

WATER, CONFLICT, AND COOPERATION IN CENTRAL ASIA: THE ROLE OF INTERNATIONAL LAW AND DIPLOMACY

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In the volatile region of Central Asia located between Russia and China and home to the environmentally devastated Aral Sea, water conflict remains an ever-present threat. Although actual war between nations is unlikely, conflict over water often manifests as local skirmishes between different ethnic groups, especially in the densely populated region of Ferghana Valley straddling the borders of Kyrgyzstan, Tajikistan and Uzbekistan. In this analysis, the underlying causes of this conflict and the potential for cooperation are analyzed using the Water Diplomacy Framework and the United Nations Watercourses Convention, which codifies the key principles of international water law.

In the Syr Darya river basin, the key treaties that govern water management do not provide the flexibility needed to promote a mutually beneficial approach to water management. One treaty effectively locks in Soviet-era allocations and is no longer perceived as equitable and reasonable by all riparian countries. Another treaty attempts to recreate a once beneficial water-energy exchange, but its success has been hindered by the treaty language. Although a structure for transnational water cooperation exists in theory, mistrust among the riparian nations prevents

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them from implementing an effective collaborative adaptive management strategy. This mistrust is fueled by local conflict over water between farmers in Ferghana Valley because the tributaries and irrigation channels of the Syr Darya that were once part of a unified Soviet system now cross national borders. Poorly demarcated boundaries, challenges of maintaining cross-border infrastructure, increased pressure on the land, and the limited authority of local officials are among the key underlying causes.

Central Asia is not a water-scarce region but poor governance and a lack of cooperation have created a situation of scarcity. The path forward requires that the riparian nations on the Syr Darya learn to trust one another and embrace a mutually beneficial approach to water management.

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INTRODUCTION

While some commentators perceive Central Asia as a site of future water wars,¹ global history suggests that countries are much more likely to cooperate over water than go to war, despite popular statements to the

1. Louise Arbour, *Next Year’s Wars*, FOREIGN POLICY (Dec. 30, 2013), <https://foreignpolicy.com/2013/12/30/next-years-wars/> [https://perma.cc/JR9F-WXLP].

contrary.² However, a lack of access to sufficient resources can exacerbate local tensions and create instability in the region.³ This theory holds true for Central Asia. Although there is a fair amount of “saber-rattling” by Central Asian leaders over water,⁴ actual conflict in the region generally manifests as small-scale skirmishes, especially in the densely populated region of the Ferghana Valley located between Uzbekistan, Kyrgyzstan, and Tajikistan.⁵ Historically called the “pearl of Central Asia” because of its rich, lush, and diverse landscape, the Ferghana Valley has more recently been known as the “powder keg” of Central Asia,⁶ as illustrated by the violent and bloody clashes between Uzbek and Kyrgyz people in southern Kyrgyzstan in 2010.⁷

With the collapse of the Soviet Union in 1991 and the emergence of independent nations, a once-unified system for managing water in Central Asia fragmented. Massive water infrastructure built in upstream countries to irrigate cotton fields in downstream countries, such as the Toktogul

2. JEROME DELLI PRISCOLI & AARON T. WOLF, MANAGING AND TRANSFORMING WATER CONFLICTS 4 (2009); Aaron T. Wolf, *Conflict and Cooperation Along International Waterways*, 1 WATER POL'Y 251, 255 (1998); U.S. INTELLIGENCE CMTY., ICA 2012-08, GLOBAL WATER SECURITY 4 (2012); Mark Zeitoun & Naho Mirumachi, *Transboundary Water Interaction I: Reconsidering Conflict and Cooperation*, 8 INT'L. ENVTL. AGREEMENTS 297, 300 (2008).

3. U.S. INTELLIGENCE CMTY., *supra* note 2, at iii; *see also* Gabriel Eckstein, *Water Scarcity, Conflict, and Security in a Climate Change World: Challenges & Opportunities for International Law and Policy*, 27 WIS. INT'L L.J. 409, 430 (2009) (“Conventional wisdom suggests that all peoples and nations have breaking points and may resort to violence when faced with significant water depletion and scarcity.”).

4. *Water Wars in Central Asia: Dammed If They Do*, ECONOMIST (Sept. 29, 2012), <http://www.economist.com/node/21563764> [<https://perma.cc/3ZYB-WLEX>]; Joanna Lillis, *Uzbekistan Leader Warns of Water Wars in Central Asia*, EURASIANET (Sept. 7, 2012, 7:25 AM), <http://www.eurasianet.org/node/65877> [<https://perma.cc/JCJ9-SUKP>].

5. *See generally* Christine Bichsel et al., *Land, Water, and Ecology, in FERGHANA VALLEY: THE HEART OF CENTRAL ASIA* 253–77 (S. Frederick Starr et al. eds., 2011) (noting that approximately 20% of the total population of formerly Soviet Central Asia lives in the Ferghana Valley); LUIGI DE MARTINO ET AL., ENVIRONMENT AND SECURITY: TRANSFORMING RISKS INTO COOPERATION 16 (2005), <http://enrin.grida.no/environment-and-security/ferghana-report-eng.pdf> [<https://perma.cc/ZU32-LYZS>] (stating that approximately 6 million Uzbeks, 2 million Kyrgyz, and 1.5 million Tajiks inhabit the Ferghana Valley); S. Frederick Starr, *Introducing the Ferghana Valley, in FERGHANA VALLEY: THE HEART OF CENTRAL ASIA*, at ix, xii (S. Frederick Starr et al. eds., 2011). In official documents, Kyrgyzstan is usually known as the Kyrgyz Republic.

6. Александр Шустов [Alexander Shustov], *Центральная Азия: будет ли перedel границ?* [*Central Asia: Revising the Borders?*], STOLETIE (Jan. 25, 2010), http://www.stoletie.ru/geopolitika/centralnaja_azija_budet_li_peredel_granic_2010-01-25.htm [<https://perma.cc/EF7Q-8Y72>].

7. Luke Harding, *Death Toll Grows as Kyrgyzstan Ethnic Violence Escalates*, GUARDIAN (June 13, 2010), <https://www.theguardian.com/world/2010/jun/13/kyrgyzstan-shoot-to-kill-ethnic-violence> [<https://perma.cc/6GJY-D6RN>]; Michael Schwartz, *Ethnic Rioting Ravages Kyrgyzstan*, N.Y. TIMES (June 13, 2010), <http://www.nytimes.com/2010/06/14/world/asia/14kyrgyz.html> [<https://perma.cc/Y9D3-VZR4>].

Reservoir in Kyrgyzstan, are now the subject of contestation.⁸ The upstream countries stored water during winter months instead of using it to generate hydroelectricity, and in exchange, the downstream republics provided them with hydrocarbons.⁹ The Soviet-era water allocations between the Central Asian nations were codified into transboundary agreements, but the corresponding water-energy exchange that had previously existed between upstream and downstream countries no longer exists. The poor management of water in the region has also led to an environmental catastrophe: the Aral Sea has now shrunk to 10% of its original size, with deserts replacing fishing villages.¹⁰

Geopolitical tensions at the national level manifest as local skirmishes in the Ferghana Valley, with water access increasingly becoming a factor for tensions between different ethnic communities.¹¹ Tributaries of the Syr Darya River and related irrigation channels in the Ferghana Valley now traverse complex national borders, which makes coordination and maintenance difficult and leads to disputes between cross-border communities. These conflicts, which can turn violent, have a severe destabilizing impact within the nations, and they exacerbate tensions between countries.¹² As one expert observed, “[W]ater conflicts in the Syr [D]arya Basin present the highest likelihood of sparking the kind of

8. Eric W. Sievers, *Water, Conflict, and Regional Security in Central Asia*, 10 N.Y.U. ENVTL. L.J. 356, 374 (2002).

9. *Id.*

10. JAKOB GRANIT ET AL., STOCKHOLM INT’L WATER INST., REGIONAL WATER INTELLIGENCE REPORT CENTRAL ASIA 6 (2010); DE MARTINO ET AL., *supra* note 5, at 8.

11. ANNA MATVEEVA, CENTRAL ASIA: A STRATEGIC FRAMEWORK FOR PEACEBUILDING 26–27 (2006) (noting that rivalry over the water could exacerbate ethnic relations); M. Randa Slim, *Central Asia: The Ferghana Valley: In the Midst of a Host of Crises*, in SEARCHING FOR PEACE IN CENTRAL AND SOUTH ASIA: AN OVERVIEW OF CONFLICT PREVENTION AND PEACEBUILDING ACTIVITIES 147 (2002) (“[W]ater is a cause of many of the small-scale conflicts that are currently unfolding in the valley, especially between northern Tajikistan and southern Kyrgyzstan.”); Sievers, *supra* note 8, at 374 (assuming that water scarcity and strained inter-ethnic relations could lead to violent conflict in the Valley); HUMAN RIGHTS WATCH, “WHERE IS THE JUSTICE?”: INTERETHNIC VIOLENCE IN SOUTHERN KYRGYZSTAN AND ITS AFTERMATH 3 (2010) (noting that, although Kyrgyz and Uzbeks have lived together for generations in Kyrgyzstan, “disputes over land distribution and grievances about unequal access to economic and political power have simmered below the surface”).

12. Skandar Abdullayev et al., *Water and Geopolitics in Central Asia*, in WATER, ENVIRONMENTAL SECURITY AND SUSTAINABLE DEVELOPMENT: CONFLICT AND COOPERATION IN CENTRAL EURASIA 125 (Murat Arsel & Max Spoor eds., 2010); Алишер Хамидов [Alisher Khamidov], *ФЕРГАНСКАЯ ДОЛИНА: УЖЕСТОЧЕНИЕ МЕР ПОГРАНИЧНОГО КОНТРОЛЯ СПОСОБСТВУЕТ НАГНУТАНИЮ НАПРЯЖЕННОСТИ В АНКЛАВАХ ИНОСМИ* [The Ferghana Valley: Tighter Border Controls Contributes to Heighten Tensions in the Enclaves] (Aug. 17, 2009), <http://inosmi.ru/sngbaltia/20090817/251650.html> [<https://perma.cc/LVC2-7F47>] (noting that there have been over a dozen border clashes with enclave’s residents over the past decade); INT’L CRISIS GRP., CENTRAL ASIA: WATER AND CONFLICT 4–5 (2002).

spontaneous non-state violence in Central Asia that degrades the fundamental capacity of all states party to such a conflict.”¹³

This article analyzes the key challenges to promoting greater cooperation over water in the Syr Darya Basin in the Ferghana Valley. Part I describes the theoretical framework by providing concise overviews of the United Nations Convention on the Non-Navigational Uses of Water (UN Watercourses Convention), which codifies many key principles of international water law,¹⁴ and the Water Diplomacy Framework, which sets forth a negotiated approach to water management based on mutual gains theory.¹⁵ The Water Diplomacy Framework complements international water law by providing a set of tools that can help promote a mutually beneficial, non-zero-sum approach to negotiations over water.¹⁶ Water allocations between two riparian states are often seen as zero-sum, i.e., whatever one state gains, the other loses. Indeed, “international water law principles may be viewed more appropriately as tools of the political process between states negotiating over transboundary waters rather than tools of an adjudicatory process” because “they are designed to encourage cooperation and prevent discord among the states.”¹⁷ As scholars increasingly recognize, international water law can be interpreted to promote the equitable and reasonable sharing of benefits by riparian states, which is consistent with a mutual-gains theory such as the WDF.¹⁸

13. Sievers, *supra* note 8, at 374–75; see Slim, *supra* note 11, at 147 (identifying water as a key security issue); see also *Humanitarian Bulletin: South Caucasus and Central Asia*, U.N. OFFICE FOR COORDINATION OF HUMANITARIAN AFF., Jan–June 2013, at 2, http://reliefweb.int/sites/reliefweb.int/files/resources/HB_ROCCA_20130709%20EN.pdf [<https://perma.cc/35WH-CAYX>] (noting that in the Ferghana Valley in 2013, an estimated 80,000 people were affected by conflicts caused by lack of access to water and pasture and a difficult cross-border situation).

14. See generally ALISTAIR RIEU-CLARKE ET AL., U.N. WATERCOURSES CONVENTION USER’S GUIDE (2012) (for an overview of the UN Watercourses Convention); see generally *The Convention: What Does the Convention Say?*, U.N. WATERCOURSES CONVENTION, <http://www.unwatercoursesconvention.org/the-convention/> [<https://perma.cc/Z3JM-V4B2>] (last visited Jan. 19, 2017) (for an overview of the UN Watercourses Convention).

15. SHAFIQL ISLAM & LAWRENCE SUSSKIND, WATER DIPLOMACY: A NEGOTIATED APPROACH TO MANAGING COMPLEX WATER NETWORKS 14 (2013).

16. See generally Sharmila Murthy, *Can International Water Law Be a Tool for Water Diplomacy?*, 27 J. INT’L L. PEACE & ARMED CONFLICT 17, 19 (2014) (explaining how the Water Diplomacy Framework can help resolve transboundary water disputes).

17. Gabriel Eckstein, *Examples of the Political Character of International Water Law*, 102 AM. SOC’Y INT’L L. PROC. 353, 364 (2008).

18. Eckstein, *supra* note 3, at 432–33; see Alex Gryzbowski et al., *Beyond International Water Law: Successfully Negotiating Mutual Gains Agreements for International Watercourses*, 22 PAC. MCGEORGE GLOBAL BUS. & DEV. L.J. 139, 141 (2010) (arguing that the fundamental nature of international water law promotes equitable and reasonable sharing of watercourses); A. Dan Tarlock & Patricia Wouters, *Are Shared Benefits of International Waters an Equitable Apportionment?*, 18 COLO. J. INT’L ENVTL. L. & POL’Y 523, 523 (2007); Patricia Wouters & Ruby Moynihan, *Benefit Sharing in the UNWC and Under International Law*, in THE UN WATERCOURSES CONVENTION IN FORCE:

Part II uses the UN Watercourses Convention and the Water Diplomacy Framework to analyze the key drivers of conflict and cooperation in the Syr Darya Basin. The UN Watercourses Convention outlines a series of factors that must be part of an equitable and reasonable utilization analysis, while the Water Diplomacy Framework stresses the importance of understanding the social, political, and natural context of the geographic area in which the waterbody is located. The history of cotton production under the Russian and Soviet rule in Central Asia, which is critical to understanding the current water-management dynamics in the region, is discussed in Part II.A. Two key agreements on the main stem of the Syr Darya river—one essentially codifies the Soviet-era allocations and the other attempts to reintroduce the water-energy exchange between the upstream and downstream countries—are then analyzed and critiqued in Part II.B. These agreements are examples of “paper cooperation” that have not produced the kind of benefits that are possible with a collaborative arrangement.¹⁹ Regional dynamics exacerbate, and are exacerbated by, poor management of smaller tributaries of the Syr Darya that traverse ethnically diverse areas in the Ferghana Valley. The causes and consequences of the resulting conflict over water at the local scale are analyzed in Part II.C.

This article benefits from over 40 interviews conducted with key stakeholders in Kyrgyzstan and Uzbekistan during the summer of 2014, including national- and local-government officials, regional water organizations, international-aid agencies, local NGOs, farmers, academics, water-user-association leaders, and community leaders.²⁰

The analysis reveals that the failure to implement effective international water agreements exacerbates problems at the local level, and in turn, those local tensions reinforce mistrust at the national level. This cycle of mistrust inhibits effective cooperation over water at all levels. At the macro-level, the meta-narrative of the Syr Darya focuses on the timing of water releases because upstream Kyrgyzstan needs to discharge water in the winter for

STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT 321, 332–33 (Alistair Rieu-Clarke & Flavia Rocha Loures eds., 2013).

19. DAN TARLOCK, PROMOTING EFFECTIVE WATER MANAGEMENT COOPERATION AMONG RIPARIAN NATIONS 10 (2015), http://www.gwp.org/Global/ToolBox/Publications/Background%20papers/GWP_TEC21_web.pdf [<https://perma.cc/K239-ZUBN>].

20. The interviews were conducted using a semi-structured format. Interviewees were initially identified by reviewing publications and websites and subsequently via a snowball sampling methodology. Due to difficulties in securing a visa to Uzbekistan for the lead author, interviews with international and regional organizations and with NGOs in Uzbekistan were conducted via Skype. The interviewees are not quoted; rather, this empirical research informed our overall analysis.

hydropower production, which floods fields in downstream Uzbekistan.²¹ However, at the local level, all communities in the Ferghana Valley, including those in Kyrgyzstan, need more water for agriculture and basic household needs because more people have turned to farming in the post-Soviet era.²² Tributaries of the Syr Darya and irrigation canals that were once part of a unified system now traverse national boundaries, which makes upkeep challenging and causes strife where borders are not well-demarcated. The increased pressure on water and land resources has created local upstream-downstream dynamics and exacerbated ethnic tensions between communities in the Ferghana Valley.²³

Reducing actual and potential conflict over water on the Syr Darya in Central Asia requires that the countries re-examine their existing legal agreements and embrace a cooperative structure that promotes a mutually beneficial approach to water management. The agreements between the nations currently do not have the flexibility needed to promote effective, cooperative water management. A framework for joint and collaborative management exists in the form of the Interstate Coordinating Water Commission (ICWC), under the auspices of International Fund for Saving the Aral Sea (IFAS).²⁴ However, disagreements over Soviet-era allocations and schedules, as well as mistrust between the parties, hamper its effectiveness. Some scholars have suggested that the plethora of agreements and structures in Central Asia can be attributed more to the active role played by donor agencies in the region than to a real desire to cooperate.²⁵

Part of the challenge is that real cooperation, as opposed to paper cooperation, may only be able to take place if the existing agreements are renegotiated to provide a framework that all riparian states on the Syr Darya, especially upstream Kyrgyzstan, believe is equitable and reasonable. This is not likely to occur given the current geopolitical situation. Moreover, to the extent that the existing agreements essentially codify the Soviet-era water allocations, it is questionable why the downstream countries would have any incentive to renegotiate the treaties. One possible motivation could be the reduction of costs associated with uncertainty and noncompliance with existing treaties, such as flooding of downstream fields. In addition, the current agreements do not address the potential

21. CHRISTINE BICHSEL, CONFLICT TRANSFORMATION IN CENTRAL ASIA: IRRIGATION DISPUTES IN THE FERGHANA VALLEY 22–25 (2009) (referring to the Pulgon, Khalmion, and Alga case where villages in the regions are a mix of Uzbeks and Kyrgyz residents).

22. *Id.* at 16, 21.

23. *Id.* at 21.

24. *See infra* Part II.

25. Sievers, *supra* note 8, at 388.

building of dams further upstream on the Naryn River, which flows into the Syr Darya, causing another source of tension.

The lack of cooperation at the national level translates down to the local level and leads to tensions over water access. These tensions cannot be resolved effectively unless there is also a cooperative structure in place to manage irrigation infrastructure and schedules on the tributaries of the Syr Darya. While there are many other factors that contribute to ethnic tensions, as illustrated by the Osh riots in 2010,²⁶ alleviating tensions over water could help to provide a pathway to cooperation instead of conflict in the Fergana Valley.

I. ANALYTICAL FRAMEWORK

A. United Nations Watercourses Convention

The UN Watercourses Convention, which entered into force in 2014, is generally recognized as codifying many aspects of customary international water law and clarifying the scope and content of specific rules and principles.²⁷ It sets forth a framework for cooperation because the process-oriented rules can encourage parties to meaningfully engage over planned measures.²⁸ It is not meant to supplant existing bilateral and multilateral treaties but to aid in their negotiation and interpretation. Shortly after the adoption of the UN Watercourses Convention in 1997, the International Court of Justice (ICJ) cited the treaty as a relevant source of international water law in the case concerning the Gabčíkovo-Nagymaros Project, a treaty dispute between Hungary and Slovakia.²⁹

Equitable and reasonable utilization of a transboundary watercourse is the foundational principle of international water law.³⁰ The UN Watercourses Convention enumerates a series of factors that should be considered in determining what is “equitable and reasonable,” such as

26. See, e.g., Schwirtz, *supra* note 7 (noting that the clashes over land and water in the Fergana Valley are the source of the ethnic tension).

27. Salman M.A. Salman, *The United Nations Watercourses Convention Ten Years Later: Why Has Its Entry into Force Proven Difficult?*, 32 *WATER INT'L* 1, 4 (2007); RIEU-CLARKE ET AL., *supra* note 14, at 97; see generally STEPHEN C. MCCAFFREY, *THE LAW OF INTERNATIONAL WATERCOURSES* (2d ed. 2007) (for an overview of the UN Watercourses Convention).

28. Ryan Stoa, *The United Nations Watercourses Convention on the Dawn of Entry into Force*, 47 *VAND. J. TRANSNAT'L L.* 1321, 1367 (2014).

29. Gabčíkovo–Nagymaros Project (Hung./Slov.), Judgment, 1997 I.C.J. 7, ¶ 85 (Sept. 25).

30. Convention on the Law of the Non-Navigational Uses of International Watercourses art. 5, May 21, 1997, 27 U.N.T.S. 12 [hereinafter UNWC]; Gryzbowski et al., *supra* note 18, at 141; MCCAFFREY, *supra* note 27, at 404.

geographic and hydrographic features; social and economic needs; dependent populations; effects on other states; existing and potential uses; conservation and development of water resources; and availability of alternative measures.³¹ Under the Convention, no single use enjoys priority over another, but in the event of a conflict, special regard shall be given to “vital human needs.”³²

Dan Tarlock and Patricia Wouters observe that the concept of equitable and reasonable utilization has two competing interpretations.³³ The first is “classic apportionment” whereby riparian states allocate the actual water in a transboundary river between them.³⁴ The second is a “shared benefits” model of equitable and reasonable utilization, which is derived from welfare economics and is premised on the idea of water being put to its highest use and on the sharing of benefits across boundaries.³⁵ This means that a state may forego “wet” water in exchange for another benefit (i.e., energy or agricultural products) or the equivalent monetary value.³⁶ As discussed below, the Water Diplomacy Framework promotes this shared-benefits approach to transboundary water management.

Although in practice many transboundary water treaties endorse a classic-apportionment approach, the text of the UN Watercourses Convention suggests a close alignment with the mutual-benefits approach, as urged by an increasing number of international water law scholars.³⁷ Article 5 of the Convention instructs states to use a watercourse in a way that prioritizes “optimal and sustainable utilization and benefits” for all concerned states.³⁸ In other words, the principle arguably refers to the equitable and reasonable sharing of benefits that can be derived from a particular transboundary watercourse. However, the sovereign equality of each state to participate in the equitable and reasonable sharing of benefits does not mean that each riparian has a right to an equal amount of water,

31. UNWC, *supra* note 30, at art. 6; A. Dan Tarlock, *Four Challenges for International Water Law*, 23 TUL. ENVTL. L.J. 369, 375–78 (2010) (suggesting that the vague nature of these factors contributes to conflict over water).

32. UNWC, *supra* note 30, at art. 10; *but see* Stephen C. McCaffrey, *A Human Right to Water: Domestic and International Implications*, 5 GEO. INT'L ENVTL. L. REV. 1, 2 (1992) (“[T]he mere suggestion that one state might have a right to receive water from another may be quite controversial.”); *see generally* CHRISTINA LEB, COOPERATION IN THE LAW OF TRANSBOUNDARY WATER RESOURCES 200–02 (2013) (explaining how international water law can protect vital human water needs).

33. Tarlock & Wouters, *supra* note 18, at 526–27.

34. *Id.* at 526.

35. *Id.* at 527.

36. *Id.*

37. Eckstein, *supra* note 3, at 432–33; Gryzbowski et al., *supra* note 18, at 143; Tarlock & Wouters, *supra* note 18, at 532; Wouters & Moynihan, *supra* note 18, at 335.

38. UNWC, *supra* note 30, at art. 5.

nor an equal amount of benefits.³⁹ Some scholars further argue that “optimal utilisation” and “benefits” should not be interpreted as requiring “the ‘maximum,’ the most efficient, or even the most (economically) valuable use.”⁴⁰ Instead, the terms suggest a careful balancing: “attaining maximum possible benefits for all riparians and achieving the greatest possible satisfaction of all their needs, while minimizing potential detrimental impact.”⁴¹

A few celebrated examples of treaties embracing mutual benefits exist.⁴² For example, under the Columbia River Treaty, Canada and the United States agreed that the United States could develop several hydropower-production and irrigation water management projects on the Columbia River.⁴³ In exchange for foregone opportunities upstream, Canada receives financial compensation and power from dam projects built on the United States side of the river.⁴⁴ The Senegal River is another well-known example of a treaty premised on the concept of benefits sharing. The countries of Mali, Mauritania, and Senegal jointly fund and maintain several water-resource development projects designed to expand hydropower production and enhance water regulation.⁴⁵ As will be discussed below, the nations on the Syr Darya in Central Asia have attempted to create a mutually beneficial arrangement by compensating upstream Kyrgyzstan for water releases that benefit downstream irrigation; however, the treaty has not been very effective because it neglects key issues.

The principle of equitable and reasonable utilization is not static but should be understood as a process that changes over time. As Stephen McCaffrey observes, “It is a dynamic process, which depends heavily upon

39. RIEU-CLARKE ET AL., *supra* note 14, at 106 (noting that the principle of sovereign equality “must not be mistaken for the right to an equal share of the uses and benefits of the watercourse; nor does it imply that the water resource itself has to be divided into equal shares”).

40. *Id.* at 107.

41. *Id.*

42. Wouters & Moynihan, *supra* note 18, at 328–33.

43. Treaty Between Canada and the United States of America Relating to Cooperative Development of the Water Resources of the Columbia River Basin, Can.-U.S., Annex, Jan. 17, 1961, 592 U.N.T.S. 272 (entered into force Oct. 4, 1965).

44. U.S. ARMY CORPS OF ENG'RS & BONNEVILLE POWER ADMIN., COLUMBIA RIVER TREATY: HISTORY AND 2014/2024 REVIEW 4 (2014), https://www.crt2014-2024review.gov/Files/Columbia%20River%20Treaty%20Review%20_revisedJune2014.pdf [<https://perma.cc/Z5NV-B8WA>].

45. Claudia W. Sadoff & David Grey, *Beyond the River: The Benefits of Cooperation on International Rivers*, 4 WATER POL'Y 389, 396 (2002); WINSTON YU, WORLD BANK, BENEFIT SHARING IN INTERNATIONAL RIVERS: FINDINGS FROM THE SENEGAL RIVER BASIN, THE COLUMBIA RIVER BASIN, AND THE LESOTHO HIGHLANDS WATER PROJECT 14, 14–17 (2008), <http://documents.worldbank.org/curated/en/159191468193140438/pdf/464560NWP0P1121g0AFTWR0YU301PUBLIC1.pdf> [<https://perma.cc/9UCY-E2KB>].

active cooperation between states sharing fresh water resources. A state's regime of utilization that is equitable vis-à-vis its co-riparian states today may not be next year."⁴⁶ In the *Gabcikovo-Nagymaros* case, the ICJ underscored this point by focusing on paragraph 2 of Article 5: "Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present Convention."⁴⁷

In other words, achieving an equitable and reasonable outcome requires ongoing cooperation over the development, use, and protection of a waterway. In this sense, the procedural and substantive duties under international water law overlap. As Christina Leb argues, the general duty to cooperate is not merely a procedural obligation, but is intertwined with the substantive aspects of international water law.⁴⁸ Yet, not all forms of cooperation are the same. Tarlock recognizes that basin states have an emerging customary duty to cooperate to achieve the objectives of a basin-related treaty but observes that not all forms of cooperation lead to measurable benefits.⁴⁹ He posits that "[t]oo often, the extensive cooperation literature accepts almost all interaction among basin states as cooperation, regardless of whether the interactions produce measurable benefits."⁵⁰ As will be discussed below, the regional instruments relevant to the Syr Darya could be seen as a classic example of "paper cooperation."⁵¹

The second key principle of the UN Watercourses Convention is the obligation of riparian states to take "all appropriate measures" to prevent causing "significant harm" to co-riparian states.⁵² This concept is generally consistent with a general obligation under international law not to cause harm to other state actors (*sic utere tuo*),⁵³ which is perhaps better understood as the good neighborliness principle.⁵⁴ Although often described as the "no harm" principle, in fact, the text of Article 7 of the UN Watercourses Convention does not prohibit all harm. Rather, "significant"

46. MCCAFFREY, *supra* note 27, at 404–05.

47. *Id.* at 405.

48. LEB, *supra* note 32, at 114.

49. TARLOCK, *supra* note 19, at 9.

50. *Id.*

51. *Id.*

52. UNWC, *supra* note 30, at art. 7.

53. MCCAFFREY, *supra* note 27, at 416; U.S. v. Can., 3 R.I.A.A. 1905, 1965 (1941); Pulp Mills on the River Uruguay (Arg. v. Uru.), Judgment, 2010 I.C.J. 14, ¶ 193 (Apr. 20); *see* Corfu Channel (Alb. v. U.K.), Judgment, 1949 I.C.J. 244, 245 (Dec. 19) (providing an example of damages awarded when Albania harmed the United Kingdom in Albanian waters).

54. MCCAFFREY, *supra* note 27, at 419.

harm should be avoided, which means that a small amount of harm could be tolerated.⁵⁵ Moreover, as long as a riparian state has taken “all appropriate measures” to prevent that significant harm, then it is not a *per se* violation of the treaty if significant harm nevertheless occurs.⁵⁶ Rather, the UN Watercourses Convention contemplates that if significant harm occurs, then the responsible state must eliminate or mitigate it, and if appropriate, discuss possible compensation.⁵⁷

While these two concepts are the seminal principles of international water law, many experts view the no-harm obligation as subordinate to the idea of equitable and reasonable utilization. For example, McCaffrey argues that the no-harm principle should be viewed as a factor within the equitable and reasonable utilization analysis.⁵⁸ Moreover, in 2004, the International Law Association promulgated the Berlin Rules on Water Resources, which further updated and codified international water law.⁵⁹ The Berlin Rules state in part that “[b]asin States shall in their respective territories manage the waters of an international drainage basin in an equitable and reasonable manner having due regard for the obligation not to cause significant harm to other basin States.”⁶⁰

In practice, however, many treaties codify existing uses and thereby give priority to no significant harm.⁶¹ Historically dominant riparian nations (i.e., hydro-hegemons) usually perceive any deviation from the existing status quo as creating significant, short-term harm.⁶² The challenge for nations negotiating over international rivers is that the obligation not to cause significant harm can sometimes be used by regional hegemons to prevent any change to the use of a river—and this runs counter to the goal of generating mutually beneficial solutions. Prioritizing the *status quo* can effectively preclude future uses by riparian states that have not yet productively used the watercourses. It is common for downstream nations to champion the no-significant-harm principle because they historically used the watercourses, while upstream nations prioritize the concept of

55. See UNWC, *supra* note 30, at art. 7 (stating only that a State should not cause significant harm).

56. *Id.*

57. *Id.*

58. MCCAFFREY, *supra* note 27, at 436.

59. See generally INT'L LAW ASS'N, BERLIN CONFERENCE: WATER RESOURCES LAW FOURTH REPORT (2004), http://internationalwaterlaw.org/documents/intldocs/ILA_Berlin_Rules-2004.pdf [<https://perma.cc/9NH5-8NW2>] [hereinafter BERLIN RULES ON WATER RESOURCES] (providing the international rules on managing water resources).

60. *Id.* at 12.

61. PRISCOLI & WOLF, *supra* note 2, at 64 tbl. 42 (finding that transboundary watercourse treaties generally do not relinquish prior uses).

62. Mark Zeitoun & J.A. Allan, *Applying Hegemony and Power Theory to Transboundary Water Analysis*, 10 WATER POL'Y 3, 4 (Supp. 2008).

equitable and reasonable use as a means to ensure that their future uses will be protected.⁶³

Effectively solving transboundary water problems in a mutually beneficial way requires nations to cooperate. The UN Watercourses Convention imposes a general duty to cooperate on all state parties,⁶⁴ which is a foundational principle of international law and is increasingly understood as a cornerstone principle of substantive international water law.⁶⁵ The UN Watercourses Convention requires that nations consult one another and exchange information over proposed projects,⁶⁶ and provide prior, timely notification if a measure could have a “significant adverse effect” on co-riparian states.⁶⁷ It further requires that “[s]uch notification shall be accompanied by available technical data and information, including the results of any environmental impact assessment, in order to enable the notified States to evaluate the possible effects of the planned measures.”⁶⁸ In other words, the text of the UNWC does not *per se* mandate an environmental impact assessment (EIA), but rather, suggests that if any is performed, the results must be shared.⁶⁹

In the *Pulp Mills* case, the ICJ underscored that where there is a likelihood of transboundary harm, international law requires that an EIA be undertaken.⁷⁰ However, the content of the EIA is determined by the laws of that nation, not by international law.⁷¹

63. RIEU-CLARKE ET AL., *supra* note 14, at 101, 117.

64. UNWC, *supra* note 30, at art. 8 (“Watercourse States shall cooperate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilization and adequate protection of an international watercourse.”).

65. LEB, *supra* note 32, at 105 (describing “equitable utilization,” “good neighborliness,” and the “duty to cooperate” as the “triangle of cornerstone principles” of international water law).

66. UNWC, *supra* note 30, at art. 9 (noting that states have an obligation to exchange “readily available data and information” and use their “best efforts” to supply information that is not readily available).

67. UNWC, *supra* note 30, at arts. 11–12; *see also* Murthy, *supra* note 16, at 23 (“The threshold for notification under Article 12 is lower than in Article 7: notification should take place if an action may have significant adverse effects, which Article 7 focuses on significant harm.”); Stoa, *supra* note 28, at 1352 (“Part III on Planned Measures creates several process-oriented rules on information exchange, notification, and consultation.”).

68. UNWC, *supra* note 30, at art. 12.

69. MCCAFFREY, *supra* note 27, at 474–76.

70. *Pulp Mills*, 2010 I.C.J. at ¶ 204 (finding that the treaty had “to be interpreted in accordance with a practice, which in recent years has gained so much acceptance among States that it may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource”); *see also* Owen McIntyre & Mara Tignino, *Reconciling the UN Watercourses Convention with Recent Developments in Customary International Law*, in *THE UN WATERCOURSES CONVENTION IN FORCE: STRENGTHENING INTERNATIONAL LAW FOR TRANSBOUNDARY WATER MANAGEMENT* 286, 292 (Flavia Rocha Loures & Alistair Rieu-Clarke eds., 2013) (“The most significant aspect of the judgment in the *Pulp Mills* case for the development of international water law, and of international environmental law generally, is its

Under the UN Watercourses Convention, states have obligations to protect ecosystems and the marine environment and to prevent pollution and the introduction of alien species.⁷² Although the Convention is largely seen as codifying customary international water law, these provisions related to environmental protection have arguably not attained this status.⁷³

The UN Watercourses Convention also contains a series of back-and-forth notification and reply articles,⁷⁴ along with suggested mechanisms for dispute resolution.⁷⁵ To more meaningfully promote cooperation, however, states may establish joint mechanisms or commissions,⁷⁶ which are generally perceived to be effective means for fulfilling substantive obligations.⁷⁷ The creation of expert bodies as part of such joint institutions can also facilitate resolution of certain disagreements at the technical level before resorting to more formal dispute-resolution procedures, which are ultimately more political.⁷⁸

Under the UN Watercourses Convention, a nation can withhold information for national security purposes.⁷⁹ States can use this as an excuse not to share information that would support a collaborative approach to transboundary water management.⁸⁰ Many states perceive information about their watercourses to be state secrets, and the ability to withhold data about flows and usage can create barriers to trust.⁸¹

finding that EIA is absolutely essential for effective notification of neighboring states in respect of planned activities or projects which might cause transboundary harm.”).

71. Pulp Mills, 2010 I.C.J. at ¶ 205 (“The Court observes that . . . general international law [does not] specify the scope and content of an environmental impact assessment.”).

72. UNWC, *supra* note 30, at arts. 20–23.

73. Gryzbowski et al., *supra* note 18, at 141.

74. UNWC, *supra* note 30, at arts. 11–19.

75. *Id.* at art. 33 (noting that if negotiation is ineffective, the states may jointly request mediation, use a joint watercourse institution, or agree to submit the dispute to arbitration or to the ICJ; additionally, a party can also request that an impartial Fact-Finding Commission be established).

76. *Id.* at art. 8; *see also* MCCAFFREY, *supra* note 27, at 403.

77. *See* Pulp Mills, 2010 I.C.J. at ¶ 281 (finding that the effective functioning of CARU, a joint institution established between Uruguay and Argentina, related to substantive implementation of the treat between the countries).

78. MCCAFFREY, *supra* note 27, at 511.

79. UNWC, *supra* note 30, at art. 31 (noting that a state is not obligated to provide data or information that it considers “vital to its national defense or security”).

80. NAHID ISLAM, THE LAW OF NON-NAVIGATIONAL USES OF INTERNATIONAL WATERCOURSES: OPTIONS FOR REGIONAL REGIME-BUILDING IN ASIA 372 (2010).

81. *See* Murthy, *supra* note 16, at 23 (explaining how distrust stems from this provision and can “encourage parties to withhold information”); *see also* Lawrence Susskind & Shafiqul Islam, *Water Diplomacy: Creating Value and Building Trust in Transboundary Water Negotiations*, SCI. & DIPL., Sept. 2010 (explaining how cooperation among policy makers and water planners could build trust in each other and in the process).

B. Water Diplomacy Framework

Although international water law does not mandate a mutually beneficial approach to dispute resolution, the key tenets of the UN Watercourses Convention are consistent with the Water Diplomacy Framework.⁸² The Water Diplomacy Framework posits that parties can develop mutually beneficial solutions to overcome the historically zero-sum orientation toward transboundary water disputes.⁸³ Gains to one transboundary party should not necessarily mean losses to others. Instead, like other mutual-gains theories,⁸⁴ the Water Diplomacy Framework encourages parties to consider how to maximize the value of the water and urges each country to share the benefits that might otherwise accrue to it exclusively.⁸⁵ Because parties generally have different priorities, they can create more value with the water by developing joint solutions that meet their distinct needs.

Water is a flexible and fungible resource.⁸⁶ Solutions require thinking not simply about the amount of water in a transboundary river, but also about the uses of that water, such as its role in creating food and energy (i.e., the water-energy-food nexus).⁸⁷ Such cooperation can enable the parties to develop solutions that maximize the geographical landscape because some topographies may be better adapted to agriculture, while others may be better suited to hydropower. In addition, the parties can share the costs of infrastructure and develop integrated ecosystem-management plans.⁸⁸ This is consistent with the UN Watercourses Convention's

82. Murthy, *supra* note 16, at 22; *see also* A. Dan Tarlock, *Toward a More Robust International Water Law of Cooperation to Address Droughts and Ecosystem Conservation*, 28 GEO. ENVTL. L. REV. 261, 267 (2015) (“The legal system alone cannot compel successful cooperation, but it can be used to help states overcome geopolitical barriers to greater cooperative efforts.”).

83. ISLAM & SUSSKIND, *supra* note 15, at 128; *see* Murthy, *supra* note 16, at 19 (discussing how the UN Watercourses Convention relates to the Water Diplomacy Framework).

84. Gryzbowski et al., *supra* note 18, at 143; *see, e.g.*, Sadoff & Grey, *supra* note 45, at 393.

85. Murthy, *supra* note 16; Rebecca L. Teasley & Daene C. McKinney, *Calculating the Benefits of Transboundary River Basin Cooperation: Syr Darya Basin*, 137 J. WATER RESOURCES PLAN. & MGMT. 481, 489 (2011) (providing an example of how potential shared benefits can be modeled and quantified, which was illustrated in this paper using parameters in a new draft agreement on the allocation of water and energy resources in the Syr Darya Basin).

86. ISLAM & SUSSKIND, *supra* note 15, at 200, 225 (describing how parties can “create” additional water through conservation, wastewater recycling, technological advances such as desalination, and by imagining new agricultural or industrial processes that use water more efficiently, thereby freeing up more water for other purposes).

87. *Water, Food and Energy Nexus*, U.N. WATER, <http://www.unwater.org/topics/water-food-and-energy-nexus/en/> [<https://perma.cc/PSG9-NBCX>] (last updated Oct. 7, 2014); Rhett B. Larson, *Reconciling Energy and Food Security*, 48 U. RICH. L. REV. 929, 932 (2013).

88. Tarlock, *supra* note 31, at 397.

requirement that states use watercourses in a way that attains their “optimal and sustainable” value, which accounts for broader “benefits” associated with water use.⁸⁹ As discussed earlier, the Convention is often interpreted as encouraging riparian states to embrace a mutually beneficial approach that maximizes the flexible nature of water.

Legal agreements and institutional arrangements can be structured in a way that promotes this mutually beneficial approach and balances the desire for certainty with the need for flexibility.⁹⁰ Agreements can provide a flexible framework that facilitates collaborative adaptive management and joint fact finding, which are two key components of the Water Diplomacy Framework.⁹¹ Collaborative adaptive management means that the parties have a structure in place that allows them to change their water-management strategy according to evolving circumstances. They are then better equipped to respond to the dynamic natural, societal, and political forces that influence transboundary water management.⁹² This approach is increasingly important in the face of climate change, which increases uncertainty.⁹³

The Water Diplomacy Framework recognizes that there is no single, perfect solution to water management; strategies that are initially developed—and may be codified in a legal agreement—will not be perfect on the first try.⁹⁴ Rather, initial efforts are like experiments that the parties can learn from and adjust. It is important to have a platform that enables the parties to engage in scenario planning, so that they can plan for alternate futures. For example, a legal agreement could urge the parties to do X if Y occurs and W if Z occurs. These kinds of decisions allow the parties to avoid having to predict the future precisely. The key is to ensure that treaties do not create static plans that prevent the parties from adapting to their changing needs and environment. Moreover, if the scenarios are planned before a crisis occurs, the parties should be better prepared to handle them.

Collaborative adaptive management works hand-in-hand with the idea of joint fact finding and scenario planning. Cooperation requires trust.⁹⁵ However, differing stakeholders have different views on what is best. As a result, even seemingly unbiased scientific and technical information is subject to multiple interpretations. If the parties work together to gather and

89. UNWC, *supra* note 30, at art. 5.

90. *See generally* Murthy, *supra* note 16, at 17.

91. ISLAM & SUSSKIND, *supra* note 15, at 199, 202.

92. *Id.* at 10.

93. Eckstein, *supra* note 3, at 432–33.

94. ISLAM & SUSSKIND, *supra* note 15.

95. Tarlock, *supra* note 82, at 270.

analyze scientific information in a cooperative fashion, they are much more likely to trust the information.⁹⁶ With respect to making water-management decisions, this can enhance trust between the parties.⁹⁷ Neutral mediators and jointly selected experts can assist parties in seeking mutually beneficial solutions.⁹⁸

The Water Diplomacy Framework's emphases on flexibility, collaborative adaptive management, joint fact finding, and scenario planning are consistent with the concept of equitable and reasonable utilization. The numerous factors that go into the equitable-and-reasonable-utilization determination are an invitation for reassessment.⁹⁹ The UN Watercourses Convention requires states to "participate in the use, development and protection of an international watercourse," which includes not only the "right to utilize it" but also the "duty to cooperate in [its] protection and development."¹⁰⁰ It also depends on the regular exchange of "readily available data and information" by riparian states.¹⁰¹ Thus, while equitable and reasonable utilization is a substantive obligation, it is intricately intertwined with the fulfillment of procedural obligations.¹⁰² These obligations are consistent with the goals of collaborative adaptive management, joint fact finding, and scenario planning, which require a great deal of cooperation and transparency. Moreover, as discussed earlier, the UN Watercourses Convention also contemplates that parties will create joint mechanisms for managing watercourses effectively.¹⁰³

The Water Diplomacy Framework encourages the parties to consider all the stakeholders in a problem and understand their different perspectives. There is no single, perfect solution, but negotiating an outcome that accounts for these diverse perspectives can lead to a better solution that has more legitimacy. With few exceptions, the key actors under international law are states.¹⁰⁴ However, non-state actors are increasingly playing a role

96. ISLAM & SUSSKIND, *supra* note 15, at 224.

97. *Id.* at 258.

98. See PRISCOLI & WOLF, *supra* note 2, at 44 (stating that "third- or neutral-party assistance is often needed" for increasingly complex water resource allocation issues).

99. MCCAFFREY, *supra* note 27, at 402.

100. UNWC, *supra* note 30, at art. 2.

101. *Id.* at art. 9.

102. See LEB, *supra* note 32, at 81 (discussing the evolution of the duty to cooperate in the context of international water law).

103. UNWC, *supra* note 30, at art. 8 (allowing states to "consider the establishment of joint mechanisms or commissions, as deemed necessary by them, to facilitate cooperation on relevant measures").

104. Human rights law and international investment law are two such examples. Non-state actors are increasingly playing a role in international law, but international water law only applies to watercourse states. See DAVID HUNTER ET AL., INTERNATIONAL ENVIRONMENTAL LAW AND POLICY 1325, 1439 (5th ed. 2015) (discussing human rights law and investment law, respectively).

in international law.¹⁰⁵ There is nothing that prevents a state from creating forums where other stakeholders to a watercourse have the opportunity to provide input and develop solutions.

Ultimately, as noted earlier, creating a mutually beneficial solution in line with the UN Watercourses Convention and the Water Diplomacy Framework requires trust.¹⁰⁶ As the analysis below will show, this lack of trust is a fundamental challenge to addressing water conflict in the Syr Darya Basin in the Ferghana Valley region of Central Asia.

II. KEY BARRIERS TO TRANSBOUNDARY WATER COOPERATION ON THE SYR DARYA RIVER

Numerous obstacles exist to treating water as a flexible and mutually beneficial resource in Central Asia as encouraged by the Water Diplomacy Framework and the UN Watercourses Convention. Since independence in 1991, the Central Asian countries have entered into many agreements pertaining to the major rivers that comprise the Aral Sea Basin.¹⁰⁷ For many of the hundreds of small rivers that crisscross the countries, the Soviet-era agreements have been maintained. Yet in many respects, the current institutional framework for developing and allocating water resources in Central Asia has become obsolete.¹⁰⁸ As evidence from around the world suggests, the existence of transboundary water agreements does not necessarily mean that a strong level of cooperation exists, nor does it indicate a lack of conflict.¹⁰⁹ The problem can be attributed in part to the “normative quality” of the treaties, which neglect central elements of the Water Diplomacy Framework and international water law that are generally recognized as guideposts for cooperation.¹¹⁰ The existing treaties in Central

105. *Id.* at 254–58.

106. Tarlock, *supra* note 82, at 270 (“Cooperation is ultimately achieved when basin nations sufficiently trust each other to make meaningful allocation and management decisions.”).

107. Dinara Ziganshina, *Specially Invited Opinions and Research Report of the International Water Law Project: Global Perspectives on the Entry into the UN Watercourses Convention 2014: Part One: The Current State and Future Outlook*, 16 *WATER POL’Y* 1206, 1207 (Gabriel Eckstein ed., 2014).

108. Sergei Vinogradov & Vance Langford, *Managing Transboundary Water Resources in the Aral Sea Basin: In Search of a Solution*, 1 *INT’L. J. GLOBAL ENVTL. ISSUES* 345, 351 (2001).

109. Suvi Sojamo, *Illustrating Co-Existing Conflict and Cooperation in the Aral Sea Basin with TWINS Approach*, in *CENTRAL ASIAN WATERS: SOCIAL, ECONOMIC, ENVIRONMENTAL AND GOVERNANCE PUZZLE* 75, 77 (Muhammad Mizanur Rahaman & Olli Varis eds., 2008).

110. LEB, *supra* note 32, at 30 (noting that while law is not essential to cooperation, it can be a useful means of circumscribing the ways water conflicts are managed, if only providing predictability and stability); Zeitoun & Mirumachi, *supra* note 2, at 303.

Asia do not reflect the dynamic nature of transboundary water management that is essential for effective cooperation.¹¹¹

The Central Asian nations also have a structure in place that could, in theory, promote a mutual-gains approach to water management. The ICWC oversees the regulation, use, and protection of interstate water in the region.¹¹² The heads of water management authorities in each of the five countries comprise the ICWC, which meets several times a year to allocate water and address disputes.¹¹³ The ICWC makes unanimous decisions that are binding on all countries.¹¹⁴ The ICWC provides a platform for coordinating research, building capacity, and exchanging information among the countries.¹¹⁵ The ICWC is now part of the IFAS,¹¹⁶ along with

111. DINARA ZIGANSHINA, THE ROLE AND RELEVANCE OF THE UN WATERCOURSES CONVENTION TO THE COUNTRIES OF CENTRAL ASIA AND AFGHANISTAN IN THE ARAL SEA BASIN 56 (2011).

112. INTERSTATE COMMISSION FOR WATER COORDINATION CENT. ASIA, <http://www.icwc-aral.uz/index.htm> [<https://perma.cc/8KQL-2NJC>] (last visited Jan. 25, 2017); DINARA ZIGANSHINA, PROMOTING TRANSBOUNDARY WATER SECURITY IN THE ARAL SEA BASIN THROUGH INTERNATIONAL LAW 115 (2014); GRANIT ET AL., *supra* note 10, at 19; Laurence Boisson de Chazournes, *Elements of a Legal Strategy for Managing International Water-Courses: The Aral Sea Basin*, in WORLD BANK TECHNICAL PAPER 414 (Salman M.A. Salman & Laurence Boisson de Chazournes eds., 1998), <http://elibrary.worldbank.org/doi/pdf/10.1596/0-8213-4298-3> [<https://perma.cc/Y2ZF-2YF3>].

113. INTERSTATE COMMISSION FOR WATER COORDINATION CENT. ASIA, *supra* note 112.

114. Agreement on Cooperation in the Field of Joint Water Resources Management and Conservation of Interstate Sources, Kaz.-Kyrg.-Taj.-Turkm.-Uzb., Feb. 18, 1992, <http://www.ce.utexas.edu/prof/mckinney/papers/aral/agreements/ICWC-Feb18-1992.pdf> [<https://perma.cc/ZJ9V-3R8N>] [hereinafter 1992 Almaty Agreement] (stating that disputes would be solved by “the heads of water management agencies of the Republics, and, if needed, with participation of a representative of the party concerned”); Christine Bichsel, *Liquid Challenges: Contested Water in Central Asia*, 12 SUSTAINABLE DEV. L. & POL’Y 24, 25 (2011); Ziganshina, *supra* note 111, at 32; Boisson de Chazournes, *supra* note 112.

115. Statute of the Interstate Commission for Water Coordination of Central Asia art. 2.7–2.10, Kaz.-Kyrg.-Taj.-Turkm.-Uzb., Sept. 16, 2008, <http://www.icwc-aral.uz/statute4.htm> [<https://perma.cc/LEB9-4DWC>] (noting that one key objective of the ICWC is to develop and operate a “unified regional, basin and national information systems on water use” and to disseminate and exchange information related to water resources); Ziganshina, *supra* note 111, at 32.

116. See Agreement on Joint Activities in Addressing the Aral Sea art. II, Kaz.-Kyrg.-Taj.-Turkm.-Uzb., Mar. 26, 1993, <http://www.internationalwaterlaw.org/documents/regionaldocs/aral-sea.html> [<https://perma.cc/GN8B-DRNZ>] (creating the Interstate Council for the Aral Sea); Agreement About the Status of IFAS and Its Organizations, Kaz.-Kyrg.-Taj.-Turkm.-Uzb., Apr. 1, 1999, http://www.cawater-info.net/library/eng/ifas_e_1.pdf [<https://perma.cc/3HT3-K749>]; GRANIT ET AL., *supra* note 10, at 19 (noting that the 1993 Kzyl-Orda treaty placed the ICWC under the newly-established Interstate Council on the Aral Sea (ICAS), which was then transformed into the International Fund for Saving the Aral Sea (IFAS) in 1997); Gregory Heltzer, Note, *Stalemate in the Aral Sea Basin: Will Kyrgyzstan’s New Water Law Bring the Downstream Nations Back to the Multilateral Bargaining Table?*, 15 GEO. INT’L ENVTL. L. REV. 291, 302 (2003) (noting that IFAS is led by the head of state of one of the Central Asian nations, that the leadership rotates every two years, and that it is otherwise comprised of the Deputy Prime Ministers of the Central Asian nations that oversee agriculture, water, and the environment).

the Interstate Commission for Sustainable Development (ICSD).¹¹⁷ IFAS is responsible for collecting contributions and financing program activities.¹¹⁸ The ICWC structure also incorporated two water basin valley organizations (BVOs)¹¹⁹ for the Amu Darya and the Syr Darya rivers, which were created in 1986, during Soviet times.¹²⁰ Responsibility for water withdrawal limits and for returning a specified volume of water to the Aral Sea lies with the ICWC and the BVOs.¹²¹

The ICWC has the potential to promote the kind of joint fact finding and collaborative adaptive management needed for a mutual-gains approach to water management. However, due to lack of trust between the parties and dissatisfaction with the existing water allocation amounts, the ICWC does not serve this purpose. For example, in May of 2016, Kyrgyzstan decided to freeze its participation in IFAS because the reforms it proposed had not been implemented.¹²² The interstate BVOs are supposed to be responsible for basin allocation; however, they are not recognized by the national legislatures and have no real authority.¹²³ The BVOs, as well as national

117. ICSD, IFAS, http://ec-ifas.waterunites-ca.org/arak_basin/institutions/mkur/index.html (last visited Jan. 18, 2017); see Boisson de Chazournes, *supra* note 112, at 51 (stating that ICSD's role is to "ensure that economic, social and environmental factors are given equal weight in planning decisions"); Sievers, *supra* note 8, at 386–87 ("[The] initial decision to retain the Soviet status-quo was followed by a number of proclamations by the states about water reform, including the 1993 Tashkent Heads of State Decision (creating the International Fund for the Aral Sea), the 1993 Kzyl-Orda Agreement (creating the Interstate Council for the Aral Sea), the 1995 Nukus Declaration (pledging the states to fulfill all water agreements existing between them), the 1997 Almaty Declaration (pledging the states to create an International Convention for the Sustainable Development of the Aral Sea Basin), and the 1999 Ashgabad Declaration (urging more international attention to the region).").

118. Boisson de Chazournes, *supra* note 112, at 51 (explaining that IFAS replaced ICAS, and that the original institutional structure had been modified to improve the allocation of responsibilities, streamlining the decision-making process, "notably for ensuring effective donor grants management").

119. Yuldash Khudayberganov, *Security and Water Resources Management Problems and Experience in the Amudarya River Basin*, in *WATER AND FOOD SECURITY IN CENTRAL ASIA* 59 (Chandra Alastair Madramootoo & Victor Dukhovny eds., 2011) (noting that while they are generally referred to as BVOs [an acronym for their Russian name, BBO/ Basseinovie Vodokhozyaistvennoe Ob'edinenie], they are also sometimes translated as Basin Water Organizations, or BWOs).

120. Sievers, *supra* note 8, at 386 ("In 1986, Minvodkhoz [the Soviet water ministry] created basin water use associations (BVOs) for the Amudarya and Syrdarya, and these have survived into the independence period as joint institutions, although both are, as in the Soviet period, headquartered in Uzbekistan."); A. Sorg et al., *Coping with Changing Water Resources: The Case of the Syr Darya River Basin in Central Asia*, 43 ENVTL. SCI & POL'Y 68, 72 (2014).

121. Boisson de Chazournes, *supra* note 112, at 50.

122. Аскар ТУРУСБЕКОВ [Askat Turusbekov], *Кыргызстан приостанавливает свое участие в фонде спасения Аральского моря* [Kyrgyzstan Suspends Its Participation in the Fund of Aral Sea] (May 20, 2016, 5:07 PM), http://bnews.kz/ru/news/v_mire/kirgizstan_priostanavlivaet_svoe_uchastie_v_fonde_spaseniya_aral'sko_go_morya-2016_05_20-1272353 [https://perma.cc/XE3P-XNWN].

123. Sarah L. O'Hara, *Central Asia's Water Resources: Contemporary and Future Management Issues*, 16 WATER RESOURCES DEV., 423–41, 431 (2000); Stephen Hodgson, *Strategic*

water management agencies, are also chronically underfunded because member states are often unwilling to contribute funds to an external agency.¹²⁴

Several efforts to promote regional economic integration exist, which in theory could provide an additional platform for cooperation. For example, in 2001, the Shanghai Cooperation Organization was created with six members: China, Kazakhstan, Kyrgyz Republic, Russia, Tajikistan, and Uzbekistan.¹²⁵ However, it has not delivered on its promise, in part, because Russia and China do not see eye to eye.¹²⁶ As discussed below, Russia and China have financed some of the dam-building projects in upstream Kyrgyzstan and Tajikistan, which has exacerbated geopolitics. According to the International Crisis Group, Uzbekistan often perceives Russia as promoting an agenda that aggravates tensions over water.¹²⁷

Different political economies and frameworks for water governance in each of the Syr Darya riparian countries have also made coordinated management difficult.¹²⁸ The economies of Uzbekistan and Kazakhstan largely depend on the export of fossil fuels and cotton.¹²⁹ Tajikistan and Kyrgyzstan heavily rely on hydro-energy production and the remittances of labor migrants working in Russia and Kazakhstan.¹³⁰ They define the role of water in their economies differently.¹³¹ If water is vital for upstream Kyrgyzstan and Tajikistan as the source of energy production, then downstream Uzbekistan and Kazakhstan need water for irrigation. At the same time in the Ferghana Valley, communities in all these countries depend on water for agriculture and basic needs.¹³² Because of the way that the Syr Darya snakes through the region, there are local upstream-

Water Resources in Central Asia: In Search of a New International Order, E.U. CENT. ASIA MONITORING, May 2010, at 1, 2.

124. O'Hara, *supra* note 123, at 431; Bichsel, *supra* note 114, at 25.

125. Johannes F. Linn, *Central Asian Regional Integration and Cooperation: Reality or Mirage*, in EURASIAN INTEGRATION YEARBOOK 103 (Evgeny Vinokurov ed., 2012).

126. *Id.* at 96–117, 104.

127. INT'L. CRISIS GRP., WATER PRESSURES IN CENTRAL ASIA 6 (2014), <https://www.crisisgroup.org/europe-central-asia/central-asia/water-pressures-central-asia> [<https://perma.cc/99DR-CJCW>].

128. *Id.* at 9; GRANIT ET AL., *supra* note 10, at 6.

129. INT'L CRISIS GRP., *supra* note 127, at 3–4.

130. *Id.* at 3; David Trilling, *Remittances to Central Asia Fall Sharply, as Expected*, EURASIANET.ORG (Apr. 21, 2015, 5:59 AM), <http://www.eurasianet.org/node/73061> [<https://perma.cc/RA68-V5FR>].

131. See, e.g., Catherine Putz, *New Hydropower Project Partners Needed in Kyrgyzstan*, THE DIPLOMAT (Dec. 28, 2015), <http://thediplomat.com/2015/12/new-hydropower-project-partners-needed-in-kyrgyzstan/> [<https://perma.cc/VS98-FPCQ>] (noting that Kyrgyzstan is building new dams with the goal of exporting electricity to South Asia).

132. Akira Ueda, *How Did the Nomads Act During the 1916 Revolution Russian Turkistan?*, I J. ASIAN NETWORK FOR GIS-BASED HIST. STUD. 33, 37–38 (2013).

downstream dynamics as well.¹³³ While these differing needs may seem conflicting, in fact, they present an opportunity to realize mutual gains through the exchange of benefits, as was true to an extent during the Soviet-era.

An effective transboundary solution requires coordination beyond the water sector, but in each country, separate decision-makers exist for water, agriculture, and energy.¹³⁴ Because these functions are not integrated at the national level, they are unlikely to be completed at the regional level, which makes achieving a mutually beneficial transboundary water-energy-food nexus solution difficult. Moreover, decisions tend to be centralized at the national level, which impedes cooperation over water access at the local level.

A. The Legacy of “White Gold”

An understanding of the Russian and Soviet history of water management in Central Asia helps to reveal the current barriers to managing water in a cooperative, mutually beneficial manner. This history helps to identify the geographic, social, economic, and environmental factors that should be considered in determining what is “equitable and reasonable.”¹³⁵

The fall of the Soviet Union in 1991 and the unexpected independence of the five Central Asian republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan¹³⁶ changed the management of water resources. Administrative boundaries suddenly turned into national borders, and the two rivers that flowed into the Aral Sea became international watercourses.¹³⁷ Concerned by the desiccation of the Aral Sea and with ensuring stability in the region, the donor community actively engaged with the Central Asian republics to form agreements and build regional capacity to address the crisis.¹³⁸ As a result, in 1992, all five Central Asian nations entered into an agreement at a meeting in Almaty, Kazakhstan, that led to

133. Beatrice Mosello, *Water in Central Asia: A Prospect of Conflict or Cooperation?*, 19 J. PUB. INT'L AFF. 151, 156–57 (1964).

134. Sorg et al., *supra* note 120, at 72.

135. UNWC, *supra* note 30, at art. 6. As noted earlier, these include: (1) geographic and hydrographic features; (2) social and economic needs; (3) dependent populations; (4) effects on other states; (5) existing and potential uses; (6) conservation and development of water resources; and (7) availability of alternative measures. *Id.*

136. See *The Collapse of the Soviet Union*, OFF. HISTORIAN, <https://history.state.gov/milestones/1989-1992/collapse-soviet-union> [<https://perma.cc/25XK-QRLH>] (last visited May 3, 2017) (for an overview of the history of the collapse of the Soviet Union).

137. Tarlock, *supra* note 31, at 400.

138. Boisson de Chazournes, *supra* note 112, at 55.

the Agreement on Cooperation in the Field of Joint Water Resources Management and Conservation of Interstate Sources (the Almaty Agreement).¹³⁹ The Almaty Agreement applied to the two main rivers feeding into the Aral Sea: the Amu Darya and the Syr Darya.¹⁴⁰ The Almaty Agreement essentially left in place the Soviet-era water allocation and schedules, which some Central Asian countries no longer perceive as equitable.¹⁴¹ Understanding why these allocations were initially adopted and why they are an underlying source of strife requires a review of history.

The story of water management in the Ferghana Valley, and more broadly in Central Asia, centers on cotton, which is otherwise known as “white gold.”¹⁴² The desire of the Russian Empire, and later the Soviet Union, to produce cotton for export drove the Aral Sea Basin’s development.¹⁴³ During the 1800s, the vast majority of cotton was imported from the United States, but this supply was interrupted by the United States Civil War.¹⁴⁴ Russian textile factory owners who were interested in new sources of raw cotton, urged the colonial administration to expand cotton plantations in Central Asia to reduce dependence on imported, expensive cotton from the United States.¹⁴⁵ Having recently conquered Central Asia, Russia saw tremendous potential for cotton production in an area with a favorable climate and access to water from great rivers.¹⁴⁶ Cotton soon became a strategic priority for the Russian Empire, which strongly promoted its cultivation in the lowlands of Uzbek and Tajik territories within the Ferghana Valley.¹⁴⁷ About 60% of the Valley’s territory lies in Uzbekistan (4.3% of Uzbek territory), another 25% is in Tajikistan (18.2% of Tajik territory), and the remaining 15% is in Kyrgyzstan (42.2% of Kyrgyz territory).¹⁴⁸

139. GRANIT ET AL., *supra* note 10, at 111; Sievers, *supra* note 8, at 386.

140. 1992 Almaty Agreement, *supra* note 114, at art. 9.

141. ZIGANSHINA, *supra* note 108, at 24 (“[The Almaty Agreement] validates the Soviet Schemes for Complex [Integrated] Water Resources Use and Protection, which provide for detailed regulations on water allocation and use between the Central Asian countries. However, the ‘equity’ of these norms has been questioned . . . [because of] concerns that the agreement favours a status quo.”); INT’L CRISIS GRP., *supra* note 12, at 3.

142. O’Hara, *supra* note 123, at 423.

143. *Id.*

144. Bichsel et al., *supra* note 5, at 255.

145. Ravshan Abdullaev et al., *Colonial Rule and Indigenous Responses, 1816-1917*, in *FERGHANA VALLEY: THE HEART OF CENTRAL ASIA* 69, 80 (S. Frederick Starr et al. eds., 2011)

(“[H]aving found its way into Turkestan and taken full political and economic control there, Russia quickly turned the region into an agrarian and raw materials-producing appendage of the metropolis.”).

146. FRED PEARCE, *WHEN THE RIVERS RUN DRY: WATER—THE DEFINING CRISIS OF THE TWENTY-FIRST CENTURY* 203 (2006).

147. Bichsel et al., *supra* note 5, at 255.

148. *Central Asia: The Complexities of the Fergana Valley*, STRATFOR (Oct. 7, 2013), <https://www.stratfor.com/analysis/central-asia-complexities-fergana-valley> [https://perma.cc/29XZ-

Under Russian rule, the production of cotton in Central Asia rose dramatically. In the 1860s, Central Asia supplied only 4% to 7% of raw cotton to the Russian Empire, but between 1914 and 1915, that figure rose to 70%.¹⁴⁹ In particular, the unique topography of the Ferghana Valley made it attractive for cotton production.¹⁵⁰ Traditional agriculture was rapidly transformed with food crops taking a backseat to cotton production.¹⁵¹ In the words of a senior official in the region, by the start of the twentieth century, “cotton was ‘the central nerve and main point of interest and concern of the local population. At the same time it [was] also the link connecting Turkestan [the old name for Central Asia] with Moscow and the rest of Russia.’”¹⁵² By 1913, cotton was being grown on approximately 80% to 90% of all irrigated land in the Ferghana Valley.¹⁵³ Approximately 60% of all cotton grown in Central Asia came from the Ferghana Valley, even though the area comprises less than 5% of the region’s total area.¹⁵⁴

The Russian conquest in the middle of the nineteenth century dramatically altered the dynamics in the Ferghana Valley. The conquest resulted in negative social and economic repercussions for the local population.¹⁵⁵ It redefined Central Asia as an agricultural periphery of the

ZMS8] (explaining that the valley is an area of about 22,000 kilometers, making it approximately the size of New Hampshire). There are seven administrative provinces in the valley: three are Uzbek (Andijan, Ferghana, and Namangan), three are Kyrgyz (Batken, Osh, and Jalal Abad), and one is Tajik (Sughd, formerly Leninabad). *Id.*

149. Abdullaev et al., *supra* note 145, at 81.

150. *Background*, INTERSTATE COMMISSION FOR WATER COORDINATION CENT. ASIA, http://iwrm.icwc-aral.uz/history_en.htm [<https://perma.cc/EDX7-4BSR>] (last visited Jan. 19, 2017) (noting that during the tsarist Russia rule, the region’s irrigation represented “a set of radial irrigation systems located on tributaries of the alluvial fans of the Syr Darya, the largest of which were Soh, Isfara, Isfayram-Shahimardan, Andijan, lower Naryn, and Akbura Aravansaysky with nutrition from these rivers, between which there is massive amounts of untapped lands of Central Fergana”); Bichsel, *supra* note 114, at 24–25; Max Spoor, *Cotton in Central Asia: “Curse” or “Foundation for Development,”* in *THE COTTON SECTOR IN CENTRAL ASIA: ECONOMIC POLICY AND DEVELOPMENT CHALLENGES* 54, 56–57 (2007), <http://www.soas.ac.uk/cccac/events/cotton-sector-in-central-asia-2005/file41585.pdf> [<https://perma.cc/AS8C-4FNN>].

151. Abdullaev et al., *supra* note 145, at 80–81.

152. *Id.* at 81.

153. U.N. EDUC. SCI. & CULTURAL ORG., *HISTORY OF CIVILIZATIONS OF CENTRAL ASIA: TOWARDS THE CONTEMPORARY PERIOD: FROM THE MID-NINETEENTH TO THE END OF THE TWENTIETH CENTURY*, VI, at 59 (Madhavan K. Palat & Anara Tabyshalieva eds., 2005), <http://unesdoc.unesco.org/images/0014/001412/141275e.pdf> [<https://perma.cc/3Z65-H2P3>] [hereinafter *HISTORY OF CIVILIZATIONS*].

154. Sayidfozil Zokirov & Khojamahmad Umarov, *Economic Development in the Ferghana Valley Since 1991*, in *FERGHANA VALLEY: THE HEART OF CENTRAL ASIA* 232–52, 241 (S. Frederick Starr et al. eds., 2011).

155. Abdullaev et al., *supra* note 145, at 80 (noting that it increased the divide between resettled colonial landowners and indigenous population, which became landless as a result).

Russian Empire and weakened the region's traditional patterns of life.¹⁵⁶ However, while the cropping patterns in the Ferghana Valley changed under Russian rule, the new technological approach to water management coexisted with long-standing water-management traditions.¹⁵⁷ Since the Middle Ages, water was managed in the region by local experts who were in charge of withdrawing water from major water sources, cleaning the canals, distributing water among users, and distributing irrigation water among the water users.¹⁵⁸ In addition, the local water users assisted with the construction, repair, and cleaning of irrigation canals and structures in an amount proportional to the area of their land.¹⁵⁹ Many of these traditions continue today.

The Soviet Union, which came to power after the 1917 Russian Revolution, sought to expand cotton production dramatically and exploit the region's natural resources to their maximum potential.¹⁶⁰ Following the Soviet policy of collectivization, all peasants' households were liquidated and incorporated into collective farms for cotton production.¹⁶¹ Land and water, like almost everything else, became communal property. By the end of 1932, 81% of farming households had been collectivized, and they accounted for 79% of all production.¹⁶² The development of monoculture cotton dramatically reduced the production of vegetables, melons, and berry crops.¹⁶³ Because most of the arable land was used for cotton, the size of each villager's plot shrank, which negatively impacted the families who depended on these crops for subsistence.¹⁶⁴

To enhance cotton production, the Soviet Union also created a new system of irrigated agriculture, consisting of a network of canals and

156. *Id.*

157. *Background, supra* note 150 (noting that in 1908 Russian economist V. Shahnazarov averred that "customary water law in Turkestan was based on the community as a more solid foundation of water use than the state owned district agriculture").

158. ASIAN DEV. BANK, PAST EXPERIENCE AND FUTURE CHALLENGES: COOPERATION IN SHARED WATER RESOURCES MANAGEMENT IN CENTRAL ASIA 180 (T. Bayarsaihan & D. McKinney eds., 2004); HISTORY OF CIVILIZATIONS *supra* note 153, at 97 (noting that the experts on the major water channels were known as mirobs, while those on the tributaries were known as aryk-aksakalov).

159. *Compare* U.N. EDUC. SCI. & CULTURAL ORG., *supra* note 153, at 97 (describing the collective effort required to maintain water systems), *with* Bichsel et al., *supra* note 5, at 260 (explaining the development of increased rights and responsibilities of local water users in Central Asia).

160. HISTORY OF CIVILIZATIONS, *supra* note 153, at 314.

161. *Id.* at 221.

162. Kamoludin Abdullaev & Ravshan Nazarov, *The Ferghana Valley Under Stalin, 1929–1953*, in FERGHANA VALLEY: THE HEART OF CENTRAL ASIA 119–39, 122 (S. Frederick Starr et al. eds., 2011).

163. HISTORY OF CIVILIZATIONS, *supra* note 153, at 222.

164. WORLD FOOD PROGRAMME, POVERTY AND FOOD INSECURITY IN UZBEKISTAN 5, 9 (2008), <http://documents.wfp.org/stellent/groups/public/documents/ena/wfp179011.pdf> [<https://perma.cc/K4WE-YZQM>].

reservoirs that connected the various tributaries of the Syr Darya surrounding the Ferghana Valley.¹⁶⁵ The presence of abundant water resources and local geography has historically enabled the creation of a diverse network of water channels without the need for dams.¹⁶⁶ The Soviet Union undertook large-scale engineering and construction projects to link geographically separate irrigation areas to reduce local dependence on the flows of any river.¹⁶⁷

The Soviet Union saw the intensive irrigation in Central Asia as part of “the great transformation of nature,”¹⁶⁸ but the result was environmentally catastrophic.¹⁶⁹ As a result of poor water management meant to stimulate cotton production during the Soviet-era, the Aral Sea shrunk dramatically and is now only 10% of its original size.¹⁷⁰ Inappropriate irrigation practices led farmers to apply too much water to the fields, which in turn, increased its salinity.¹⁷¹ The salinity of the remaining water in the Aral Sea is now three times that of normal sea water.¹⁷² Pesticides that fell to the seafloor have turned to poisonous dust that blows from the old seabed.¹⁷³ Although there have been significant efforts to rehabilitate the Aral Sea, efforts have had mixed success. Water from the two main rivers that feed into the sea continues to be used primarily for irrigating cotton crops.¹⁷⁴ However, at the time of Soviet rule, the focus was on growing cotton regardless of the environmental impact.

The Soviet irrigation complex crisscrossed the administrative republics in Central Asia that Joseph Stalin created in the 1920s to facilitate political administration and create tensions between majority and minority groups,

165. Bichsel et al., *supra* note 5, at 254; Mariya Pak et al., *Re-Examining Conflict and Cooperation in Central Asia: A Case Study from the Isfara River, Ferghana Valley*, 30 INT’L J. WATER RESOURCES DEV. 230, 235 (2014).

166. *Background*, *supra* note 150.

167. Bichsel et al., *supra* note 5, at 254.

168. Alla Bolotova, *Colonization of Nature in the Soviet Union State Ideology, Public Discourse, and the Experience of Geologists*, 29 HIST. SOC. RES. 104, 107 (2004) (“The idea of human dominance over nature, and the call for human beings to subdue, modify, and reconstruct a chaotic and meaningless nature in order to regulate natural processes supplemented the overarching goal of a total reconstruction of the social order, thus creating an intrinsic link between state policy and the ideology of conquering nature in the USSR.”).

169. Bichsel et al., *supra* note 5, at 259.

170. GRANIT ET AL., *supra* note 10, at 6.

171. *The Aral Sea Crisis: Environmental Impacts*, COLUM., <http://www.columbia.edu/~tmt2120/introduction.htm> [https://perma.cc/AM5J-7T62] (last visited Apr. 26, 2017).

172. *Id.*

173. *Id.*

174. *The Aral Sea Crisis: Introduction*, COLUM., <http://www.columbia.edu/~tmt2120/introduction.htm> [https://perma.cc/38UR-LTZE] (last visited Apr. 26, 2017).

which in turn, enhanced central control over the region.¹⁷⁵ Although the creation of these borders fueled trends toward nationalization and contributed to ethnic tensions today,¹⁷⁶ communities generally cooperated because they were part of one centrally administered area; transportation and irrigation lines crossed borders, and natural and economic resources were shared and cross-subsidized.¹⁷⁷ Moreover, for centuries in the Ferghana Valley, Uzbek, Kyrgyz, and Tajik communities lived in close proximity, and it was not uncommon for inter-ethnic marriages to take place.¹⁷⁸ The region was treated as a single economic entity, and disagreements over water or land resources were resolved in Moscow.¹⁷⁹ When considering how water allocations were made between the republics, it has been suggested that Stalin deliberately created “water-rich” republics like Uzbekistan and Kazakhstan and “water-poor” republics like Kyrgyzstan and Tajikistan to create competition and reduce the potential for regional cooperation in the absence of Soviet intervention.¹⁸⁰

175. E. Wayne Merry, *The Politics of Central Asia: National in Form, Soviet in Content*, in *IN THE TRACKS OF TAMERLANE: CENTRAL ASIA’S PATH TO THE 21ST CENTURY* 27 (Dan Burghart & Theresa Sabonis-Helf eds., 2004) (“Stalin deliberately drew republic borders in Central Asia . . . for political administration and to create majority-minority tensions to facilitate Soviet rule. The states which emerged from the failure of Soviet power in late 1991 . . . should be seen first and foremost as political systems, rather than as reflecting national identities.”); WILLIAM A. TART, AIR COMMAND & STAFF COLL., *ETHNIC CONFLICT AND US CENTRAL COMMAND POLICY FOR THE CENTRAL ASIAN REPUBLICS* 4 (2001) (“The Soviets used immigration and ethnic resettlement as tools to maintain the balance of power within the region in much the same way as many dictators, which limited the power of any one ethnic group while dampening ethnic tensions within the now interdependent groups.”).

176. Zamira Eshanova, *Central Asia: Border Issues an 80-Year-Old Headache for Region*, RADIO FREE EUROPE RADIO LIBERTY (Oct. 18, 2002, 12:00 AM), <http://www.rferl.org/content/article/1101120.html> [<https://perma.cc/XXM4-QEYP>] (noting that tension in the Ferghana Valley “is not a problem between ethnicities. They have been living together for centuries. It is a state problem that has been artificially created”); *but see* KATHLEEN KUEHNAST & NORA DUDWICK, *WHOSE RULES RULE? EVERYDAY BORDER AND WATER CONFLICTS IN CENTRAL ASIA* 7–8 (2008), <http://documents.worldbank.org/curated/en/526091468012314222/pdf/448580WP0Box321IC10Whose0Rules0Rule.pdf> [<https://perma.cc/FY5T-J59Z>] (noting that despite all the concern about conflict, however, the Central Asian region experienced only one civil war in Tajikistan and did not erupt into the ethnic nationalism and violence seen in the Balkans).

177. INT’L CRISIS GRP., *CENTRAL ASIA: BORDER DISPUTES AND CONFLICT POTENTIAL*, at i (2002).

178. “WHERE IS THE JUSTICE?” INTERETHNIC VIOLENCE IN SOUTHERN KYRGYZSTAN AND ITS AFTERMATH, *supra* note 11 (“Ethnic Kyrgyz and Uzbeks have generally lived peacefully together in southern Kyrgyzstan, in many cases inter-marrying and living in ethnically mixed areas.”); Nick Megoran, *For Ethnography in Political Geography: Experiencing and Re-imagining Ferghana Valley Boundary Closures*, 25 *POL. GEOGRAPHY* 622, 630 (2006) (noting that in some parts of the Ferghana Valley, “nationality was even harder to delineate than territory” because inter-marriage was common between Uzbeks and Kyrgyz).

179. KLAUS ABBINK ET AL., *THE SYR DARYA RIVER CONFLICT: AN EXPERIMENTAL CASE STUDY* 1 (2005).

180. *Id.*

The Soviet Union constructed a massive reservoir and hydroelectric facility on the Naryn River, which feeds into the Syr Darya, in Kyrgyzstan.¹⁸¹ The Toktogul Dam is the largest artificial reservoir in the Aral Sea Basin, and the water flowing through it feeds into a series of smaller reservoirs and dams.¹⁸² The water then flows into the Ferghana Valley, traversing through Tajikistan and Uzbekistan and eventually reaching Kazakhstan.¹⁸³ During the Soviet-era, the primary purpose of Toktogul was to store water so that it could be released during the spring for cotton production in downstream nations.¹⁸⁴ Although Toktogul also had the capacity to generate hydroelectric power, the vast majority of Kyrgyzstan's energy needs were met by importing energy from downstream countries that were rich in natural resources, like Uzbekistan.¹⁸⁵

B. Transnational Water-Energy Exchange

When the Soviet Union collapsed, the newly independent Central Asian nations essentially codified the Soviet-era water allocations in the Almaty Agreement in 1992, but not the corresponding energy exchange.¹⁸⁶ A subsequent agreement in 1998 attempted to recreate this water-energy exchange with limited success.¹⁸⁷ However, the current legal agreements do not provide sufficient flexibility to achieve that goal, nor do they account for the changing dynamics of irrigation in the Ferghana Valley.

The UN Watercourses Convention and the Water Diplomacy Framework serve as analytical tools for assessing the effectiveness of these treaties. The ICJ has also made clear that the provisions of the Convention are relevant to interpreting bilateral and multilateral treaties.¹⁸⁸ In reality, however, the Central Asian nations have a mixed relationship with the treaty. When the UN Watercourses Convention was adopted at the United Nations General Assembly in 1997, Kazakhstan voted in favor, Uzbekistan abstained, and the other three nations—Kyrgyzstan, Tajikistan, and Turkmenistan—were absent.¹⁸⁹ Since then, Uzbekistan acceded to the

181. *Id.* at 3; Bichsel, *supra* note 114, at 26.

182. Sievers, *supra* note 8, at 371–72.

183. *Id.* at 371.

184. *Id.* at 371–72; Bichsel, *supra* note 114, at 24–25.

185. Sievers, *supra* note 8 at, 371–72.

186. GRANIT ET AL., *supra* note 10, at 19.

187. Mosello, *supra* note 133, at 164–67.

188. Gabč'ikovo–Nagymaros, 1997 I.C.J. 7, *supra* note 29.

189. Ziganshina, *supra* note 107, at 1208.

Convention, but the others have not.¹⁹⁰ As discussed below, upstream riparian states on the Syr Darya, like Kyrgyzstan, are skeptical of the Convention—in part because downstream Uzbekistan is in favor.

1. 1992 Almaty Agreement

The 1992 Almaty Agreement recognizes “the community and unity of the region’s water resources” and states that the parties “have equal rights for their use and responsibility for ensuring [the] rational use and protection” of the region’s water resources.¹⁹¹ It requires each state “to prevent actions on its territory which can infringe on the interests of the other Parties and cause damage to them, lead to deviation from agreed values of water discharges and pollution of water sources.”¹⁹² It also commits the parties to “solving problems of joint use of water resources on the basis of common regional principles for the whole region and equitable regulation of their consumption.”¹⁹³ To achieve this goal, the Almaty Agreement created the ICWC to determine water policy and set annual water-consumption quotas and schedules for reservoir operation regimes.¹⁹⁴

The Almaty Agreement does not *per se* codify the Soviet-era water allocations and schedules. Rather, it charges the ICWC with making yearly allocations.¹⁹⁵ However, the preamble to the Almaty Agreement states that the parties agree to the terms in the treaty while also “respecting the existing patterns and principles of water allocation.”¹⁹⁶ As a result, the ICWC has largely made allocations based on the existing Soviet-era allocations, though the BVOs maintain some discretion.¹⁹⁷ During the Soviet-era, the Syr Darya allocations pursuant to Protocol No. 413 of 1984 were: 46% of total surface flow to Uzbekistan, 44% to Kazakhstan, 8% to Tajikistan, and 2% to Kyrgyzstan.¹⁹⁸ In April of 1992, two months after its

190. *Id.* (noting, however, that Kazakhstan and Turkmenistan have already acceded to the UN Watercourses Convention, which has stricter regulations).

191. 1992 Almaty Agreement, *supra* note 114, at art. 1.

192. *Id.* at art. 3; Jeremy Allouche, *The Governances of Central Asian Waters: National Interests Versus Regional Cooperation*, DISARMAMENT F., Nov. 2007, at 1, 47.

193. 1992 Almaty Agreement, *supra* note 114, at pmbl.; *see also* Ziganshina, *supra* note 111, at 24.

194. 1992 Almaty Agreement, *supra* note 114, at arts. 7–8.

195. *Id.*

196. 1992 Almaty Agreement, *supra* note 114, at pmbl.

197. INT’L. CRISIS GRP., *supra* note 127, at 3 (“The ICWC sets quotas, and the BVOs monitor their implementation. The [Almaty] agreement maintained Soviet-era levels but gave the BVOs the ability to adjust allocations up or down by 15 per cent.”).

198. THE WORLD BANK, WATER ENERGY NEXUS IN CENTRAL ASIA: IMPROVING REGIONAL COOPERATION IN THE SYR DARYA BASIN 8 (2004),

signing, the Almaty Agreement allocated 51.7% of the river's water to Uzbekistan, 38.1% to Kazakhstan, 9.2% to Tajikistan, and 1% to Kyrgyzstan.¹⁹⁹ According to Dinara Ziganshina, a legal expert on the region, the Almaty Agreement validates the Soviet Schemes for Complex [Integrated] Water Resources Use and Protection, and the agreement generally codifies the Soviet-era allocations.²⁰⁰

The Almaty Agreement incorporates elements of international water law, but in a way that inhibits a mutual-gains approach to water management. The phrases “rational use and protection” and “equitable regulation” in the Almaty Agreement appear similar to the concept of “equitable and reasonable utilization” in the UN Watercourses Convention.²⁰¹ However, to meaningfully promote a mutual-gains approach to water management, the concept cannot be static. Rather, the treaty needs to provide a mechanism for allowing the concept of “equitable regulation” to change with time, just as the concept of “equitable and reasonable utilization” under the UN Watercourses Convention refers to factors such as: geographic and hydrographic features; social and economic needs; dependent populations; effects on other states; existing and potential uses; conservation and development of water resources; and availability of alternative measures.²⁰² In contrast, the Almaty Agreement provides no mechanism for adjustments when those allocations no longer seem equitable.²⁰³ The ICWC could theoretically adjust the allocations and schedules to be consistent with the idea of “equitable and reasonable utilization.” However, the ICWC has not made such adjustments because the “no harm” principle in the Almaty Agreement has been interpreted to codify the Soviet-era allocations.

http://siteresources.worldbank.org/INTUZBEKISTAN/Resources/Water_Energy_Nexus_final.pdf
[<https://perma.cc/T4D6-JSUP>].

199. D.P. Bedford, *International Water Management in the Aral Sea Basin*, 21 WATER INTERNATIONAL 63–69, 67 (1996).

200. ZIGANSHINA, *supra* note 112, at 91; *see also* Urs Luterbacher & Ellen Wiegandt, *Cooperation or Confrontation: Sustainable Water Use in an International Context*, in FRESH WATER AND INTERNATIONAL ECONOMIC LAW 11–34, 26 (Edith Brown Weiss et al. eds., 2005).

201. 1992 Almaty Agreement, *supra* note 114, at pmb1.; UNWC, *supra* note 30, at art. 5.

202. *See* UNWC, *supra* note 30, at art. 6 (setting forth factors to be considered in an equitable and reasonable determination); 1992 Almaty Agreement, *supra* note 114.

203. Ziganshina, *supra* note 111, at 24 (“[T]he 1992 Almaty Agreement validates the Soviet Schemes for Complex Water Resources Use and Protections that provide for detailed regulations on water allocation (percentage) and use between the CARs. However, neither the 1992 Agreement nor the Schemes navigate cases when the ‘equity’ of these norms is questioned.”); Sorg et al., *supra* note 120, at 73 (“The agreements currently framing water governance and management in the Syr Darya basin do not address the question of equitable water allocation at the basin level, which still favours irrigation according to past Soviet priorities.”); *but see* Sievers, *supra* note 8, at 392 (noting that most water professionals in the region consider the Soviet-era regime of water allocations and energy swaps to have been equitable).

The Almaty Agreement codifies a more stringent version of the no-significant-harm principle than the UN Watercourses Convention, which further inhibits a mutual-gains approach to water management. Article 3 states that parties are “to prevent actions on its territory which can infringe on the interests of the other Parties and cause damage to them, lead to deviation from agreed values of water discharges and pollution of water sources.”²⁰⁴ The UN Watercourses Convention only requires parties to “take appropriate measures” to prevent “significant harm,” a concept that is in line with the “good neighborliness” principle.²⁰⁵ In contrast, the Almaty Agreement does not provide any minimum threshold and suggests that any amount of harm, however minimal, would be a violation of the treaty unless the action was taken in concert with all the parties (and with the consent of the affected state).²⁰⁶ Moreover, by explicitly tying harm to “deviation from agreed values of water discharges,” this provision also acts as a roadblock to discussions of whether such allocations continue to be equitable and reasonable for all the parties.²⁰⁷ In other words, the 1992 Almaty Agreement has stricter and less flexible requirements than the UN Watercourses Convention.²⁰⁸ This helps to explain why the ICWC has effectively allocated water in accordance with the former Soviet-era regime.

The 1992 Almaty Agreement also does not contain adequate provisions addressing the need to notify other states concerning planned measures²⁰⁹ because it does not contemplate any measures that might infringe on another state’s interests or cause them harm.²¹⁰ It also does not discuss the need for an environmental impact statement, as suggested by the UN Watercourses Convention and required by customary international law.²¹¹

Managing water in a mutually beneficial way requires building flexibility into a treaty so that the parties can collaboratively adapt to changing circumstances. The notion of equitable and reasonable utilization is not static but adapts with time. Circumstances have changed in the

204. 1992 Almaty Agreement, *supra* note 114, at art 3.

205. G.A. Res. 51/229, annex, art. 7 (July 8, 1997).

206. 1992 Almaty Agreement, *supra* note 114, at art 3; *see also* Ziganshina, *supra* note 111, at 26–27 (finding that Article 3 of the Almaty Agreement “does not touch the threshold of harm that must be prevented, such as ‘significant’, ‘appreciable’, ‘substantial’ or ‘serious’”).

207. 1992 Almaty Agreement, *supra* note 114, at art. 3.

208. Ziganshina, *supra* note 111, at 28.

209. *But see* Convention on Environmental Impact Assessment in a Transboundary Context art. 5, Feb. 25, 1991, 1989 U.N.T.S. 309 (providing more detailed provisions regarding notification and consultation for planned projects). Kazakhstan and Kyrgyzstan are parties to this Convention. *Id.*

210. 1992 Almaty Agreement, *supra* note 114, at art 3.

211. UNWC, *supra* note 30, at art. 12; *see* Pulp Mills, 2010 I.C.J. 14, at ¶ 204 (“[I]t may now be considered a requirement under general international law to undertake an environmental impact assessment . . .”).

region, but as the treaty essentially adopts a scheme from a different era, it is difficult to alter the terms.

The relationship between Uzbekistan and Kyrgyzstan mirrors that of the classic upstream-downstream relationship. As the downstream riparian, Uzbekistan favors the no-significant-harm principle because the 1992 Almaty Agreement promoted the Soviet-era allocation. In contrast, Kyrgyzstan no longer views the *de facto* Soviet-era water scheme as equitable because of changing needs and pressures in its country.²¹² A growing body of literature also explores the way regional power dynamics influence control over water, as illustrated by terms such as “hydro-hegemony”²¹³ or “hydro-egoism.”²¹⁴ In Central Asia, many commentators perceive the downstream countries, especially Uzbekistan, as the regional hydro-hegemons.²¹⁵ However, there are others who believe that Kyrgyzstan’s position as an upstream riparian gives it crucial leverage over the downstream countries.²¹⁶

The Almaty Agreement only addresses water, but not the corresponding energy exchange. After achieving independence from the Soviet Union, the hydrocarbon-rich downstream countries raised the price of gas sold to the hydrocarbon-poor upstream countries.²¹⁷ As a result, Kyrgyzstan experienced chronic electrical and heating shortages in the winter and began to release more water from the Toktogul reservoir to generate hydropower in the early 1990s.²¹⁸ Releasing water from the reservoir

212. See ERIKA WEINTHAL, *WATER CONFLICT AND COOPERATION IN CENTRAL ASIA* 6 (2006) (noting that “with independence, as each country began to redefine its own economic priorities, it became evident that their respective goals conflicted regarding for what purposes water should be used”), http://hdr.undp.org/sites/default/files/weinthal_erika.pdf [https://perma.cc/C9CM-8PZQ].

213. Mark Zeitoun & Jeroen Warner, *Hydro-Hegemony – A Framework for Analysis of Trans-Boundary Water Conflicts*, 8 *WATER POL’Y* 435, 436 (2006); Zeitoun & Allan, *supra* note 62, at 9; Zeitoun & Mirumachi, *supra* note 2, at 300.

214. Andrea K. Gerlak et al., *Hydrosolidarity and International Water Governance*, 14 *INT’L NEGOT.* 311, 312 (2009).

215. Sorg et al., *supra* note 120, at 72 (noting that “downstream countries are seen to have greater material and non-material power than upstream countries, thus producing asymmetrical power relationships”); Tarlock, *supra* note 31, at 374 (finding that “conflicts among the central Asian nations over the Amu Darya and Syr Darya rivers are examples of how upstream states can be victimized by powerful downstream ones”); Heltzer, *supra* note 116, at 301 (describing the 1992 Agreement as creating an “economic windfall for the downstream nations. The new downstream nations’ coffers were being filled with money made from cotton, and they no longer had to provide their fossil fuel resources for free”).

216. Teasley & McKinney, *supra* note 85, at 482 (“Geographic asymmetry (i.e., upstream location) provides Kyrgyzstan with influence over the downstream countries, albeit, at the cost of angering those countries because of winter flooding and summer irrigation deficits.”).

217. Bichsel, *supra* note 114, at 25.

218. Teasley & McKinney, *supra* note 85, at 481–82 (“The transition to market-based pricing for fuels and other resources and a struggling economy caused Kyrgyzstan to increase winter releases from Toktogul to generate electricity over the ensuing years, decreasing water availability for summer irrigation downstream during drought years.”).

flooded the downstream countries in winter and made less water available for irrigation in the spring.²¹⁹ This is still at the heart of the problem.²²⁰

Kyrgyzstan has been trying to expand its hydropower production capacity.²²¹ Despite great potential, only 8% of the region's hydropower prospective capacity has been developed.²²² Building on Soviet-era plans, Kyrgyzstan is planning two large dams (known as Kambar-Ata I and Kambar-Ata II) upstream of the Toktogul reservoir on the Naryn river, which feeds into the Syr Darya.²²³ The dams would enable Kyrgyzstan to produce electricity in the winter, while allowing the water in Toktogul to be reserved for summer irrigation downstream.²²⁴ Excess electricity could be sold because the required grid already exists.²²⁵ However, the price for these dams is steep: approximately \$3 billion.²²⁶

Until recently, Russian financing enabled Kyrgyzstan to move forward with the Kambar-Ata dam projects, which provided Russia with an opportunity to influence the larger and more powerful downstream countries of Uzbekistan and Kazakhstan.²²⁷ It also helped Russia keep China's growing role in check.²²⁸ The geopolitical balance of power in the region, however, is now shifting as Russia's economy has faltered. As of early 2016, the Kyrgyzstan-Russian hydropower deal fell through, leading

219. Bichsel, *supra* note 114, at 25–26 (noting that the flooding results because “only a limited quantity of water can be retained in facilities such as the Kairakkum reservoir”).

220. See Bichsel, *supra* note 114, at 26 (explaining the issues stemming from the control and value of water); THE WORLD BANK, *supra* note 198, at 10–11.

221. Putz, *supra* note 131; Bruce Pannier, *BOO: It's Scarier Than You Think*, RADIO FREE EUROPE RADIO LIBERTY (Feb. 3, 2014), <http://www.rferl.org/content/tajikistan-kyrgyzstan-hydropower-russia/25251952.html> [<https://perma.cc/H3KZ-N77A>].

222. GRANIT ET AL., *supra* note 10, at 6.

223. Bichsel, *supra* note 114, at 26; Heltzer, *supra* note 116, at 304 n.123.

224. Bichsel, *supra* note 114, at 26.

225. *Id.*; Putz, *supra* note 131.

226. Bichsel, *supra* note 114, at 26.

227. Baktybek Beshimov & Ryskeldi Satke, *The Struggle for Central Asia: Russia vs China*, AL JAZEERA (Mar. 12, 2014, 11:25 AM), <http://www.aljazeera.com/indepth/opinion/2014/02/struggle-central-asia-russia-vs-201422585652677510.html%20> [<https://perma.cc/T4QE-YKSK>]; Pannier, *supra* note 221; *but see* Putz, *supra* note 131 (suggesting that Russia may no longer have the funds to continue financing construction).

228. ANDREW SCOBELL ET AL., CHINA'S STRATEGY TOWARD SOUTH AND CENTRAL ASIA 9 (2014), http://www.rand.org/content/dam/rand/pubs/research_reports/RR500/RR525/RAND_RR525.pdf [<https://perma.cc/52YR-NGF4>] (noting that Central Asia is vital to China's interests for security, economic and geopolitical reasons); *see also* Beshimov & Satke, *supra* note 227 (noting that China is already a dominant trading partner and investor in the region).

to questions about the future of these projects.²²⁹ China has emerged as a possible funder, which would enhance its strategic position in the region.²³⁰

Uzbekistan objected to the upstream dam-building projects on grounds that it would give Kyrgyzstan even greater control over the flow of the Syr Darya.²³¹ Uzbekistan insists that smaller hydropower plants should be constructed.²³² In addition to concerns about financial viability, there are also environmental impacts to consider, especially because climate-change-induced glacial melt could ultimately reduce flows and make the projects obsolete in a generation.²³³ Customary international law requires that an environmental impact assessment be conducted, but no such requirement exists within the Almaty Agreement or the regional agreement on the Syr Darya discussed in the next section.²³⁴ Kyrgyzstan has undertaken a feasibility study;²³⁵ but, even if it accounted for the true environmental impacts, it is not clear that Uzbekistan would trust those results. This is an example where the Water Diplomacy Framework's emphasis on joint fact finding and scenario planning would be helpful as a means of overcoming mistrust.

The shifting balance of power in Central Asia reduces the trust among the states as well as their ability to collaboratively adapt to changing circumstances. This leaves the entire region with uncertain prospects for harnessing its abundant hydropower potential.

2. 1998 Syr Darya Agreement

While the Almaty Agreement essentially maintained the *status quo* with respect to Soviet-era water allocations, it also excluded the other key

229. Bruce Pannier, *Kyrgyzstan Revokes Hydropower Deal with Russia*, RADIO FREE EUROPE RADIO LIBERTY (Jan. 20, 2016), <http://www.rferl.org/content/qishloq-ovozi-kyrgyzstan-energy-dreams/27499926.html> [https://perma.cc/TXM5-84V9].

230. Anna Lelik, *Kyrgyzstan: China Replaces Russia as Hydropower Investor*, EURASIANET (Apr. 7, 2016, 11:26 AM), <http://www.eurasianet.org/node/78201> [https://perma.cc/XY9X-S9N3].

231. INT'L. CRISIS GRP., *supra* note 127, at 20.

232. Julia Kostenko, *Uzbekistan Insists on Construction of Small Hydropower Plants on Trans-Border Rivers*, 24. KG/NEWS AGENCY (July 11, 2016, 10:04 AM), <https://24.kg/archive/en/news-stall/181133-news24.html> [https://perma.cc/NPZ7-7A9A].

233. Bichsel, *supra* note 114, at 26.

234. *See* Agreement on the Use of Water and Energy Resources of the Syr Darya Basin, Kaz.-Kyrg.-Uzb., Mar. 17, 1998, <http://iea.uoregon.edu/treaty-text/1998-WaterEnergyResourcesSyrDaryaBasinEN.txt> [https://perma.cc/JS34-23DU] (noting that there is no provision requiring an Environmental Impact Assessment); *see* Agreement on Cooperation in the Field of Joint Management on Utilization and Protection of Water Resources from Interstate Sources, Kaz.-Kyrg.-Taj.-Turkm.-Uzb., Feb. 18, 1992, <http://www.icwc-aral.uz/statute1.htm> [https://perma.cc/KTS2-9QNH] (noting that there is no provision requiring an Environmental Impact Assessment).

235. INT'L. CRISIS GRP., *supra* note 127, at 6.

elements of the old barter system, namely, the transfer of energy to downstream countries and the costs of maintaining water-storage infrastructure. With support from the United States Agency for International Development in 1998, Kyrgyzstan, Kazakhstan, and Uzbekistan entered into the Agreement on the Use of Water and Energy Resources of the Syr Darya Basin (the 1998 Syr Darya Agreement), which Tajikistan later joined in 1999.²³⁶ The 1998 Syr Darya Agreement states that the parties are seeking a “precise and fair solution to use the water and energy resources of the Syr Darya basin in accordance with the precedents of international law.”²³⁷

The 1998 Syr Darya Agreement, in some ways, attempted to return to the Soviet-era water-energy arrangements, where the downstream countries provided coal, gas, electricity, fuel oil, or other goods or services in exchange for upstream water storage by Kyrgyzstan.²³⁸ The Agreement requires the parties to negotiate an annual release schedule from Toktogul, and provides that any surplus energy generated as a result of the irrigation period releases and not needed by Kyrgyzstan be delivered to Uzbekistan and Kazakhstan.²³⁹ It further dictates that the downstream countries should compensate upstream countries in the form of “energy resources, such as coal, gas, electricity and fuel oil, and the rendering of other types of products (labor, services), or in monetary terms as agreed upon, for annual and multi-year water irrigation storage in the reservoirs.”²⁴⁰

The 1998 Syr Darya Agreement had the potential to promote a mutually beneficial, cooperative approach to water management. The agreement

236. Bichsel, *supra* note 114, at 26; Boisson de Chazournes, *supra* note 112, at 53; *see also* Sievers, *supra* note 8 at, 387 n.68 (referring to the agreement as 1998–2003 Framework Agreement because under Article 12, the “Agreement is valid for a period of five years and will be automatically renewed for additional five-year periods, if no written notice on the termination of the Agreement is given six months in advance from any Party”); Agreement on the Use of Water and Energy Resources of the Syr Darya Basin, *supra* note 234.

237. *Id.*; *see also* Ziganshina, *supra* note 111, at 24 (translating the same clause as the parties seek an “equitable solution in utilization of water and energy resources . . . in accordance with norms of international law”).

238. Sievers, *supra* note 8, at 385 (finding that “to the extent that token regional cooperation does exist, this cooperation is largely a remnant of the days when Minvodkhoz, the Soviet water ministry, claimed jurisdiction over all of Central Asia, rather than an example of the newly independent states of Central Asia building new post-Soviet bridges to create legal and technical solutions”).

239. Agreement on the Use of Water and Energy Resources of the Syr Darya Basin, *supra* note 234, at art. IV; Teasley & McKinney, *supra* note 85, at 482; Hodgson, *supra* note 123, at 3; *see* Bichsel, *supra* note 114, at 29 (“Yearly barter agreements remain the central mechanism to determine water and energy transfers between upstream and downstream countries.”).

240. Agreement on the Use of Water and Energy Resources of the Syr Darya Basin, *supra* note 234, at art. IV; Teasley & McKinney, *supra* note 85, at 482; Heltzer, *supra* note 116, at 312 (“The 1998 Framework Agreement, therefore, explicitly provides that downstream nations must compensate Kyrgyzstan for two things: (1) water storage – curbing of non-growing season water release; and (2) potential energy supplies lost because of water storing.”).

attempted to address the differing needs of the downstream countries, which prefer water discharges in summer to irrigate cotton fields, and of upstream Kyrgyzstan, which otherwise prefers to release water in the winter to generate electricity.²⁴¹ It has been recognized as an effort to promote a mutually beneficial arrangement because of the differing needs of riparian states.²⁴²

However, the 1998 Syr Darya Agreement has not been effective.²⁴³ It instructs the parties to make coordinated decisions on an annual basis, instead of a multi-year basis.²⁴⁴ The agreements take a long time to negotiate, resulting in uncertainties. As a result, there is inadequate guidance on different scenarios, such as what might happen in a wet year versus a dry year.²⁴⁵ Although the idea of “equitable and reasonable utilization” might be implicit in the exchange, this is not expressly stated. In addition, like the Almaty Agreement, the 1998 Syr Darya Agreement codifies a stringent version of the no-harm rule, stating that “parties will take no actions which will violate the agreed-upon water use regimes and energy deliveries.”²⁴⁶ Moreover, the parties agreed that “the operation, maintenance and reconstruction of water and energy facilities shall be covered in accordance with the ownership of the property referred to in the balance sheet and the legal right of ownership.”²⁴⁷ This has since been a source of contention for Kyrgyzstan because it is solely responsible for the costs of upkeep. In 2002, for example, maintenance of the Toktogul dam and reservoir cost between \$15 million and \$27 million per year.²⁴⁸

The 1998 Syr Darya Agreement has not removed conflict and tensions in the region,²⁴⁹ in part, because both sides violated the provisions.²⁵⁰ The

241. Sorg et al., *supra* note 120, at 71–72 (“Toktogul is the main valve to the entire river system and accounts for 91% of electricity production in Kyrgyzstan.”).

242. See, e.g., LEB, *supra* note 32, at 19 (“The conflicting demands eventually became a catalyst for a cooperation agreement among the three riparian States of the Syr-Darya Basin.”).

243. WORLD BANK, *supra* note 198, at 10–11.

244. *Id.*

245. For example, in 2014 and 2015, Kyrgyzstan experienced low rainfall and wound up importing electricity from Tajikistan in order to save water in Toktogul reservoir for winter, when demand for electricity increases greatly. *Кыргызстан может начать импорт электроэнергии из Таджикистана Июль* [Kyrgyzstan May Start Importing Electricity from Tajikistan], KYRGYS AGENCY RADIO SVOBODNAIA EVROPA [RADIO FREE EUROPE RADIO LIBERTY] (July 7, 2016), <http://rus.azattyk.org/a/27842890.html> [<https://perma.cc/M2XP-83JY>].

246. Agreement on the Use of Water and Energy Resources of the Syr Darya Basin, *supra* note 234, at art. III.

247. *Id.* at art. VII; see also Heltzer, *supra* note 111 at 311–12.

248. INT’L CRISIS GRP., *supra* note 12, at 16; but see Sievers, *supra* note 8, at 372 (“Kyrgyzstan has unilaterally footed the annual \$25 million bill for maintenance of Toktogul, the largest artificial reservoir in the Aral Sea Basin, and the related infrastructure.”).

249. Sorg et al., *supra* note 120, at 71–72 (“A fundamental driver of tensions in the Syr Darya basin derives from the operating regime of the basin’s largest reservoir, the Toktogul.”); Sievers,

agreement requires the riparian countries to agree to the water allocations on an annual basis, which often leads to heated arguments or failure to reach or maintain agreements.²⁵¹ Moreover, because the agreement only provided for energy compensation by countries that use upstream water storage, less fuel and fewer supplies were often delivered in wet years than had been negotiated.²⁵² As a result, Kyrgyzstan increased its winter releases of water from Toktogul in wet years to meet its own energy needs, leading to flooding downstream and less irrigation water in the summer months.²⁵³ These problems arose because the Agreement did not account for yearly hydrological fluctuations, nor did it compensate Kyrgyzstan for reservoir storage and infrastructure costs; rather, only releases were valued.²⁵⁴ The parties have been negotiating a new agreement,²⁵⁵ but the prospects for a new solution are slim.²⁵⁶

The shortcomings of the Syr Darya Agreement become clear when examined from the perspective of the Water Diplomacy Framework and the UN Watercourses Convention. The legal agreement focuses only on the actual storage, rather than considering the entire costs of water infrastructure upkeep, which impedes the parties from developing a mutually beneficial solution. The parties have not developed an appropriate joint-management plan that takes into account variations in weather patterns. As seasonal variations are predictable to a certain degree, they could determine in advance what would happen during a wet versus a dry

supra note 8, at 388 (“Public allegations of breached duties are now among the most common of disputes between the Syrdarya states.”).

250. INT’L CRISIS GRP., *supra* note 12, at 13.

251. Agreement on the Use of Water and Energy Resources of the Syr Darya Basin, *supra* note 233, at art. II; Sievers, *supra* note 8, at 372–74.

252. Teasley & McKinney, *supra* note 85, at 482; INT’L CRISIS GRP., *supra* note 177, at 13; Sorg et al., *supra* note 120, at 71–72.

253. Teasley & McKinney, *supra* note 85 at 482; INT’L CRISIS GRP., *supra* note 12, at 14 (noting that Uzbekistan has had problems with its gas routes and that it produces a “wet” form of gas that can freeze in the pipes in the winter); MCCAFFREY, *supra* note 27, at 416.

254. Sorg et al., *supra* note 120, at 71–72 (“The abstention of Uzbekistan from recent agreements has, however, greatly undermined this approach.”); Teasley & McKinney, *supra* note 85, at 482.

255. ASIAN DEV. BANK, FACILITATING REGIONAL WATER POLICY DISCUSSION AND BUILDING REGIONAL WATER MANAGEMENT CAPACITY: FINAL REP. VOLUME II, at 78 (2007), <http://www.adb.org/sites/default/files/project-document/65377/36516-reg-tacr.pdf> [<https://perma.cc/P8N4-JSAS>] (discussing the “Draft Agreement on the Use of Water and Energy Resources in the Syrdarya basin”); Teasley & McKinney, *supra* note 85, at 482 (“The proposed revisions follow a water- and energy-sharing framework similar to the 1998 agreement, but they also consider storage (not just releases) in Toktogul Reservoir along with hydropower production and transfer from Tajikistan’s midstream Kayrakum Reservoir.”).

256. Sorg et al., *supra* note 120, at 73 (“The rights claimed by upstream countries to be compensated for storage and supply of irrigation water as well as for the operation and maintenance of the water infrastructure have been persistently opposed by down-stream governments stating their entitlement to the free use of naturally flowing water.”).

year and what the compensation should be. As McCaffrey has stressed, equitable and reasonable utilization is best understood as a process that changes over time.²⁵⁷ Thus, the concept of equitable and reasonable utilization requires that the parties reevaluate the changing circumstances—not that they lock into one situation that cannot be changed.

Although Kyrgyzstan entered into the 1998 Syr Darya Agreement, it subsequently passed a law that expressly conflicted with its treaty obligations.²⁵⁸ Because the Syr Darya originates in Kyrgyz mountains, lawmakers in Kyrgyzstan sought to capitalize on the value that “their” water provides to downstream countries in the form of irrigated agriculture.²⁵⁹ As a result, in 2001, Kyrgyzstan adopted a new law entitled “On the Interstate Use of Water Installations, Water Resources and Hydro Facilities in the Kyrgyz Republic,”²⁶⁰ which sought to impose charges on downstream countries using water originating in Kyrgyzstan from the Syr Darya.²⁶¹ The goal was to replace the barter arrangements with cash compensation.²⁶² The law declares that water originating within its borders is the property of Kyrgyzstan that should be sold at world prices.²⁶³ Moreover, other countries in the region should compensate Kyrgyzstan for costs associated with operating its water facilities.²⁶⁴ The new law also entitled Kyrgyzstan to cut off water supplies to downstream countries if they do not provide payment.²⁶⁵

The Kyrgyz position has heightened tensions with downstream countries, which have contested this idea and argued that Kyrgyzstan adds no value to the water.²⁶⁶ At so-called “world prices,” Kyrgyzstan has argued

257. MCCAFFREY, *supra* note 27, at 404–05.

258. See generally Закон Кыргызской Республики О Межгосударственном использовании водных объектов, водных ресурсов и водохозяйственных сооружений Кыргызской Республики [Law of the Kyrgyz Republic: On the Interstate Use of Water Bodies, Water Resources and Water Management Facilities of the Kyrgyz Republic] July 23, 2001, Нормативные правовые акты [Normative Legal Acts] 2001, No. 76 (Kyrg.) (dictating the requirements of the 2001 law that contradicts the Syr Darya agreement).

259. Bichsel, *supra* note 114, at 26.

260. Закон Кыргызской Республики О Межгосударственном использовании водных объектов, водных ресурсов и водохозяйственных сооружений Кыргызской Республики [On the Interstate Use of Water Installations, Water Resources and Hydro Facilities in the Kyrgyz Republic], Нормативные правовые акты [Normative Legal Acts] 2001, No. 76 (Kyrg.).

261. Slim, *supra* note 11, at 147; Tarlock, *supra* note 31, at 400 (“In an attempt to recoup lost revenue, Kyrgyzstan passed a law in 2001 requiring downstream states to pay for water issuing from within Kyrgyzstan’s boundaries.”); see also Tarlock & Wouters, *supra* note 18, at 532.

262. Heltzer, *supra* note 116, at 295.

263. Sievers, *supra* note 8, at 389–90.

264. *Id.*

265. *Id.* at 392.

266. Sorg et al., *supra* note 120, at 72 (“Tensions started surfacing particularly from 2001 onwards, when the Kyrgyz government made an attempt to introduce water-pricing by supplying water

that it exports \$350 million in water annually to China and the Central Asian states.²⁶⁷ In response, Uzbekistan has alleged that downstream countries experience \$770 to \$800 million in damages as a result of infrastructure damage, flooding, and salinization.²⁶⁸ Moreover, the President of Uzbekistan has argued that “water belongs to God,” while leaders of Kazakhstan have claimed that the law “does not have any legal foundation . . . it is impossible to set a price for irrigation water . . . it contradicts international standards . . . it is unacceptable for Kazakhstan.”²⁶⁹ While the law has never been implemented by Kyrgyzstan’s Ministry of Foreign Affairs, the idea remains alive in Kyrgyzstan and continues to be a source of tension.²⁷⁰

The 2001 law builds on the idea of water as an economic good. Within water-management circles, it is often said that water is not properly managed because it is not valued as an economic commodity; however, this idea is not without controversy given the many social dimensions of water.²⁷¹ Kyrgyzstan has embraced the idea of water as an economic commodity²⁷² by adopting water user associations and other reforms that are promoted by international agencies.²⁷³ Kyrgyzstan has sought to apply the concept of water as an economic good to international waters. Arguably, if pricing water improves efficiency within a national context, it could also have the same result across boundaries.²⁷⁴ The seminal idea from the Dublin Principles of treating water as both an economic and social

to downstream countries only on a ‘paid’ basis and operation and maintenance costs of the water infrastructure should be shared.”); Teasley & McKinney, *supra* note 85, at 482.

267. Sievers, *supra* note 8, at 390; GRANIT ET AL., *supra* note 10, at 10 (“The upstream countries have argued that water should be treated as a commodity and paid for by the downstream countries. The downstream countries have, in turn, adopted the international legal foundation that water in an international river is a common good to be shared by all riparians.”); *but see* Heltzer, *supra* note 116, at 296 (noting that Kyrgyzstan needs to spend \$25 million yearly to maintain infrastructure).

268. Sievers, *supra* note 8, at 373, 390 (also finding that the Syr Darya agreements “did not prevent Kazakhstan’s most important southern agricultural district from losing more than twenty percent of its 2000 cotton crop because of lack of water”).

269. Sorg et al., *supra* note 120, at 73.

270. *Id.*

271. See Dublin Statement on Water and Sustainable Development, International Conference on Water and the Environment, princ. 4 (1992) (stating that water should have an economic value); Sharmila L. Murthy, *The Human Right(s) to Water and Sanitation: History, Meaning and the Controversy over Privatization*, 31 BERKELEY J. INT’L L. 89, 93 (2013); see generally FARHANA SULTANA & ALEX LOFTUS, *THE RIGHT TO WATER: POLITICS, GOVERNANCE AND SOCIAL STRUGGLES* (2012) (for an overview of water rights); see generally KAREN BAKKER, *PRIVATIZING WATER: GOVERNANCE FAILURE AND THE WORLD’S URBAN WATER CRISIS* (2010) (for an overview of the privatization of water).

272. Sorg et al., *supra* note 120, at 73; Heltzer, *supra* note 116, at 309.

273. JENNIVER SEHRING, *WATER USER ASSOCIATIONS (WUAS) IN KYRGYZSTAN: A CASE STUDY ON INSTITUTIONAL REFORM IN LOCAL IRRIGATION MANAGEMENT* 7 (2005).

274. Heltzer, *supra* note 116, at 296 (“By charging a fee for water rather than bartering for water, Kyrgyzstan encourages efficiency from its downstream users.”).

good²⁷⁵ contradicts the statement of the Kazakh leader that it is “impossible to set a price for irrigation water.”²⁷⁶

International law increasingly recognizes the economic value of water. Water pricing and water transfers are now perceived as a way to use water more efficiently, even across state borders.²⁷⁷ Manufactured products that contain water, like bottled drinks, and agricultural products made with water are clearly subject to international-trade regimes, but the status of bulk transfers of water across state boundaries, as contemplated by Kyrgyzstan, is less clear.²⁷⁸ Nevertheless, several examples exist. For example, the Kingdom of Lesotho sells water to the Republic of South Africa pursuant to a treaty, Israel has agreed to purchase water from Turkey, and Bolivia permits the government to export water to foreign users.²⁷⁹ With growing emphasis on the promotion of efficient and equitable uses of water, water transfers are likely to increase in the future.²⁸⁰ Yet, as urged by Edith Brown Weiss, a more cautious approach to bulk transfers is needed than can be provided by the international trade system because water is critical for human life and ecosystems.²⁸¹

In light of this precedent, is Kyrgyzstan’s position that it is entitled to sell “its” water contrary to international water law? Kyrgyzstan is not entitled to charge for water from the Syr Darya simply because the headwaters of this river arise within its territory. International law rejects this extreme position of territorial sovereignty, just as it rejects the opposite principle of territorial integrity.²⁸² Instead, international water law embraces the concept of limited territorial sovereignty, as reflected in the principle of equitable and reasonable utilization of a shared watercourse.²⁸³

A riparian state, however, should be entitled to sell its equitable and reasonable share of water. In other words, if Kyrgyzstan’s yearly allocation of water from the Syr Darya, as set by the ICWC pursuant to the Almaty Agreement, is equitable and reasonable, then it could theoretically sell its

275. See generally PETER ROGERS, RAMESH BHATIA & ANNETTE HUBER, *WATER AS A SOCIAL AND ECONOMIC GOOD: HOW TO PUT THE PRINCIPLE INTO PRACTICE* (1998) (providing an in-depth economic analysis of water as a good).

276. Sorg et al., *supra* note 120, at 73.

277. A. Dan Tarlock, *Water Transfers: A Means to Achieve Sustainable Water Use*, in *FRESH WATER AND INTERNATIONAL ECONOMIC LAW* 35, 38 (Edith Brown Weiss et al. eds., 2005); Edith Brown Weiss, *Water Transfers and International Trade Law*, in *FRESH WATER AND INTERNATIONAL ECONOMIC LAW* 61, 63 (Edith Brown Weiss et al. eds., 2005).

278. Weiss, *supra* note 277, at 62.

279. *Id.* at 74–75.

280. Tarlock, *supra* note 277, at 58.

281. *Id.* at 62.

282. MCCAFFREY, *supra* note 27, at 416.

283. This concept is often seen as deriving from the *Lac Lanoux* arbitration. *Lac Lanoux* (Spain v. Fr.), 12 R.I.A.A. 281 (Perm. Ct. Arb. 1956).

share of water to downstream nations or store it for future use.²⁸⁴ For example, Arizona has taken steps akin to this idea when it created the Arizona Water Bank to store the state's unused share of Colorado River water that had been allocated to it by agreement.²⁸⁵ The practical challenge on the Syr Darya is that the countries would need to agree on what equitable and reasonable means; Uzbekistan would no doubt point to the existing allocations, while Kyrgyzstan would argue it is entitled to more.

At the heart of the Kyrgyz law was a desire to demand a greater share of the costs of reservoir and dam infrastructure maintenance, which is consistent with international law.²⁸⁶ Increasingly, it is widely regarded as a key method for sharing benefits of a watercourse. Yet, the 2001 Kyrgyz law clearly contradicts the 1998 Syr Darya Agreement, where Kyrgyzstan agreed to bear the costs of infrastructure maintenance and acknowledged that energy has a cost.²⁸⁷ This has created a legal and political conundrum.

Several experts on the region offer insightful views on the politics surrounding these international agreements, specifically the role of international donors. Eric Sievers observes that after the fall of the Soviet Union, the states within the Central Asian region were generally enamored with the idea of international law because they saw it as consistent with the Western values they were now trying to embrace.²⁸⁸ However, as they learned more about the United States's relationship with international law, for example, they became more skeptical. Moreover, Sievers argues that "the Syr [D]arya agreements also suggest that mobilization of Central Asian political will in water issues, on closer inspection, turns out more often than not to be a gesture intended for the donor community."²⁸⁹ Along this point, Erica Weinthal describes how some Central Asian nations received side payments from donors and other transnational actors to incentivize their

284. Sievers, *supra* note 8, at 392; Heltzer, *supra* note 116, at 295–96 (“[C]harging downstream nations cash for water is unprecedented in the international community.”).

285. *Background*, ARIZ. WATER BANKING AUTHORITY, <http://www.azwaterbank.gov/Background/> [https://perma.cc/N4G9-KA5X] (last visited Jan. 20, 2017); Margaret Bushman LaBianca, Note, *The Arizona Water Bank and the Law of the River*, 40 ARIZ. L. REV. 659, 659 (1998) (noting that California and Nevada needed more water than they were entitled to, while Arizona had not yet exercise its full entitlement, and due to uncertainty about water transfers between states, Arizona created the Water Bank as a way to protect its entitlement and future uses).

286. Heltzer, *supra* note 116, at 310 (arguing that by passing the 2001 law, “Kyrgyzstan [was] attempting to change the form of payment for its water storage, infrastructure upkeep, and loss of hydropower generation during the winter months from the barter arrangements already in place to a fee structure”).

287. Sievers, *supra* note 8, at 372.

288. Eric Sievers & Oleg Tsanuk, *The Convention to Combat Desertification: An NGO Perspective from Central Asia*, ARIDLANDS NEWSL., Spring–Summer 1997.

289. *Id.* at 388; see also Bichsel, *supra* note 114, at 28 (“Many of the international funders and agencies were not organized enough to assure substantial outcomes, while the local actors with whom they interacted lacked commitment to the projects and offered only hollow promises.”).

cooperation shortly after independence.²⁹⁰ Laurence Boisson de Chazournes also suggests that the international community provided significant support toward cooperation, but “the proliferation of international legal instruments without a clear relationship among each other could put at risk the sustainability required for an effective water management system.”²⁹¹

While the macro-politics between the upstream and downstream riparian states center on the water-energy nexus, the local politics in the Ferghana Valley revolve around water management for agriculture. Christine Bichsel argues that “nearly all the inter-state negotiations sponsored by international agencies focused on the nexus of water and energy, but devoted insufficient attention to agriculture. As a result, parties ignored environmental issues in the Syr Darya Basin that were caused by water-intensive production and other critical agricultural policies.”²⁹² Bichsel’s comments also point to another gap in the existing transboundary water treaties between riparian states on the Syr Darya: they overlook the role of water for agriculture at the local level in the Ferghana Valley.²⁹³

The need for cooperative management over transboundary water extends beyond the mainstream of the Syr Darya to the many tributaries and thousands of irrigation canals that traverse the Ferghana Valley region.²⁹⁴ When analyzed from the perspective of the Water Diplomacy Framework, it becomes clear that there are stakeholders beyond the state—namely local farmers who emerged after the collapse of the collective farms—who are struggling for access to water locally in the Ferghana Valley. In turn, this exacerbates relations between the countries and complicates transboundary water cooperation at the national level.

C. Local Water Conflicts in the Ferghana Valley

The inability to develop an effective cooperative management structure for the tributaries and irrigation canals flowing from the Syr Darya through

290. ERIKA WEINTHAL, STATE MAKING AND ENVIRONMENTAL COOPERATION: LINKING DOMESTIC AND INTERNATIONAL POLITICS IN CENTRAL ASIA 10 (2002).

291. Boisson de Chazournes, *supra* note 112, at 55.

292. Bichsel, *supra* note 114, at 28.

293. *Id.* at 27.

294. For example, in the Batken region of Kyrgyzstan, the Syr Darya river network is comprised of 190 rivers totaling over 2,500 kilometers. See Ferghanskaia Dolina, *Vodnye resursi Batkenskoi oblasti* [*The Ferghana Valley. Water Resources of Batken Oblast*] http://enrin.grida.no/htmls/ferghana_valley/ferghana_valley_soc/html/water2.htm [<https://perma.cc/2NHF-ZSTW>] (last updated Nov. 11, 2006). In this region, the primary rivers are the Cox, Isfairam-Sai, Ak-Suu, Kara-Suu, Isfara and the Shahimardan. *Id.*

the Ferghana Valley contributes to ethnic tensions and border skirmishes.²⁹⁵ The local-level conflict in the Ferghana Valley reinforces a lack of trust among the nations that prevents effective cooperation.²⁹⁶ Moreover, when the local perspective in the Ferghana Valley is considered, it becomes clear that there are actors other than the state that influence the outcome of water management and irrigation.

During the Soviet-era, the water ministries of the Kyrgyz, Uzbek, and Tajik republics met regularly to fix allocations, but the same level of cooperative management does not exist today.²⁹⁷ In some instances, new agreements have been reached, but in many cases, Soviet-era small river allocations remain.²⁹⁸ These older agreements are not necessarily honored today, which leads to conflicts.²⁹⁹ Downstream farmers often complain that

295. KUEHNAST & DUDWICK, *supra* note 176, at 8 (“When ethnicity does play a role in local conflicts, it is usually secondary to a more basic struggle over access to resources in which perceived inequities become expressed in terms of ‘ethnic’ or other social group identities.”); INT’L. CRISIS GRP., *supra* note 127, at 10 (“Water is nearly always an element in such conflicts, whether as prime cause or conflict multiplier.”).

296. SERGEJ MAHNOVSKI ET AL., RAND CORP., ECONOMIC DIMENSIONS OF SECURITY IN CENTRAL ASIA 32 (2006) (“[I]nequitable water distribution has created social tensions and resentment of local officials who control water access within the agricultural sectors of virtually all the states of Central Asia.”); Аждар Куртов [Ajdar Kurtov], *Водные Конфликты В Центральной Азии, Интеграция в Центральной Азии* [*Water Conflicts in Central Asia: Integration in Central Asia*], OBSERVER, http://www.observer.materik.ru/observer/N7_2004/7_03.htm [<https://perma.cc/3PZ2-BAF4>] (last visited Jan. 19, 2017) (“[O]utwardly, many of the conflicts in Central Asia are ethnic in nature, which is seen as clash divergent interests of different ethnic communities. But in most situations the deep foundation of these conflicts is the struggle for resources.”).

297. See, e.g., Протокол совещания представителей Министерства водного хозяйства Таджикской и Киргизской республик. г. Ленинабад, 17–18 мая 1962 года Об орошения части массива “Арка” Киргизской ССР из-Ходжа Бакирганского машинного канала и вододеления по системе реки Бакирган-Ходжа ана 1962 год [Minutes of the Meeting of Kyrgyzstan and Tajikistan Republics Water Resources Ministries on Irrigation of “Arka” Array of Land in Kyrgyzstan from the Hodzha-Bakirgan Canal and Water Distribution System on the River Hodzha-Bakirgan, May 17–18, 1962] (on file with author); Протокол совещания представителей Министерства водного хозяйства Узбекской ССР, Министерства водного хозяйства Киргизской ССР, Госстроя Киргизской ССР, проектных институтов “Средазгипроводхлопок” и “Киргизгипроводхоз” по вопросу использования водных ресурсов, реки “Кара-Дарья” с учетом Андижанского (Кампыр-Раватского водохранилища) г. Фрунзе, Кирг. ССР, 23 сентября 1965 [Minutes of the Meeting of Kyrgyzstan and Uzbekistan Republics Water Resources Ministries, Ministry of Construction of Kyrgyzstan, Hydrodesign Institute “Sredazgidrovodxlopok,” “Kyrgyzgiprovodhoz” on Utilization of the Water Resources of the Rivers Kara Darya and Andijan (Kampar-Ravat Water Reservoir, September 23, 1965)] (on file with author); Протокол совещания по декадному делению стока рек Падша-Ата и Кассан-Сай между Узбекской ССР и Киргизской ССР, 20 июня 1981 года, г. Ош, Кирг. ССР [Annex to the Minutes of the Meeting of Kyrgyz SSR and Uzbek SSR Water Resources Ministries on Distribution of the Water Resources of the Small Rivers of the Ferghana Valley Between Uzbekistan and Kyrgyzstan, April 10, 1980] (on file with author).

298. Bichsel, *supra* note 114, at 27 (“For example, during the Soviet period sixty-nine percent of the Shakhimardan Sai River’s flow was allocated to the Uzbek Socialist Soviet Republic SSR, as compared with twenty-one percent for the Kyrgyz SSR (plus ten percent ‘water losses’”).

299. ACTED, CONFLICTS ON IRRIGATION WATER IN THE SOUTH OF THE KYRGYZ REPUBLIC 20 (2013).

upstream farmers are violating pre-existing agreements and “stealing” their water.³⁰⁰ In addition to disputes over water allocation, concerns exist over water quality, waterlogging, soil salinization, and land degradation.³⁰¹

Once part of a unified system across three Soviet republics, Syr Darya tributaries and associated irrigation channels now traverse a complicated set of national borders. The national borders largely reflect the “titular” ethnicity, but each country is also home to large communities of other ethnic groups. For example, Kyrgyzstan is largely—but not exclusively—populated by ethnic Kyrgyz people.³⁰² The Ferghana Valley region is home to many people who are ethnic Uzbeks but who are citizens of Kyrgyzstan; the reverse is also true.³⁰³

State borders in the Ferghana Valley look like a checkerboard because of the presence of enclaves—sovereign parts of a country that are physically separated from the “mother” country.³⁰⁴ Southern Kyrgyzstan has four Uzbek enclaves (Shakhimardan, Sokh, Qalacha, and Jangail) and two Tajik enclaves (Vorukh and Western Qalacha).³⁰⁵ Uzbekistan has one Tajik enclave (Sarvak) and one small Kyrgyz enclave (Barak).³⁰⁶ Yet, even these enclaves are not ethnically homogeneous; for example, the Uzbek enclave of Sokh, which is located in Kyrgyzstan, has a large Tajik population.³⁰⁷ The presence of ethnic groups living on the border of “their” titular state has become a powerful factor for conflict.³⁰⁸

Gravity-fed irrigation systems in the Ferghana Valley cause conflict between upstream and downstream communities, especially during the

300. KUEHNAST & DUDWICK, *supra* note 176, at 21 (“Farmers, particularly members of local elites with land on upstream portions of irrigation canals, take control of water flow during the irrigation season, leaving less water for downstream farmers. The latter often respond with verbal or even physical violence toward their upstream neighbors. Large cotton farms and orchards also tend to monopolize irrigation water, provoking protests from small farmers.”).

301. Abdullayev et al., *supra* note 12, at 125; KUEHNAST & DUDWICK, *supra* note 176, at 21.

302. VICTOR DUKHOVNY & VADIM SOKOLOV, LESSONS ON COOPERATION BUILDING TO MANAGE WATER CONFLICTS IN THE ARAL SEA BASIN 6 (2003) (“In the Kyrgyz Republic the majority of the population belongs to the Kyrgyzes (64.9 percent); then come the Russians, Uzbeks, Ukrainians, and Tatars (12.5, 13.8, 1.0, and 0.9 percent respectively).”).

303. Веналий Амелин [Venaliy Amelin], Конфликты Через Призму Местных Сообществ: научно публицистические очерки [Conflicts Through the Prism of Local Communities: Scientific Public Sketches] (2010), http://www.osu.ru/sites/niisu/docs/e02_2010.pdf [<https://perma.cc/GS3D-36MF>].

304. Shustov, *supra* note 6.

305. Alisher Khamidov, *Stringent Border Measures Fueling Tensions in Enclaves*, TRANSITIONS ONLINE (Aug. 14, 2009), <http://www.tol.org/client/article/20794-stringent-border-measures-fueling-tensions-in-enclaves.html> [<https://perma.cc/G4ML-4A6Y>].

306. *Id.*

307. *Id.*

308. Shustov, *supra* note 6 (providing statistics of the number of non-titular minorities in several of the countries).

spring growing season.³⁰⁹ Although much of Kyrgyzstan is mountainous, in the Ferghana Valley, its territory is increasingly irrigated for agriculture.³¹⁰ Water-intensive crops, like potatoes in Tajikistan and rice in Kyrgyzstan, reduce water availability. Poor irrigation practices also lead to waterlogging and salinization, which are further compounded by inappropriate fertilizer use.³¹¹

The source of the conflict is usually related to territory, which tends to overlap with ethnicity.³¹² For example, the Sikh River flows from Uzbekistan to the Kyrgyz Republic and then back to Uzbekistan. Uzbek farmers have accused their Kyrgyz neighbors of storing water to irrigate rice fields, and in turn, this reduced water availability for Uzbek fruit trees and cotton.³¹³ The irrigation methods for rice have also raised the groundwater on the geographically lower Uzbek side, which has destroyed walls and flooded cellars.³¹⁴ Due to less water availability, people rely increasingly on irrigation water for drinking and bathing, which is causing serious health hazards.³¹⁵

The dissatisfaction with transnational agreements and the corresponding inability to enforce them result in people taking matters into their own hands at a local level.³¹⁶ In dry years, conflict over water can turn violent,³¹⁷ especially on the Kyrgyzstan-Tajikistan border.³¹⁸ For example, in August of 2015, Kyrgyz residents stopped the flow of a transboundary water canal going to a Tajik village.³¹⁹ According to the Kyrgyz residents, the Tajik farmers had closed a cross-border road that prevented the Kyrgyz residents from visiting a cemetery; according to the Tajik residents, the

309. Bichsel, *supra* note 114, at 27.

310. *Id.* at 26 (“The Kyrgyz claim is that this arrangement effectively barred them from developing irrigated agriculture during the Soviet period and denied them the economic benefit that would have come from development. Kyrgyzstan, therefore, now seeks to correct what it sees as a historical injustice by claiming enough water to develop self-sustaining and market-based irrigated agriculture.”).

311. KUEHNAST & DUDWICK, *supra* note 176, at 19–24.

312. Bichsel, *supra* note 114, at 27; Paul Goble, *Central Asia: Analysis from Washington—A Watershed in Central Asia*, RADIO FREE EUROPE RADIO LIBERTY (July 9, 1997), <http://www.rferl.org/content/article/1085712.html> [<https://perma.cc/FU2D-TSNL>].

313. KUEHNAST & DUDWICK, *supra* note 176, at 22.

314. *Id.* at 21.

315. *Id.* at 19–24.

316. *Id.*

317. *Id.* at 23.

318. WEINTHAL, *supra* note 212, at 22–23.

319. *Six Reportedly Wounded by Gunfire in Kyrgyz-Tajik Border Violence*, RADIO FREE EUROPE RADIO LIBERTY, <http://www.rferl.org/content/kyrgyz-tajik-border-incident-injuries/27168736.html> [<https://perma.cc/W9XJ-L3BX>] (last updated Aug. 4, 2015).

canal closure occurred first.³²⁰ Regardless of who started the fight, injuries occurred because crowds on both sides of the border threw stones at each other.³²¹

Similarly, in 2011, a scuffle broke out between Tajik farmers residing in Vorukh, a sovereign Tajik enclave wholly located within Kyrgyzstan, and Kyrgyz farmers residing in Kyrgyzstan.³²² Because the Tajik residents did not have water for several days, they crossed the border of the Tajikistan enclave into Kyrgyzstan to open the canal.³²³ Seeking to protect their water access, Kyrgyzstan farmers then beat the Tajik farmers who had crossed the border.³²⁴ The violence did not escalate further due to intervention by the local police and authorities, but tensions remained high.³²⁵ Other similar events have occurred over the years.³²⁶

The border between Kyrgyzstan and Uzbekistan is another area of frequent water-related conflict.³²⁷ For example, the Pydyshata River originates in Kyrgyzstan and then passes through Uzbekistan before returning to the Jalalabad Oblast of Kyrgyzstan.³²⁸ A Soviet-era agreement from 1980 allocates 64% of the water to Uzbekistan, frustrating Kyrgyz farmers in Jalalabad who, in reality, receive less than their legally entitled 36% share.³²⁹ In another area, in May of 2008, Kyrgyz farmers near the border town of Aravan organized a demonstration, demanding that the local

320. Catherine Putz, *Kyrgyz and Tajiks Clash Along Disputed Border*, DIPLOMAT (Aug. 4, 2015), <http://thediplomat.com/2015/08/kyrgyz-and-tajiks-clash-along-disputed-border/> [<https://perma.cc/JF6Q-FE8X>].

321. *На Кыргызской-Таджикской границе с двух сторон скопилось более 100 человек*. Радио Свобода [On the Kyrgyz-Tajik Border on Both Sides Have Accumulated More Than 100 People], РАДИО АЗАТТЫК [RADIO FREE EUROPE RADIO LIBERTY] (Aug. 3, 2015), <http://rus.azattyk.org/a/27167202.html> [<https://perma.cc/H7L8-R6LY>].

322. U.N. Office for the Coordination of Humanitarian Aff., *supra* note 13, at 1.

323. David Trilling, *Kyrgyzstan: New Security Chief De-Radicalizing Ethnic Tensions?*, EURASIANET (Jan. 19, 2012), <http://www.eurasianet.org/node/64862> [<https://perma.cc/ZVK9-YDNE>]; Natalia Yefimova-Trilling & David Trilling, *Kyrgyzstan & Tajikistan: Disputed Border Heightens Risk of Conflict*, EURASIANET (Aug. 2, 2012), <http://www.eurasianet.org/node/65744> [<https://perma.cc/J7QA-ZAXA>].

324. JAMOAT RES. CTR. OF VORUKH, POTENTIAL FOR PEACE AND THREATS OF CONFLICT: DEVELOPMENT ANALYSIS OF CROSS-BORDER COMMUNITIES IN ISFARA DISTRICT OF THE REPUBLIC OF TAJIKISTAN AND BATKEN DISTRICT OF THE KYRGYZ REPUBLIC 38 (2011).

325. *Id.*

326. Alisher Khamidov, *Ferghana Valley: Harsh Winter's Legacy Stokes Ethnic Tension*, EURASIANET (June 1, 2008), <http://www.eurasianet.org/departments/insight/articles/eav060208.shtml> [<https://perma.cc/GT49-AAQT>].

327. WEINTHAL, *supra* note 212, at 22–23.

328. KUEHNAST & DUDWICK, *supra* note 176, at 23.

329. *Id.* at 23 (quoting Kyrgyz villagers as asking “why is 64 percent of the water from the river, which originated in our mountains, given to Uzbekistan for free and we sell water to our citizens and suffer shortages of both drinking and irrigation water?”).

authorities release more water into their irrigation channels.³³⁰ Water was eventually provided; however, it was less than the Kyrgyz farmers hoped for, and as a result, Uzbek farmers felt more insecure about their future water needs.³³¹

These conflicts have erupted, in part, because there is now greater pressure on the existing land and water resources. Although Central Asia is not considered a water-scarce region, the people living in the Ferghana Valley have become increasingly dependent on the land after the closure of Soviet collective farms and factories.³³² The population has grown³³³ while economic opportunities have diminished, so more people have turned to farming.³³⁴ Over the past ten years, the Ferghana Valley's population has grown 32%, but less arable land and water is available for this expanding population.³³⁵ Although home to over a quarter of Central Asia's population, the Valley is less than 5% of the total land area.³³⁶ Many families have had trouble making ends meet simply from farming, resulting in high underemployment and unemployment in rural areas.³³⁷

330. Khamidov, *supra* note 305 (reporting a local Kyrgyz farmer as stating that “[i]f we do not get enough water, we will not be able to cultivate land and grow crops. We will go hungry”).

331. *Id.*

332. Bichsel et al., *supra* note 5; Ravshan Nazarov & Pulat Shozimov, *The Ferghana Valley in the Eras of Khrushchev and Brezhnev*, in *FERGHANA VALLEY: THE HEART OF CENTRAL ASIA* 140, 141 (S. Frederick Starr et al. eds., 2011).

333. DE MARTINO ET AL., *supra* note 5, at 16 (noting that population density is extremely high in the Uzbek part of the valley [200–500 persons per square km] compared to the Tajik [70 per square km] or Kyrgyz parts [20–40 per square km], if compared to an average 14 people per square km in Central Asia); Bichsel, *supra* note 114, at 27.

334. See DE MARTINO ET AL., *supra* note 5, at 19 (“[A]ll available land is used for agricultural purposes, including areas rich in endemic and endangered species.”); see also Shustov, *supra* note 6 (“Even compared to other disadvantaged areas of Central Asia, the Ferghana Valley has a high level of agrarian overpopulation and a large number of unresolved social and economic problems.”).

335. KUEHNAST & DUDWICK, *supra* note 176, at 3 (“Agriculture is the lynchpin of survival for many people in the region, and in some areas competition for land and water is intense. At the same time, the water supply and available arable land have diminished due to poor water management and growing populations.”); *Первая всеобщая перепись населения Российской Империи 1897г. Распределение населения по родному языку, губерниям и областям* [*The First National Census of the Russian Empire in 1897 Distribution of the Population by Mother Tongue, Provinces and Regions*], DEMOSCOPE WKLY.,

http://demoscope.ru/weekly/ssp/rus_lan_97.php?reg=126;%20Charles%20Recknagel,%20Ferghana%20Valley:%20A%20Tinderbox%20For%20Violence,%20RADIOFREEEUROPE/RADIOLIBERTY,%20June%2017,%202010 [<https://perma.cc/JA2Y-LRN9>] (last visited Aug. 7, 2016); Charles Recknagel, *Ferghana Valley: A Tinderbox for Violence*, RADIO FREE EUROPE RADIO LIBERTY (June 17, 2010), http://www.rferl.org/content/Why_Is_The_Ferghana_Valley_A_Tinderbox_For_Violence/2074849.html [<https://perma.cc/EP9V-4HLV>]; STRATFOR, *supra* note 148 (noting that the population density is 1,600 people per square mile in the Ferghana Valley compared to 40.8 in other parts of Central Asia).

336. STRATFOR, *supra* note 148.

337. Neil Melvin, *Promoting a Stable and Multiethnic Kyrgyzstan: Overcoming the Causes and Legacies of Violence*, 3 OPEN SOC’Y. FOUND. 1, 20 (2011),

Water flowing through the tributaries and channels of the Syr Darya does not meet the demand of any community, so the existing transboundary agreements and schedules—many of which contain outdated, Soviet-era allocations—are routinely violated.³³⁸ Residents blame the neighboring country for the lack of water.³³⁹ The shortage of land and water resources, as well as the changing socio-economic environment, lead to territorial conflicts, often between different ethnic communities.³⁴⁰

State borders make the upkeep and maintenance of water infrastructure difficult.³⁴¹ The inability to repair canals and effectively manage water resources has created a situation of artificial scarcity because the existing infrastructure does not reliably deliver water.³⁴² Ill-maintained since before the Soviet Union's collapse, water infrastructure has deteriorated further and requires significant funds and cooperation to repair.³⁴³

Heightened border control leads to cross-border disputes between farmers over access to water infrastructure.³⁴⁴ Many borders remained porous after the dissolution of the Soviet Union, which allowed travel and trade. However, an increasing number of fences and official border crossings have been erected, in part, to prevent attacks by the Islamic Movement of Uzbekistan (IMU)³⁴⁵ and other radical Islamic organizations, armed incursions by opposition groups from neighboring countries, and the

<https://www.opensocietyfoundations.org/sites/default/files/OPS-No-3-20110305.pdf>
[<https://perma.cc/H8XG-WEFW>].

338. KUEHNAST & DUDWICK, *supra* note 176, at 22.

339. *Id.*

340. *Id.* at 8–9 (noting that other factors that are causing strife include the growing disparity between the rich and poor after the Soviet Union's collapse; the downsizing of industrial and agricultural production; greater health care costs for individuals; an educational system under distress; growing domestic violence, theft, and vandalism by young males; and the infusion of religious and/or nationalistic notions); Melvin, *supra* note 337, at 20–21.

341. DE MARTINO ET AL., *supra* note 5, at 11 (“[A]ll available land is used for agricultural purposes, including areas rich in endemic and endangered species.”).

342. INT’L. CRISIS GRP., *supra* note 127, at 14 (“Water conflicts appear not because we don’t have enough water but because it is not effectively regulated. All the canals are old. I understand the water ministry does not have enough money, and their technology is old. But the canals have to be renovated. Otherwise we will continue to lose too much water, and we will create conflict situations because of that.”); ACTED, *supra* note 299, at 20 (noting that the water conflict in the Tort Kul region of southern Kyrgyzstan shows that “the roots of the water conflicts are also due to inefficient and deteriorated irrigation infrastructure, which is not capable to deliver sufficient, timely and good quality water”).

343. Bichsel, *supra* note 114, at 29 (“Estimates from scholars Dukhovny and Sokolov show the cost of such repairs throughout the Aral Sea basin would reach \$16 billion.”); Sorg et al., *supra* note 120, at 73.

344. ACTED, *supra* note 299, at 20 (noting that, in the Tort Kul region of Kyrgyzstan, “[t]here have been frequent conflicts between water users (WUs) in the Kyrgyz Republic and Uzbekistan over amount of water received and access to infrastructure located on the territory of Uzbekistan for repair and cleaning”).

345. Khamidov, *supra* note 305.

trafficking of drugs, arms, and people.³⁴⁶ The borders, which sometimes pass right through villages,³⁴⁷ restrict the free movement of travel and goods that people in the Ferghana Valley previously enjoyed.³⁴⁸ At the same time, there is evidence of “meso-level” cooperation, where local water officials informally work together to maintain and repair water infrastructure across borders.³⁴⁹

Effective control and management of land and water resources has also been hampered by disputes between the nations over where the border actually exists,³⁵⁰ resulting in a situation that has been described as a “low level border war.”³⁵¹ For instance, roughly 58% of the border between Kyrgyzstan and Tajikistan has been delineated, and large tracts remain unmarked and disputed, especially in the mountainous regions.³⁵² Although approximately 75% of the border between Uzbekistan and Kyrgyzstan has been demarcated,³⁵³ the Kyrgyzstan government has accused Uzbekistan of fencing off tens of thousands of hectares of Kyrgyzstani land.³⁵⁴ The primary intergovernmental commission on delineation and demarcation of state borders between the two countries has not met since 2009.³⁵⁵

The “creeping migration” phenomenon has further exacerbated border delineation contentions between Kyrgyzstan and Tajikistan and created a volatile situation on the ground. Many Kyrgyz have departed for work in Russia or Kazakhstan and rented or sold their homes to farmers from Tajikistan.³⁵⁶ Because the border has not yet been demarcated, these newly

346. DE MARTINO ET AL., *supra* note 5, at 11.

347. Nick Megoran, *For Ethnography in Political Geography: Experiencing and Re-Imagining Ferghana Valley Boundary Closures*, 25 POL. GEOGRAPHY 622, 629 (2006).

348. *Id.*

349. Kai Wegerich et al., *Meso-Level Cooperation on Transboundary Tributaries and Infrastructure in the Ferghana Valley*, 28 INT’L J. WATER RESOURCES DEV. 525, 540 (2012).

350. Trilling, *supra* note 323; Екатерина Иващенко [Ekaterina Ivashenko], *Национальная политика в Кыргызстане: От братских народов к враждующим племенам* [National Policy in Kyrgyzstan: From Brotherly Peoples to Warring Tribes], FERGANANEWS (Jan. 27, 2012), <http://www.fergananews.com/article.php?id=7255> [https://perma.cc/GC6D-JSXX].

351. Nick Megoran, *The Critical Geopolitics of the Uzbekistan–Kyrgyzstan Ferghana Valley Boundary Dispute, 1999–2000*, 23 POL. GEOGRAPHY 731, 734 (2004).

352. *Tajik–Kyrgyz State Border*, MINISTRY FOREIGN AFF. TAJ., <http://mfa.tj/ru/pogranichnie-voprosi/tadzhikistan-kyrgyzstan-granitsa.html> (last visited Jan. 19, 2017) (noting more than 500 km of the more than 987 km state border have been delineated).

353. Khamidov, *supra* note 305 (noting that 1,050 km of the 1,395 km Uzbek–Kyrgyz border has been delineated).

354. *Id.*

355. Элеонора Бейшенбек кызы [Eleanor Beishenbek], *Возобновит ли Кыргызстан сотрудничество с Узбекистаном?* [Will Kyrgyzstan Resume Cooperation with Uzbekistan?], RADIO FREE EUROPE RADIO LIBERTY (July 8, 2016), <http://rus.azattyk.org/a/27845848.html> [https://perma.cc/75F6-Y4Q9].

356. KUEHNAST & DUDWICK, *supra* note 176, at 14.

Tajik-populated areas are then claimed to be part of Tajikistan.³⁵⁷ Our fieldwork in Kyrgyzstan confirmed what anthropologists Kathleen Kuehnast and Nora Dudwich found, which is that many Kyrgyz “perceived the situation as one in which the Tajik government was intentionally delaying the border delineation to expand their territory through the creeping migration.”³⁵⁸ Small-scale, violent clashes have broken out between Kyrgyz and Tajiks living in these border communities.³⁵⁹ In addition, local conflicts are more frequent, more intense, and frequently characterized by corruption and smuggling where state boundaries are contested or simply unmarked.³⁶⁰

Border delineation alone would not solve water-management problems. There would still need to be a system in place for water allocation and sharing and for joint infrastructure management and maintenance. However, border demarcation would ameliorate some uncertainty that contributes to ethnic tensions and conflict over water use. Yet, border delineation cannot be resolved by local communities.³⁶¹

In 2008, the presidents of Kyrgyzstan and Tajikistan established an interstate council to improve coordination and accelerate the process of border demarcation.³⁶² They also agreed to ban agriculture and construction in disputed areas.³⁶³ But, these talks have not resolved the “creeping migration” problem. Moreover, proposals to redraw borders so that enclaves are not physically separated from the “mother” country have gone nowhere. For example, Kyrgyzstan rejected Uzbekistan’s proposal to transfer part of the enclave of Sox, which has 19 villages inhabited mostly by Tajiks, in exchange for land on the border of Uzbekistan.³⁶⁴ Kyrgyzstan claimed that the proposed land did not have the same agricultural value and that it would cut off the southern regions from the rest of the country.³⁶⁵

357. *Id.*

358. *Id.*

359. Slim, *supra* note 11.

360. Hodgson, *supra* note 123, at 4; Ivashenko, *supra* note 350; *Visualising the Corruption Perceptions Index 2014*, TRANSPARENCY INT’L, <https://www.transparency.org/cpi2014/infographic> [<https://perma.cc/8TRB-K4V9>] (last visited Jan. 25, 2017); *Кыргызстан по уровню коррупции занимает 164 место из 182 стран* [*Kyrgyzstan in Terms of Corruption Takes 164th Place out of 182 Countries*] KYRGYZ COMMITTEE FOR HUMAN RIGHTS, <http://www.kchr.org/modules.php?name=News&file=article&sid=3035> [<https://perma.cc/Z9FV-ADGU>] (last visited Apr. 27, 2017).

361. Ivashenko, *supra* note 350.

362. Khamidov, *supra* note 305.

363. See Khamidov, *supra* note 305 (explaining Tajikistan’s belief that Kyrgyzstan has “violated a bilateral agreement that prohibited the cultivation of and construction on disputed land”).

364. RASHID GABDULHAKOV, CENT. ASIA POLICY BRIEFS, GEOGRAPHICAL ENCLAVES OF THE FERGANA VALLEY: DO GOOD FENCES MAKE GOOD NEIGHBORS? 3 (n.d.), http://osce-academy.net/upload/Policy_briefs/Policy_Brief_14.pdf [<https://perma.cc/3P9G-GRDR>].

365. *Id.* at 1, 3.

Tensions over borders in the Ferghana Valley have caused the relations between the countries to deteriorate. Proper resolution necessitates national resolution, but an expeditious solution has been hampered by the fact that the region is politically disconnected from the capitals. The Ferghana Valley historically had many nomadic and sedentary groups of different ethnicities that were conquered and dissolved by the Soviet Union.³⁶⁶ However, clan and regional loyalties predominated in the region, and the Soviet system continued to rely on customary systems of governance, such as village or kinship relationships.³⁶⁷ Clans and regionalism continue to play a large role in the national politics of each country.³⁶⁸

Politicians in the capitals of each country—Tashkent in Uzbekistan, Bishkek in Kyrgyzstan, and Dushanbe in Tajikistan—generally perceive the Ferghana Valley as the home of their rivals. This, in turn, reduces their incentive to help the region and creates a political disconnect between the center and periphery.³⁶⁹ For example, in Uzbekistan, the first serious challenge to its power came from the Ferghana Valley, when the Islamic Movement of Uzbekistan formed there in 1998³⁷⁰ and an uprising against authorities erupted in Andijan in 2005.³⁷¹ The main goal of IMU was to overthrow the late President Islam Karimov and to create an Islamic state under Sharia law.³⁷² The Kyrgyz part of the Ferghana Valley was a platform for the opposition that overthrew President Askar Akaev in 2005³⁷³ and this southern region continues to harbor and support political opposition groups.³⁷⁴ Until President Emomali Rahmon came to power in 1994 in Tajikistan, the country had been dominated by Tajik elite from the

366. KUEHNAST & DUDWICK, *supra* note 176, at 14.

367. *Id.* at 7.

368. *Id.* at 7–8.

369. See Sievers, *supra* note 8, at 374 (“[I]n the Ferghana Valley, the states involved cannot as handily manipulate the reactions of their citizens, nor do their citizens act primarily out of loyalty to, or reflect the concerns of, their titular national states.”).

370. Jacob Zenn, *On the Eve of 2014: Islamism in Central Asia*, HUDSON INST. (June 24, 2013), <http://www.hudson.org/research/9824-on-the-eve-of-2014-islamism-in-central-asia> [https://perma.cc/8KVV-CF8C].

371. *How the Andijan Killings Unfolded*, BBC NEWS (May 17, 2005, 11:40 AM), <http://news.bbc.co.uk/2/hi/asia-pacific/4550845.stm> [https://perma.cc/M3HY-ZJQT].

372. *Pakistan’s “Fanatical” Uzbek Militants*, BBC NEWS (June 11, 2014), <http://www.bbc.com/news/world-asia-27801257> [https://perma.cc/6QAP-UB98].

373. Baktybek Beshimov et al., *A New Phase in the History of the Ferghana Valley, 1992–2008*, in *FERGHANA VALLEY: THE HEART OF CENTRAL ASIA* 205, 211 (S. Frederick Starr et al. eds., 2011).

374. Valentinas Mite, *Kyrgyzstan: North-South Divide Is a Factor in Politics*, RADIO FREE EUROPE RADIO LIBERTY (Mar. 24, 2005), <http://www.rferl.org/content/article/1058107.html> [https://perma.cc/P5LK-J95L]; Baktybek Beshimov & Ryskeldi Satke, *Kyrgyzstan: The Next Ukraine?*, DIPLOMAT (Mar. 3, 2014), <http://thediplomat.com/2014/03/kyrgyzstan-the-next-ukraine/> [https://perma.cc/F772-UHPE].

Ferghana Valley.³⁷⁵ Since then, the region has been “almost entirely shut out of political decision-making,” which has “led to yet deeper political isolation of the Tajik Ferghana Valley from the rest of Tajikistan.”³⁷⁶ The distrust between the center and periphery reduces motivation to resolve border issues and address local conflicts over water and land, which in turn, contributes to destabilization in the region.

Applying the Water Diplomacy Framework lens to the situation in the Ferghana Valley reveals that there are stakeholders beyond the state who are influencing events. According to one narrative on the Syr Darya, upstream mountainous Kyrgyzstan needs water simply for hydropower, while its downstream neighbors seek water for irrigating cotton,³⁷⁷ thus, the dispute centers on the timing of water releases from Toktogul.³⁷⁸ However, in the Ferghana Valley, including in the lowlands part of Kyrgyzstan, many families rely on irrigated water to grow crops for sustenance and money.³⁷⁹ Because of the way that the small tributaries snake back and forth across the various ethnic communities, an upstream-downstream dynamic plays out at the local level. This is the second narrative of the Syr Darya. In an area with heightened ethnic tensions, as illustrated by the 2010 bloody clashes between ethnic Uzbeks and Kyrgyz in southern Kyrgyzstan, disputes over water access can turn violent.³⁸⁰ These clashes, in turn, exacerbate relations between the countries by fostering mistrust. Yet, greater cooperation is exactly what is needed to address the underlying causes of the conflict, such as poor border demarcation and infrastructure management.

Local disputes over water arise because each community believes that the community across the border is stealing water. This is the perfect scenario for joint fact finding because information about water flows and usage could be shared and analyzed. Technological advances in measuring techniques could make the collection of unbiased data easy. Such jointly collected information could then inform a management plan that is

375. Beshimov et al., *supra* note 373, at 215.

376. *Id.*

377. NICHOLAS BAKER, *THE FERGHANA VALLEY: A SOVIET LEGACY FACED WITH CLIMATE CHANGE* 7 (2011).

378. Fyodor Savintsev et al., *Conflicts in Kyrgyzstan Foreshadow Water Wars to Come*, CREATIVETIME.ORG (Jun. 17, 2014), <http://creativetimereports.org/2014/06/17/kyrgyzstan-conflicts-foreshadow-water-wars/> [https://perma.cc/8HRG-F8VP].

379. BAKER, *supra* note 377, at 17.

380. *Grief Not Justice for Uzbeks in Kyrgyzstan*, IRIN (May 26, 2015), <http://www.irinnews.org/report/101541/grief-not-justice-uzbeks-kyrgyzstan> [https://perma.cc/84EX-Z6FH].

collaboratively implemented and could be adapted to the changing circumstances. The parties could also jointly address water waste from broken infrastructure and land degradation from obsolete irrigation methods that heighten salinity. Greater financial and technical assistance to local farmers and water-user associations could help improve the irrigation system within each country. Yet, because the irrigation channels and tributaries of the Syr Darya cross national borders, neither farmers nor water-user associations can do this alone. Local authorities and water-user associations need to be empowered by their national governments to engage in collaborative adaptive management on these smaller rivers and irrigation channels. Such cooperation, in turn, could build trust at the national level and help resolve some of the broader transboundary management challenges in the region.

Given that a mutually beneficial solution on the Syr Darya is relatively apparent, it is worth asking what the countries will really gain from cooperation. For Kyrgyzstan, an upstream riparian country, the benefits are clear because the country does not perceive the existing treaties as equitable and reasonable. It could be better compensated for water storage and infrastructure upkeep on the main stem of the Syr Darya. If Kyrgyzstan was legally entitled to a greater share of the Syr Darya, it could sell any surplus it did not need, if that amount was ever quantified. While much of Kyrgyzstan is mountainous, local farmers in the Ferghana Valley region would also benefit from greater water allocations in the small tributaries that connect to the Syr Darya.

At first glance, downstream riparian states on the Syr Darya would not necessarily benefit from greater cooperation because the existing treaties provide them with favorable terms—at least on paper. For example, pursuant to the Almaty Agreement, the ICWC generally still allocates the vast majority of water from the Syr Darya to Uzbekistan, as was the case in Soviet times. Moreover, pursuant to the 1998 Syr Darya Agreement, downstream countries only compensate Kyrgyzstan for storing water that is actually released, and they do not need to pay for infrastructure maintenance. However, in reality, those favorable “paper” terms have unfavorable consequences because the agreements are not respected. For example, when Kyrgyzstan releases water in the winter for hydropower, farmers in Uzbekistan must contend with flooding. Additionally, skirmishes erupt over irrigation water access in the Ferghana Valley, exacerbating tensions in an already volatile region. These have spillover effects on the rest of the country and compound feelings of suspicion and mistrust. In other words, “real” cooperation could reduce the hidden costs of noncompliance with existing treaties. A mutually beneficial solution would help to translate “paper” cooperation into “real” cooperation.

Greater cooperation at the national level could potentially improve the overall quality of life at the local level, if partnered with information transparency and devolution of authority to resolve cross-border disputes. Currently, neither respected elders nor local authorities have the authority to enforce water-sharing decisions across borders.³⁸¹ Greater decentralization of power down to the local level to resolve water and boundary disputes could help to ameliorate tensions and improve water management generally.

CONCLUSION

Applying the lenses of the UN Watercourses Convention and the Water Diplomacy Framework to the situation on the Syr Darya river highlights why water cooperation remains elusive. The two primary agreements on the Syr Darya inhibit the kind of flexibility needed to develop a mutually beneficial solution. The first agreement, the 1992 Almaty Agreement, essentially locked in Soviet-era water allocations, which are no longer perceived as equitable and reasonable by all interested parties. In contrast, the UN Watercourses Convention invites parties to reassess the concept of “equitable and reasonable utilization.” In addition, because of the Almaty Agreement’s strict no-harm provisions, Kyrgyzstan’s efforts to expand its hydropower production have met with resistance, especially from Uzbekistan. Although the parties attempted to recreate a water-energy exchange through the second agreement in 1998, its narrow provisions failed to address core concerns, especially those of upstream Kyrgyzstan.

Although a cooperative structure exists for managing water in the Aral Sea Basin, it has not been effective due to these fundamental disagreements. The need for cooperative transboundary management extends down to the local level because a once-unified irrigation system now zigzags across a complicated set of national borders that are not always clearly marked. Disputes among different ethnic groups over access to irrigation water in the Ferghana Valley exacerbate an already volatile situation and further reduce trust between the nations.

The parties should reexamine the existing legal agreements on the Syr Darya river and its tributaries and embrace a more mutually beneficial approach to water management. Given that the water-energy exchange represents an important opportunity for flexibly managing water, greater coordination is needed across countries and across the agencies responsible for water, energy, and agriculture within each country. The Water

381. KUEHNAST & DUDWICK, *supra* note 176, at 19–24.

Diplomacy Framework also stresses the need to enlarge the metaphorical pie and consider how cooperation with respect to other issues can influence joint management of water. Although the Syr Darya riparian nations have distinct political economies, if the states better coordinated their economic and trade policies, they could define mutually beneficial agricultural, energy, and water goals for the region and allocate their resources accordingly. Such a coordinated management plan could also ensure that there are sufficient flows returning to the Aral Sea to help promote its rehabilitation. Instead, each country focuses only on its own goals and water needs, leading to a zero-sum situation.

The need for greater cooperation extends down to the local level, where third-party stakeholders influence events but have no official role. In the conflict-prone and densely populated Ferghana Valley, disputes occur between farmers over water from the tributaries and irrigation channels extending from the Syr Darya. These cross-border conflicts could be mitigated if the borders were better demarcated, if the irrigation channels were in better condition, and if there was a better management structure in place that upstream and downstream communities trusted. Indeed, the water-management system could also build on the traditional system of resolving disputes by looking to community elders.

Central Asia is not a water-scarce region, but poor governance and a lack of cooperation have created a situation of scarcity. The path forward requires that the riparian nations on the Syr Darya embrace a mutually beneficial approach to water management. Yet, at the heart of the problem is a lack of trust between nations, especially because each country has sought to define its own identity after becoming independent from the Soviet Union. Although water can be a source of conflict, it can also be a source of cooperation—and that is the challenge for Central Asia.