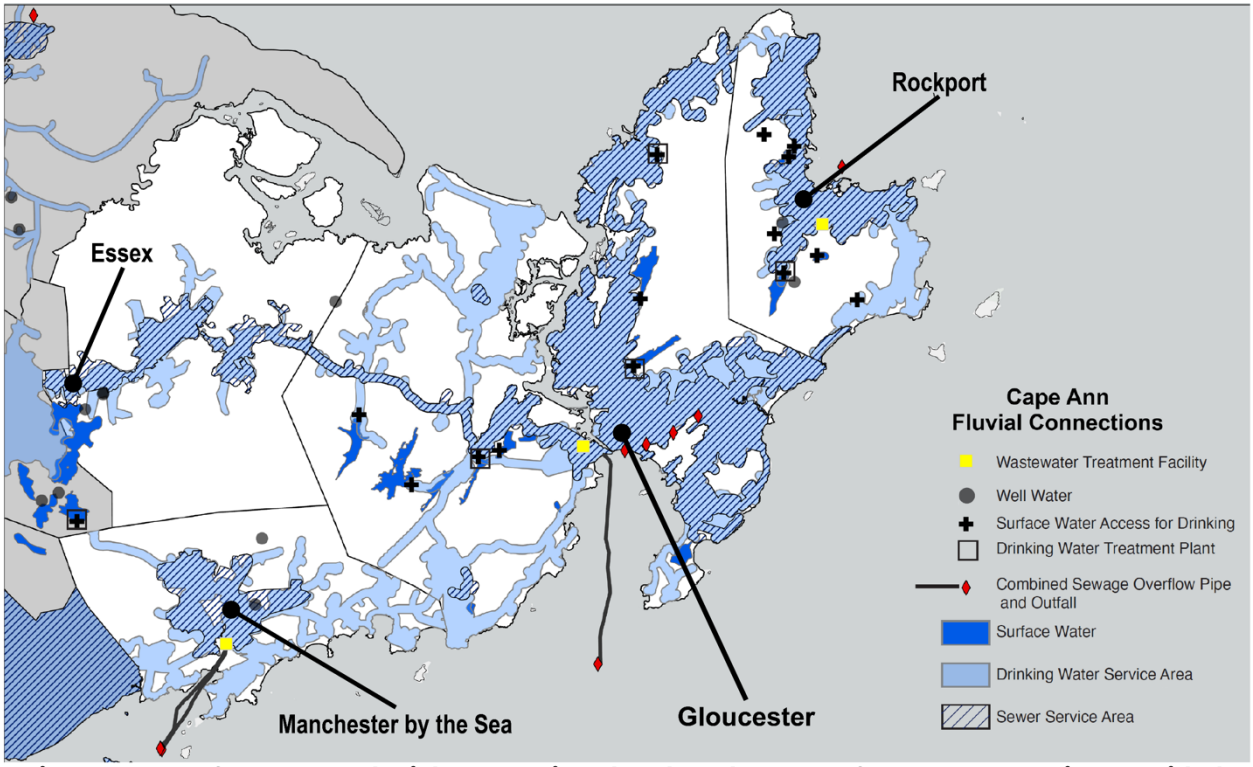

Figure 1. Map of Cape Ann Fluvial Connections by Clara de Castro, from a presentation provided to the authors (2025).[xiii]

Complicating this picture is the fact that the more regionally coherent county scale of governance, that would have been in a better position to manage water resources across several municipalities, was eliminated several years back. This change strengthened municipal-level institutions even as it reinforced more direct vertical oversight by the state. Not only has this reduced municipal authorities' willingness and capacities to cooperate horizontally; greater municipal autonomy occurring in the aftermath of the county's disappearance has in some cases helped to disenfranchise citizens from their own municipal leaders, at least in Gloucester, where residents feel that authorities do not listen to their voices – mainly because residents feel that town planners have been empowered to act on their own without county coordination. These views combine with suspicion of efforts to manage climate or other policies that professional planners have identified as central, whether at the municipal, regional, or state level, further preventing some residents from wanting to cooperate with authorities, let alone with citizens outside their municipality. Finally, even the few regionally-cast organizations that identify climate concerns as central, including Town Green and the Cape Ann Climate Coalition, have not yet articulated a regional presence and remain divided along many of the demographic, industrial, and social identities noted earlier. In a recent revision of its Charter, Town Green, a regional climate advocacy organization, explicitly stated that its members could not be affiliated with other regional bodies, such as CACC, a restriction that appears designed to maintain organizational independence but has the effect of fragmenting civil society coordination. So even

among those organizations that see themselves as having a regional profile and/or concerned with climate and justice issues in Cape Ann, there is tension which is built on socio-economic differences and distrust based on the between working class vs. middle or upper-class profile of the organizations.[xiv]

In the face of these barriers, advocates for regional coordination are now struggling to find common ground around shared sense of risk. Indeed, water challenges faced by one neighborhood or municipality could still present common ground for cooperation with others, although it may also be that certain water-related risks are so uniquely configured that they frustrate any hope for implementing the recommendations made in previous studies. One of the barriers to cooperation is the failure to agree on which water needs are greatest: flooding, sewage, stormwater management, potable water, and so on. And these different priorities map onto the socio-economic distinctions between the municipalities, with the wealthier municipalities more concerned about water problems that affect property values, while the poorer municipalities care about costs associated with water infrastructure. Indeed, the existence of different water ecologies that unequally impact municipalities, and that are themselves embedded in climatic conditions more than shifting urban economic or productivity dynamics, means that trying to identify a fixed territory or region for governing ecological conditions may produce more problems than it solves. This would especially be so if any such cooperative agreement were to become institutionally and politically entrenched in prior power relations that stand in the way of accommodating new ecological conditions. Even so, the fact that at present some of the major water infrastructural priorities may be too onerous for individual municipalities to finance or manage remains a rationale for pursuing cross-municipal cooperation. At present, grassroots organizations have not yet made progress, and water catastrophe looms. Despite – or perhaps because of -- the formal absence of county government, there may still be a sense of shared identity that transcends individual municipalities and could be mobilized to fill in the gap and to provide an alternative `institutional space' for inserting building bottom-up regionalism to equitably distribute the costs and benefits of cross-municipal cooperation over water challenges. -[xv] ut it is not evident as of yet.

Texas, the US Southwest, and Mexico. The second scale we examine involves cross-state water resources and efforts to manage them. The U.S. Southwest and Northern Mexico stand as a unique setting for exploring ecological precarity and cross-jurisdictional cooperation, or lack thereof, both within the US and across the American continent. Two major river basins give shape to the borders between multiple state-level territories and between the U.S. and northern Mexico. In total, the Rio Grande and Colorado Rivers run through or between eight U.S. states and five Mexican states.[xvixvii] Further considering the arid climate along the Central and Western U.S. Mexico border, the increasing variability of precipitation along the Eastern border

region, and the presence of major population, agricultural, and trade centers along both sides of the border, these characteristics elevate the stakes of ecological cooperation and create the potential for negative fallout from the mismanagement of water.[xviii] Seven different states sharing the Colorado River Basin (shown below in Figure 2) are currently experiencing prolonged drought, rapid population growth, and increasing temperatures. With a 10-50 years horizon, policy makers in the southwestern United States face complex planning and policy issues associated with increasing water and energy demand resulting from warmer temperatures and reduced availability of water. Despite recognition that working together is needed, there exist multiple interconnected stresses that operate at both the state and the regional level: historical water rights and allocations that no longer match current realities, competing state interests, and uncertainty about future water availability due to climate change.

This is not to say that cooperation remains elusive. Various U.S. states have engaged in a variety of projects to address water availability, such as the Central Arizona Project (CAP). “Approximately 90% of the electrical energy required for the CAP to pump water across the state of Arizona currently comes from essentially one source," highlighting dangerous dependencies in such approaches.[xix] In other scenarios, the legacy of "use it or lose it" clauses, legal provisions that require water rights holders to demonstrate continuous beneficial use or risk forfeiture of their rights, stemming from 139-year-old water laws that "give the farmers, ranchers and governments holding water rights a powerful incentive to use more water than they need, contributing to further water shortages." [xx] And several states have developed innovative approaches that link water to energy, such as Renewable Portfolio Standards (RPS) that links the management of both resources. "Each state's current RPS goals would reduce the water that is consumed by the generation of electricity," with particularly significant savings possible by "replacing thermal electric generation with photovoltaic (PV) solar."[xxi]

Figure 2. Map of the Colorado River Basin by the United States Geological Survey.[xxii]

Notablythe RPS he approach builds on existing interstate compact institutions, like the Colorado River Compact, while recognizing new shared challenges in water conservation and the potential for water and energy savings through efficiency and renewable sources. As a regional initiative, moreover, the has produced local benefits: "California's electricity generation by PV solar is projected to increase, while electricity generation by coal is predicted to remain at zero under the RPS scenario. California generates the largest amount of electricity among the five states, and as such, they will save more than 62 billion liters of water in 2032 if the RPS scenario is achieved."[xxiii] And while RPS clearly represents a concrete example of how policy innovation can create win-win outcomes across water and energy sectors, water conditions remain precarious and the border region is presently experiencing new political challenges, associated with US-Mexico tensions over both the drug trade and immigration. The

more politicized and divisive the US-Mexico border, the harder to find cooperation. despite the fact Accounts of these storms note the insufficiency of recent improvements to RGV drainage infrastructure and more broadly point to the heightening unpredictability and whiplash effects of such weather events.

These examples from the US Southwest highlight both the importance and potential difficulties of coordinatingregional, multi-jurisdictional and cross-border water management, particularly in a period of political disagreement regarding other bi-lateral issues such as trade, immigration, and organized crime. Within the U.S. Southwest, one of the biggest barriers to inter-state cooperation are the uneven processes of urbanization and the tensions between urban and rural land use priorities that pit one state against another. Patterns of urbanization in California have destroyed agriculture as a key source of economic growth, for example, while states like Texas have continued to foster both agriculture, industry, and other extractive forms of economic growth. Arizona, for its part, straddles these divergent pathways, each of which has implications for water demand.[xxiv] That these three states share the Colorado River Basin and its tributaries further complexifies the picture, because residents in these different states have different urban or agricultural needs and priorities. Complicating matters, the ecological challenges are differentially spread across the states. Most of the region is now experiencing a "megadrought,"[xxv] exacerbated by shifts in temperatures and precipitation patterns; but because the latter also reduces the annual snowpack that river basins rely upon, it affects their rates of flow and in some occasions has led to catastrophic flooding.[xxvi] Likewise, while on the Eastern side of the border region rain events including storms and hurricanes create threats of catastrophic flooding, the region as a whole still experiences periods of drought..[xxvii] Stated succinctly , some states are suffering with too much water, some with too little water, and the temporality of both these challenges – not just the intensified frequency of disaster but also their simultaneity – has made cooperation almost impossible.

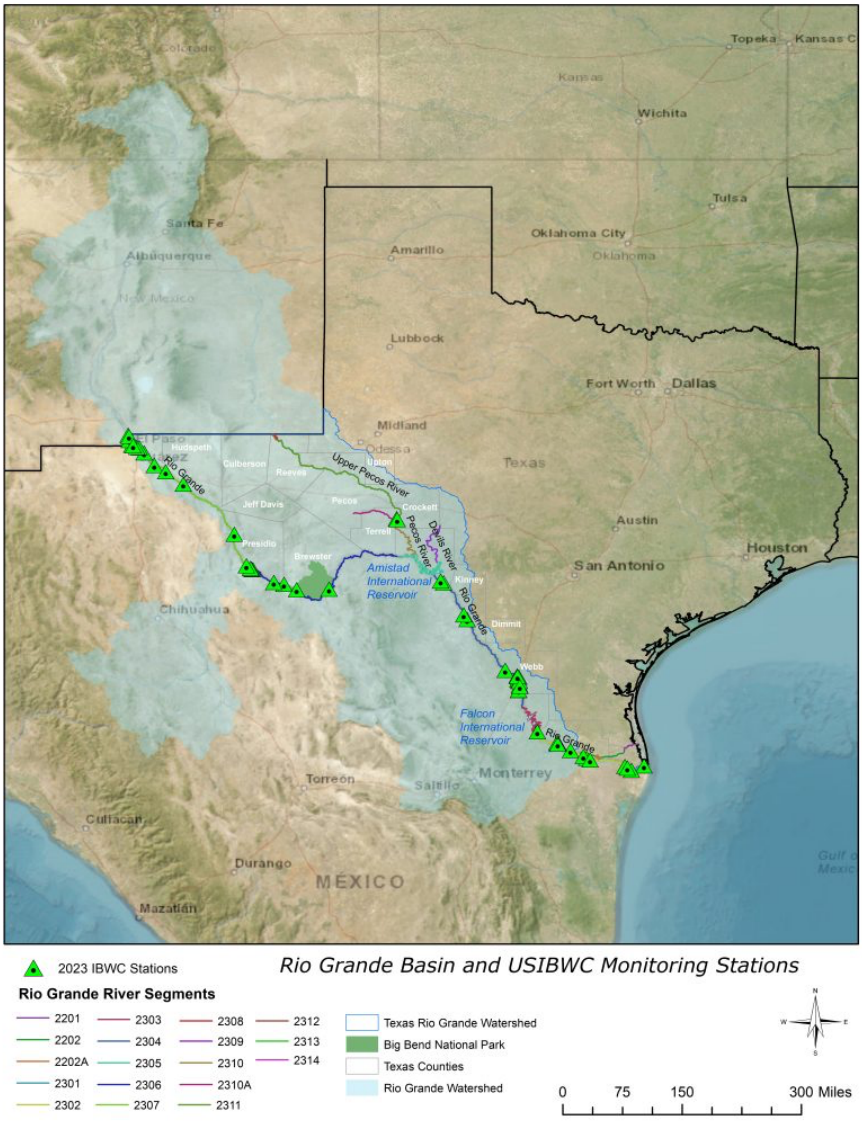

Figure 3. Map of the Rio Grande River Basin by the International Boundary and Water Commission.[xxviii]

The end result has tended to be stalemate. After years of negotiation, in early 2026 seven southwestern states "that rely on the Colorado River for drinking water missed yet another deadline to agree on reduced shares as the river's flow continues to decline dramatically…At issue is whether states will agree to permanent, voluntary water usage cuts"[xxix] Hamstrung by the Colorado River Compact of 1922, U.S. states are struggling to find equitable ways to share water with 40 million people across seven states, 30 Native American tribes, and parts of Northern Mexico" in the context of an agreement that has been obsolete for decades owing to drastic climate-induced changes in water supply and urbanization-led demand. In the context of ongoing intra-national stalemate, the Federal government may be forced to step into action. But this also

threatens to provoke a rash of lawsuits imposed by states unwilling to cede the jurisdictional political authority enshrined in the Constitution.

The unwillingness or incapacities of US states to enter into new binding agreements contrasts with the flexibility of negotiations between the US and Mexico over water. The willingness of national authorities to continually revisit prior agreements and forge new ones owes in part to the border region's high interdependence, born not just from its ecology but also owing to labor relations and trade. Market integration through bi-lateral and multi-lateral agreements such as NAFTA have multiplied the flows of products and capital between the United States and Mexico.[xxx] The socioeconomic infrastructure necessary to support these markets, which comprise significant portions of both countries' GDPs, results in a positive feedback loop of increasing interconnectivity and interdependence.[xxxi] These effects have been observed since before the adoption of modern-day comprehensive trade agreements between the two countries, with a 1983 RAND institute paper detailing the trend toward increased interdependence within the border region. Such exchange across multiple dimensions and stakes is essentially described as having a momentum of its own, particularly cemented upon the region's economic needs. In turn, although an imbalance of power may still lead to disparate outcomes in favor of the stronger nation, "interdependence reduces any one nation's ability to regulate the system of flows or restrict their effects." More importantly, efforts by any one nation to affect a component of the interdependent relationship may lead to a tit-for-tat or similar response from the other government.[xxxii] Although applied through a socioeconomic and sociocultural lens, the understanding of these relationships and subsequent responses offer clues for the potential dynamics at play in the context of ecological resource cooperation throughout the region, namely between the United States and Mexico but potentially between states and municipalities.

An exploration of recent lags in the delivery of contributions between the United States and Mexico under bi-lateral water cooperation agreements illustrates the potential insufficiency of existing legal mechanisms in the face of anthropogenic climate patterns. However, the fact that water-sharing agreements are indeed still in place and are at the core of ongoing negotiations and discussions on how adaptation may occur at the municipal, regional, and country levels, also serves as potential testament to the effectiveness of such mechanisms. 2025 marks the end of a water delivery cycle under the Treaty of February 3rd, 1944. Mexico's under-delivery for this cycle has sparked a surge in pressure from U.S. agricultural sectors and political representatives calling for accountability measures and new agreements to ensure the provision of owed water.[xxxiii] The 1944 Treaty serves as the cornerstone legal framework in a history of negotiations that goes back almost two centuries, beginning with the 1848 Treaty of Guadalupe-Hidalgo that established the first cooperative commission

for defining the border.[xxxiv] The 1944 Treaty was born out of a need to formalize increasingly ineffective ad-hoc agreements during a period of rising complexity stemming from urbanization, the expansion of agriculture, and ecological challenges such as droughts and river channel migration. The Treaty also included the creation of the International Boundary and Water Commission (IBWC), a bi-lateral body for overseeing water-related issues and developing governing decisions at the federal levels.[xxxv]

The conditions surrounding the formation of the Treaty indicate that present-day challenges are not entirely unseen at an ecological level or a jurisdictional one. Mexico's undercompliance with the 2025 cycle, however, adds to the series of unique patterns witnessed during the first quarter of the 21st-century: an unprecedented frequency of ecological challenges that carry cross-cutting effects. Mexico successfully fulfilled its part of the Treaty for fifty years but has faced extensive 21st century water shortages that have either prevented it from fulfilling treaty demands or placed it in precarious water security positions due to water transfer measures taken to pay back its water debt.[xxxvi] Local pressure is also mounting from existential threats faced by agricultural industries, namely between Texas and Northeastern Mexico, with Texas in particular experiencing the shuttering of its sugar refinement industry due to water shortages. [xxxvii] The mounting operational stresses, not accounted for during the establishment of the treaty, illustrate how more frequent hydrologic shocks are snowballing into bilateral political and economic crises. Jurisdiction and sovereignty at various levels are called to question during attempts to make up for these water imbalances.

The Treaty does not outline specific measures for non-compliance, contributing to conditions where localities may feel forced to push for additional measures or break corporation in order to ensure demands are fulfilled. Subnational jurisdictions may also find themselves overshadowed by broader regional water needs. Having the IBWC serve as the formal venue for technical coordination and dispute resolution does deliver important strengths for the Treaty: legal clarity regarding obligations and the standardization of bilateral coordination and bargaining. But enforcement limitations, combined with the Treaty's rigidity around the localized impacts of water scarcity, have fostered conditions for resource competition rather than cooperation. To the extent that cross-jurisdictional cooperation is inextricable from the region's ecological future, particularly in the context of its deep interdependence,[xxxviii] there are lessons to be learned. Namely: that actors across all jurisdictional levels should be focused on enhancing operational flexibility and ameliorating the shortfall of local legitimacy that currently threatens otherwise enduring mechanisms of cooperation.

This is precisely what has fueled two recent Texas efforts to improve place-based responsiveness to climate disaster: the State of Texas 2018 South Texas Floods CDBG-DR Action Plan and the Lower Rio Grande Valley Economic Development Strategy and Diversification Study. Published within the last five years, these efforts set out to identify disproportionate local impacts from regional storms, convening multiple municipalities for a locally-led effort to inventory regional assets, identify vulnerabilities, and develop resilience strategies tied to local collaboration and implementation.[xxxix] However, the focus continues to be decidedly local. The rationale has been that a focus on local priorities enables a more accurate and faster application of state-wide instruments of ecological cooperation, a practice that could prevent the breakdown of local resource cooperation in the face of system-wide shocks. But as of yet, these efforts have not been fully incorporated into existing bi-lateral frameworks; and as such, they have not yet been used to strengthen cooperation across jurisdictional scales but instead have been focused on preserving local capabilities. The ecological challenges of the Anthropocene, however, will require a rethinking of approaches beyond exclusively "top-down" or "bottom-up," calling instead for a strengthening of the operational responsiveness of existing frameworks through increased cross-jurisdictional coordination, legitimacy, and knowledge-sharing throughout the interdependent region. [xl]

The aforementioned cases are starting to suggest that fragmented governance arrangements – i.e. situations where a larger number of competing or overlapping jurisdictions are tasked with managing water conditions – are likely to produce tensions and competition that can easily derail cooperation and the identification of shared objectives. This was clearest in the cases of Cape Ann and Texas, and somewhat so in the US Southwest. However, the above cases also show that there were successful agreements forged between the US and Mexico. These findings begin to suggest that some of the most effective agreements over water have been made *between nations*, even as municipalities within those nations are least likely to forge agreements, with provincial states straddling the two scales in a constant struggle to negotiate and renegotiate agreements that can serve all the relevant constituencies. In order to pursue this possibility, we now turn to a different context, that of North Africa, and look more carefully at what conclusions can be drawn from a focus on examples of successful water cooperation in the Nile River Valley.

From Local Conflict to National Cooperation?

Nile River Valley. One of the most complex transboundary water sharing arrangements in the world has emerged in the Nile River Valley, involving eleven different countries.[xli] To a great degree, the groundwork for sharing was established under colonial rule, but in recent years three different nations --Ethiopia, Egypt, and Sudan—have been key players driving the nature of agreements. All three countries need Nile water access to

drive national economic development. Egypt is perhaps most extremely dependent on the Nile for water, with 90% of overall demand met by the river and 30% of the national workforce dependent on Nile-based agriculture. Yet Ethiopia also has targeted the Nile's water for both economic development and electricity access, using water to offer from 20% to 50% population coverage. These gains were hard won, given the legacies established by decades of colonial occupation.

Figure 4. Nile Basin Map.[xlii]

Historical colonial treaties (1902, 1929, 1959) created a form of "hydro-hegemony" that excluded upstream countries from access to the Nile. In the post-colonial context, moreover, a new set of negotiations emerged. Some of this owed to the fact that population growth intensified water scarcity even as new national leaders sought greater access in order to jumpstart economic competitiveness. But the equally critical driving force was the shift from bilateral to multi-lateral deliberations. Some of this was set in motion by the 1999 Nile Basin Initiative that started dialogue with multiple nations dependent on the Nile in conversation with multilateral development agencies (World Bank). This was followed by a 2010 Cooperative Frameworks Agreement that excluded Egypt and Sudan, and by so doing instigated a response from the African Union, which put on the table the importance of tripartite negotiations. This in turn led to the 2015 Declaration of Principles that helped institutionalize new mechanisms for

water monitoring and offered technical expertise for shared hydrological modeling. The Nile Basin's trajectory shows how external actors can compensate for power asymmetries and facilitate durable cooperation. The World Bank convened the Nile Basin Initiative in 1999 and continues funding technical studies and capacity-building,[xliii] providing the kind of multilateral framework that had previously been lacking. Likewise, the United States has intermittently mediated disputes, most notably over the Grand Ethiopian Renaissance Dam (GERD), a role Ethiopia later criticized as biased toward Egypt after Washington withheld USD 130 million in aid to pressure Addis Ababa back to negotiations.[xliv] However, the Nile Case reveals an important distinction between binding and soft-law frameworks. The 1959 Nile Waters Agreement allocated 55.5 billion m^3 to Egypt and 18.5 billion m^3 to Sudan, giving the two downstream states exclusive rights to the river's full average flow and embedding these allocations in enforceable treaty law.[xlv] By contrast, the 2015 Declaration of Principles among Egypt, Sudan, and Ethiopia employs aspirational language and omits any quantified releases, enforcement mechanisms, or arbitration clauses; a political understanding rather than a legally binding compact.[xlvi] This shift toward soft law may have in part enabled Ethiopia's unilateral GERD filling process, demonstrating how non-binding agreements can permit the very unilateralism they seek to prevent. Yet, the Basin also highlights benefit-sharing's transformative potential: Ethiopia's comparative advantage in hydropower generation, Sudan's fertile arable land, and Egypt's established agro-industrial base together create opportunities for regional power pools and electricity trade that may convert zero-sum water allocation into positive-sum economic cooperation.[xlvii] Thus, while the Nile Basin remains constrained by legal ambiguity and historical inequities, it also embodies a broader lesson for transboundary governance: that durable cooperation may sometimes emerge not from rigid allocation formulas, but from building interdependence through shared infrastructure, trust, and mutually reinforcing economic linkages.

Crisis moments have at times catalyzed cooperation in the Nile Basin while also exposing the durability challenges posed by extreme power asymmetries. The 1988 drought, which caused the Nile to fall to one of its lowest recorded levels and forced reductions in power generation at the Aswan High Dam, signals the basin's mutual vulnerability and spurred renewed dialogue that ultimately contributed to the creation of the Nile Basin Initiative.[xlviii] Yet, subsequent conflicts have narrowed rather than widened the bargaining space. Ethiopia's internal instability and wars, most recently the Tigray conflict (2020-2022), have weakened its diplomatic capacity, while Sudan's own political turmoil has eroded its role as a mediator and Egypt's regional security preoccupations have constrained its diplomacy.[xlix] These dynamics suggest how crises can sometimes generate shared recognition of vulnerability but can equally undermine cooperation when they degrade institutional capability and trust. Structural asymmetries remain critical, with Egypt deriving around 96% of its freshwater from

the Nile, making it profoundly dependent on upstream flows,[l] whereas Ethiopia contributes roughly 86% of the Nile's discharge through the Blue Nile, Sobat, and Atbara rivers yet was excluded from the 1902, 1929, and 1959 colonial-era treaties that allocated the water almost entirely to Egypt and Sudan.[li] This entrenched what some have called "hydro-hegemony" until Ethiopia's unilateral dam construction began to challenge it directly.[lii] Likewise, upstream states' mobilization around the 2010 Cooperative Framework Agreement marked a decisive break from downstream dominance.[liii] Together, these patterns illustrate that while the Nile Basin has periodically turned crisis into cooperation, enduring inequalities of dependency and treaty legitimacy continue to shape, and often constrain, collective management of the river.

Indus Valley Region (India-Pakistan). Whether the shared agreements that turned struggles over water access into benefits sharing in the Nile River valley were possible because of the large number of countries involved, or because the global multilateral world was an active participant, is hard to know. It may have been both. But one way to better understand whether, how, and why it might be true that nations embedded in complex multilateral networks are better situated for agreeing to cooperative water agreements is to examine another example of water sharing between two bordering nation states that have been unable to come to water agreements, or where the struggle to achieve such cooperation is successful but comes with unequal outcomes. This appears to be the case in the northern region of India bordering Pakistan, where struggles over water have brought both conflict and cooperation.

Water-sharing between India and Pakistan is governed by the Indus Water Treaty, a bilateral framework sealed through negotiations involving the World Bank and signed in Karachi in 1960. The origins of this agreement owe in no small part to the unique ecology of the India-Pakistan border. About 85% of the annual discharge of the Indus is attributed to the combination of snowmelt and rainfall in the upper Himalayas, an expansive mountainous region that is ambiguously shared between India, Pakistan, Tibet (China), and Afghanistan.[liv] While water from the Indus Valley region has historically provided stability of water supply, namely because the treaty was built around clear technical requisites, its stability has been subject to political disruption and armed conflict (the region has survived three wars).

Figure 5. Map of the Indus River Basin.[lv]

The longstanding history of ethno-national tensions has reinforced the fragility of this arrangement, primarily because the British formation of two separate nations was intended to divide previously shared territory (the provinces of Bengal and Punjab) based on Muslim and non-Muslim majorities, precisely to establish different religious foundations for each nation respectively.[lvi] This has meant that water agreements can be thrown into jeopardy when national political conflicts emerge.[lvii] That relations between the two countries are embedded in sovereignty disputes over yet a third territory in the Indus Valley region, Kashmir, which claims independence from both India and Pakistan yet which has and continues to be a point of contention between India, Pakistan, and China, further complicates the terrain for cooperation. On April 22, 2025, following a terrorist attack in Kashmir, India's Cabinet Committee on Security suspended the Indus Water Treaty (IWT), marking the first time in sixty-five years that either nation had threatened to weaponize its most fundamental resource. This suspension reveals not merely a breakdown of bilateral cooperation, but the exposure of deeper structural problems endemic to the highly fragmented governance structures operating at misaligned scales within and between the contested territory of Kashmir, the fragmented jurisdictional landscape of the Indus basin itself, and the national power asymmetries over border control have intensified over time.

The treaty's dispute resolution mechanisms, moreover, reflect its original bilateral design rather than the current geography of contestation. The Permanent Indus Commission, composed of a commissioner from each nation, was intended to

serve as a forum for technical cooperation and conflict resolution. When bilateral negotiation fails, the treaty provides for the appointment of a Neutral Expert to address technical matters as well as the establishment of a Court of Arbitration for larger disputes. Yet this mechanism became increasingly dysfunctional precisely when national pressure on the treaty intensified, leading to efforts to bring in third party negotiators, moves which often reinforced the stalemate. By 2016, Pakistan sought World Bank establishment for Court of Arbitration over hydropower dam designs while India requested a Neutral Expert process. The World Bank announced a pause in appointing either authority, effectively freezing the dispute resolution apparatus.[lviii] In 2022, the World Bank announced it would resume appointments, yet by 2025 the Commission had ceased functioning during precisely the moment when dispute resolution mechanisms were most critical. This not only is indicative of the crisis in cooperation that emerges when there is a lack of multilateral leverage for negotiations between warring and power asymmetric countries. It also shows that third party negotiators may have limited unifying powers when they too speak with a divided voice.

In this context, cooperation established through the original treaty has been unable to prevent acute water scarcity and flooding, both the result of failures to coordinate multiple levels of governance and territory. Paradoxically, then, although national tensions and conflicts sometimes generate recognition of shared vulnerability, they more often activate pre-existing geopolitical antagonisms and fragmented institutional landscapes that prevent cooperation from emerging. These failures have been ongoing. The first significant post-treaty crisis occurred in 1988 when the Indus basin experienced extreme drought, causing reductions in power generation across infrastructure systems. Yet the 1988 drought also revealed a critical governance blind spot: the treaty framework, which allocated water rights at the national level between India and Pakistan, contained no mechanism for addressing water scarcity during crisis periods. [lix] Crucially, the 1988 crisis occurred precisely when India was beginning to construct hydropower plants on western rivers that technically complied with the IWT's "non-consumptive use" provisions yet cumulatively transformed basin hydrology in ways the 1960 treaty could not contemplate.[lx]

Likewise, during the 2010 floods, the IWT's Permanent Indus Commission proved largely ineffectual during the emergency because India and Pakistan could not rapidly coordinate emergency water releases or establish unified early warning systems.[lxi] Language ambiguity in the treaty created space for interpretation that can produce disagreement when political will for agreement reduces. "Limited local use" initially meant domestic consumption and small irrigation projects. Yet under current pressures, India has constructed over forty run-of-river hydroelectric plants and irrigation diversions justified as "local" uses.[lxii] Likewise, the treaty language of "non-consumptive use" permits any infrastructure that returns water to the river course,

creating ambiguity about whether water held in reservoirs for hydropower generation constitutes consumptive use.[lxiii] These ambiguities are not merely legal; they become problematic in the context shifting ecological conditions that fail to align with administrative jurisdictions. Indeed, the upstream mountainous feeder of the Indus basin water produced both the emergence and dissolution of jurisdictional entities that may or may not have been empowered by a treaty signed nationally and that themselves are territorially structured around different governance logics. While the Indian side involves multiple state governments (Himachal Pradesh, Punjab, Jammu and Kashmir), federal ministries (Jal Shakti, External Affairs), and military authorities, while Pakistan's federal structure encompasses multiple provincial governments (Punjab, Baluchistan, Sindh) whose interests diverge sharply over water allocation.[lxiv] This fragmentation creates a situation where cooperation must filter through multiple domestic political processes and unilateral action below the threshold of the formal treaty, making effective cooperation highly complex if not impossible.

Yet it may be precisely the failures of centralized, national authorities to make progress on stable and effective water sharing in the Indus valley region that has driven local residents to step in, thus suggesting that local municipalities can sometimes formulate cooperative water management practices in ways that remain elusive for national authorities. Indeed, centralized state failures to guarantee effective water access in the Indus basin have helped activate the formation of local relief systems. These include the Goba, traditional community leaders in Baltistan who manage rotational irrigation schedules through customary agreements, as well as informal spring protection committees organized by women-led self-help groups and innovative Ice Stupa projects for addressing water shortages during Ladakhi winters..[lxv] These systems represent cross-community cooperation at sub-national scales, demonstrating that when bilateral treaties fail to address local needs, communities can generate ad hoc forms of cooperation. For instance, the Ladakh Autonomous Hill Development Council manages water resources in a territory that directly affects the Indus system's high-altitude hydrology yet lacks formal integration into either the bilateral negotiation structure or the Permanent Indus Commission. These local and indigenous water cooperation systems resurface and emerge when the state authorities' efforts at cooperation are not multi-scalar. This further demonstrates that when bilateral treaties are unable to adequately address the geographical and political complexity of the Indus basin, owing to overlapping or competing jurisdictional claims, localities can step in and generate *ad hoc* forms of cooperation. They may be doing so, however, precisely because of bilateral failures. This, in turn, puts on the table the paradox of sovereignty alluded to in the introduction to this report: sometimes the power balances or larger priorities of national states get in the way of cooperation, yet it is precisely when this fails that opportunities emerge at a smaller scale. Having said that, what differentiates national agreements from more localized agreements is the legal and diplomatic weight

of the mandate. And while precedents suggest that these mandates have most frequently emanated from national state dialogues, the question emerges as to whether this indeed is the only scale that could adopt both legal and convening powers in the service of water cooperation.

The Sovereignty Paradox Deconstructed, through the Lens of Water

The aforementioned analysis suggests that conflict between nation states is as likely as cooperation, with outcomes dependent on the ways that national histories overdetermine more pragmatic cooperation about present water conditions, and that sometimes local responses are needed in order to compensate for national failures. The question thus emerges as to what *combination of jurisdictions* might best advance cooperation and water cooperation. In order to dig more deeply into such conclusions, we now examine the case of water management practices within and between Israel and Jordan. Doing so also allows us to understand the political conditions under which cross-boundary water agreements do or do not unfold.

Water challenges are a key element of the uneasy relationship between Israel and Jordan. Water, in fact, is one of the principal resources that has brought these historically conflicting states together, perhaps best seen in the October 1994 Israel-Jordan Peace Treaty that helped foster water sharing practices that supplanted regional cooperation while securing hydraulic resources for both states in the future. Despite these cross-national successes, both countries have been hamstrung to generate agreements between different jurisdictions, territories, and constituencies within their own border, particularly at the municipal scale. Indeed, at the municipal level, water governance in the West Bank and Jordan Valley reveals deep institutional fragmentation and chronic dependency on higher-level authorities. As Judeh and Haddad observe, “political status and social status constitute the two most restrictive dimensions” [lxvi] of governance, leaving local utilities unable to plan or finance infrastructure independently. Municipalities remain formally responsible for service delivery, yet the Palestinian Water Authority (PWA) and Israeli Civil Administration (the military-subordinate body governing Area C of the West Bank) control bulk supply and permitting. This hybrid regime results in what the PWA calls a governance crisis rather than a water crisis,[lxvii] marked by weak enforcement, poor cost recovery, and inconsistent citizen engagement.

Figure 6. Map of the Jordan River, the Dead Sea. The Sea of Galilee, and Surrounding Areas.[lxviii]

Field-level ethnographies underscore how these structural limits translate into everyday breakdowns. In al-Auja, a Palestinian village in the Jordan Valley within Area C of the West Bank, residents face dry taps, harbor suspicions about water quality, and generally refuse to pay bills for water they seldom receive.[lxix] More than simple refusal, this can also be characterized as a demand for accountable sovereignty, or an attempt to summon a responsible authority in a system of "fragmented sovereignty and evasive accountability."[lxx] Municipal failures are political and technical; each would-be sovereign evades full responsibility,[lxxi] leaving local authorities to absorb issues without possessing the tools to address them. The reality of constrained local agency is reinforced by Dai, who identifies "mistrust between the two parties, the lack of external enforcement mechanisms, and the impacts of the domestic political environment"[lxxii] as key impediments to joint water governance, noting that local institutions cannot compensate for absent high-level trust.[lxxiii] Historically, the Oslo II framework entrenched asymmetry. Aliewi finds that "Israel controls … 100% of the Palestinian water rights in the Jordan River and 86% of the Palestinian groundwater resources (shared and endogenous) resulting in an unequal per capita water consumption ration of 4:1 in favor to Israel."[lxxiv] Municipal utilities are left rationing limited supplies purchased from Mekorot.[lxxv] Ultimately, local authorities have little leverage to pursue the desired "equitable distribution and joint management of the shared water of the Mountain Aquifer"[lxxvi] under these conditions. The municipal scale also exhibits a paradox: cooperation becomes more difficult as the stakes get smaller.

While Israel and Jordan successfully negotiate over millions of cubic meters and billion-dollar infrastructure projects, neighboring Palestinian villages struggle to share a single well or coordinate billing systems. This occurs because resources that are objectively small become subjectively existential at the local level. A village's annual water budget represents the community's entire supply, with no alternative sources. In contrast, nations command diverse portfolios that enable flexibility. When unpaid bills threaten system collapse and water allocated to a neighboring community represents a direct loss from one's own supply, cooperation requires a level of trust that fragmented governance undermines. McKee's ethnography captures this dynamic. In al-Auja, the refusal to pay for unreliable water is not primarily an economic calculus, but a moral-political one, where bill payment would legitimate an authority structure residents view as illegitimate.[lxxvii] The amounts involved are relatively tiny, yet the political stakes feel all-encompassing. Unlike nation-states that can expand the basket of benefits through energy swaps, desalination projects, or international financing, municipalities negotiate over fixed, diminishing supplies with zero capacity to generate new resources or reframe the problem beyond zero-sum allocation. One village's gain is necessarily another's loss, and this scarcity breeds conflict intensity disproportionate to the objective value at stake. A lack of trust can produce "poor responsibility distribution among water sector actors including governmental organisations." [lxxviii] This institutional mistrust erodes cost recovery and weakens service delivery, creating a vicious cycle in which degraded governance further undermines public confidence. The result is what might be termed a poverty of options. Where national governments can deploy diverse tools to manage water stress, municipalities face binary choices.

These findings demonstrate a clear pattern: small-scale cooperation repeatedly falters because municipal actors bear citizen pressure but lack sovereign capacity. Their failures are symptoms of a multi-level governance vacuum where formal responsibility without real authority erodes both infrastructure and legitimacy. This raises the question of why the Israel-Jordan treaty endures despite far greater ideological distance, military conflicts, and territorial disputes? The answer lies in what sovereignty itself provides: clarity of authority, capacity to mobilize resources, access to diplomatic tools, and the ability to make binding commitments that substitute for trust. Yet at the same time, the case of Israel and Jordan is a useful example for how ecological resources, especially water, can both promote tension and cooperation. In the water-scarce region, the two states have constructed institutional mechanisms that endure even during intense political conflict. Whether cooperation between sovereign states holds more significance than cooperation within states lays out a central question in the broader study of ecological cooperation. Israel-Jordan underlines the importance of moving from allocation-based frameworks to benefit-sharing arrangements, while likewise highlighting the role of third parties in sustaining long-term cooperation. The October 1994 Israel-Jordan Peace Treaty, and in particular Annex II, institutionalized detailed

water-sharing arrangements. It listed fixed allocations of water resources, provisions for mutual assistance during periods of drought, and established the Joint Water Committee (JWC) as the principal mechanism of cooperation.[lxxix] These clauses have largely been respected, even when the larger bilateral relationship has struggled. Earlier efforts to regulate use of the Yarmouk and Jordan Rivers had many times collapsed under disputes and inequities, which made the 1994 treaty a significant advancement.[lxxx] However, the situation remains precarious. The Jordan River's flow has decreased by more than 90% since the 1960s due to overuse and climate change, placing severe stress on the watershed.[lxxxi]

The durability of Israel-Jordan cooperation stands in contrast to the fragility of Israel-Palestine arrangements. Established binding, reciprocal commitments between two recognized sovereigns, stipulating fixed annual water transfers, joint monitoring, and provisions for mutual drought assistance. These clauses conferred Jordan internationally recognized water rights under a bilateral treaty lodged with the United Nations. By contrast, the 1995 Oslo II Interim Agreement's Annex III, created a Joint Water Committee between Israel and the Palestinian Authority but *without sovereign parity*: all projects for new Palestinian wells, pipelines, or wastewater treatment required Israeli approval. Although the accord recognized Palestinian water rights in principle, it did not allocate additional quantities or control over shared aquifers. Instead, Palestinian extraction was limited to previously existing wells plus a small increment for domestic use. Analyses by Zeitoun and Warner note that Israel controls "90% of the shared surface and groundwater resources; Palestinians, who have no other alternative sources to develop, control 10%, despite the 1995 agreement forming part of the Oslo II accords whereby Israel explicitly recognized Palestinian water rights."[lxxxii] This asymmetry persists. Palestinians are excluded from direct access to the Jordan River, as its waters are fully diverted by Israel and Jordan. Within the West Bank, Palestinians must obtain approval from the Joint Water Committee for any new wells or upgrades, and wells located in Area C require additional authorization from the Israeli Civil Administration, permits that are rarely granted. [lxxxiii] These arrangements reflect "hydro-hegemony," in which technical "cooperation" conceals structural domination; Israel's upstream and infrastructural advantage transforms joint management into an instrument of control.[lxxxiv] The clarity of sovereignty in the Israel–Jordan case thus underpins the endurance of its institutions, whereas the ambiguous, quasi-sovereign status of the Palestinian Authority has institutionalized dependency and constrained adaptive management.

Table 1: Sovereignty, Scale, and Cooperation: Comparative Dimensions of Water Governance

Dimension	Israel – Jordan / Palestine	Indus (India – Pakistan)	Nile (Egypt – Sudan – Ethiopia)	Cape Ann (Massachusetts)	Texas / U.S. Southwest
Geography	Cross-national; clear bilateral sovereignty (Israel–Jordan); asymmetric quasi-sovereignty (Palestine).	Cross-national, bilateral; two recognized sovereigns sharing six rivers.	Cross-national, multilateral (11 states).	Micro-regional; neighboring municipalities.	Cross-municipal and interstate (state, local, and federal).
Ecological Resource	Jordan & Yarmouk Rivers; shared aquifers; desalination; RSDS.	Indus River system.	Nile River & tributaries; hydropower (GERD).	Coastal & freshwater systems; shared watershed.	Rivers, groundwater, flood-zones, storm-surge areas.
Primary Governance Mechanisms	1994 Peace Treaty (Annex II); Joint Water Committee; RSDS Project. Oslo II (1995) creates Israeli-Palestinian JWC but without sovereign parity.	Indus Waters Treaty (1960); Permanent Indus Commission; World Bank guarantor.	Nile Basin Initiative (1999); 2010 Cooperative Framework Agreement; 2015 Declaration of Principles (DoP); AU-led tripartite talks.	Informal agreements; “hydrosocial region” framing; Office for Urbanization facilitation.	1944 U.S.–Mexico Water Treaty; HUD CDBG-DR Action Plan; GLO Recovery Strategy.
Sovereignty / Networked Sovereignty	Sovereignty clarity enables Israel–Jordan cooperation; Palestinian ambiguity creates dependency.	Clear sovereignty via partition; third-party (World Bank) mediates disputes.	Competing sovereignties; multilateral frameworks exist (NBI, CFA) but lack binding authority; no effective networked architecture.	Networked local sovereignties (“regionalism from below”).	Multi-level federalism enables some networked sovereignty (El Paso–Juárez model).
War / Crisis Windows	Gulf War Conflict andrealignment (1991–94) enabled treaty;	Post-Partition crisis enabled treaty;	Crisis and drought narrows space for cooperation (Tigray	Local climate shocks reveal absence of formal coordination.	Hurricanes & floods trigger short-term local alignment; US-Mexico treaty

Dimension	Israel – Jordan / Palestine	Indus (India – Pakistan)	Nile (Egypt – Sudan – Ethiopia)	Cape Ann (Massachusetts)	Texas / U.S. Southwest
	recurring wars (Gaza) undermine trust.	subsequent wars did not break it.	conflict, Sudan civil war); no binding resolution.		shows inter-national durability despite crises; intra-state cooperation remains elusive.
Resource vs. Benefit-Sharing	Shift toward benefit-sharing (energy-water swap, RSDS); Palestinians excluded.	Resource partition; no benefit-sharing; rigid allocations.	Benefit-sharing potential identified (power trade, hydropower exports) but not yet operationalized.	Fragmented allocations; limited shared benefits.	Interstate allocations rigid and contested; US-Mexico treaty shows some benefit-sharing through IBWC; disaster funding distribution uneven.
Language / Institutional Design	1994 Treaty binding (“shall provide”); Oslo Annex provisional (“pending”).	Binding, legalistic, technocratic; depoliticized engineering tone.	Non-binding principles; no enforcement or arbitration.	Informal agreements, soft governance.	1944 US-Mexico treaty binding but lacks non-compliance measures; 1922 Colorado River Compact binding but obsolete; federal disaster mandates uneven in implementation.
Aid / Third Parties	U.S. mediation; World Bank; donors support RSDS and energy-water swap.	World Bank broker and arbiter.	AU, World Bank mediate; US mediation criticized by Ethiopia as pro-Egypt bias; limited enforcement capacity.	Harvard Office for Urbanization as facilitator.	HUD, FEMA, state GLO as funders and coordinators.

Dimension	Israel – Jordan / Palestine	Indus (India – Pakistan)	Nile (Egypt – Sudan – Ethiopia)	Cape Ann (Massachusetts)	Texas / U.S. Southwest
Conflict Drivers	Asymmetry, occupation, climate stress, exclusion of Palestine.	Upstream–downstream mistrust; security tensions.	Sovereignty claims, dam operations, drought rules.	Socioeconomic disparities; resource competition.	Unequal recovery; jurisdictional overlap.
Cooperation Enablers	Binding institutions, benefit-sharing, third-party guarantees.	Clear jurisdictions and third-party arbitration.	Shared infrastructure potential (GERD power trade, regional grid); economic interdependence opportunity despite political mistrust.	Shared hydrosocial identity; academic mediation.	Federal funding conditions; crisis coordination.
Innovation / Adaptation	Energy–water nexus desalination / renewables swap.	Treaty durability as stability innovation.	GERD hydropower regionalization potential.	"Regionalism from below."	Renewable Portfolio Standards (water-energy nexus); linking disaster recovery to long-term economic planning.
Equity / Marginalized Groups	Palestinians excluded from allocations and infrastructure investment.	Pakistan's downstream vulnerability and rural dependence.	Displacement of Ethiopian communities; Sudanese farmers at risk.	Low-income towns less resourced for adaptation.	Colonias and migrant communities underserved in recovery.
Relevance to Theory of Ecological Cooperation	Sovereignty paradox: clear sovereignty enables cooperation; ambiguous sovereignty breeds dependency. Benefit-sharing reframes sovereignty.	Resilient allocation model: clarity and third-party mediation enable durability but limit adaptation.	Soft law limitations reveal need for binding frameworks, yet demonstrates how interdependence through shared infrastructure may enable future cooperation.	Micro-regional limits: cooperation requires institutional authority and shared sovereignty; fragmentation breeds distrust at small scales.	Sovereignty paradox inverted: inter-national cooperation (US-Mexico) succeeds where intra-national (interstate) fails; federalism both enables and constrains.

What Makes Effective Cooperation Possible? From Ephemeral Treaties to the Distinction between Control Access and Benefits Sharing

Taking a step back from the Israel-Palestine conundrum and its potentially negative implications for water sharing within that territory, it is worth summarizing what we have found in terms of general principles. Our divergent cases suggest that effective cooperation depends on three key elements: A shift in focus from water allocation to benefits-sharing; the formation of flexible agreements rather than rigid treaties; the possibility of establishing multi-stakeholder partnerships that transcend binaries.

In the Israel-Jordanian context, The Joint Water Committee (JWC) has functioned as a technical platform for monitoring, data-sharing, and coordinating water transfers. Each year, Israel provides Jordan with agreed-upon amounts of water, and Jordan reciprocates.[lxxxv] More recently, the Red Sea-Dead Sea (RSDS) Conveyance Project has been proposed as a large-scale solution that would generate desalinated water for both countries, create opportunities for energy swaps, and help stabilize the shrinking Dead Sea.[lxxxvi] This project reflects a strategy of 'expanding the basket of benefits' to transform zero-sum conflicts into positive-sum arrangements.

Likewise, in the Nile Basin, there has been a fundamental shift from traditional resource allocation models toward benefit-sharing approaches that created mutual gains for the Egyptian, Ethiopian, and Sudanese economies. Rather than fighting over fixed water quantities, countries can leverage their respective strengths: "Sudan and Egypt's comparative advantages respectively result from fertile arable land and an established agro-industry sector. For its part, Ethiopia has a comparative advantage in hydropower generation that could be developed through creating a regional power pool." To the extent that the economic potential of hydropower generation is substantial, there is more scope for sharing benefits even beyond Ethiopia, with that possibility bringing other partners to the table. Indeed, "as GERD's power generation capacity exceeds domestic demand, Ethiopia would be able to sell its excess supply of electricity to Egypt and Sudan. Egypt and Sudan in turn would benefit from access to cheaper electricity." Economic impact assessments reveal that power trade schemes enabling Egypt to import GERD hydropower "would substantially boost Egypt's economy" due to current energy constraints. Rather than zero-sum competition over water resources, cooperation is likely when other assets or gains are folded into agreements, such as desalination and water technology expertise alongside labor and land resources. Joint desalination facilities, agricultural technology sharing, and renewable energy projects could create economic benefits that exceed the value of contested water rights.

A second conclusion is that flexible frameworks can bring temporal political support in ways that is harder to secure through rigid treaties. "[R]igid water allocation

agreements like historical water rights in the U.S. Southwest or colonial-era treaties in the Nile Basin are obstacles to effective management strategies." They also lock in place power relations in ways that can reinforce opposition by weaker partners in the negotiation. The Nile case particularly demonstrates how colonial-era agreements become barriers: "The various colonial treaties—the 1902 and 1929 treaties, whose validity is contested by the upstream riparian states as well as the 1959 bilateral agreement—were the sources of Egypt's hegemony over the Nile River for many years." In contrast, successful cooperation emerges from "agreements and institutions that allow for periodic reassessment and adjustment, like the Nile Basin Initiative or renewable energy portfolio standards across US states." One should advocate for "flexible, adaptive frameworks that correspond with changing conditions" because all regions are "grappling with increasing water scarcity, growing populations, and climate change impacts that are creating uncertainty for long-term planning. "Rather than permanent territorial water allocations, agreements should establish principles and mechanisms for ongoing negotiation as conditions change. Climate change will alter rainfall patterns, population growth will shift demand, and technological advances like improved desalination will change supply possibilities. Treaties should be "living documents" with built-in review mechanisms rather than attempts to freeze current arrangements permanently.

A third factor that has made effective cooperation possible is the involvement of various parties external to jurisdictions seeking to cooperate. This entails active participation of advocates and experts who are not beholden to authorities but rather, are brought in to generate trust and break down binary power relations that keep jurisdictions – whether municipalities, states, or nations – from entering into new forms of dialogue. Indeed, our research in Cape Ann confirms the idea that "(i)nitiatives that bring together diverse stakeholders – from government agencies to academic institutions to local communities – fostered more innovative and mutually beneficial solutions." Likewise, an Indus Basin-based co-designed modeling approach set in motion by UNDP and other multilateral actors involved "more than 50 participants from the four riparian countries, representing 32 different organizations within academia, regional and federal governments, think tanks, and non-governmental organizations." [lxxxvii] This inclusive process built trust and helped align interests across jurisdictions.

The use of external actors capable of introducing a technical dimension to negotiations has also proven to be critical because "investing in shared knowledge, data, and technological capabilities is crucial for evidence-based transboundary water and energy management." Whether through "remote sensing and climate projections in the Nile, integrated nexus models in the Indus, or water consumption estimates for different energy sources in the US Southwest, improved information and analytical capacities enable more strategic planning." Joint working groups could begin

cooperation in non-political spheres like groundwater monitoring, climate modeling, and agricultural research. Universities, research institutes, and technical experts from different groups could collaborate on shared challenges like saltwater intrusion, drought-resistant crops, and water recycling technologies. This technical cooperation could build trust and create stakeholder networks that support broader political agreements.

Of course, it is often the inordinate power of one jurisdiction that makes it difficult to engage external actors in the negotiating process. But this is also where a crisis – whether related to climate or war – can actually play a generative role. For example, the 1994 Israel–Jordan Peace Treaty illustrates how war and crisis can catalyze institutional breakthroughs. Emerging from the post–Gulf War regional realignments and U.S.-brokered peace diplomacy, it reflected mutual urgency to normalize relations and to stabilize refugee and water-security pressures in the Jordan basin.[lxxxviii] By contrast, repeated cycles of war in Gaza and the West Bank have destroyed Palestinian water infrastructure and eroded trust, closing off opportunities for cooperative progress.[lxxxix] As Daoudy et al. show, conflict dynamics in the Middle East frequently transform resource scarcity into a "threat multiplier," reinforcing rather than relieving insecurity.[xc] Israel and Jordan, by seizing a rare post-war opening, translated geopolitical crisis into an institutionalized peace dividend, something absent in the fragmented governance of the occupied territories.

Third parties have been crucial in this brokering process. The United States played an instrumental role in brokering the 1994 Treaty and has continued to support its implementation through diplomatic means and financial support.[xci] The World Bank, meanwhile, has convened and coordinated feasibility studies for the Red Sea-Dea Sea (RSDS) Project, while international donors have provided funding to offset infrastructure costs.[xcii] These external actors may compensate for the power asymmetries between Israel, which has advanced water infrastructure, and Jordan, which remains highly dependent on Israel for reliable supply. Significant tensions remain. Israel's dominant upstream position and technological superiority render Jordan and Palestine dependent on a state with which they have major geopolitical disagreements.[xciii] Very often, Palestinians are excluded from cooperative frameworks, thereby undermining comprehensive solutions in the basin and raising concerns about long-term viability.[xciv] Further, the rigid allocations enshrined in the treaty are increasingly inadequate due to climate change and demographic growth.[xcv]

The RSDS project, while promising, has also garnered criticisms from environmental NGOs concerned about harming the Dead Sea and Arava Valley.[xcvi] Yet this reality underscores the difficulties of advancing shared water agreements that are intended to both foster sustainability and strengthen cooperation between social or political entities that are in conflict. Even so, the RSDS project showed that moving

from strict allocation to benefit-sharing in order to ensure durable cooperation may lay the first step for creating shared agreements that could later be repurposed to address environmental crisis. Projects like the RSDS embody this shift by linking water supply to energy production and environmental restoration. And this same stepwise logic could be used to further strengthen political coporation as well. Indeed, the Red Sea–Dead Sea and "water-for-energy" deals represent not only a policy innovation but a reframing of sovereignty itself. In that case moving from resource allocation to benefit-sharing has implied functional interdependence: desalinated water in exchange for renewable energy, linking ecological restoration with regional integration. This transition also reflects what Daoudy[xcvii]resilience. In the case of this particular treaty, linguistic form encoded political recognition. Annex II of the 1994 Treaty uses binding language ("shall provide," "mutual assistance," "joint supervision"), while the Israel–Palestine's Oslo II Annex, Appendix I employs provisional, bureaucratic language ("pending"). This contrast illustrates how treaties' language reflects the presence or absence of sovereignty recognition.

As Ortiz and Gómez Córdoba observe, however, legal and institutional design alone cannot sustain cooperation where "violence exerted in places generates affective and territorial ruptures contained in socio-emotional wounds and disruptions in the social and institutional fabric that weakens collective life."[xcviii] In other words, legal instruments that presuppose equal standing among parties will be structurally inadequate where one party's sovereignty -- and thus its capacity to negotiate, implement, and enforce -- has been systematically undetermined. Any efforts at cooperation thus remain fragile when formal political recognition is absent; Palestine's exclusion means benefits remain unequally distributed and subject to hegemonic control. Second, the institutional arrangements between Israel and Jordan demonstrate greater resilience than Israel's water management with Palestinians, though this comparison requires careful analysis given the different political contexts (Jordan enjoys sovereignty while Palestinians operate under occupation). Durable cooperation, therefore, depends not only on juridical symmetry but also on repairing the deeper institutional and emotional asymmetries produced by structural violence. Without this, even technical cooperation risks reproducing wounds rather than repairing them.

Finally, the emerging energy–water nexus, where renewable energy production facilitates desalination and water transfers, represents a new cooperative pathway with the potential to further rebalance political bargaining power.[xcix] This is particularly evident in recent proposals such as the Positive Apportionment Framework,[c] studies on renewable energy–desalination linkages, and the Israel–Jordan–UAE "water-for-electricity" deal.[ci] These examples also suggest that water cooperation can endure even amidst profound political divisions if certain conditions are met, such as institutionalized treaties that establish clear allocations, frameworks that expand

benefits beyond the resource itself, and third-party involvement to provide guarantees and balance asymmetries. One must also acknowledge that major vulnerabilities will persist in most contexts, including power asymmetries (which can range from expertise advantages to outright relations of domination and control), exclusion of key stakeholders, and environmental risks. Additionally, mutual recognition of sovereignty and established water rights remains a crucial precondition. In situations where different legal traditions co-exist -- including statutory frameworks rooted in western legal traditions, non-western governance arrangements, and indigenous or customary systems where water resources are considered communal and collective rather than private – the very basis on which sovereignty rest may be contested, since these traditions often embody fundamentally different understandings of who holds authority over ecological resources. Accordingly, the durability of cooperative arrangements will depend on their capacities to continually adapt to changing conditions and ensure all affected parties are included in meaningful ways. In a changing climate, with or without the larger political complexities of cooperation that characterize many of the sites we have examined, the precarity of such arrangements must be acknowledged as well as addressed. One way to do so is to rethink current sovereignty arrangements and find alternative territorialities for governance and policy action built around new forms of confederation, including those that might draw on notions of the commons as well as alternatively spatialized "imagined communities of allegiance" formed in the service of justice and shared futures.[cii]

Rescaling Water Governance in the Search for Regional Sovereignties

But what does this mean? In this background paper we have argued that internationally recognized and operational sovereignty has been key to enabling cooperation over water. To the extent that sovereignty is embodied in national states, there appears to be more scope for sharing water futures between rather than within states. Such claims are built on the assumption that national borders operate as static lines dividing sovereign territories and cooperation as scaling predictably from local to national. Water defies this logic. Just as with the US-Mexico border case discussed earlier, let us return to the Jordan River region to see how water challenges longstanding assumptions about sovereignty.

Historically, what is now known as the Jordan River Valley was a space of shared kinship and ecological interdependence that persisted beyond formal sovereignty. During the Egyptian occupation of Palestine in the mid-19th century, Bedouin tribes "resisted the Egyptian regime"[ciii] precisely because centralized control threatened their traditional mobility patterns, with tribes like the Saker having long settled "on both sides of the Jordan river."[civ] Wessels examines how Druze residents in the occupied Golan Heights, who identify with Syria but live under Israeli annexation, retained strong cross-border ties, with communities maintaining "Syrian identity" while

navigating a highly restrictive system deeply intertwined with the Israeli military.[cv] In discussing the Yarmouk, Dajani describes how border infrastructure produces "slow violence" embedded "within the dams, weirs and reservoirs," where state-led projects create "disruptions to the social and ecological fabric of riverine communities,"[cvi] revealing how ecological interdependence outlasts political partition even as infrastructure fundamentally transforms human-river relationships. Yet despite hardened frontiers, civic and professional networks have quietly attempted to re-knit the region from below. EcoPeace's Good Water Neighbors and Climate Diplomacy Young Professional programs are initiatives that "create awareness among young Jordanians, Palestinians and Israelis about their water realities" and "fosters cross-border dialogue… equipping them with the knowledge, skills, and networks necessary to address [the] region's critical water and climate challenges."[cvii] These initiatives exemplify water diplomacy, which "includes all measures by state and non-state actors that can be undertaken to prevent or peacefully resolve (emerging) conflicts and facilitate cooperation related to water availability, allocation or use between and within states and public and private stakeholders."[cviii]

A further source of resilience lies in the region's legal pluralism. Water governance operates across Israeli, Jordanian, Palestinian, residual Ottoman, and customary regimes in the form of legal systems that overlap, compete, and occasionally complement one other. Israel's military orders during its occupation centralized water control, with Military Order No. 498 of 1974 declaring that all water resources must be managed under military authority, thus restricting private extraction and use rights.[cix] Jordan's Water Control Law No. 31 of 1953 established centralized water management, yet local authorities and tribal councils still mediate allocation in rural areas.[cx] In the West Bank, the Palestinian Water Law enacted in 2002 aimed to "develop and manage water resources, increase their capacity, improve their quality and preserve and protect them from pollution and depletion,"[cxi] though Ottoman-era frameworks, particularly regarding communal spring rights and seasonal allocation customs, continue to influence water rights in areas where modern state enforcement remains limited. Meanwhile, Bedouin water customs persist[cxii] through tribal precedent and customary practices: wells are managed through lineage agreements and reciprocal access. During the Ottoman era community-based systems helped to maintain spring quality through assigned guards and social responsibility, with villages like Ein Battir using distributed water management where "the elder of the clan used to distribute the rationed water according to a certain quota."[cxiii] This coexistence of statutory, religious, and customary systems both complicated and enabled cooperation. It complicates because overlapping authorities breed jurisdictional confusion but enables cooperation because plural frameworks offer multiple venues for dispute resolution where state law is distrusted.

The river also endures as a symbolic and mythic boundary. In Palestinian mythology, the Jordan serves as "a site of beginning and transition where collective character undergoes transformation," functioning to "bolster collective identification with a fixed territory."[cxiv] Bienkowski reveals through phenomenological analysis how the landscape becomes "emotionally meaningful … as … a landscape of movement and of memory, absence, loss and abandonment."[cxv] Yet, it is also true that "cross border exchanges do not erase boundaries completely." While fostering connection, everyday encounters across the river simultaneously reinforce "structures of power and inequality."[cxvi] These findings thus complicate the scale paradox. Municipal failure isn't inevitable; it follows the political hardening of borders without regard for social or ecological systems. Palestine's fragmented governance severs municipalities from the very networks that might have enabled cooperation. By contrast, where borders remain "softer", through professional associations, cross-border NGOs, or customary practiced, cooperation persists even when state relations deteriorate. The distinction is not simply local versus national but fragmented versus networked governance. Hard borders produce fragmentation that can sever municipalities from social, professional, and ecological networks that enable cooperation; networked regionalism, by contrast, both acknowledges the softness or fluidity of borders, and by so doing creates multiple channels through which alignment can emerge even when formal sovereignty remains contested. Israel-Jordan succeeded not only because sovereignty was clear but because pre-existing social, professional, and ecological ties provided the infrastructure for institutional cooperation.

Viewed through this lens, the Jordan River border is an evolving site where sovereignty is enacted, resisted, and shared. Lange et al. call such practices situated sovereignty, or "collaborative, self-determined action to open alternative spaces" beyond the state.[cxvii] While Lange et al. focus on how communities create authority where formal sovereignty is absent or contested, their insight connects to Ostrom's notion of polycentric governance where "many centers of decision making that are formally independent … function in a coherent manner with consistent and predictable patterns of interacting behavior"[cxviii] when they coordinate through mutual adjustment. Together, these frameworks suggest that effective water governance need not depend on a single sovereign authority but can emerge from the purposeful coordination of multiple, overlapping centers of legitimate decision-making. Borderlands thus operate as laboratories of polycentric and situated sovereignty, zones where engineers, mayors, Bedouin elders, and environmental NGOs improvise collective authority in the absence of a single sovereign, thus producing a regional form of the commons. The result is some level of stability: while borders harden institutionally, the practice of cooperation becomes increasingly networked, civic, and adaptive, revealing that ecological interdependence can reproduce "soft" forms of share regional order even where sovereignty remains contested. This suggests that durable cooperation requires not

sovereign clarity alone, but a grounded and historically-produced territorial sovereignty that is relational, adaptive, and attentive to the multiple communities (legal, professional, social, ecological) or histories that both created and continue to span national borders. The challenge, then, is to design or activate governance systems that align with the nested, overlapping networks through which water actually flows.

While such aspirations may seem foolhardy when focused on a region where battles over sovereignty have historically driven conflict, they point toward a broader principle: fragmented jurisdictions can be transformed into networked regions through concerted citizen action from below and purposeful alignment around shared ecological futures. In the Cape Ann project noted earlier, the recommendations that captured attention from a range of cross-municipal organizations sought precisely this transformation: turning divisions into connections through networked regional governance. Although progress has not been made, efforts are underway. Among the elements that were identified as holding the potential to bring residents together across the conflicting municipalities were: identification of historical elements of identity formation tracing to the port city's founding, formation of a regional infrastructure forum, establishment of a Cape Ann water commons, and a bottom-up visioning exercise focused on water futures – all of which was framed within a co-production framework focused on "viewing life, livelihood, identity and property through water imaginaries."[cxix] Many of these recommendations were derived from successful projects undertaken in the global south, where the formation of `hydrosocial territories' built on historical understandings of indigenous sovereignty and from-below efforts to establish networked governance arrangements around water led to such experiments as the formation of democratically-constituted citizen water assemblies that can even transcend national borders. [cxx]

Likewise, the US Southwest and Northern Mexico cases illustrated several key principles for regional cooperation, both from above and below, including the importance of integrated water-energy planning at the border, moving beyond both sectoral and state-civil society silos. Some of this was in fact set in motion by state-level responses to the US-Mexico negotiations enshrined in the 1944 water treaty. Despite its gaps, the Treaty's overarching, country-wide and country-to-country instruments ended up catalyzing successful cooperation at a more regional and local level throughout the second half of the 20th century and into the 21st with the passage of additional bi-lateral agreements leading to greater clarity regarding the sovereignty and responsibilities of the territories in question. Potential blueprints for kindling a locally-responsible and federally-supported approach can be found in recent regional disaster response and resilience planning efforts where municipal cooperation and participation guided the use of state and federal capacity and capital. And a range of actors at regional scales of both governance and civil society action are already

responsible for the provision of targeted emergency response resources, thus making them preferred nominees for the stewardship of the conditions that may make ecological cooperation durable.[cxxi]

The existence of Binational Waters, a network of advocates that span the US and Mexico, show that citizens can be key players in cooperation. So too does action based curricular programming from major universities who serve the region, such as CETYS, the Tecnologico de Tijuana, the University of San Diego, the University of Arizona, and Rice University's Border 2025 initiative housed in the Baker Institute. These examples show that alliances can be made by institutions who are responding to territorial imperatives in their regional backyards. Storm events and the subsequent response in Texas during the past decade also offer examples of citizens and authorities addressing and preparing for losses from severe climatic events.[cxxii] These range from immediate measures such as the use of short-term relief funds and immediate infrastructure repairs, to the development of long-term, resilience-minded strategies for bridging local jurisdictions to federal resources. And until recently, even government agencies – such as the EPA – have mounted programs that encourage environmental cooperation, including the Border Water Infrastructure Program.

Perhaps most significantly, these varied attempts to find common ground through negotiations built on flexible rather than fixed treaties that simultaneously prioritize benefit sharing rather than mere access to water suggest that water must be seen as a political tool – one that can be marshalled in the service of advancing the common good, much in the same way scholars and activists have thought about democracy over the decades. To be sure, political tools can be used for myriad aims, both virtuous and nefarious, including for domination and division. Negotiations around water resources may split rather than unite communities if shared social outcomes are off the table. The Nile case demonstrates how water access can become entangled with territorial agendas, with Egypt insisting on 1959 treaty allocations that granted it 55.5 billion cubic meters annually while Ethiopia was historically excluded from negotiations despite contributing 86% of the Nile's flow. "Egypt's hydro-hegemony over the Nile was demonstrated in the 1902, 1929, and 1959 colonial-era agreements" that created lasting grievances. In Texas, the "Rule of Capture" law allows landowners to pump unlimited groundwater, leading to aquifer depletion and water disputes that pit individual property rights against collective resource management. Even so, there are truly democratic aspirations embedded in efforts to manage water, at least to the extent that water management can generate inclusive politics through various institutional mechanisms that require a version of democratic deliberation.

There are multiple pathways through which water management can generate inclusive politics. These mechanisms range from binding international treaties to regional agreements to more participatory approaches like assemblies and commons

arrangements built on alternative property rights. In California, community-driven groundwater management programs like the Pajaro Valley Water Management Agency demonstrate how local stakeholders can balance agricultural, urban, and environmental concerns through a conservation-based market as well as cooperative agreements. Vermont's Community Land Trusts have shown how "collective land ownership can mitigate displacement risks while enhancing financial and social capacity to adapt to climate hazards," suggesting models for democratic resource governance that transcend traditional property arrangements.[cxxiii] In Cape Ann, flooding connects communities with different water ecologies, laying the ground for collaborative governance even when there are clear class and racial disparities between signatory municipalities. But to fully recognize water as a political tool also requires a focus on territory and scale. Indeed, there are fundamental challenges in water governance across different scales. As the case of Cape Ann also demonstrates, managing coastal water problems is not the same as addressing riverine water challenges nor the same as managing a regional territory. Even within a small region, the four municipalities hosted various combinations of problems, although flooding can connect them (water problems can connect people). The latter example puts on the agenda the importance of thinking more purposefully about ways to connect the institutional or jurisdictional boundaries of decision-making to the logics of water. Water systems create both divisions and potential connections that don't necessarily align with existent political jurisdictions. But because water problems are so pressing to everyday lives, via their impacts on work, home, and property, they can also create an `imagined community' of allegiance that may be larger than the municipality but smaller than the nation. By so doing, they form a regional assemblage – or what we might conceptualize as a new territoriality of sovereignty – determined by human and non-human dynamics.

The cases examined in this essay show that the transformation from fragmented competition to networked cooperation is neither automatic nor simply a matter of scale. Change requires deliberate institutional design that enables multiple centers of authority to coordinate through mutual adjustment, relying on water consumers themselves to be agents in the search for governance arrangements that foster human flourishing. This transformation depends on several conditions: the softening of hard borders; the multiplication of venues for dispute resolution beyond state-centric frameworks; and the reframing of water from zero-sum allocation to benefit-sharing that creates positive-sum opportunities for collaboration. When and where these conditions exist, be it in successful transnational treaties, emerging regionalisms, or purposefully constructed solidarities within hydrosocial territories, fragmentation gives way to networked forms of cooperation that are adaptive and more democratic than what conventional sovereignty allows.

Broader research on regional governance emphasizes how bioregionalism and its potential to align governance with ecological boundaries leads to new territorial arrangements. Water basins, for example, rarely align with municipal, state or national borders. To the extent that effective water governance must be able to transcend such boundaries if the aim is to manage shared water resources equitably, the task of democratic water governance should be to identify a new territoriality of shared futures, most of which will be built upon some form of regionalism. Joint watershed councils can manage specific aquifers or river systems through networked decision-making that spans jurisdictions. Community-level water committees who join together into a networked regional common can make operational decisions about infrastructure and conservation that keep the larger good in mind while remaining responsive to local conditions. Regional water parliaments can provide forums for public deliberation about major policy decisions and by so doing create legitimacy for cooperation beyond what municipal leaders can provide. They also form the basis for more ecologically-grounded, closer-to-home deliberations that are often sublimated in even the most successful national level negotiations. In this and other regards, region-based cooperative water governance built through the purposeful transformation of fragmentation into alignment around shared ecological futures, may offer models for a new form of sovereign decision-making that both enhance the likelihood of creating shared and sustainable futures and offer a chance to counter some of the most pressing jurisdictional conflicts of our times.

Conclusion: Principles for Advancing Ecological Cooperation or Partnership Beyond Borders

- Fragmented governance is the primary barrier to cooperation. Where multiple overlapping jurisdictions share responsibility for water, competition, institutional confusion, and zero-sum politics consistently undermine collective action.
- Cross-national cooperation over water has proven more durable than cooperation within states. Treaties between sovereign nations tend to outlast and outperform efforts to coordinate among municipalities, provinces, or states within a single country.
- Crisis can catalyze cooperation, but only when institutional infrastructure exists to channel it. Crisis without institutional capacity deepens fragmentation.
- Flexible, adaptive frameworks outperform rigid treaties. Colonial-era agreements and century-old compacts lock in outdated allocations and power relations.

- Shifting from resource allocation to benefit-sharing transforms the politics of water. When negotiations expand beyond fixed water quantities to include energy, desalination, and infrastructure investment, zero-sum conflicts become opportunities.
- Sovereign clarity enables cooperation. The Israel-Jordan treaty endures because both parties are recognized sovereigns. The Palestinian Authority's ambiguous status has institutionalized dependency and foreclosed meaningful partnership.
- Third-party actors can compensate for power asymmetries through convening power, technical expertise, and financial resources, though their effectiveness depends on perceived neutrality.
- Power asymmetries are not all alike. Some are rooted in resources or expertise, while others are rooted in domination and structural control.
- Legal pluralism can be both a barrier and a resource. Overlapping legal traditions complicate governance but also provide multiple venues for dispute resolution.
- Regional governance offers a promising alternative scale capable of aligning institutional boundaries with ecological realities.

References

Abas, Naeem Abas et al. 2019. "Indus Water Treaty in the Doldrums Due to Water–Power Nexus," *European Journal for Security Research* 4, no. 2: 201–42, https://doi.org/10.1007/s41125-019-00043-y.

Aliewi, Amjad. N.D. *Management and Conflict Aspects of Waters between Palestine and Israel*, 88

Al-Muqdadi, Sameh. 2022. "The Spiral of Escalating Water Conflict: The Theory of Hydri-Politics." *Water* vol. 13/3446

Awais, Arifeen and Siri Eriksen. 2020. The Politics of Disaster Vulnerability: Flooding, Post-Disaster Interventions and Water Governance in Baltistan, Pakistan," *Environment and Planning E: Nature and Space* 3, no. 4: 1137–57, https://doi.org/10.1177/2514848619880899.

Bass, Benjamin, Naomi Goldenson, Stefan Rahimi, and Alex Hall. 2023. "Aridification of Colorado River Basin's Snowpack Regions Has Driven Water Losses Despite Ameliorating Effects of Vegetation." *Water Resources Research* 59 (7): e2022WR033454. https://doi.org/10.1029/2022WR033454

Beard, Victoria, Faranak Miraftab, and Christopher Silver. 2008. "Planning and decentralization." *Routledge. DOI* 10 (2008): 9780203928264

Bednar, Jenna. 2023. "Governance for Human Social Flourishing" *Daedalus* 152 (1): 31-45. Available at https://doi.org/10.1162/DAED_a_01958.

Bienkowski, Piotr. 2006. "Tribes, Borders, Landscapes and Reciprocal Relations: The Wadi Arabah and Its Meaning," *Journal of Mediterranean Archaeology* 20, no. 1: 3757, https://doi.org/10.1558//jmea.2007.v20i1.33

Bismuth, Christine. 2016. "Water Resources, Cooperation and Power Asymmetries in the Water Management of the Lower Jordan Valley: The Situation Today and the Path That Has Led There." In Reinhard F. Hüttl et al., Society - Water – Technology: Water Resources Development and Management, Springer International Publishing. https://doi.org/10.1007/978-3-319-18971-0_13, 197

Boelens, Rudiger, Jaime Hoogesteger, Eric Swyngedouw, Phillipus Wester, & Jeroen Vos. 2016. "Hydrosocial territories: A political ecology perspective." *Water International* 41(1):1-14.

Clouse, Carey. 2019. "Climate-Adaptive Design: Building up Ladakh's Ice Stupas," *Landscape Journal* 38, nos. 1–2: 25–41, https://doi.org/10.3368/lj.38.1-2.25

Cruz, Ivonne. 2025. "US-Mexico Climate Cooperation at a Stalemate." *Rice University's Baker Institute for Public Policy*, October 10. https://www.bakerinstitute.org/research/us-mexico-climate-cooperation-stalemate

Dai, Liping. 2021. "Implementation Constraints on Israel–Palestine Water Cooperation: An Analysis Using the Water Governance Assessment Framework," *Water* 13, no. 5: 620, https://doi.org/10.3390/w13050620,

Dajani, Muna. 2025. “Slow Violence on the Yarmouk River: Encounters from the River-border Environments,” Area 57, no. 2: e12971, https://doi.org/10.1111/area.12971

Daoudy, Marwar, Jeannie L. Sowers, and Erika Weinthal. 2022. “What Is Climate Security? Framing Risks around Water, Food, and Migration in the Middle East and North Africa.” *Wiley Interdiscipliary Reviews Water* 9/1: DOI:

10.1002/wat2.1582

Davis, Diane E. and Frank C. Mueller (eds.) 2025. **(**Il)liberal Governance Arrangements and the Material Foundations of Sovereignty, *S*pecial Issue of *Territory, Politics, Governance* vol. 13 no. 6.

Davis, Diane E. 2025. “Divided we Drown: Exploring Cross-Municipal Cooperation for Climate Resilience in Cape Ann.” Working Paper, Harvard University.

Davis, Diane E. 2023. “Urban Sovereignty in a Time of Crisis: Pandemic Governance and the Ethics of Care.” In Raul Acosta, Eveline Durr, Mortz Ege, Ursual Prutsch, Clemens van Loyen, and Gordon Winder (eds**.),** Urban Ethics as a Research Agenda: Outlooks and Tensions in Multidisciplinary Debates. Routledge Press.

El-Anis, Imad and Roy Smith. 2013. “Freshwater Security, Conflict, and Cooperation: The Case of the Red Sea–Dead Sea Conduit Project,” Journal of Developing Societies 29, no. 1: 1–22, https://doi.org/10.1177/0169796X12470552, 11-1

El-Fadel, M. R. Quba’a, N. El-Hougeiri, Z. Hashisho, and D. Jamali. 2001. “The Israeli Palestinian Mountain Aquifer: A Case Study in Ground Water Conflict Resolution,” *Journal of Natural Resources and Life Sciences Education* 30, no. 1: 50–61, https://doi.org/10.2134/jnrlse.2001.0050, 50

Elsayed, Hamdy, Slobodan Djordjevic, Draga A. Savic, Ioannis Tsoukalas, and Christos Makropoulos. 2022. Water-Food-Energy Nexus for Transboundary Cooperation in Eastern Africa,” *Water Supply* 22, no. 4 (2022): 3567–87, https://doi.org/10.2166/ws.2022.001, 3584

Fainstein, Susan S. 2017. "Urban planning and social justice." In *The Routledge handbook of planning theory*, pp. 130-142. Routledge.

Feola, Giuseppe, Michael K. Goodman, Jaime Suzunaga, & Jenny Soler. 2023. “Collective memories, place-framing and the politics of imaginary futures in sustainability transitions and transformation.” *Geoforum 138*

Field, Jessica. 2020. “Caught between Paper Plans and Kashmir Politics: Disaster Governance in Ladakh, India,” *Politics and Governance* 8, no. 4: 355–65, https://doi.org/10.17645/pag.v8i4.3143.

Garcia, Berenice. 2025. “Texas’ Rio Grande Valley Didn’t See Last Week’s Historic Storms Coming.” *The Texas Tribune*, April 3.

https://www.texastribune.org/2025/04/03/rio-grande-valley-south-texas-storms-floods-historic/;

Gerlak, Andrea K., Robert G. Varady Oliver Petit, & Arin C. Haverland. 2011. "Hydrosolidarity and beyond: Can ethics and equity find a place in today's water resource management?" *Water International* vol 36/3 2011): 251-265.

Grannis, Jessica. *Community Land = Community Resilience: How Community Land Trusts Can Support Urban Affordable Housing and Climate Initiatives*. Washington, DC: Georgetown Climate Center, 2021

Grindle, Merilee. 2009. Going Local: Decentralization, Democratization, and the Promise of Good Governance. Princeton University Press.

Haines, Kyle, Owen Temby, Josiah Heyman, et al. 2024. "Water Challenges at the U.S.-Mexico Border: Learning from Community and Expert Voices." *Ecology and Society* 29 (4). https://doi.org/10.5751/ES-15632-290435.

Hansen, Thomas Blom. 2021. "Sovereignty in the Minor key." *Public Culture 33*(1)" 41-61 (2021).

Havrelock, Rachel. 2007. "My Home Is Over Jordan: River as Border in Israeli and Palestinian National Mythology," *National Identities* 9, no. 2: 105–26, https://doi.org/10.1080/14608940701333720, 105-10

Hefny, Magdy and Salah El-Din Amer. 2005. "Egypt and the Nile Basin," Aquatic Sciences 67, no. 1: 42–50, https://doi.org/10.1007/s00027-004-0765-y

Helfgott, Alexandra. 2021. "Bilateral Water Management: Water Sharing between the US and Mexico along the Border | Wilson Center." January 4. https://www.wilsoncenter.org/article/bilateral-water-management-water-sharing-between-us-and-mexico-along-border.

Hernandez-Roy, Christopher and Natalia Hidalgo. 2025. *Growing Together*. Commentary, Center for Strategic and International Studies. https://www.csis.org/analysis/growing-together-north-american-agricultural-powerhouse.

Hurlbut, D. J, and National Renewable Energy Laboratory. 2012. Navajo Generating Station and Clean-Energy Alternatives: Options for Renewables. Golden, Colo.: National Renewable Energy Laboratory.

Ide, T. and C. Fröhlich. 2015. "Socio-Environmental Cooperation and Conflict? A Discursive Understanding and Its Application to the Case of Israel and Palestine," *Earth System Dynamics* 6, no. 2: 659–71. https://doi.org/10.5194/esd-6-659-2015, 664

Judeh, Tariq et al., N.D. *Assessment of Water Governance in the West Bank, Palestine*, 133

Khan, Muhammad Afaq. 2024. "Evolving Role of World Bank Group as an ADR Facilitator in Indus Waters Treaty: Balancing the International Principle/Norm "Pacta

Sunt Servanda" and Water Scarcity Challenges," *Indus Journal of Law and Social Sciences* III, no. I

Ladon, Padma et al. 2023. "Mountain Agropastoralism: Traditional Practices, Institutions and Pressures in the Indian Trans-Himalaya of Ladakh," *Pastoralism* 13, no. 1: 30, https://doi.org/10.1186/s13570-023-00289-1

Lange, Bastian et al. 2023. "Rethinking Geographies of Sovereignty: Towards a Conceptual Framework of Situated Sovereignty," *Geography Compass* 17, no. 12: e12728, https://doi.org/10.1111/gec3.12728, 3

Loopmans, Maarten and Jaime Hoogestege. 2024."Hydrosolidarity: A Socio-Political Reading of a Moral Concept," *Water Alternatives* 17/3: 688-711.

Lustgarten, Abraham. 2015/ "How Century-Old Water Laws Are Promoting Waste Amid Drought," *ProPublica*, June 9, 2015, https://projects.propublica.org/killing-the-colorado/story/wasting-water-out-west-use-it-or-lose-it/

Macknick, Jordan, Robin Newmark, and others. 2011. *The Water Implications of Renewable Portfolio Standards.* National Renewable Energy Laboratory (NREL) Technical Report, https://www.nrel.gov/docs/fy11osti/50039.pdf.

Marie, Amer, Saed Khayat, and Muna Dajani. 2015. "Water Quality Legislation in Palestine over the Past Century," Environmental Sciences Europe 24, no. 1: 15, https://doi.org/10.1186/2190-4715-24-15

Mbaku, John Mukum. 2002. "The Grand Ethiopian Renaissance Dam and the Nile Basin Conflict," Georgetown Journal of International Affairs 23, no. 1: 84–91, https://doi.org/10.1353/gia.2022.0014, 86

McCarthy, Kevin F. 1983. Interdependence in the U.S.-Mexican Borderlands: An Irresistible Dynamic or Fragmented Reality? Santa Monica, CA: RAND Corporation. https://www.rand.org/pubs/papers/P6889.html.

McKee, Emily. 2019. "Water, Power, and Refusal: Confronting Evasive Accountability in a Palestinian Village," *Journal of the Royal Anthropological Institute* 25, no. 3: 546–65, https://doi.org/10.1111/1467-9655.13082, 546-547

Morris, Mary E. 1997. "Water and Conflict in the Middle East: Threats and Opportunities," Studies in Conflict & Terrorism 20, no. 1: 1–13, https://doi.org/10.1080/10576109708436023, 7

Munin, Nellie. 2024. *"With a Little Help From My Friends:" Mining the Logic Behind Israel-Jordan-UAE Water For Electricity Deal. Invst Journal of Sharia & Economic Law vol 4 no 2:* ***DOI:***

https://doi.org/10.21154/invest.v4i2.9857

N.A. "Texas Agriculture Is Facing Heavy Crop Loss from Floods. STAR Fund, AgriStress Are Here to Help." n.d. *Texas Standard*.

https://www.texasstandard.org/stories/texas-flood-agriculture-loss-help-star-fund-agristress-hotline/

N.A. 2025. "Educating for Peace and Sustainability," *EcoPeace Middle East*, n.d., accessed November 2, 2025, https://ecopeaceme.org/education/

N.A. "The Multi-Track Water Diplomacy Framework," SIWI - Leading Expert in Water Governance, n.d., accessed November 2, 2025, https://siwi.org/publications/multi-track-water-diplomacy-framework/

Nicol, Alan and Ana Elisa Cascão. 2011. "Against the Flow – New Power Dynamics and Upstream Mobilisation in the Nile Basin," Review of African Political Economy 38, no. 128 https://doi.org/10.1080/03056244.2011.582767, 317-318

Nixon, Rob. 2013. *Slow Violence and the Environmentalism of the Poor*, Harvard University Press.

NOAA Physical Sciences Laboratory. 2025. "Weather Whiplash in Texas: Drought to Flood." August 11, 2025. National Oceanic and Atmospheric Administration. https://psl.noaa.gov/news/2025/texasfloods.html.

Ochoa Espejo, Paulina. 2020. On Borders: Territories, Legitimacy, and the Rights of Place. Oxford University Press.

Ortiz, Catalina and Oscar Gómez Córdoba. 2024. "Territorial Healing: A Spatial Spiral Weaving Transformative Reparation," *Planning Theory* 23, no. 2: 110–30, https://doi.org/10.1177/14730952231181129, 111

Ostrom, Elinor. 2010. "Beyond Markets and States: Polycentric Governance of Complex Economic Systems," *American Economic Review* 100, no. 3: 641–72, https://doi.org/10.1257/aer.100.3.641, 643

Overpeck, Jonathan T., and Bradley Udall. 2020. "Climate Change and the Aridification of North America." *Proceedings of the National Academy of Sciences* 117 (22): 11856–58. https://doi.org/10.1073/pnas.2006323117.

Pemunta, Ngambouk Vitalis et al./ 2021. "The Grand Ethiopian Renaissance Dam, Egyptian National Security, and Human and Food Security in the Nile River Basin," Cogent Social Sciences 7, no. 1: 1875598, https://doi.org/10.1080/23311886.2021.1875598, 2

Presson, Luke and Susanna Eden, 2023. "Arizona's Agricultural Outlook: Water, Climate, and Sustainability" University of Arizona Water Resources Research Center), 2–4,

Quba'A, Rola, et al. 2017. "A Positive Apportionment Framework Towards Enhancing Cooperation in the Jordan River Basin," *WIT Transactions on Ecology and The Environment* 220: 3

Salman M.A. Salman. 2013. "Mediation of International Water Disputes — the Indus, the Jordan, and the Nile Basins Interventions," in International Law and

Freshwater, ed. Laurence Boisson De Chazournes et al., Edward Elgar Publishing. https://doi.org/10.4337/9781781005095.00030, 391-392

Sanchez, Rosario, Stephen P. Mumme, and Gabriel Eckstein. 2025. "The Extraordinary Drought Provision and the Future of the Rio Grande Water Deliveries under the 1944 US–Mexico Water Treaty: An Exploratory Policy Analysis." *Water International* 50 (2): 171–88. https://doi.org/10.1080/02508060.2025.2465053.

Shah, Qasim Ali et al.. 2025. *The Water Wars: Weaponizing the Indus Waters Treaty*, version V.1, Zenodo, September 30, 2025, https://doi.org/10.5281/ZENODO.17296623.

Shapiro, Ian. 2006. The State of Democratic Theory, Yale University Press.

Shuval, Hillel and Hassan Dweik, eds. 2007. Water Resources in the Middle East Springer. https://doi.org/10.1007/978-3-540-69509-7

Smolenaars, Wouter J. Smolenaars et al. 2022. "Future Upstream Water Consumption and Its Impact on Downstream Water Availability in the Transboundary Indus Basin," *Hydrology and Earth System Sciences* 26, no. 4: 861–83, https://doi.org/10.5194/hess-26-861-2022.

Suggs, Bria. 2024. "Water Treaty between Mexico and U.S. Faces Biggest Test in 80 Years." Politics. *NPR*, August 16. https://www.npr.org/2024/08/16/nx-s1-5075171/water-treaty-mexico-united-states.

Suwaad, Muhammad. 2023. "The Bedouins in Palestine during the Egyptian Occupation 1831–1840," *Middle Eastern Studies*, September 2025, 1–21, https://doi.org/10.1080/00263206.2025.2547050

Swain, Asok. 2002. "The Nile River Basin Initiative: Too Many Cooks, Too Little Broth," *SAIS Review* 22: 293–308, https://doi.org/10.1353/sais.2002.0044, 297, 302

U.S. Geological Survey. *Colorado River Basin Map*. Reston, VA: U.S. Department of the Interior, 2023. https://www.usgs.gov/media/images/colorado-river-basin-map.

Wessels, Josepha Ivanka. 2015. "Down to the River: Identity, Citizenship, Security, Borders and Water in the Occupied Golan Heights," *Middle East Critique* 24, no. 3: 269–87, https://doi.org/10.1080/19436149.2015.1046709,

Wolfe, Patrick. 2006. "Settler Colonialism and the Elimination of the Native" *Journal of Genocide Research* vol 8/4.

Zeitoun, Mark and Jeroen Warner. 2006. "Hydro-Hegemony – a Framework for Analysis of Trans-Boundary Water Conflicts," *Water Policy* vol. 8 issue 5: 435-460.

Zeleke, Nigus Shimelis. 2021. "The Nile Water Agreements of the Colonial Period and the Implications of the Grand Ethiopian Renaissance Dam for Regional Cooperation in East Africa," Journal of African Union Studies 10, no. 3 : 67–87, https://doi.org/10.31920/2050-4306/2021/10n3a4, 69

[i] This report was prepared for the Shared Homeland Paradigm: Reimagining Space, Rights, and Partnership in Palestine-Israel, a project directed by Haim Yacobi, Shatha Muaddi, and Omar Dajani at the University College London., Portions of the research were supported through CIFAR's Humanity's Urban Future project, of which I am co-director. I owe a debt of gratitude to the student research team that helped undertake the research and compile the materials for this paper. In particular, I want to especially thank Adin Becker, who has worked with me on these topics for several years and whose mastery of several of the cases as well as overall knowledge of water, governance, and cooperation helped lay the groundwork for many of the analytical points made here. Additional research assistance was provided by Diego Degenhart and Bhavya Jain.

[ii] For more on the relationship between ecological conditions, colonialism, and governance see Thomas Blom Hansen, "Sovereignty in the Minor key." *Public Culture 33*(1)" 41-61 (2021).

[iii] For more on hydrosocial solidariies and/or territorialities, see Maarten Loopmans and Jaime Hoogesteger "Hydrosolidarity: A Socio-Political Reading of a Moral Concept," *Water Alternatives* 17/3 (2024): 688-711 and Adrea K. Gerlak, Robert G. Varady Oliver Petit, & Arin C. Haverland, "Hydrosolidarity and beyond: Can ethics and equity find a place in today's water resource management?" *Water International* vol 36/3 2011): 251-265. In this literature authors study the extent to which certain ecological systems -- from watersheds to upstream/downstream riverine conditions that transcend social and political borders – form the basis for solidarity, cooperation, and commoning.

[iv] See Sameh W. H. Al-Muqdadi, "The Spiral of Escalating Water Conflict: The Theory of Hydri-Politics." *Water* vol. 13/3446 (2022).

[v] We are fully aware that such propositions may themselves be a consequence of the historical moment. It is not impossible to imagine that as climate crisis makes the lives of citizens more precarious at the local scale, we will find more evidence of local and subnational cooperation. We return to this possibility in our conclusion.

[vi] The turn to flourishing as an object of scholarly inquiry traces to debates in fields of STS (science-technology-society) studies but has recently been adopted in a wider array of social science fields including political science and sociology. With an initial starting point is a focus on what makes life possible, including with a focus on the health of the body as an organism, contemporary scholars interested in flourishing as a notion have amplified the discourse by focusing on other measures that impact or reflect the health of the human body including "life expectancy, GDP per capita, opportunities for self-expression, and the probability of not living in poverty" as well as other forms of precarity. See Jenna Bednar "Governance for Human Social Flourishing" *Daedalus* (2023) 152 (1): 31-45. Available at https://doi.org/10.1162/DAED_a_01958.

[vii] See Patrick Wolfe "Settler Colonialism and the Elimination of the Native" *Journal of Genocide Research* vol 8/4 (2006) and Rob Nixon, *Slow Violence and the Environmentalism of the Poor,* Harvard University Press, 2013.

[viii] For more on the relations between ecologies and alternative forms of state power, see Diane E. Davis and Frank C. Mueller (eds.) **(**Il)liberal Governance Arrangements and the Material Foundations of Sovereignty, *S*pecial Issue of *Territory, Politics, Governance* vol. 13 no. 6 (2025). In addition, many of the points in the above article build on seminal work by Thomas Blom Hansen on the ecological foundations of colonial expansions as well as recent work by Paulina Ochoa Espejo.

[ix] Political and democratic theorists have long argued that the most decentralized political systems offer the greatest accountability and thus are more just. Such views have been solidified by multilateral institutions, whose arguments for good governance build on an embrace of decentralization. In the world of planning theory, the preoccupation with the neighborhood, community, and municipal scale parallels this sentiment. For an overview of several decades of democratic, and the emergence of arguments about decentralization see Ian Shapiro, *The State of Democratic Theory,* Yale University Press, 2006. For a more critical view see Merilee Grindle, Going Local: *Decentralization, Democratization, and the Promise of Good Governance*. Princeton University Press, 2009. For a discussion of the planning profession's turn to localized forms of decision-making, including participatory action as the foundation of ethical planning practice, see Beard, Victoria, Faranak Miraftab, and Christopher Silver. "Planning and decentralization." *Routledge. DOI* 10 (2008): 9780203928264 and Fainstein, Susan S. "Urban planning and social justice." In *The Routledge handbook of planning theory*, pp. 130-142. Routledge, 2017.

[x] Observers of the ongoing conflicts in Somalia, Syria, Israel-Palestine, and other have not only noted that controlling access to water is often what drives conflict over who gets to be in what territory, but also that damaging or destroying water resources is often a tactic used to enhance political power by undermining residents' capacities to survive. For an overview of water dynamics in conflict settings, visit: https://www.worldwater.org/conflict/list/

[xi] Again, with reference to some of the above conflict settings, observers have suggested that efforts to wrestle control of the Golan heights between 48 and 67 between Israel and Syria was largely motivated by conflict over water flows to the Sea of Galilee, the largest source of fresh water for Israel before the advent of desalination.

[xii] The discussion of Cape Ann in this essay builds on research undertaken by a team at Harvard's Graduate School of Design in collaboration with Cape Ann authorities and funded by the National Oceanic and Atmospheric Administration. The findings shared here are drawn from the following working paper, available from Harvard's Office for Urbanization: Diane E. Davis, "Divided we Drown: Exploring Cross-Municipal Cooperation for Climate Resilience in Cape Ann."

[xiii] de Castro, Clara. *Cape Ann Fluvial Connections*. Map included in presentation provided to the author, 2025.

[xiv] Despite these barriers, among organizations that are key stakeholders in climate policymaking or action for Cape Ann, 26 span at least 2 different municipalities (and in this group 8 have Cape Ann in their name), 11 are multi-county, and 5 identify at the county level (in this case Essex County).

[xv] Much of the material presented in this section comes from work conducted by the author, in the context of a larger project on ecological resilience in Cape Ann funded by the Office for Urbanization at Harvard's Graduate School of Design. For more material on this project, and for a more in-depth discussion of the barriers to cross-municipal cooperation, see: Cape Ann: Compound Vulnerabilities · Home: Phase 3.

[xvi] "Sharing the Colorado River and the Rio Grande: Cooperation and Conflict with Mexico." n.d. Legislation. https://www.congress.gov/crs-product/R45430.

[xvii] "Water Security at the US-Mexico Border | Part 1: Background | Wilson Center." 2025. April 1. https://www.wilsoncenter.org/article/water-security-us-mexico-border-part-1-background.

[xviii] Cruz, Ivonne. 2025. "US-Mexico Climate Cooperation at a Stalemate." *Rice University's Baker Institute for Public Policy*, October 10. https://www.bakerinstitute.org/research/us-mexico-climate-cooperation-stalemate.

[xix] Hurlbut, D. J, and National Renewable Energy Laboratory. 2012. *Navajo Generating Station and Clean-Energy Alternatives :Options for Renewables*. Golden, Colo.: National Renewable Energy Laboratory.

[xx] Abrahm Lustgarten, "How Century-Old Water Laws Are Promoting Waste Amid Drought," ProPublica, June 9, 2015, https://projects.propublica.org/killing-the-colorado/story/wasting-water-out-west-use-it-or-lose-it/.

[xxi] Jordan Macknick, Robin Newmark, and others, *The Water Implications of Renewable Portfolio Standards*, National Renewable Energy Laboratory (NREL), Technical Report, 2011, https://www.nrel.gov/docs/fy11osti/50039.pdf.

[xxii] U.S. Geological Survey. *Colorado River Basin Map*. Reston, VA: U.S. Department of the Interior, 2023. https://www.usgs.gov/media/images/colorado-river-basin-map.

[xxiii] *Ibid.*

[xxiv] Luke Presson and Susanna Eden, *Arizona's Agricultural Outlook: Water, Climate, and Sustainability* (Arroyo 2023, University of Arizona Water Resources Research Center), 2–4, https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/2023-06/Arroyo-2023-agricultural-water-outlook.pdf.

[xxv] The term megadrought is used to describe periods of drought stretching across multiple decades, in this instance describing conditions affecting the Southwestern U.S. and parts of Northern Mexico since the year 2000. See Hernandez-Roy, Christopher, and Natalia Hidalgo. *Growing Together*. Commentary, Center for Strategic and International Studies, 2025. https://www.csis.org/analysis/growing-together-north-american-agricultural-powerhouse. See also Overpeck, Jonathan T., and Bradley Udall. 2020. "Climate Change and the Aridification of North America." *Proceedings of the National Academy of Sciences* 117 (22): 11856–58. https://doi.org/10.1073/pnas.2006323117.

[xxvi] Bass, Benjamin, Naomi Goldenson, Stefan Rahimi, and Alex Hall. 2023. "Aridification of Colorado River Basin's Snowpack Regions Has Driven Water Losses Despite Ameliorating Effects of Vegetation."

Water Resources Research 59 (7): e2022WR033454. https://doi.org/10.1029/2022WR033454; US EPA, OAR. 2024. "Climate Change Connections: New Mexico (Rio Grande)." Overviews and Factsheets. September 10. https://www.epa.gov/climateimpacts/climate-change-connections-new-mexico-rio-grande.

[xxvii] Garcia, Berenice. 2025. "Texas' Rio Grande Valley Didn't See Last Week's Historic Storms Coming." *The Texas Tribune*, April 3. https://www.texastribune.org/2025/04/03/rio-grande-valley-south-texas-storms-floods-historic/; "Texas Agriculture Is Facing Heavy Crop Loss from Floods. STAR Fund, AgriStress Are Here to Help." n.d. *Texas Standard*. https://www.texasstandard.org/stories/texas-flood-agriculture-loss-help-star-fund-agristress-hotline/; NOAA Physical Sciences Laboratory. 2025. "Weather Whiplash in Texas: Drought to Flood." August 11, 2025. National Oceanic and Atmospheric Administration. https://psl.noaa.gov/news/2025/texasfloods.html.

[xxviii] International Boundary and Water Commission (IBWC). *Rio Grande Basin Overview Map*. El Paso, TX: U.S. Section, 2023. https://www.ibwc.gov/wp-content/uploads/2023/07/Rio-Grande-Basin-Overview-791x1024.jpg.

[xxix] "States that Rely on the Coloroado River Miss Deadline to Agree on Cuts." *New York Times,* November 13, 2025.

[xxx] Hernandez-Roy, Christopher, and Natalia Hidalgo. 2025. *Growing Together,* op. cit.

[xxxi] McCarthy, Kevin F., Interdependence in the U.S.-Mexican Borderlands: An Irresistible Dynamic or Fragmented Reality? Santa Monica, CA: RAND Corporation, 1983. https://www.rand.org/pubs/papers/P6889.html.

[xxxii] *Ibid*.

[xxxiii] Suggs, Bria. 2024. "Water Treaty between Mexico and U.S. Faces Biggest Test in 80 Years." Politics. *NPR*, August 16. https://www.npr.org/2024/08/16/nx-s1-5075171/water-treaty-mexico-united-states.

[xxxiv] "Treaties." n.d. *IBWC*. https://www.ibwc.gov/treaties/; "Water Security at the US-Mexico Border | Part 1."

[xxxv] "1944 U.S.-Mexico Water Treaty: Issues in the 119th Congress." n.d. Legislation. https://www.congress.gov/crs-product/IF12976; "About Us." n.d. IBWC. https://www.ibwc.gov/about-us/.

[xxxvi] Helfgott, Alexandra. 2021. "Bilateral Water Management: Water Sharing between the US and Mexico along the Border | Wilson Center." January 4. https://www.wilsoncenter.org/article/bilateral-water-management-water-sharing-between-us-and-mexico-along-border.

[xxxvii] Suggs, "Water Treaty between Mexico and U.S. Faces Biggest Test in 80 Year;" Helfgott, "Bilateral Water Management."

[xxxviii] McCarthy, Kevin F., Interdependence in the U.S.-Mexican Borderlands. 1983.

[xxxix] State of Texas General Land Office, 2024. "State of Texas 2018 South Texas Floods CDBG DR Action Plan," (GLO), https://www.glo.texas.gov/sites/default/files/2025-03/2018-sap-amend21741642312004%20%281%29.pdf; State of Texas General Land Office, 2023. "Lower Rio Grande Valley Economic Development Strategy and Diversification Study," (GLO). https://www.glo.texas.gov/sites/default/files/resources/cdr/documents/planning-studies/lrgv-study.pdf.

[xl] Sanchez, Rosario, Stephen P. Mumme, and Gabriel Eckstein. 2025. "The Extraordinary Drought Provision and the Future of the Rio Grande Water Deliveries under the 1944 US–Mexico Water Treaty: An Exploratory Policy Analysis." *Water International* 50 (2): 171–88. https://doi.org/10.1080/02508060.2025.2465053.

[xli] For more on efforts to frame water futures in the Nile River Valley through the lens of hydrosolidarity, see: https://www.pi.lu.se/sites/pi.lu.se/files/hydrosolidarity_2012-2013.pdf

[xlii] "Nile Basin Map." Wikimedia Commons. Accessed February 7, 2026. https://en.wikipedia.org/wiki/Nile_Basin#/media/File:Nile_basin_map.png

[xliii] Salman M.A. Salman, "Mediation of International Water Disputes — the Indus, the Jordan, and the Nile Basins Interventions," in International Law and Freshwater, ed. Laurence Boisson De Chazournes et al. (Edward Elgar Publishing, 2013), https://doi.org/10.4337/9781781005095.00030, 391-392.

[xliv] Ngambouk Vitalis Pemunta et al., "The Grand Ethiopian Renaissance Dam, Egyptian National Security, and Human and Food Security in the Nile River Basin," Cogent Social Sciences 7, no. 1 (2021): 1875598, https://doi.org/10.1080/23311886.2021.1875598, 2

[xlv] Magdy Hefny and Salah El-Din Amer, "Egypt and the Nile Basin," Aquatic Sciences 67, no. 1 (2005): 42–50, https://doi.org/10.1007/s00027-004-0765-y, 44
[xlvi] John Mukum Mbaku, "The Grand Ethiopian Renaissance Dam and the Nile Basin Conflict," Georgetown Journal of International Affairs 23, no. 1 (2022): 84–91, https://doi.org/10.1353/gia.2022.0014, 86
[xlvii] Hamdy Elsayed et al., "Water-Food-Energy Nexus for Transboundary Cooperation in Eastern Africa," Water Supply 22, no. 4 (2022): 3567–87, https://doi.org/10.2166/ws.2022.001, 3584
[xlviii] Ashok Swain, "The Nile River Basin Initiative: Too Many Cooks, Too Little Broth," SAIS Review 22, no. 2 (2002): 293–308, https://doi.org/10.1353/sais.2002.0044, 297, 302
[xlix] Mbaku, "The Grand Ethiopian Renaissance Dam and the Nile Basin Conflict," 84-85
[l] Hefny and Amer, "Egypt and the Nile Basin," 42
[li] Nigus Shimelis Zeleke, "The Nile Water Agreements of the Colonial Period and the Implications of the Grand Ethiopian Renaissance Dam for Regional Cooperation in East Africa," Journal of African Union Studies 10, no. 3 (2021): 67–87, https://doi.org/10.31920/2050-4306/2021/10n3a4, 69
[lii] Pemunta et al., "The Grand Ethiopian Renaissance Dam, Egyptian National Security, and Human and Food Security in the Nile River Basin," 1
[liii] Alan Nicol and Ana Elisa Cascão, "Against the Flow – New Power Dynamics and Upstream Mobilisation in the Nile Basin," Review of African Political Economy 38, no. 128 (2011), https://doi.org/10.1080/03056244.2011.582767, 317-318
[liv] Wouter J. Smolenaars et al., "Future Upstream Water Consumption and Its Impact on Downstream Water Availability in the Transboundary Indus Basin," *Hydrology and Earth System Sciences* 26, no. 4 (2022): 861–83, https://doi.org/10.5194/hess-26-861-2022.
[lv] This map comes from Wikimedia. https://commons.wikimedia.org/wiki/File:Indus_River_basin_map.svg
[lvi] Until the 1947 partition the territory that now comprises Pakistan and India were both considered a single jurisdictional entity under British colonial ru.e
[lvii] Qasim Ali Shah et al., *The Water Wars: Weaponizing the Indus Waters Treaty*, version V.1, Zenodo, September 30, 2025, https://doi.org/10.5281/ZENODO.17296623.
[lviii] Muhammad Afaq Khan, "Evolving Role of World Bank Group as an ADR Facilitator in Indus Waters Treaty: Balancing the International Principle/Norm "Pacta Sunt Servanda" and Water Scarcity Challenges," *Indus Journal of Law and Social Sciences* III, no. I (2024).
[lix] Naeem Abas et al., "Indus Water Treaty in the Doldrums Due to Water–Power Nexus," *European Journal for Security Research* 4, no. 2 (2019): 201–42, https://doi.org/10.1007/s41125-019-00043-y.
[lx] Abas et al., "Indus Water Treaty in the Doldrums Due to Water–Power Nexus."
[lxi] Awais Arifeen and Siri Eriksen, "The Politics of Disaster Vulnerability: Flooding, Post-Disaster Interventions and Water Governance in Baltistan, Pakistan," *Environment and Planning E: Nature and Space* 3, no. 4 (2020): 1137–57, https://doi.org/10.1177/2514848619880899.
[lxii] Abas et al., "Indus Water Treaty in the Doldrums Due to Water–Power Nexus."
[lxiii] Abas et al., "Indus Water Treaty in the Doldrums Due to Water–Power Nexus."
[lxiv] Jessica Field, "Caught between Paper Plans and Kashmir Politics: Disaster Governance in Ladakh, India," *Politics and Governance* 8, no. 4 (2020): 355–65, https://doi.org/10.17645/pag.v8i4.3143.
[lxv] Padma Ladon et al., "Mountain Agropastoralism: Traditional Practices, Institutions and Pressures in the Indian Trans-Himalaya of Ladakh," *Pastoralism* 13, no. 1 (2023): 30, https://doi.org/10.1186/s13570-023-00289-1; Carey Clouse, "Climate-Adaptive Design: Building up Ladakh's Ice Stupas," *Landscape Journal* 38, nos. 1–2 (2019): 25–41, https://doi.org/10.3368/lj.38.1-2.25; Varsha Singh, *The Women Who Brought Back Water to a Himalayan Village*, September 12, 2025, https://vikalpsangam.org/article/the-women-who-brought-water-back-to-a-himalayan-village/.
[lxvi] Tariq Judeh et al., Assessment of Water Governance in the West Bank, Palestine, n.d, 133
[lxvii] "Governance and Financing - GWP," accessed November 2, 2025, https://www.gwp.org/governanceandfinancing,
[lxviii] "JordanRiver en.svg." Map of the Jordan River, the Dead Sea, the Sea of Galilee, and Surrounding Areas. Derivative of UN map. Wikimedia Commons. Accessed February 7, 2026. https://en.wikipedia.org/wiki/Jordan_River#/media/File:JordanRiver_en.svg

[lxix] Emily McKee, "Water, Power, and Refusal: Confronting Evasive Accountability in a Palestinian Village," *Journal of the Royal Anthropological Institute* 25, no. 3 (2019): 546–65, https://doi.org/10.1111/1467-9655.13082, 546-547.
[lxx] Ibid., 548
[lxxi] Ibid., 547
[lxxii] Liping Dai, "Implementation Constraints on Israel–Palestine Water Cooperation: An Analysis Using the Water Governance Assessment Framework," *Water* 13, no. 5 (2021): 620, https://doi.org/10.3390/w13050620, 1
[lxxiii] Ibid., 12
[lxxiv] Amjad Aliewi, Management and Conflict Aspects of Waters between Palestine and Israel, n.d, 88
[lxxv] Dai, "Implementation Constraints on Israel–Palestine Water Cooperation," 12
[lxxvi] M. El-Fadel et al., "The Israeli Palestinian Mountain Aquifer: A Case Study in Ground Water Conflict Resolution," *Journal of Natural Resources and Life Sciences Education* 30, no. 1 (2001): 50–61, https://doi.org/10.2134/jnrlse.2001.0050, 50
[lxxvii] Emily McKee, op. cit. p. 560
[lxxviii] Tariq Judeh et al., Assessment of Water Governance in the West Bank, Palestine, n.d, 130
[lxxix] Hillel Shuval and Hassan Dweik, eds., Water Resources in the Middle East (Springer, 2007), https://doi.org/10.1007/978-3-540-69509-7, 22
[lxxx] Christine Bismuth, "Water Resources, Cooperation and Power Asymmetries in the Water Management of the Lower Jordan Valley: The Situation Today and the Path That Has Led There," in Society - Water - Technology, ed. Reinhard F. Hüttl et al., Water Resources Development and Management (Springer International Publishing, 2016), https://doi.org/10.1007/978-3-319-18971-0_13, 197
[lxxxi] Ibid., 195
[lxxxii] Zeitoun and Warner, "Hydro-Hegemony – a Framework for Analysis of Trans-Boundary Water Conflicts," 452
[lxxxiii] Royal Haskoning DHV / Core Associates, Palestinian NGO Master Plan for Sustainable Development of the Lower Part of the Jordan River Basin, 11; 25
[lxxxiv] Zeitoun and Warner, op. cit.
[lxxxv] Shuval and Dweik, Water Resources in the Middle East, 104-105
[lxxxvi] Imad El-Anis and Roy Smith, "Freshwater Security, Conflict, and Cooperation: The Case of the Red Sea–Dead Sea Conduit Project," Journal of Developing Societies 29, no. 1 (2013): 1–22, https://doi.org/10.1177/0169796X12470552, 11-13
[lxxxvii] Called ISWEL (Integrated Solutions for Water, Energy, and Land), the project was a "partnership between the International Institute for Applied Systems Analysis, Global Environment Facility, and United Nations Industrial Development Organization and aims to build an integrated framework of food, energy, and water resource assessment incorporating bottom-up and solution-focused scenarios co-designed with regional stakeholders from the four riparian countries." Yoshihide Wada et al., "Co-Designing Indus Water-Energy-Land Futures," *One Earth* 1, no. 2 (2019): 185–94, https://doi.org/10.1016/j.oneear.2019.10.006.
[lxxxviii] Daoudy et al., "What Is Climate Security?"
[lxxxix] Royal Haskoning DHV / Core Associates, Palestinian NGO Master Plan for Sustainable Development of the Lower Part of the Jordan River Basin, 12; 25
[xc] Daoudy et al., "What Is Climate Security?," 3
[xci] Mary E. Morris, "Water and Conflict in the Middle East: Threats and Opportunities," Studies in Conflict & Terrorism 20, no. 1 (1997): 1–13, https://doi.org/10.1080/10576109708436023, 7
[xcii] El-Anis and Smith, "Freshwater Security, Conflict, and Cooperation," 17
[xciii] T. Ide and C. Fröhlich, "Socio-Environmental Cooperation and Conflict? A Discursive Understanding and Its Application to the Case of Israel and Palestine," *Earth System Dynamics* 6, no. 2 (2015): 659–71, https://doi.org/10.5194/esd-6-659-2015, 664
[xciv] Ibid.
[xcv] Liping Dai, "Implementation Constraints on Israel–Palestine Water Cooperation: An Analysis Using the Water Governance Assessment Framework," Water 13, no. 5 (2021): 620, https://doi.org/10.3390/w13050620, 4
[xcvi] Bismuth, "Water Resources, Cooperation and Power Asymmetries in the Water Management of the Lower Jordan Valley," 189

[xcvii] Daoudy et al., "What Is Climate Security?"
[xcviii] Catalina Ortiz and Oscar Gómez Córdoba, "Territorial Healing: A Spatial Spiral Weaving Transformative Reparation," Planning Theory 23, no. 2 (2024): 110–30, https://doi.org/10.1177/14730952231181129, 111
[xcix] Rola Quba'A et al., "A Positive Apportionment Framework Towards Enhancing Cooperation in the Jordan River Basin," *WIT Transactions on Ecology and The Environment* 220 (2017), 3
[c] Ibid.
[ci] Munin, Nellie. N.D. *"With a Little Help From My Friends:" Examining the Logic Behind Israel-Jordan-UAE Water For Electricity Deal,* 234
[cii] For more on the ways in which sovereignty can be rescaled to subnational levels, in order to respond to crises that national states are unable to address, and without irreparably undermining constitutional or legal mandates – see my 2023 "Urban Sovereignty in a Time of Crisis: Pandemic Governance and the Ethics of Care." In Raul Acosta, Eveline Durr, Mortz Ege, Ursual Prutsch, Clemens van Loyen, and Gordon Winder (eds**.),** Urban Ethics as a Research Agenda: Outlooks and Tensions in Multidisciplinary Debates. Routledge Press, 2023.

[ciii] Muhammad Suwaed, "The Bedouins in Palestine during the Egyptian Occupation 1831–1840," Middle Eastern Studies, September 2025, 1–21, https://doi.org/10.1080/00263206.2025.2547050, 3
[civ] Ibid., 19
[cv] Josepha Ivanka Wessels, "Down to the River: Identity, Citizenship, Security, Borders and Water in the Occupied Golan Heights," *Middle East Critique* 24, no. 3 (2015): 269–87, https://doi.org/10.1080/19436149.2015.1046709,
[cvi] Muna Dajani, "Slow Violence on the Yarmouk River: Encounters from the River-border Environments," Area 57, no. 2 (2025): e12971, https://doi.org/10.1111/area.12971, 8
[cvii] "Educating for Peace and Sustainability," EcoPeace Middle East, n.d., accessed November 2, 2025, https://ecopeaceme.org/education/, 1-2
[cviii] "The Multi-Track Water Diplomacy Framework," SIWI - Leading Expert in Water Governance, n.d., accessed November 2, 2025, https://siwi.org/publications/multi-track-water-diplomacy-framework/, 13
[cix] Amer Marie et al., "Water Quality Legislation in Palestine over the Past Century," Environmental Sciences Europe 24, no. 1 (2012): 15, https://doi.org/10.1186/2190-4715-24-15, 6
[cx] Ibid., 5
[cxi] Ibid., 7
[cxii] Ibid., 2
[cxiii] Ibid., 3
[cxiv] Rachel Havrelock, "My Home Is Over Jordan: River as Border in Israeli and Palestinian National Mythology," *National Identities* 9, no. 2 (2007): 105–26, https://doi.org/10.1080/14608940701333720, 105-106
[cxv] Piotr Bienkowski, "Tribes, Borders, Landscapes and Reciprocal Relations: The Wadi Arabah and Its Meaning," *Journal of Mediterranean Archaeology* 20, no. 1 (2006): 3757, https://doi.org/10.1558//jmea.2007.v20i1.33, 33
[cxvi] Cédric Parizot, NOTES DE RECHERCHE DU CER, n.d, 4
[cxvii] Bastian Lange et al., "Rethinking Geographies of Sovereignty: Towards a Conceptual Framework of Situated Sovereignty," Geography Compass 17, no. 12 (2023): e12728, https://doi.org/10.1111/gec3.12728, 3
[cxviii] Elinor Ostrom, "Beyond Markets and States: Polycentric Governance of Complex Economic Systems," American Economic Review 100, no. 3 (2010): 641–72, https://doi.org/10.1257/aer.100.3.641, 643
[cxix] Davis, *Divided we Drown*, op. cit. page 31.
[cxx] For more on these experiments see Rudiger Boelens, Jaime Hoogesteger, Eric Swyngedouw, Phillipus Wester, & Jeroen Vos. 2016. "Hydrosocial territories: A political ecology perspective." *Water International* 41(1):1-14 as well as Giuseppe Feola, Michael K. Goodman, Jaime Suzunaga, & Jenny Soler. 2023. "Collective memories, place-framing and the politics of imaginary futures in sustainability transitions and transformation." *Geoforum 138*

[cxxi] Haines, Kyle, Owen Temby, Josiah Heyman, et al. 2024. "Water Challenges at the U.S.-Mexico Border: Learning from Community and Expert Voices." *Ecology and Society* 29 (4). https://doi.org/10.5751/ES-15632-290435.

[cxxii] For more on the ways that storms are mobilizing citizens to take conditions into their own hands see Garcia, Berenice, op. cit/

[cxxiii] Grannis, Jessica. *Community Land = Community Resilience: How Community Land Trusts Can Support Urban Affordable Housing and Climate Initiatives*. Washington, DC: Georgetown Climate Center, 2021