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Beyond 2014: Afghanistan's Agricultural Revival, Water Scarcity, and Regional Insecurity

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The future of governance and security in Afghanistan is shrouded in a fog of uncertainty. It is unclear what will happen to the leading domestic players once the United States and other international actors withdraw the bulk of International Security Assistance Force (ISAF) military forces in late 2014. Will President Hamid Karzai's successor manage to defeat the Taliban insurgency, reestablish the central government's legitimacy, and effectively maintain order after the departure of foreign troops? Will there be some kind of "grand compromise" that enables the Taliban to join as partners in the post-Karzai government? Or will the Taliban overthrow the successor's regime and return Afghanistan to its pre-9/11 rule? Each of these three scenarios could occur, and each would result in potentially different futures for the citizens of Afghanistan and for those of its neighboring countries. Unlike the United States, members of the

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European Union, and other distant members of the international community who see Afghan-based terrorists regaining a territorial sanctuary as the primary threat to regional and global security, the states that border Afghanistan face more complex security challenges. This article explores how these security challenges are connected to numerous low-profile agricultural development projects currently underway in Afghanistan—projects with potentially monumental stakes for the future of Afghanistan and Central Asia.

We begin by examining the ongoing agricultural revival of Afghanistan as one of the potential drivers to either bring peace or to sow the seeds of discord over a scarce but critical resource—freshwater. After presenting an overview of the regional problem set, we provide policy guidance that, if implemented proactively by Afghanistan, its neighbors, and international stakeholders, might prevent future conflict over scarce water resources.

Background: Water's Role in Afghan Agriculture

As President Barack H. Obama noted during an address to the United States Military Academy at West Point in December 2009, “Our top reconstruction priority is implementing a civilian-military agriculture redevelopment strategy to restore Afghanistan’s once vibrant agriculture sector. This will help sap the insurgency of fighters and of income from poppy cultivation.”¹ With 80 percent of the population dependent on farming, herding, or both, and less than 6 percent of the country’s arable land currently cultivated,² Afghanistan clearly faces a massive undertaking as it attempts to rebuild legitimate, nonpoppy agriculture and, in the process, eliminate a key source of funding for the Taliban insurgency. Moreover, the fact that opium poppy cultivation in Afghanistan actually *increased* for the

¹ Barack Obama, “Remarks by the President in Address to the Nation on the Way Forward in Afghanistan and Pakistan” (speech, United States Military Academy, West Point, NY, 1 December 2009), <http://www.whitehouse.gov/the-press-office/remarks-president-address-nation-way-forward-afghanistan-and-pakistan>.

² U.S. Department of Agriculture (USDA), Foreign Agricultural Service, “USDA at Work for Agriculture in Afghanistan,” October 2009, http://usacac.army.mil/cac2/call/docs/10-34/ch_9.asp.

third year in a row in 2012 indicates that much work remains to be done on this front.³

The United States and other Western actors have offered agricultural development assistance to Afghanistan in its mission to replace fields of poppies with the lush fruit and nut orchards that largely defined Afghan agriculture prior to the 1970s. In the past decade, Malia Wollan observes that “the United States has spent more than \$1 billion on Afghanistan’s agricultural sector, in part to create markets and options for farmers other than growing opium poppies.”⁴ Between 2009 and 2012, the United States Agency for International Development established a \$100 million Agricultural Development Fund to provide loans to Afghan farmers; trained more than 633,000 men and women in improved farm and business skills; and distributed seeds, tools, and other equipment to more than a million farmers in rural Afghanistan.⁵ The United States Department of Agriculture (USDA), for instance, has “helped to install windmills to pump water for irrigation and livestock, trained veterinarians to detect and treat parasites, refurbished a university’s agricultural research laboratory, stabilized eroded river banks and irrigation canals, developed postharvest storage facilities, established nurseries and reforested areas, rehabilitated degraded orchards, and mentored

Unlike the United States, members of the European Union, and other distant members of the international community who see Afghan-based terrorists regaining a territorial sanctuary as the primary threat to regional and global security, the states that border Afghanistan face more complex security challenges.

³ Alissa J. Rubin, “Opium Cultivation Rose This Year in Afghanistan, U.N. Survey Shows,” *New York Times*, 20 November 2012, http://www.nytimes.com/2012/11/21/world/asia/afghan-opium-cultivation-rose-in-2012-un-says.html?_r=0.

⁴ Malia Wollan, “Duplicating Afghanistan from the Ground Up,” *New York Times*, 14 April 2012, http://www.nytimes.com/2012/04/15/us/duplicating-afghanistan-from-the-ground-up.html?_r=0.

⁵ United States Agency for International Development (USAID), “Afghanistan Fact Sheet: Agriculture,” 2013, http://afghanistan.usaid.gov/documents/document/Document/2673/Fact_Sheet_Agricultural_Sector__Feb_2013.

provincial directors of agriculture.”⁶ In 2011, USDA also launched the Agricultural Development for Afghanistan Pre-Deployment Training program, which was created to familiarize aid workers and soon-to-be deployed military personnel alike with the basics of Afghan farming.⁷ Concurrently, international organizations like the World Bank and the Food and Agriculture Organization of the United Nations (UN) are also active in supporting agricultural rehabilitation in Afghanistan.

Despite the best efforts of these international actors to promote Afghanistan’s agricultural revival, a fundamental challenge remains: the expansion of agricultural productivity into new crops requires additional freshwater. The basic problem with freshwater, as Marq de Villiers sardonically notes, “is that they’re not making any more of it.”⁸ If Afghanistan expands its agricultural capacity in the coming years, doing so will require new irrigation projects. In turn, Afghan farmers must divert much of the water flowing through these new pipelines and canals away from some other downstream destination—Afghanistan’s neighbors. Of particular concern for the present study is the Amu Darya River, which constitutes large portions of Afghanistan’s northern borders with Tajikistan, Turkmenistan, and Uzbekistan. Competition over the Amu Darya and other transboundary rivers has already heightened tensions among these Central Asian states and, as Afghanistan’s agricultural resurgence necessitates the capture of more of these scarce waters, competition with its upstream and downstream neighbors will increase. As Martin Kipping observes, “It is expected that Afghan water consumption will increase soon, as its rural population has few economic alternatives to irrigated agriculture besides poppy cropping. This will significantly reduce the flow of the Amu Darya, where competition over absolute water distribution is already intense.”⁹ Furthermore, as a 2002 report by the International Crisis Group (ICG) contends, “Not only

⁶ USDA, “USDA at Work.”

⁷ Wollan, “Duplicating Afghanistan.”

⁸ Marq de Villiers, *Water: The Fate of Our Most Precious Resource* (Toronto: McClelland & Stewart, 2003), 8.

⁹ Martin Kipping, “Can ‘Integrated Water Resources Management’ Silence Malthusian Concerns? The Case of Central Asia,” *Water International* 33, no. 3 (2008): 309.

do [tensions over water in Central Asia] tend to provoke hostile rhetoric, but they have also prompted suggestions that the countries are willing to defend their interests by force if necessary.”¹⁰ Adding the ever-growing hydraulic needs of postwar Afghanistan into this volatile equation is only likely to heighten existing tensions.

We argue that what is best for Afghanistan—that is, expanding the country’s capacity to grow traditional crops—may, in fact, have negative consequences for regional security in Central Asia as a whole. Therefore, from a policy level, we propose that a measured approach accounting for broader regional concerns is imperative for the United States and other international actors who are assisting in Afghanistan’s recovery. Components in our proposals, discussed in greater detail below, include promoting the development of sustainable, less water-intensive crops in Afghanistan; counterbalancing Afghan agricultural projects with food aid and other assistance to neighboring states in Central Asia; and, perhaps most prominently, working to strengthen regional institutions to oversee the sharing of scarce water resources.

Existing Tensions over Water Scarcity in Central Asia

Central Asia is a predominantly arid region that historically has relied on vast irrigation networks to support agricultural development. Most of the vital freshwater in these states originates from the melting snows in the mountains of Kyrgyzstan and Tajikistan, which then flows downstream through Kazakhstan, Turkmenistan, and Uzbekistan via the Amu Darya and Syr Darya Rivers. In turn, both the Amu Darya and Syr Darya eventually flow into the Aral Sea, which forms a natural border between Kazakhstan and Uzbekistan.

Considered the world’s fourth largest lake as recently as 1960, the Aral Sea today represents one of the world’s foremost environmental catastrophes, leading some to refer to its depletion and degradation

¹⁰ International Crisis Group (ICG), *Central Asia: Water and Conflict*, ICG Asia Report 34 (2002), [http://www.crisisgroup.org/~media/Files/asia/central-asia/Central%20Asia%20Water%20and%20Conflict.pdf](http://www.crisisgroup.org/~/media/Files/asia/central-asia/Central%20Asia%20Water%20and%20Conflict.pdf).

Map 1. Central Asia and the region around the Aral Sea



Map by Hugo Ahlenius, Nordpil 2010, <http://nordpil.com/go/portfolio/mapsgraphics/central-asia-aral-sea-and-surrounding/>

as Central Asia's "quiet Chernobyl."¹¹ As the use of the Amu Darya and Syr Darya Rivers by Central Asian states has increased since the 1960 (an outgrowth of the Soviet Union's water-intensive efforts to transform the region into its so-called cotton belt), their inflows have been cut to a trickle. As a result, the Aral Sea has shrunk to less than 10 percent of its original size.¹² According to Rama S. Kumar, the environmental toll of this transformation includes extensive

¹¹ Trevor W. Tanton and Sonia Heaven, "Worsening of the Aral Basin Crisis: Can There Be a Solution?" *Journal of Water Resources Planning and Management* 125, no. 6 (1999): 363; and Rama Sampath Kumar, "Aral Sea: Environmental Tragedy in Central Asia," *Economic and Political Weekly* 37, no. 37 (2002): 3797.

¹² Philip Micklin and Nikolay V. Aladin, "Reclaiming the Aral Sea," *Scientific American*, April 2008, 64–71.

soil salinization, lack of freshwater, wind erosion, the collapse of the fishing industry, disruption of navigation, species loss, the desiccation of pasturelands, and numerous public health issues.¹³ In turn, the intense interstate competition for the rivers that flow into the Aral Sea forms the basis for hydropolitical conflict in the region.

During the Soviet era, Moscow carefully managed and developed the Amu Darya and Syr Darya Rivers to ensure adequate irrigation for lucrative cotton crops in the downstream states of Turkmenistan and Uzbekistan. Kai Wegerich argues that the hydraulic system put in place by the Soviet Union “left a set of water allocations in Central Asia which favored the downstream riparian states Turkmenistan and Uzbekistan . . . and started to utilize Tajikistan as a water regulator, primarily through the construction of dams.”¹⁴ He goes on to note that any disputes between upstream and downstream interests in the Central Asian republics during this period were “subordinated to the central authority in Moscow, and to the greater interest of the USSR.”¹⁵ Water was exchanged freely across the Soviet Union’s administrative borders. In essence, Kyrgyzstan and Tajikistan “produced” water (while benefitting from the hydropower generated by the reservoirs built within their territories), and Kazakhstan, Turkmenistan and Uzbekistan “consumed” water for agricultural purposes. In turn, during the winter months, the downstream states provided their upstream neighbors with coal and gas to generate power and heat without requiring the release of the water resource stored in those reservoirs.¹⁶

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¹³ Kumar, “Aral Sea.”

¹⁴ Kai Wegerich, “Hydro-hegemony in the Amu Darya Basin,” *Water Policy* 10, no. S2 (2008): 71.

¹⁵ *Ibid.*, 76.

¹⁶ Johannes F. Linn, “The Impending Water Crisis in Central Asia: An Immediate Threat,” Brookings Institute, 19 June 2008, http://www.brookings.edu/opinions/2008/0619_central_asia_linn.aspx.

The collapse of the Soviet Union in 1991, however, replaced these administrative borders with national borders. Now that Moscow was no longer in a position to play the role of “hydro-hegemon”¹⁷ in Central Asia, it fell to these five newly sovereign, self-interested states to address the sharing of the Amu Darya and Syr Darya. Furthermore, as the ICG observes in its May 2002 report on water and conflict in Central Asia, “Rising nationalism and competition among the five Central Asia states has meant they have failed to come up with a viable regional approach to replace the Soviet system of management.”¹⁸ In fact, consumption continues to rise, and ongoing development projects along the Amu Darya and Syr Darya Rivers have emerged as points of contention among the Central Asian states. K. D. W. Nandalal and K. W. Hipel describe the emerging patterns of interaction as follows:

An annual cycle of disputes has developed between the three downstream countries—Kazakhstan, Turkmenistan, and Uzbekistan, which are all heavy consumers of water for growing cotton, and the upstream nations—Kyrgyzstan and Tajikistan. The downstream countries require more water for their expanding agricultural sectors and rising populations, whereas the economically weaker upstream countries are trying to win more control over their resources and want to use more water for electricity generation and farming.¹⁹

P. L. Dash identifies similar trends, noting that these trends have created a dichotomy between upstream states that consider themselves “possessors” of the rivers and downstream states that rely on these waters as “users.”²⁰ For instance, Uzbekistan—a downstream “user”—consumes nearly 50 percent of the water flowing down the Syr Darya annually. Upstream, Kyrgyzstan uses roughly 14 percent of the same Syr Darya waters. However, as a regional news service reported in 2008, “Both countries plan to expand lands devoted to

¹⁷ Wegerich, “Hydro-hegemony.”

¹⁸ ICG, *Central Asia*.

¹⁹ K. D. W. Nandalal and K. W. Hipel, “Strategic Decision Support for Resolving Conflict over Water Sharing among Countries along the Syr Darya River in the Aral Sea Basin,” *Journal of Water Resources Planning and Management* 133, no. 4 (2007): 290.

²⁰ P. L. Dash, “Central Asian Republics: Discord over Riverine Resources,” *Economic and Political Weekly* 38, no. 6 (2003): 522–24.

agriculture, which will inevitably lead to more complex issues of water management. This increasing demand for water happens while water supplies in the Syr Darya remains at the same level”²¹ With no hydro-hegemon in place to manage these increasingly scarce freshwater resources, the potential for interstate disputes—including, in extreme instances, violent conflict—is significant.

War over Water?

Scholars have produced a sizeable body of research in the past few decades warning of impending “water wars”—that is, civil strife and interstate conflict resulting from water scarcity. Policy makers share these concerns. For instance, Wally N’dow, former director of the UN’s Center for Human Establishments, made the following statement in March 1996: “I believe that if by 2010 great improvements are not undertaken to provide and save water, we’ll have to face a monumental crisis. . . . Whereas the grounds for the last century’s wars were oil, I am firmly convinced that many political and social conflicts of the twenty-first century will focus on water.”²² In fact, the metaphor that “water is the new oil” is common

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among both scholars and policy makers. As Sandra Postel asserts, water is “a strategic resource like oil, for which nations will compete fiercely as it becomes more scarce. And like oil, it is likely to lead to warfare.”²³ In turn, Michael Klare offers a concise summary of the interstate water wars hypothesis in the following passage:

Because many key sources of water . . . are shared by two or more countries and because the states involved have rarely

²¹ “Central Asia: Water Shortage Due to Lack of Regional Agreements, Prompt Decision-Making,” Ferghana.ru, 15 July 2008, <http://enews.ferghana.ru/article.php?id=2422>.

²² Larbi Bouguerra, *Water under Threat*, trans. Patrick Camiller (London: Zed Books, 2006), 65.

²³ Sandra Postel, *The Last Oasis: Facing Water Scarcity* (New York: W. W. Norton, 1992), 13.

agreed on procedures for dividing up the available supply, disputes over access to contested resources will become increasingly heated and contentious. . . . Any increase in utilization by one country in the system will result in less water being available to the others—a situation that could lead to the outbreak of war.²⁴

The Central Asian states have not yet resorted to full-scale war as a means to resolve their hydraulic differences, but small-scale transboundary disputes over water have already broken out in the region. For instance, farmers in Turkmenistan have constructed canals in recent years to divert Amu Darya water flowing along the Uzbek-Turkmen border in an effort to decrease dependence on Uzbek water delivery while simultaneously depriving Uzbek farmers in the river's delta of much needed water for irrigation. As farmers in both countries compete for increasingly scarce freshwater resources, Kipping observes that they “sometimes deliberately block drainage canals in order to assure minimum soil moisture for the following year.”²⁵ While government officials from Uzbekistan and Turkmenistan have clashed over these ongoing patterns of “resource capture,”²⁶ the issue remains unresolved.

Dash offers another example of a regional dispute over water—ironically enough, a dispute over *too much* water rather than too little. During the winter months of 2000, Kyrgyzstan decided to capitalize on its upstream waters by opening up some of its reservoirs to generate additional hydroelectricity. The resulting winter flood inundated thousands of hectares of irrigated land and pastures in both Uzbekistan and Kazakhstan. Intense protests followed, particularly in Kazakhstan, as farmers feared the flood would damage the following year's crops.²⁷ As this pattern has repeated itself in subsequent years, the ICG observes that Uzbekistan has responded by carrying out military exercises that “look suspiciously like practice runs at captur-

²⁴ Michael T. Klare, *Resource Wars: The New Landscape of Global Conflict* (New York: Henry Holt, 2001), 139–40.

²⁵ Kipping, “Malthusian Concerns,” 310.

²⁶ Thomas F. Homer-Dixon, *Environment, Scarcity, and Violence* (Princeton, NJ: Princeton University Press, 1999).

²⁷ Dash, “Central Asian Republics,” 523.

ing the Toktogul reservoir” in Kyrgyzstan.²⁸ Kipping notes that, while similar reports of transboundary skirmishes between local communities in the region have emerged during the post-Soviet era, “competition over irrigation water has not yet led to interstate violence.”²⁹ As populations grow, demand increases, and supplies dwindle, however, scholars and policy makers alike have questioned whether the states of Central Asia can sustain these relatively peaceful relations.

Taking a step back, what are the main points of dispute and, in turn, barriers to hydraulic cooperation among the Central Asian states? The ICG identifies four key areas of water-related tension among these countries in its 2002 report:

- lack of coherent water management
- failure to abide by or adapt water quotas
- nonimplemented and untimely barter agreements and payments
- uncertainty over future infrastructure plans³⁰

We will discuss lack of coherent water management in more detail in the next section. With regards to the failure to abide by water quotas, the countries initially attempted to maintain the quota system established during the Soviet era upon gaining independence. However, water-monitoring facilities in Kyrgyzstan and Tajikistan have fallen into disrepair as a result of economic and political turmoil in those countries. The result, according to the ICG, is that “Turkmenistan is using too much water to the detriment of Uzbekistan, which in turn has been accused by Kazakhstan of taking more than its share. Kyrgyzstan and Tajikistan say that the three downstream countries are all exceeding quotas. Even within Uzbekistan, provinces have accused one another of using too much water.”³¹ Moving on to the ICG’s third point of contention, barter payments typically take the form of energy resources traded to the upstream riparians by

²⁸ ICG, *Central Asia*, ii.

²⁹ Kipping, “Malthusian Concerns,” 310.

³⁰ ICG, *Central Asia*.

³¹ *Ibid.*

their downstream neighbors in exchange for the upstream countries agreeing not to overutilize their riverine resources in the generation of hydroelectric power during the winter months. Failure to fulfill these barter agreements in a timely manner, however, frequently gives rise to the winter flooding and resultant political disputes described above. Finally, uncertainty over future dam building and irrigation plans in the region continues to stymie efforts at cooperative management. Nevertheless, these points of dispute have yet to give rise to violent interstate conflict in Central Asia. Johannes Linn notes, however, that although these countries have thus far avoided war over water resources, “their relations have been strained, especially between Tajikistan and Kyrgyz Republic on the one side and Uzbekistan on the other.”³² In turn, the introduction of Afghanistan—intent on an agricultural resurgence and in need of freshwater to accomplish that goal—into the competition for scarce resources is likely to exacerbate these preexisting hydropolitical tensions.

A Challenger Appears: Afghanistan

The Interstate Commission for Water Coordination of Central Asia (ICWC), a regional organization created in 1992 to manage water sharing in post-Soviet Central Asia, describes Afghanistan’s future water use as a “destabilizing factor” in its overview of regional water challenges.³³ As Afghanistan’s agricultural revival proceeds in the coming years, Afghan farmers will require additional water for their crops. In turn, this will place additional stress on transboundary waters. As Mujib Mashal observes, “Water is key to strengthening the foundations of Afghanistan’s mainly agricultural economy. But only about 5 percent of the massive international investment and aid in the past decade went to the water sector, according to the UN report. And, critics say, too much of that went to ad hoc small dams and schemes that had no long-term vision.”³⁴ While Afghans

³² Linn, “Impending Water Crisis.”

³³ Interstate Commission for Water Coordination of Central Asia (ICWC), “Main Challenges Facing the Region Regarding Water Issues,” <http://www.icwc-aral.uz/problem.htm>.

³⁴ Mujib Mashal, “What Iran and Pakistan Want from the Afghans: Water,” *Time*, 2 December 2012, <http://world.time.com/2012/12/02/what-iran-and-pakistan-want-from-the-afghans-water/>.

have enough water at present to meet their needs, experts estimate that population growth and diminished supply will result in a 50 percent decline in the availability of freshwater per capita in the next three decades.³⁵ Furthermore, farmers in many Afghan provinces are currently unable to fully utilize their water resources due to the country's inadequate hydraulic infrastructure, much of which is dilapidated after decades of conflict and neglect. Intrastate competition for these freshwater resources has already intensified. Oxfam International estimated in 2010 that a staggering 43 percent of local conflicts in rural and urban communities in Afghanistan are now over water. According to Oxfam policy officer Ashley Jackson, "Disputes over these scarce resources lead to violence and even, in some instances, fuel the greater conflict."³⁶

Failure to fulfill these barter agreements in a timely manner, however, frequently gives rise to winter flooding and resultant political disputes.

In northern Afghan provinces such as Badghis—known for its pistachio orchards—farmers will need to divert water from trans-boundary sources like the Amu Darya. This raises the question of how much water Afghanistan will need in the decades ahead. A 2004 World Bank report estimates that a 15 percent increase in irrigated land area in the Amu Darya basin would require a 20 percent increase in water usage relative to Afghanistan's withdrawal levels during the 1980s.³⁷ While the World Bank report characterizes the impact of increased usage of the Amu Darya in northern Afghanistan on downstream riparians Uzbekistan and Turkmenistan as "negligible" and "likely only to be felt in dry years,"³⁸ we find several faults with this conclusion. First, since the report's publication in

³⁵ Ibid.

³⁶ John Vidal, "Kabul Faces Severe Water Crisis," *Guardian* (London), 19 July 2010, <http://www.guardian.co.uk/world/2010/jul/19/kabul-faces-severe-water-crisis>.

³⁷ Masood Ahmad and Mahwash Wasiq, *Water Resource Development in Northern Afghanistan and Its Implications for Amu Darya Basin*, World Bank Working Paper 36 (Washington, DC: World Bank, 2004), 30, <http://elibrary.worldbank.org/doi/pdf/10.1596/0-8213-5890-1>.

³⁸ Ibid., 3.

2004—and particularly since 2009—the United States and other international actors have placed greater emphasis on the rehabilitation and expansion of Afghan agriculture. The expansion of cultivated land in northern Afghanistan already exceeds many of the report’s projections, and this trend is likely to continue into the future. Furthermore, the World Bank’s conclusions are based, in part, on the hopeful assumption that Uzbekistan and Turkmenistan would improve their own water management practices, offsetting the additional withdrawals made by Afghanistan upstream. A decade later, however, infrastructure and water management improvements by the downstream riparians are minimal at best. In addition, the assertion that Uzbekistan and Turkmenistan would only feel the impact of Afghanistan’s increased usage of the Amu Darya during dry years is of little solace as climate change creates hotter, drier seasons in much of the world as global warming grinds on. Finally, the report fails to consider that even the *perception* by its downstream neighbors that Afghanistan is taking more than its fair share of the Amu Darya and other shared transboundary water resources could heighten tensions in the region. Again, a Malthusian logic ensues. Increased demand for freshwater leads to increased interstate competition, creating tensions with both upstream states (who are perceived as withdrawing too much water from transboundary sources) and downstream states (who feel they are not left with enough water after Afghanistan withdraws its share). Furthermore, as water becomes increasingly scarce, the likelihood of *intrastate* conflict in downstream riparians increases, as groups within these societies compete to control access to dwindling freshwater resources. In summary, increased competition resulting from Afghanistan’s growing demand for water opens the door to potential conflict, both within and among the states of Central Asia.

Navigating the Troubled Waters of Afghanistan’s Agricultural Revival

In addition to training farmers in modern agricultural practices, distributing supplies, and repairing dilapidated hydraulic infrastructure, what kinds of policies should the United States and other interna-

tional partners pursue in Afghanistan? One obvious answer is to avoid the Soviet Union's mistake of promoting water-intensive crops like cotton in Central Asia and instead channel aid dollars and technical support toward encouraging sustainable crops that require less water to thrive. While the market value of staple crops like wheat and maize is somewhat lower than cotton and rice, wheat and maize are also far less "thirsty" crops. It is also vital that international stakeholders endorse crops appropriate for both the Afghan climate and the technical capabilities of Afghan farmers. The United States failed to account for both concerns when USDA spent \$34.4 million on an ill-fated 2010 project aimed at making soybeans an Afghan dietary staple. Not only was the country's climate a decidedly poor fit for soybeans, but the traditional Afghan farming culture was unprepared to engage in large-scale production. Furthermore, as Alexander Cohen and James Arkin observe, USDA failed to realize that Afghans "don't like the taste of the soy-processed foods."³⁹ In terms of export-oriented crops, Afghanistan's production of high-value fruits and nuts—almonds, apricots, pistachios, pomegranates, and raisins—has rebounded significantly since 2002 and represents a significant source of potential income for the country.⁴⁰ That said, any future projects aimed at expanding the cultivation of these high-value crops (which also require considerable freshwater resources) must be balanced against the need to produce less thirsty, albeit lower-value, crops such as wheat and maize for domestic consumption.

In addition to promoting appropriate crops, international stakeholders can also diminish competition over transboundary freshwater resources by providing corresponding "side payments" in the form of food aid to those countries negatively impacted by Afghanistan's increased withdrawals. Yet, perhaps the most promising route to resolving future conflicts lies in strengthening regional water-sharing institutions. With regard to water management, Afghanistan and its Central Asian neighbors confront the classic "tragedy of the com-

³⁹ Alexander Cohen and James Arkin, "Afghans Don't Like Tofu, Either," *Foreign Policy*, 25 July 2014, www.foreignpolicy.com/articles/2014/07/25/afghans_don_t_like_tofu_either_soybeans_afghanistan.

⁴⁰ USAID, "Agriculture (Afghanistan)," 3 September 2014, <http://www.usaid.gov/afghanistan/agriculture>.

mons.”⁴¹ That is, individual actors engaging in self-interested, rational behavior in the short run (i.e., exploiting transboundary freshwater resources) run the risk of creating negative consequences for the whole in the long run (i.e., the depletion of those freshwater resources). In these instances, strong institutions capable of effectively coordinating state behavior and settling disputes are central to preserving a scarce resource and preventing conflict.⁴²

What kinds of institutions currently exist in Central Asia to

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manage contentious freshwater resources? The institutional cornerstone of transboundary water management in the region is the ICWC. The organization describes its central mission as preventing conflicts and other “serious complications” in regional water resources management.⁴³ To this end, the ICWC is intended to monitor and maintain water-sharing quotas, oversee the development of the Amu Darya and Syr Darya Riv-

ers, construct new water-related infrastructure (e.g., dams or reservoirs), promote regional economic integration, and provide a forum to peacefully settle interstate disputes. However, in its May 2002 report on water and conflict in Central Asia, the ICG makes the following observations:

The Interstate [Commission for Water] Coordination (ICWC) that was set up in 1992 has failed to take into account changing political and economic relations. It is an intergovernmental body with little transparency that focuses almost exclusively on the division of water. There is no rep-

⁴¹ Garrett Hardin, “The Tragedy of the Commons,” *Science* 162, no. 3859 (1968): 1243–48.

⁴² Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge: Cambridge University Press, 1990).

⁴³ ICWC, “Main Challenges.”

resentation from agricultural or industrial consumers, non-governmental organizations, or other parties. Management is dominated by officials from Uzbekistan, leading to suspicions that it favors that country's national interests. This has contributed to a lack of political commitment by other countries to the commission, resulting in a serious shortage of funds.⁴⁴

In turn, the ICWC has achieved relatively little since its inception. As Tobias Siegfried argues, "A mixture of regional, national, and interstate institutions now handles allocation decisions, which used to be centrally administered during Soviet times. It should come as no surprise that water and energy allocation among the various sectors and users is not efficient."⁴⁵ Thomas Bernauer and Siegfried expand on these difficulties, arguing that while interstate compliance with water-sharing institutions in Central Asia has been relatively high, the actual performance of these agreements has been very low.⁴⁶ In other words, although the Central Asian states are, by and large, complying with the terms set forth by the ICWC and other regional agreements, the agreements themselves simply are not up to the task of resolving water-related disputes. Although additional treaties and bilateral agreements have emerged in the region since 1992, effective cooperation remains elusive.

Of Afghanistan's four major river basins, only the Helmand River—shared with neighboring Iran—has an interstate water-sharing agreement in place, and this agreement is characterized by weak compliance.⁴⁷ Afghanistan is not a member of the ICWC, and no bilateral treaties exist to manage the Amu Darya and its tributaries

⁴⁴ ICG, *Central Asia*.

⁴⁵ Tobias Siegfried, "Water and Energy Conflict in Central Asia," *State of the Planet* (blog), 18 August 2009, <http://blogs.ei.columbia.edu/water/2009/08/18/water-and-energy-conflict-in-central-asia/>.

⁴⁶ Thomas Bernauer and Tobias Siegfried, "Compliance and Performance in International Water Agreements: The Case of the Naryn/Syr Darya Basin," *Global Governance* 14 (2008): 479–501.

⁴⁷ Margaret J. Vick, "Sharing Central Asia's Waters: The Case of Afghanistan," *International Water Law Project Blog*, 19 January 2013, <http://www.internationalwaterlaw.org/blog/2013/01/19/sharing-central-asias-waters-the-case-of-afghanistan/>; and Mashal, "What Iran and Pakistan Want."

with Tajikistan, Uzbekistan, or Turkmenistan. As regional water use increases and scarcity results, Afghanistan will find itself resolving disputes with its upstream and downstream neighbors on an ad hoc basis—not a scenario conducive to effective, equitable solutions. The United States and other international partners must work to strengthen regional water-sharing institutions in Central Asia, whether that involves crafting new agreements or bringing Afghanistan into a restructured ICWC. Further disputes over water management are al-

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most certain to occur in the years ahead; experiences from trans-boundary river basins around the globe serve as a testament to that fact. Effective regional institutions, however, have the capacity to prevent these disputes from escalating to the level of interstate conflict.⁴⁸ Furthermore, as Margaret Vick observes, “The economic viability of Afghani-

stan depends on protection from floods and drought, adequate domestic supply, reliable irrigation, and power. All can be advanced through water-sharing agreements with neighboring states.”⁴⁹

How can the United States and its international partners work to strengthen these institutions in Central Asia? The ICG's 2002 report recommends four reforms of the ICWC that represent a promising start:

- Improve transparency and accountability in the ICWC's decision-making process, budgets, and policies.
- Widen participation by including agricultural and industrial consumers, as well as nongovernmental organizations.

⁴⁸ Jaroslav Tir and Douglas M. Stinnett, “Weathering Climate Change: Can Institutions Mitigate International Water Conflict?” *Journal of Peace Research* 49, no. 1 (2012): 211–25.

⁴⁹ Vick, “Sharing Central Asia's Waters.”

- Increase the ICWC's power to monitor water consumption, enforce quotas, and impose sanctions.
- Reform the management structure to make it more representative of both upstream and downstream member states.⁵⁰

Of course, these reforms would require that the member states put aside self-interest and entrust the ICWC with significantly more authority—no easy task, to say the least. To ease such concerns and bring regional stakeholders to the table, the ICG also recommends strengthening the water/energy bartering system among member states along the Amu Darya and Syr Darya, offsetting at least some potential costs of collaboration.

Conclusion

While Afghanistan's future following the scheduled exit of most international military forces at the end of 2014 is uncertain, there are three essential truths upon which we can rely. First, political stability and sustainable economic development are closely linked to Afghanistan's capacity to shift away from poppy cultivation and toward legitimate agriculture. This transition would not only rob the Taliban insurgency of a key source of funding but also would lay the groundwork for future economic growth in one of the world's poorest countries. Second, Afghanistan's agricultural revival will require additional irrigation, and farmers will, in turn, need to withdraw at least a portion of the freshwater for these irrigation projects from transboundary sources like the Amu Darya. Third, as Afghanistan's freshwater needs rise in the years ahead—in conjunction with growing populations and dwindling supply as a result of climate change—competition for these scarce transboundary resources with upstream and downstream neighbors in Central Asia will intensify. As competition escalates in a political environment with no effective regional institutions in place to settle disputes, so too does the likelihood of interstate hostility—and, along with it, violent conflict. Therefore, as the United States and U.S.-led organizations like the

⁵⁰ ICG, *Central Asia*.

World Bank allot funds and approve projects aimed at Afghanistan's agricultural revival in the coming years, it is crucial that they remain mindful of the broader regional hydropolitics of Central Asia while crafting policy. This includes not only strengthening existing regional water-sharing institutions and prioritizing water-efficient crops, but perhaps even going so far as to provide food aid and other assistance to Central Asian states to offset the deleterious effects of Afghanistan's increased freshwater withdrawals. Failure to account for the transnational repercussions of Afghanistan's agricultural revival has the potential to create an entirely new set of problems for a country that has faced a cycle of extreme violence since 1978.

Given the poor performance of the Afghan government over the past decade, the effective management of a domestic agricultural program with a strategic intent of maintaining regional peace and security might seem a tall—or perhaps even impossible—order. However, there are grounds for tempered optimism.

First, it is important to understand that a significant reduction in the ISAF footprint may reduce some of the sources of local grievance that help to sustain the Taliban. The Taliban rely heavily on a narrative that paints the government in Kabul as corrupt lackeys of apostate foreigners. Once those foreigners leave, that narrative begins to unravel. With a reduction in conflict, the process of rebuilding and economic development can proceed at a more deliberate pace.

Second, over that last half decade there has been significant improvement in local security as a result of the Village Stability Operations (VSO)⁵¹ concept that has been implemented by various ISAF units (mostly American forces). As VSO efforts mature, the

⁵¹ For more information on VSO, see Mark L. Brown Jr., "Village Stability Operations: An Historical Perspective from Vietnam to Afghanistan," *Small Wars Journal* (28 March 2013), <http://smallwarsjournal.com/jrnl/art/village-stability-operations-an-historical-perspective-from-vietnam-to-afghanistan>; Col Ty Connett, USA, and Col Bob Cassidy, USA, "Village Stability Operations: More than Village Defense," *Special Warfare* (July–September 2011), http://www.soc.mil/swcs/swmag/archive/SW2403/SW2403VillageStabilityOperations_MoreThanVillageDefense.html; and Octavian Manea, "Village Stability Operations and the Future of the American Way of War," *Small Wars Journal* (6 February 2014), <http://smallwarsjournal.com/jrnl/art/village-stability-operations-and-the-future-of-the-american-way-of-war>.

reduction of international forces does not mean that the Taliban will simply return to power due to a lack of local security. Readers must recall that the Taliban once ruled Afghanistan and the memory of their coercive and oppressive authoritarian intolerance will influence the future more strongly than it does the present.

Third, the areas of Afghanistan that will require effective water coordination between local, national, and neighboring authorities are primarily located in the most stable areas of the country (the north and west) and out of the more violence-prone Pashtun regions. Finally, the ineffective, highly corrupt, and incoherent policies of Afghan President Hamid Karzai will soon be replaced. We have no illusion that Afghan politics will stage a remarkable turnaround under his successor; however, with a change of leadership, the possibility for improvement will exist, and it is in all stakeholders' interests to continue nudging Afghanistan toward a better future.

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