The SRC's Research Fellows Working Paper, submitted on November 15, 2011

International Water and Energy Policy in Post-Soviet Central Asia[1]

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1 Introduction

Since becoming independent in 1991, the five countries of Central Asia have struggled to redefine their relationships with one another. Nowhere is this more evident than in the highly politicized issue of water and energy management. The interdependent system of water and energy management put in place by the Soviets has proved difficult to maintain with any degree of consistency. Mistrust and recriminations are sadly common, and defections from cooperation often escalate. Given the difficulties associated with overcoming the resultant noncooperative cycles, it is perhaps surprising that cooperation ever reemerges. Yet, although the depth of cooperation is inconsistent, it rarely fails entirely. This paper presents some empirical evidence about interstate relationships in the post-Soviet period in the area of water and energy policy and discusses the lessons we can learn from the patterns that emerge.

This topic is important to the the study of Central Asia for several reasons. First, the political significance of the water-energy problem implies that the nature of interaction in this issue area are likely to mirror relations more generally. Second, whether or not the region can efficiently manage its water and energy resources has huge implications for economic development. Water shortages have led to a massive loss of agricultural crop yields in Uzbekistan, Kazakhstan and Turkmenistan during years in which agreements are either not reached or not honored. A lack of reliable energy has hindered the development of industry, not to mention investment, in Kyrgyzstan and Tajikistan.

The paper proceeds in several parts. I begin by providing an overview of the difficulties associated with water and energy in Central Asia. I then describe an original dataset that contains information on cooperative and noncooperative events associated with this topic during the 2000-2010 period and present some findings. I conclude by discussing what can be learned from the patterns that emerge from these data.

[1]This material is based upon work supported by the National Science Foundation under Grant No. SES-1122532. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.

2 Water and Energy Policy in Central Asia: an overview

During the Soviet period, the central government in Moscow had complete control of water and energy policy in Central Asia. The management system that emerged was designed almost exclusively to support cotton production. In 1913, the Central Asian countries produced around 662,600 tons of cotton. By 1980, this had increased to around 9,078,000 tons, about 14 times greater than the 1913 level[2]. The development of this cotton monoculture required a massive expansion in irrigation that placed serious stress on the region's water supply. Instead of increasing the efficiency of irrigation, the Soviets built large upstream reservoirs to increase their effective water supply, notably Toktogul in Kyrgyzstan and Nurek in Tajikistan. This meant that water could be stored and then released during the season it was most needed: summer. The reservoirs were also constructed with the capacity to generate hydroelectricity which, due to the unified electrical grid, could be easily exported throughout the region. In winter, the downstream states provided the upstream republics with the necessary energy resources. Kyrgyzstan and Tajikistan do not have any indigenous supplies of energy beyond hydropower. On the other hand, Kazakhstan has significant oil reserves and both Uzbekistan and Turkmenistan are endowed with large natural gas deposits, as well as some oil. The energy that Kyrgyzstan and Tajikistan received from their downstream neighbors allowed them to store water during the winter, rather than use it for the production of hydroelectricity.

After independence, the region-wide system of water and energy resource management faltered, in large part because there was no longer a central authority to guarantee adherence. The new heads of state began discussing the problem as early as 1992 and had established an informal barter system by 1995 that persists, with minor exceptions, until today. However, relations are often strained and successful implementation of bartered agreements is intermittent.

The system more or less adheres to a yearly cycle, in which a new agreement is reached each winter regarding the provision of energy and the release of water during the upcoming year. The terms of this agreement include some combination of (1) the amount of water to be released during the summer in terms of absolute quantity or rate of flow; (2) the amount of energy to be provided during the current and/or subsequent winter; (3) the price of hydroelectricity generated in the summer and the quantity that will be purchased by the downstream country; and (4) the price of winter energy to be purchased by the upstream country. Hydroelectricity production and sale is often an explicit part of the negotiation process. If Tajikistan and Kyrgyzstan are to use most of their hydroelectric potential in the summer, they must have a guaranteed market in which to sell it. Given that Kazakhstan, Uzbekistan, and Turkmenistan are energy rich, they would not necessarily purchase this relatively expensive electricity if it were not included in the water agreement.

Defection from agreements is common, although the timing and severity varies significantly over time and between countries. In the summer, cooperation may break down if

[2]Tatyana Saiko. 1998. Geographical and socio-economic dimensions of the Aral Sea crisis and their impact on the potential for community action. *Journal of Arid Environments*, 39:2, 225-238

either the upstream nations do not fulfill the water release quota or the downstream nations stop purchasing the agreed amount of hydroelectricity. In winter, the downstream nations may defect by not providing adequate energy for heating and power upstream. This in turn leads Tajikistan and Kyrgyzstan to generate their own hydroelectric power by releasing stored water, resulting in flooding downstream and potential shortages in the following summer.

In many ways, these difficulties are not surprising. Water autonomy, no less than that of food and energy, is an important goal for many countries who seek to legitimize their existence. Sovereignty means not having to answer to anyone, but complex basin-wide water management systems impinge on this fundamental right. Often, it is only after a state is so well-established that there are no challenges to its sovereignty that it can begin to cede some of its control through involvement in such actions. This creates an unfortunate cycle in which states over-reach by trying to become entirely autonomous too soon in an effort to seem legitimate but, as a result, experience a political or economic crisis and the state loses legitimacy anyways.

Central Asia had a real opportunity to escape this cycle. In the first place, it has a history of successful water and energy management. Often states disagree over the very nature of the solution, but in Central Asia all that was needed was the political will to continue the same old practices in a new era. In the second place, because of the visibility of the Aral Sea disaster and general interest in the post-Soviet transition, there was a lot of interest from Western countries and organizations in improving on the Soviet system of management. Institutions in the region were propped up by outside money and plentiful expertise was at the disposal of the states.

Unfortunately, these encouraging factors were not enough for Central Asia to achieve sustained cooperation over water and energy. The prospects look increasingly slim, particularly as the region begins to experience the predicted changes associated with climate change.

3 Patterns of Cooperation and Noncooperation

3.1 Description of data

This section provides a brief overview of the methods employed to collect and code data on cooperative and noncooperative events. I used primarily secondary sources to create a detailed timeline of events related to water and energy cooperation in post-Soviet Central Asia. These sources are mostly in English and available through the EastView database. However, where necessary (in particular, when different versions of the same event emerge from different sources), they are supplemented by Russian language sources and other records located during my fieldwork in Central Asia.

I look at four different types of cooperative events: (1) formal agreements, (2) protocols/joint statements, (3) meetings of International Organizations and (4) discussions held outside the purview of IOs. The distinction between what I term "formal agreements" and "protocols/joint statements" is not always clear. If I do not have access to the actual text

of what was signed, I usually make a distinction between agreements that lay out a clear roadmap for the future (for example, 2 million kWh of electricity will be provided to Kyrgyzstan by Uzbekistan) and those that express more vague statements of interest in cooperation. I only include meetings of IOs in which water and/or energy is on the agenda.

The data on noncooperative events are also divided into four categories: (1) use/threat of violence, (2) noncompliance, (3) threat of noncompliance, and (4) critical official statement. The use of violence is limited to only two cases in my dataset, both of which were local level skirmishes in border regions. Although this means I cannot make reliable inference about the use of violence, the very absence of events in this category is telling. Despite the fact that tensions over water and energy run high, relations have never crossed over into the realm of state-sanctioned violence. The only arguable exception to this is an alleged amassing of Uzbek troops along the Kyrgyz border to guard a reservoir that straddles the two countries. In this case, violence was not actually used, nor were explicit threats made, although the exact details remain hazy due to conflicting accounts. Regardless, this event is outside the range of my dataset, since it occurred in 1997.

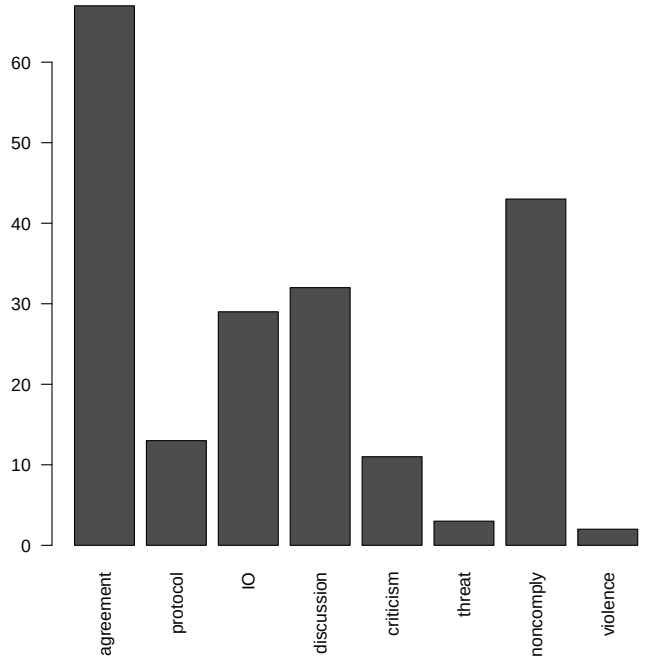
My event database has a total of 229 events of which over two thirds are cooperative. As mentioned previously, having searched thousands of newspaper articles, I am confident that I have collected information on the most important events. However, I continue to search for events that were overlooked. These are lower tier events, for example, discussions or IO meetings at low levels of government, but are nonetheless important to get a full overview of the cooperation between these countries. For example, meetings held by experts of different states usually end with a statement of recommendations being sent to the appropriate governments and through this may influence policy outcomes at higher levels of government. Any inference about these lower tier events must be accompanied by the caveat that there may be issues with missing data. Similar problems should not exist among higher tier events.

3.2 Presentation of data

As mentioned above, the dataset currently contains 161 cooperative and 68 noncooperative events occurring between January 1, 2000 and December 31, 2010. This is a large enough number of observations that the data can be sliced in many interesting ways. Obviously, I will not be able to present all of these and so will focus on what I see as the most important dimensions of variation. Figure 1 begins at the most basic level, breaking down the events into the categories discussed in the previous section. The four types of cooperative events are formal agreements, protocols/joint statements, meetings of International Organizations, and discussions outside the purview of IOs. The four types of noncooperative events are violence, actual noncompliance, threatened noncompliance, and formal criticisms of the government. They are ordered from 'most cooperative' to 'most noncooperative'.

A few observations can be made about Figure 21. First, formal agreements are the most frequent class of event. However, despite the fact that there are far more cooperative than noncooperative events, the second largest category in absolute terms is noncompliance. Discussions outside of international organizations are roughly as common as those that occur under international organizations. Violence is the least common event, with only two

Figure 1: Aggregate number of different events



occurrences in the entire dataset.

As discussed above, variation over time is also important. Since the cycle of negotiation, agreement and implementation takes roughly one year, we can consider each year to be a new observation. Figure 2 breaks down different types of cooperative and noncooperative events over time. There does not seem to be a consistent upward or downward trend in cooperative events. Instead, there appear to be two distinct peaks in the early and late 2000s, with the last year (2010) reaching a record low point. Noncooperation, on the other hand, does seem to display an upward trend. However, much of this is driven by 2008, which has the largest number of noncooperative events. The greatest number of criticism events occurred in 2010. Violence occurred only in 2008 and 2009.

Figure 3 presents variation over time for six particularly important dyads. The right hand column represents the major players on the Syr Darya river [3], and the left-hand column displays the dyads involved in the Amu Darya. Cooperative events are assigned positive numbers according to the ordering I have used throughout (4: formal agreement, 3: protocol/joint statement, 2: IO meeting, 1: discussion) and noncooperative events are similarly assigned negative numbers (-1: official criticism, -2: threat of noncompliance, -3: actual noncompliance, -4: violence). The time period is split into months along the x-axis (2000-2010). When more than one event occurred in a given year, I include both[4].

This coding scheme implicitly assumes that the substantive 'distance' between different classes of events are the same. For example, it suggests that a formal agreement is more cooperative than a protocol by the same amount that violence is more noncooperative than noncompliance. Such an assumption may or may not be true. This problem will need to be dealt with when I begin to use the data for statistical analysis, however, the coding scheme is at least useful for illustrative purposes.

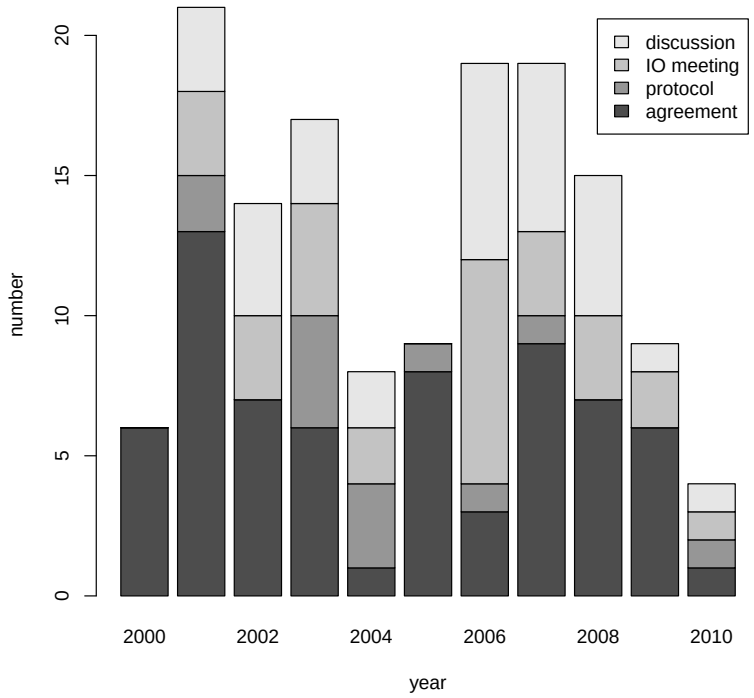
With this caveat in mind, several interesting patterns emerge. First, Turkmenistan's stated policy of isolationism clearly applies to the sphere of water and energy policy. While there is a slight increase in the number of agreements signed by Turkmenistan in the years after the death of President Saparmurat Niyazov, the difference is not stark. Second, the relationship between Tajikistan and Uzbekistan exhibits a sharp change just before the middle of the time period. Relations between the two countries were almost exclusively positive until June 2004. After this, however, there is a dramatic increase in the number of noncooperative events and, in some years, also a sharp reduction in the number of cooperative events. We can contrast this to Uzbekistan's relationship with Kyrgyzstan (its other upstream neighbor), which does not display a sharp deterioration. There is yearly variation in cooperation and noncooperation, however, we cannot point to an exact time at which the relationship soured.

Finally, of all the states - except, perhaps, isolationist Turkmenistan - Kazakhstan seems to have adopted a 'catch more flies with honey' approach. Relations with both of its upstream neighbors on the Syr Darya are far more positive than negative. Also recall from Figure 3

[3]The Syr Darya briefly crosses into Tajikistan, although I have ignored this for now

[4]This means that the x-axis is not strictly divided by month - some months may have more than one entry - however, the graph does display events in chronological order

Figure 2: Cooperative and noncooperative events over time



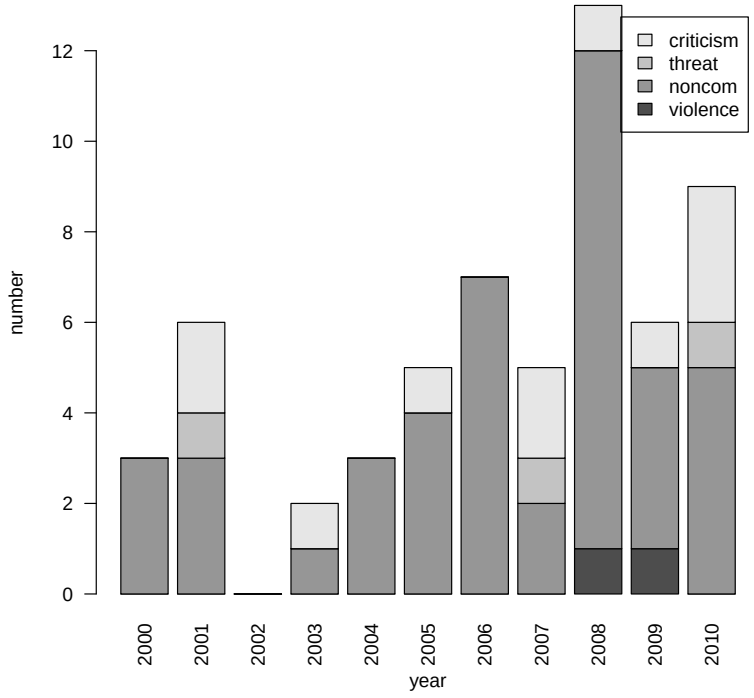
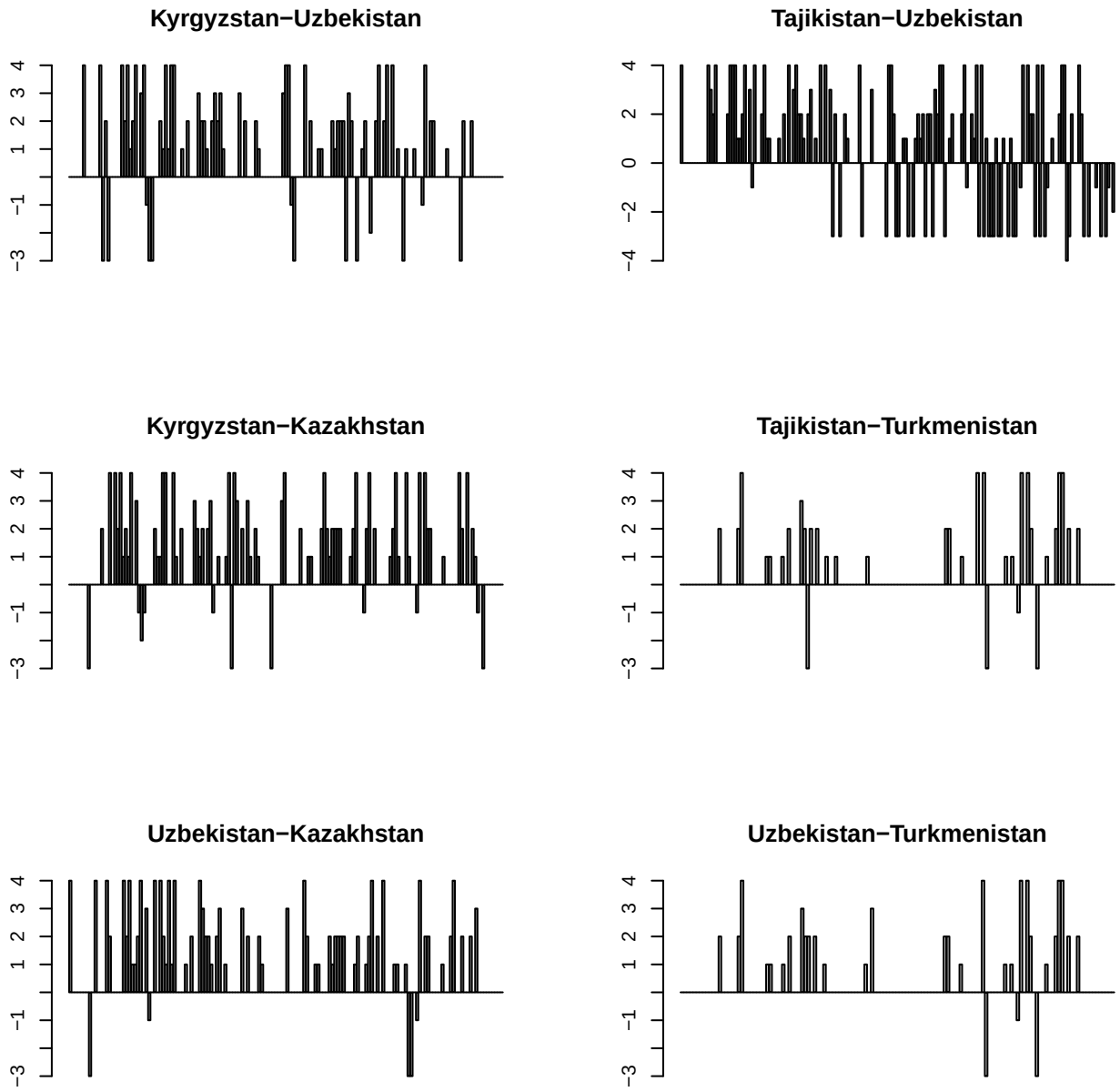


Figure 3: Relations among the major dyads, 2000-2010 (4: formal agreement, -4: violence)



that Kazakhstan's negative relations with Kyrgyzstan are dominated by criticism rather than actual noncompliance. Agreements with Kyrgyzstan appear to be signed more or less uniformly throughout the time period and, while the number of agreements signed with Uzbekistan has decreased somewhat, there is no noticeable increase in noncooperative events.

4 Discussion and Conclusion

The object of this paper is mainly descriptive. Even so, it is interesting to consider how some of the paper's findings fit into a more general description of interstate relations in Central Asia. First, recall that Turkmenistan was involved in far fewer events (cooperative or noncooperative) than the other Central Asian states. I have already mentioned that Turkmenistan has a publicly stated policy of isolationism. Because of its desire to export gas, energy is perhaps the sphere in which Turkmenistan is the most forthcoming. Water is another story. The development of the Golden Age Lake and other large-scale projects are designed to increase water-supply security. This is reflected in the data. The majority of cooperative events involving Turkmenistan relate to energy and those that do include water management considerations are usually events that involve all five states.

In recent years, tension in Uzbek-Tajik relations is most evident in mutual recriminations regarding the Rogun dam project. Tajikistan claims that this project is vital to its national self-interest. Uzbekistan argues that it will result in 'illegal' downstream shortages. Uzbek 'pressure' has included the suspension of energy supplies (as demonstrated above) and even the blockading of trucks trying to cross into Tajikistan. Still, there is an argument to be made that the Rogun dam project is a symptom rather than a cause of the problem. Uzbek-Tajik relations have always been tense. Before the current conflict, tempers flared over border delineation, security issues related to the Islamic Movement of Uzbekistan's incursions into the Ferghana Valley, and the mining of border regions on the part of the Uzbek military. This interpretation of events leads inexorably to a difficult question: if Uzbek-Tajik relations were poor, why did they participate in so many cooperative events regarding water and energy policy in the first half of the decade?

Also interesting is the relative passivity with which Kazakhstan has approached the issue of water and energy. Unlike the previous two cases, this does not necessarily track with Kazakhstan's general approach to regional politics. Kazakhstan and Uzbekistan are competing over who will be the regional hegemon. There are two explanations why Kazakhstan is more cautious in its approach to water and energy. First, Kazakhstan is an inferior bargaining position because of its location. Downstream states have the least leverage and must introduce outside issues or payments to convince upstream states to take their interests into account. Still, some downstream states do take a stronger stance, linking noncooperation with negative outcomes that may fall short of all-out military conflict. We must explore why Kazakhstan has taken a more passive downstream state strategy. The other possible explanation is that Kazakhstan's livelihood depends less on the agricultural sector. The water from the Aral Sea basin is only important in the south. It may thus simply be the case that Kazakhstan cares less about the issues and is unwilling to expend its political capital.