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INCREASING HUMAN SECURITY TO PREVENT WATER WARS IN THE FERGHANA VALLEY

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ABSTRACT

The Ferghana Valley is shared by three Central Asian republics of Kyrgyzstan, Uzbekistan, and Tajikistan. Largely agrarian, the communities residing in the area are heavily dependent on the availability of water for irrigation. As a result of Soviet-backed imaginary border removal and the creation of new borders, the communities became highly vulnerable to state policies and are challenged in establishing relations with each other. The deteriorated environmental conditions, such as dry climate and drought, have only fueled the competition among households to ensure their access to the scarce water resources. Without timely and comprehensive intervention strategies, the region can be compared to a time bomb that could have irreversible consequences.

This article will examine the water problem in the Ferghana Valley from the perspective of a human security approach. In particular, it will analyze the trilateral spurious relations among environmental, economic, and community insecurities derived from the scarcity of water resources and lack of comprehensive water management strategies. To elaborate, it will look into how environmental insecurity has multidimensional impacts on economic and community security in the Ferghana Valley. This research with go on to identify the existing approaches to addressing the aforementioned issues and will scrutinize them to see whether or not they address human security of the communities residing in the Ferghana Valley. Subsequently, the article will propose an alternative solution that meets the principles of human security-friendly policies and will discuss strategies to improve alternative intervention within the framework of "do no harm."

KEYWORDS: ***Border disputes, conflict, Ferghana, human security, water management.***

Introduction

The Ferghana Valley is a region in Central Asia that extends across three countries — Kyrgyzstan, Tajikistan, and Uzbekistan — covering an area of approximately 22,000 square kilometers.[1] Approxi-

[1] See: D. Goudie, "An Overview of the Ferghana Valley," *Perspectives on Central Asia* (Eisenhower Institute's Center for Political and Strategic Studies), Vol. 1, No. 1, January 1996, p. 12.

mately three quarters of Central Asia's water supply comes from the two main rivers, the Syr Darya and the Amu Darya. The first, the Syr Darya, runs through the heart of the Ferghana Valley providing 37.2 billion cubic meters of water to the region annually.[2] The Ferghana Valley is situated in a semi-arid climate with minimum precipitation from April to October.[3] In addition to its dry climate, the changing climate pattern in recent years makes the amount and frequency of rainfall unpredictable.[4]

It is the most populated region in Central Asia with 11.3 million inhabitants representing about 20 percent of Central Asia's population, including 50 percent of Kyrgyzstan's, 31 percent of Tajikistan's, and 27 percent of Uzbekistan's population.[5] Between 1959 and 1989, the population increased by 140 percent and is expected to further increase by 33 percent by 2020 due to the high birth rate.[6] Furthermore, the population of the region is expected to grow by about twenty million over the next 40 years.[7] The region is also home to various ethnic and religious groups and is densely populated, particularly in the Uzbek part of the region. Due to population growth, the demand for water continues to increase over time.

The Ferghana Valley faces a cradle of complex unsolved issues, including demarcation and border disputes. The imaginary border policy was implemented by the Soviet regime so that none of these fraternal countries could assume sole ownership and control of this highly productive and strategically important region of Central Asia. As a result of the Soviet breakup, the current borders do not correspond to the ethnic and language distributions of the population. In addition, this has created ongoing tension between the three countries over territorial disputes and water management. Consequently, the rivers cross borders as many as thirty times, making it difficult to formulate and adopt comprehensive and effective water management across the region.

The states in the region have conflicting views on water usage. For Uzbekistan, located on the lower reaches of the river, the priority is agriculture. A large amount of water is necessary for irrigation since the Uzbek government enforces mandated quotas on cotton and wheat production volumes on its farmers. For Kyrgyzstan and Tajikistan, electricity generation by hydropower plants is also a crucial use of water. Approximately 90 percent of the electricity generated in Kyrgyzstan and Tajikistan comes from hydropower plants,[8] whereas the electricity generation capacity has not been fully exploited in the aforementioned countries. Such different priorities and poorly timed water transfers are exacerbating the tension among the states.

Legal Framework and Political Analysis of Water Mismanagement

The problems identified above, namely irreconcilable views on water usage and management, together with the legacy of the Soviet five-year plans, have severely impacted regional environment

[2] See: D. McKinney, *Cooperative Management of Transboundary Water Resources in Central Asia*, 4th Draft, November 2003, p. 3.

[3] See: T. Siegfried *et al*., *Will Climate Change Exacerbate or Mitigate Water Stress in Central Asia?*, 2011, p. 2, available at [http://water.columbia.edu/files/2011/11/syrDarya_ClimateImpacts_Siegfried.pdf].

[4] See: *Tajikistan: Poverty in the Context of Climate Change*, National Human Development Report 2012, UNDP, p. 13.

[5] See: *Transforming Risks into Cooperation. Central Asia: Ferghana-Osh-Khujand Area,* ENVSEC Initiative, United Nations Development Program, p. 26.

[6] See: Ibid., p. 27.

[7] See: *World Population Prospects: The 2010 Revision*, United Nations Department of Economic and Social Affairs, New York, 2011.

[8] See: *Joint Economic Assessment: Reconciliation, Recovery, and Reconstruction*, World Bank, July 2010, p. 87.

and increased economic hardship in the area. The unique and complex political, social, and economic context and history of the Ferghana Valley require solutions to be comprehensive rather than target-specific. This requires untangling various issues in different areas that are interrelated in both obvious and subtle ways.

Soviet five-year economic planning targeted high agricultural output, which led to a change in the natural course of the river flow from the Aral Sea to the fields of Uzbekistan and Kazakhstan. Uzbekistan and Kazakhstan compensated for Tajikistan's and Kyrgyzstan's water loss by providing these largely mountainous countries with guaranteed supplies of energy. Ever since the disintegration of the Soviet Union, the Central Asian republics have not only inherited ecological and environmental consequences associated with the shrinking of the Aral Sea, but also faced an economic crisis when the Soviet-style compensation system was unable to meet the reality of the capitalist market.

Water shortage and mismanagement lead to conflict not only at the state levels, but also between communities. In particular, the region is heavily dependent on agriculture, and most of the population is employed in the agricultural sector. The high poverty rate indicates the region is conducive to an economic slump, and reduced agricultural outputs could create food insecurity. Borderline disputes, political tension between adjoining states, and lack of economic opportunities have prevented the development of an effective water management mechanism at the state level. These different priorities lead to poorly timed water transfer between communities, which adds to the complexity of the problem.

Generally speaking, water management in the sovereign states is negotiated and arranged at the state level since water is perceived as a trans-boundary resource. In Central Asia, Kazakhstan, Kyrgyzstan, Uzbekistan, and Tajikistan (in the Ferghana Valley, Kyrgyzstan, Tajikistan, and Uzbekistan) attempted to develop a comprehensive water management system based on various bilateral, trilateral, and other international and regional agreements. These agreements address collective management of water resources for agriculture and electricity purposes, as well as environmental problems associated with the shrinking of the Aral Sea. However, water usage is only one dimension of the problem. For example, the Syr Darya is the largest river that passes through four Central Asian republics and flows to the Aral Sea. Approximately 95% of its waters are regulated by reservoirs, of which the Toktogul Reservoir in Kyrgyzstan (with a total volume of 19.5 billion cubic meters) is the largest and is considered to be a long-term regulated reservoir. To compare, the second largest Andijan Reservoir, located in Uzbekistan, has a total volume of 1.75 billion cubic meters.[9] Hence, not only use, but also allocation of this water is becoming another problem.

The Almaty Agreement signed in 1992 assigned 51.7 percent of the river flow to Uzbekistan, 38.1 percent to Kazakhstan, and 10.2 percent to Kyrgyzstan and Tajikistan; thus the upstream countries are subject to greater per capita water stress.[10] In addition, efficiency of water use should be highlighted. Statistics indicate that the main water loss occurs in the on-farm delivery networks and directly in the field. According to WUFMAS, such water losses alone may account for 37 percent of the total supply to farm contours. On average, about 21 percent of irrigation water is wasted directly in the field.[11]

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[9] See: *"Analysis of Existing Agreements between Countries of Central Asia in the Area of Water Relations from the Stand Point of Kazakhstan's Interests,"* ADB Project on Improving Common Water Resources of Central Asia, Ministry of Agriculture of Kazakhstan, Water Resources Committee, January 2006, p. 1.

[10] See: C. Bichsel, "'Liquid Challenges: Contested Water in Central Asia'," *Sustainable Development Law & Policy*, Fall 2011: Natural Resource Conflicts, Vol. 12, Issue 1, Art 8, p. 26.

[11] See: M.N. Kipshakbaev *et al*., *Diagnostic Report on Water Resources in Central Asia*, 2002, available at [http://aoa.ew.eea.europa.eu/tools/virtual_library/bibliography-details-each-assessment/answer_054 3207904/w_ assessment-upload/index_html?as_attachment:int=1].

Since the Almaty Agreements, countries have signed multiple agreements, made joint statements and declarations, and even created an International Foundation on Saving the Aral Sea. Finally in March 1998, the four countries reached an agreement, also known as the Bishkek Agreement, outlining collective responsibilities and providing for the construction of new water reservoirs.[12] The Bishkek Agreement was not ratified by Tajikistan. While both the Almaty and the Bishkek agreements did envisage the equality of all the sides regarding use of the water resources, none of the documents envisaged the adversarial needs of countries regarding water use and failed to outline the reinforcing responsibilities and liabilities of the countries.

As of 2000 and 2001, Tajikistan and Uzbekistan started signing bilateral agreements agreeing on a compensatory mechanism in which upstream Tajikistan receives gas, coal, and fuel oil (masut) in exchange for supplying water for the agricultural needs of Uzbekistan. Parallel to this, in 2004-2005 Kyrgyzstan and Kazakhstan also started signing bilateral agreements on the common usage of water and energy resources.[13] Although this was a step forward in an almost decade-long deadlock in negotiations, it addressed only the seasonal needs of each country and violated the agreements reached in 1992 and 1998. These bilateral agreements failed to address long-term strategy in regional and trans-boundary water management. The short-term nature of the bilateral agreements and lack of commitment of the parties to the agreements can be explained by the "win-lose" model encapsulated in the regional approach to water management. Hence, we might ask what the real reason is for the shrinking of the Aral Sea and what has been the excuse or bargaining chip in water management negotiations.

By abstracting themselves from the broader Central Asian context and refocusing on the reality of the Ferghana Valley, the three countries are failing to move away from politicization of water and come to an agreement on compromising differing priorities. Nor are they developing water management alternatives. Distribution of water has become more or less regarded as a negotiation tool for the upstream countries in order to import natural gas at a more reasonable price from the downstream countries.[14] Downstream countries like Uzbekistan have an abundant supply of gas but are scarce in water. Such politicization of the water negotiations is causing a deterioration in conditions at the community level. The less natural gas the upstream countries can import from the downstream countries, the more dependent the upstream countries will become on hydroelectricity power plants. This means the upstream countries will have to discharge more water in the winter to meet the high demand for electricity. Subsequently, there will be less water for irrigation for the downstream countries in the spring and summer. As a result, a comprehensive water management mechanism has not been successfully developed at the state level.

Failure of Current Approaches and Why Human Security is an Alternative

The challenges existing in the Ferghana Valley are highly complex. There are myriads of political, social, economic, and environmental issues with multiple causes and implications. Hence, this

[12] See: *Agreement between the Government of the Republic of Kazakhstan, the Kyrgyz Republic and the Government of the Republic of Uzbekistan on Cooperation in the Field of Environmental Protection and Conservation*, Bishkek, 17 March, 1998.

[13] See: *"Analysis of Existing Agreements between Countries of Central Asian in the Area of Water Relations from the Standpoint of Kazakhstan's Interests,"* pp. 7-8.

[14] See: C. Bichsel, op. cit., p. 25.

is potentially a pre-conflict situation and if the issue is not addressed properly and in a timely manner, this might set off a "domino effect" leading to a regional water war. These issues are interdependent and interrelated and require a holistic approach in understanding the problems. Such complexity of the issues in the Ferghana Valley highlights the volatility of human security, particularly uncovering threats to freedom from fear, freedom from want, and freedom from indignities.

Since this article is moving away from the traditional understanding of problems and threats, it will first explain the "nuts and bolts" of the human security approach before it goes on to present a detailed context analysis and justify use of this model in the Ferghana Valley. The human security concept developed after the end of the Cold War and disintegration of the Soviet Union, with a shift in paradigm from Realpolitik-type national security threats to a wide range of threats that affect international, regional, state, and human security. Trans-boundary problems, including those that have an environmental impact on several countries, as well as those posing threats to food, environmental, and economic security, have led to expansion of the scope of security.

Human security is a framework and an approach that addresses protection of the "vital core of all human lives in ways that enhance human freedoms and human fulfillment."[15] It is directed toward addressing both severe and widespread threats to survival, livelihood, and dignity by protecting freedom "from want," freedom "from fear," and freedom "from indignities."[16] In order to achieve this, the human security perspective advocates a mutually reinforcing approach — protection and empowerment — that provides a shield from dangers and enables people to develop an ability to exercise their choices and their capacities to fully participate in the decision-making processes that directly affect their lives.[17]

By addressing an array of human insecurities such as food, economic, political, health, environmental, community, and personal securities, it encapsulates "human elements" of security and takes an inter-disciplinary approach. Based on five main characteristics[18]—people-centered, multi-sectored, comprehensive, context-specific, and prevention oriented, it launches a "critical approach" to understanding the problem and, hence, designing policy intervention that allows diagnosis and treatment, rather than taking an ad-hoc solution approach to the symptoms. Furthermore, it analyzes the interconnectedness of threats; the human security approach shows the potential for a "domino effect," setting off chain reactions and causing spill-over if well-designed policies are not introduced on time. To overcome them, it advocates equal weighting of threats, their interconnectedness and prioritization.[19]

Looking at the water issues and disputes in the Ferghana Valley through the human security lens provides a holistic approach to the problem. It combines traditional security, human rights, and human development and interconnects peace, security, and sustainable development. It also focuses on the community and individual level and adopts a "people-centered" approach. This provides an effective framework, particularly in the Ferghana Valley where state-to-state negotiations have become stagnated, while the same problems and pre-conflict state continue to exist over time.

The human security approach was also used by Aga Khan Planning and Building Services (AKPBS) to design community-level water management systems in northern Pakistan and illustrate a less politicized and non-state-led approach to water management. Driven by the "people-centered" approach, such development interventions were targeted at confidence-building of local communities at risk to water disputes and aimed at empowering communities to improve their own living condi-

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[15] *Human Security Now: Final Report*, Commission on Human Security, 2003, p. 2.

[16] Sh. Tadjbakhsh, A.M. Chenoy, *Human Security. Concepts and Implications*, New York: Routledge, 2007, p. 13.

[17] See: *Outline of the Report of the Commission on Human Security*, U.N. Commission on Human Security, 2006.

[18] See: *Application of the Human Security Concept in Theory and Practice,* U.N. Trust Fund for Human Security, 2003, p. 7.

[19] See: Sh. Tadjbakhsh, A.M. Chenoy, op. cit., pp. 16-17.

tions and economic opportunities.[20] It has taken an integrated, community-based approach to sustainable development while its development programs address not only the immediate needs of clean water, and adequate sanitation, but also, the overall impact that these initiatives have on economic, social, and environmental sustainability.

Similarly, a self-reliant community-based mechanism can be considered an alternative mechanism in the Ferghana Valley. However, this alternative mechanism must focus on mobilizing people and infrastructure across different sovereign states and forming partnerships with different authorities in each country. Moreover, allocation of water within a sovereign state is fundamentally different in the Ferghana Valley where interstate resource allocation and different economic priorities further complicate the situation. Thus, an alternative mechanism in the Ferghana Valley would require many intricate details regarding the transfer of water resources across states. Nevertheless, the mechanism implemented by AKPBS illustrates a good example of the community-led holistic approach.

The Need for a People-Centered Approach to Communities of the Ferghana Valley

Needless to say, communities and individuals as the end users of water bear the consequences of water mismanagement. The impacts of ineffective state policies on water usage have had an equally negative effect on the communities that live in Kyrgyzstan, Tajikistan, and Uzbekistan. Heavily dependent on incomes generated from the agricultural production, households demonstrate their vulnerability to the distribution of scarce water resources for irrigation. If the government shows any reticence or lack of discretion in implementing the Almaty and Bishkek agreements, it will be the communities that suffer most. Decreased harvests can trigger instability and potential conflicts over water sharing at the community level and cause a "domino effect" with aggravated consequences at the regional level. Moreover, the region already has a previous history of ethnic conflict over distribution of land following the collapse of the Soviet Union.

Just as the communities themselves can potentially serve as a disrupting power, they can also be seen as agents of change in their own lives. By focusing on increased cooperation in better management of water resources at the community level, they can increase their economic self-sufficiency and welfare. Therefore, by identifying communities of the Ferghana Valley as a referent group, this article seeks to fulfill two mutually reinforcing tasks—uncovering the most acute needs of these communities and tackling their insecurities, thus leading to use of the communities themselves in addressing their insecurities by ensuring cooperation among them. By focusing on communities, the article incorporates the bottom-up approach toward conflict prevention, as well as empowering communities to reach better standards of living and access to opportunities by ensuring that agricultural production is carried out in an environmentally sustainable way in the long term.

This research undertakes a study of how the lack of provision of human security or failure to address human insecurities can lead to regional instability and conflicts. In order to build a credible case study, environmental insecurity will be taken as an entry point in examining how it affects the array of human insecurities in the communities residing in the Ferghana Valley in Kyrgyzstan, Ta-

[20] The project called the Water and Sanitation Extension program undertaken by AKPBS in northern Pakistan to provide water supply infrastructure and to improve water sanitation is considered a success (for more details, see: *Activities in Pakistan*, Aga Khan Planning and Building Services, available at [http://www.akdn.org/akpbs_pakistan.asp], 12 May, 2013).

jikistan, and Uzbekistan. It will explore in particular the impacts of environmental insecurity on the economic and community security of the aforementioned referent group.

There are several reasons why environmental insecurity has been identified as an entry point in analyzing the multidimensional causes and implications of water usage in Central Asia. Using environmental insecurity as an entry point creates less resistance both from the national authorities and the communities themselves, since the risks and consequences of environmental deterioration reach beyond state borders. Existing trans-boundary water resources are central not only to the economic and social development of the Ferghana Valley, but also to its environment. Due to the interdependence among the economy, social development, and the ecosystem, any changes in water usage in one country have a dreadful impact on the others. In particular, changing the natural flow of rivers and building cascades of reservoirs for electricity generation are examples that illustrate how actions can have trans-boundary effects. Addressing environmental insecurity would increase attention to the problem persistent in the Ferghana Valley and this would help to gradually diffuse its effects on community and economic insecurity. Additionally, in the authoritarian political setting inherent in Central Asia, the environmental entry point will be seen as an apolitical way of analyzing the context of the problem. This way, the chances of increasing people's awareness of the mutual interests and dependency will be higher.

Fundamentally, current water supply and management have been unable to meet the growing demand for increased economic well-being. Agriculture is important for the region's economy, particularly for cotton production. Currently, Uzbekistan is the world's seventh largest cotton producer and third largest supplier of the world markets.[21] Moreover, agriculture accounts for 21 percent of its GDP and approximately 40 percent of hard currency earnings. In both Kyrgyzstan and Tajikistan, agriculture accounts for approximately 20 percent of GDP, while the agricultural sector employs about half of the population.[22] According to OCHA data from 2003, up to 60 percent of the whole population of the Ferghana Valley is living below the poverty line,[23] while improvement of the economic situation of the local communities is a crucial task. Thus, supporting agriculture is essential for the region's economic well-being.

However, heavily irrigated agriculture in this region has led to various ecological impacts. Today, approximately 90 percent of agriculture in Uzbekistan is produced on irrigated land.[24] During the 70 years of the Soviet era, mismanagement of water caused various environmental problems, including reduced soil fertility and shrinking of the Aral Sea by 10 percent of its pre-1960 volume.[25] The fundamental cause of the issue is the inability of the water supply to meet the growing demand and to achieve better economic well-being. The importance of this water demand is amplified by the severe poverty and the economic conditions that depend on irrigated agriculture.

As discussed earlier, the Ferghana Valley faces a severe degree of poverty. In Uzbekistan, GDP per capita in the Ferghana Province and adjoining Andijan and Namangan Provinces is $572, $566, and $377, respectively.[26] The average GDP per capita (nominal) in Uzbekistan increased from $558[27]

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[21] See: S. MacDonald, *Economic Policy and Cotton in Uzbekistan*, United States Department of Agriculture, October 2012, p. 1.

[22] See: CIA World Fact Book, available at [https://www.cia.gov/library/publications/the-world-factbook/], 22 September, 2013.

[23] See: *Early-Warning Analysis*, OCHA the Ferghana Valley, September 2003.

[24] See: A. Alexandrov, "Uzbekistan Gets Credit It May Not Need to Modernize Irrigation System," *Central Asia Online*, 29 August, 2009, available at [http://centralasiaonline.com/en_GB/articles/caii/features/2009/08/29/ feature-06].

[25] See: *The Economics for Ecosystem and Biodiversity-TEEB Report for Business, Annex 2.1 Case Studies,* Trucost, September 2010, available at [http://www.trucost.com/_uploads/downloads/Teeb_for_Business Ch2_ Annex_online.pdf].

[26] See: *Social-Economic Significance of Water Management and Irrigated Agriculture of the Ferghana Valley*, IWRM-Ferghana, available at [http://iwrm.icwc-aral.uz/socio_economic_en.htm], 12 May, 2013.

[27] See: *GDP per capita (current) in USD*, World Bank data, available at [http://data.worldbank.org/indicator/NY.GDP.PCAP.CD?page=2], 12 December, 2013.

in 2000 to $1,717[28] in 2012. Similarly in Kyrgyzstan, GDP per capita (nominal) increased tremendously from $280[29] in 2000 to $1,160[30] in 2012, and in Tajikistan from $139[31] to $872[32]. Despite significant economic improvements in the last 10 years, these countries remain among the poorest countries in the world. It is important to note that Uzbekistan leads the other two countries in the region after increasing its GDP per capita in the last decade. This can be explained by the significant increase in agricultural production of 160 percent.

To increase economic well-being in the region, higher agricultural production is sought. This puts further pressure on the region's water resources and creates competition over the allocation of water. As competition over allocation of water intensifies, tension among the communities increase. A number of small-scale intercommunity conflicts are starting to emerge in the region over water sharing and allocation. These intercommunity conflicts have a direct impact on the social and economic well-being of the communities and individuals. This is particularly significant for the ethnic-minority community groups residing in the Ferghana Valley, since current borders do not represent ethnic distribution. Specifically, the Uzbeks residing in Kyrgyzstan and Tajikistan, the Kyrgyz residing in Uzbekistan and Tajikistan, and the Tajiks residing in Kyrgyzstan and Uzbekistan are the likely victims of community-scale conflicts. Since these groups live next to one another, any ethnic tension in one country could easily spill over to another area, drawing the entire region and community groups into the conflict. Such multi-causal problems illustrate the volatility of the Ferghana Valley.

A Human Security-Friendly Solution to the Problem

As reiterated above, the existing traditional approaches, accompanied with different priorities over water management and complicated territorial disputes, have brought state-to-state negotiations to a dead end. In contrast, the community water management system implemented by the Aga Khan Foundation in Pakistan has shown its benefits in empowering communities and enhancing their capacity to address their acute needs and increase cooperation among themselves. Hence, this research proposes an alternative solution based on a grass-roots approach ensuring human security.

The proposed "human security-friendly" solution is based on addressing what is called the "horizontal inequalities" of communities, which was put forward by Frances Stewart. She advocates that the concept of horizontal inequalities differ from the regular (or vertical) definitions of inequalities and focuses on multidimensional economic, social, cultural, and political inequalities across different communities regardless of their ethnic, racial, or religious origins.[33] Using the lenses of

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[28] See: *GDP per capita (current) in USD*, World Bank data, available at [http://data.worldbank.org/indicator/NY.GDP.PCAP.CD], 12 December, 2013.

[29] See: *GDP per capita (current) in USD*, World Bank data, available at [http://data.worldbank.org/indicator/NY.GDP.PCAP.CD?page=2], 12 December, 2013.

[30] See: *GDP per capita (current) in USD*, World Bank data, available at [http://data.worldbank.org/indicator/NY.GDP.PCAP.CD], 12 December, 2013.

[31] See: *GDP per capita (current) in USD*, World Bank data, available at [http://data.worldbank.org/indicator/NY.GDP.PCAP.CD?page=2], 12 December, 2013.

[32] See: *GDP per capita (current) in USD*, World Bank data, available at [http://data.worldbank.org/indicator/NY.GDP.PCAP.CD], 12 December, 2013.

[33] See: F. Steward, G.K. Brown, A. Langer, *Major Findings and Conclusions on the Relationship between Horizontal Inequalities and Conflict*, Center for Research on Inequality, Human Security and Ethnicity (CRISE Policy Conference), July 2007, p. 409.

horizontal inequalities to design an alternative grass-roots-based approach makes this solution specifically targeted toward the context of the greater Ferghana Valley. Targeting the ethnically mixed communities of the region, the proposed human security-friendly alternative differs from the traditional development-led interventions. While traditional development projects specialize in addressing water sanitation and building infrastructure for increasing access to drinking water for individuals in *one* country, the proposed solution looks into bringing different communities *across countries* together and does not differentiate specific individuals, ethnic groups, and communities.

The alternative solution to state-to-state negotiations should focus on communities and treat them as water users. This way, it delineates itself from the ethnic labeling and looks into the problem of water distribution for agricultural purposes, while also tackling both water sharing and monitoring mechanisms. It advocates participatory, transparent, and fair community-based water management. Such solutions initiated at the grass-roots level would differ from the traditional blue-print policies pursued by multilateral financial institutions such as the World Bank, Asian Development Bank, and other donor agencies. It is based on a broad analysis of the local context and is designed to tackle the specific insecurities faced by local communities.

Scrutinizing water disputes through human security can offer a comprehensive analysis of the multidimensional causes and implications of environmental insecurity and its impacts on economic and community insecurities, as well as offer specific mechanisms to deal with the scarcity of the water resources available in the Ferghana Valley. While focusing on human security, the context analysis also shows that failure to address better water management in the region can potentially lead to escalated conflicts with a military dimension. Clearly, the alternative solution proposed by this research has proven to encompass the "human elements" of the security, development, and rights of the communities of the Ferghana Valley. By addressing the structural and systemic problems related to water access and distribution, the grass-roots level initiative empowers communities and aims to build community resilience to difficult situations. Furthermore, it empowers people not only to act on their behalf, but also to find ways and solutions to ensure human security in their own communities.

Conclusion

When states have competing interests and adversarial approaches to water usage, it is clear that there will be no comprehensive regional strategy that will satisfy all the stakeholders. Furthermore, the existing bilateral approaches led by the states' seasonal interests can only offer a short-term outlook. It has become evident that such ad-hoc remedies fail to address the existing challenges and only scratch the surface of the existing complications in regional water management. One might claim that each state should and can be the best representative of its own interests, either ensuring enough water supplies for its agricultural outputs or electricity generation. However, the Realpolitik approach fails to ensure sustainable and peaceful coexistence of the competing interests and cannot guarantee against further escalation of the tension and potential violence associated with rivalry over the limited access to water in Ferghana in the next several decades.

The irreconcilable values and diverging interests among states affect the regular communities living in Kyrgyzstan, Uzbekistan, and Tajikistan. Competition over scarce water resources is leading to community-level conflicts that could easily escalate and transform into ethnic or interstate conflicts. Thus, while states are facing a deadlock in negotiations, community-level conflicts should be prevented from further escalation. In order to do so, communities should be treated as the central and integral part of water management strategy with a long-term vision. Communities should be treated

horizontally; their vulnerabilities should be addressed and they need to be empowered in order to remain resilient toward any changes.

This research paper has shown how the human security perspective can best explain the root causes of the different policy problems in the case study of the Ferghana Valley in Central Asia. Furthermore, it has shown how human security can be used in a comprehensive manner to uncover the multidimensional causes and implications and help to fill in gaps in the causal chain of how environmental insecurity can trigger economic and community security of households and communities.

It also showed how "a domino effect" might cause a problem in one area to have an impact on or even fuel problems in many other areas. Furthermore, it demonstrated that there are considerable links among the different elements of human security and that any threat is likely to travel across these different elements. Such a comprehensive approach to diagnosing the problem of water management and its impact on the communities has prepared the way for designing a carefully balanced intervention model that targets the root causes of the existing problems related to water management. This research shows how the proposed human security-based approach, through mechanisms of community-capacity building, increases community resilience toward the volatility of the external environment and opens up further avenues for sustainable regional development.