



# WATER, ENERGY AND ENVIRONMENT IN EURASIA

Edited by  
Oktay F. Tanrısever  
Halil Burak Sakal



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## Conclusion

*Oktaf F. Tanrısever, Halil Burak Sakal*

This edited book brings together the invaluable works of distinguished experts related to various aspects of the nexus of water, energy and the environment in the Eurasian region. Although the individual chapters offer their own conclusions on the specific characteristics of the nexus in the Eurasian region, this Conclusion discusses their significance in a wider regional context and their broader implications for conceptual and empirical studies into the subject.

Nexus studies in the academic literature can be said to have a multidimensional character, with different academic works focusing on the technical, political-economic or societal aspects of the subject. Previous studies of the nexus approach to the interrelated structures of water, energy and environmental issues have argued that the problems arising from these subjects should not be addressed in isolation. As the environmental stresses faced by the world intensify, the need to develop comprehensive, multidimensional, multisectoral and multi-stakeholder policies within the framework of the sustainable development goals set by the United Nations becomes more urgent.

Given the immediacy, diversity and significance of the environmental problems faced by the Eurasian region, the number and quality of studies of the water, energy and environment nexus in Eurasia should be increased in the future. The contributors to this volume evaluate the social, political and

economic dimensions of the nexus from different aspects, scrutinizing the issue in various sub-regions and adjacent areas of Eurasia: Central Asia, the Caucasus and the Balkans with focus either on individual countries, or transboundary and regional settings, and draw some important conclusions.

First of all, the authors in this volume emphasize the interdependence of both the countries in the regional setting, and of the issues of energy, the environment and water. While Abdullaev and Rakhmatullaev discuss the issue of interdependence on a regional scale, Kushanova, Kurbanov and Franco focus on the interdependence of water, energy and agricultural issues on national and sub-national levels, showing clearly the importance of regional and local actors in addressing nexus issues.

Second, the case studies in this volume reveal water, energy and environmental problems to be closely related to infrastructure and financing issues. Reservoirs, irrigation networks, dams, hydropower plants and energy transmission lines are essential components of the infrastructure that warrant attention from a nexus perspective. Reznikova, Sarikenova and Melian, and Abdullaev and Rakhmatullaev show how the physical infrastructures of Central Asia are facing problems of operation, maintenance or underfunding on a national level, which exacerbates the environmental stress caused by water pollution, inefficient water and energy use, power loss, and other related maintenance problems.

New infrastructure projects, especially dams and large hydropower plants in transboundary river basins, have led to transboundary tensions in Central Asia, as indicated by Sakal and Tanrisever, and in the Balkans, as discussed by Kurt. These tensions, the authors argue, should be approached from a holistic perspective with focus on the interconnected nature of water, energy and environmental issues, emphasizing the potential mutual benefits to the regional stakeholders. Regional

politics is key here, in that, as concluded by Reznikova, Sarikenova and Melian, the “lack of political will and the low political priority for environmental protection [...] leads to a lack of funding and weak intersectoral policy mechanisms”.

Third, the involvement of all stakeholders in efforts to address energy-, environment- and water-related issues is crucial, although stakeholder participation involving both the public and private sectors can be problematic in transboundary settings where legal frameworks are non-existent or inefficient. In transboundary river basins where water is scarce or where water and energy issues are securitized, as emphasized by Güler in the example of the Caucasus, or by Reznikova, Sarikenova and Melian in the example of Central Asia, the lack of multi-sectoral and transboundary stakeholder involvement in particular poses a significant challenge to the resolution of nexus-related problems.

Fourth, from a nexus perspective, environmental problems are closely linked to water and energy issues, as demonstrated by the authors in this volume. Water quality is a major concern, especially in transboundary river basins and where water is used for energy generation purposes. As emphasized by Tüney, human interventions into natural life have a “considerable impact on the flora and fauna of the ecosystem and human life”. The construction of HPPs for the generation of energy and profit maximization ignores their impacts on river basins, climate change and environmental degradation. Reznikova, Sarikenova and Melian found that “The pressure associated with high water utilization, temperature increases and changes in precipitation patterns aggravate the problems of water quality management and the need for more coordinated approaches in shared basins”. In the Balkans, as clarified by Kurt, the Water Framework Directive sets the basic principles of sustainable water resource management, effectiveness,

efficiency and equity in water use, although it is only binding for EU member states.

The fifth important conclusion relates to the sharing of information. Here, the need to integrate qualitative and quantitative data and to account for scientifically assessed risks in decision-making processes is crucial, as argued by Kurt, and by Tanrisever and Sakal. Detailed quantifications, and multi-year and multi-stakeholder strategic planning and projections are needed to address nexus-related water, energy and environment problems. As concluded by Abdullaev and Rakhmatullaev, “Integrated planning and cross-sector cooperation will leverage possible synergies for the reduction of costs, the assessment of trade-offs, demand-side interventions and the decentralization of services.”

This book discusses the various peculiarities of water, energy and the environment in Eurasia from political, economic and social perspectives. The selected regional cases highlight various problems in Central Asia, the Caucasus and the Balkans that warrant further attention and research. Needless to say, the findings of the individual chapters and the overall conclusions of this book encompass relevant inferences for other regions that extend beyond the Eurasian region. Future studies are needed to address the common properties, problems and issues of not only the broader Eurasian region, including Russia, and its energy connections and transboundary water problems, but also Europe, Asia Africa and Americas. For example, in Eastern Europe, the recent entrants to the European Union (EU) have encountered difficulties in complying with the EU’s Green Deal requirements, and its climate change and renewable energy targets. The role of Turkey and the EU’s other neighbors; the energy markets and their interconnections; the existing and new natural gas transfer routes; the targets of the Paris Agreement; and the nationally determined contributions

of the individual countries in the Eurasian region from the perspective of the water, energy and environment nexus should be subjected to further comparative and comprehensive study.

The findings of this book demonstrate that there are significant policy challenges facing the Eurasian countries. In fact, renewable energy solutions; reductions in emissions related to the production, transfer and use of energy; efficiency in the use of water and energy; energy-water tradeoffs built on the existing and new schemes; decarbonization; the restoration of environmentally degraded regions and natural resources; improvements to water quality; and smart and effective solutions for the sustainable and equitable use of water for irrigation, domestic purposes and the ecosystem will be hot topics in the near future that will warrant further attention by scholars of various disciplines related to issues of the environment, water and energy in Eurasia.

The findings of the individual chapters of the book suggest a need for further studies on the complex of energy, water and energy in the Eurasian region. Our edited volume has identified the following three major areas for further academic research.

Future studies could explore the unique characteristics of energy, water and energy in the Eurasian region, comparing the region with comparable regions around the world, among which cases in Southeast Asia, the Middle East, Northeast Africa and South America can be considered.

It may also be worthwhile to explore the implication of climate change policies for the nexus of the energy, water and environment complex in the Eurasian region. Given the increasing importance of climate action after the adoption of the Paris Treaty, all countries in the Eurasian region will need to understand the implications of their policies related to energy, water and the environment on the broader success of strategies aimed at mitigating climate change.

Last but not least, the individual chapters of this book indicate a need for further theoretical studies of the nexus approach and the elaboration of the conceptual tools used to explore the complex relationships between water, energy and the environment, as well as climate action, within more sophisticated theoretical frameworks and approaches.

In a nutshell, this edited volume underscores the importance of studying the nexus of water, energy and environment from a holistic perspective that takes the challenges and complexities of the multiple relationships among these closely-related issue-areas into account. We hope that this will not only broaden our perspective of the energy, water and environment complex, but also deepen our understanding of the interactions among water, energy and environment in Eurasia and the rest of the world.