

## Chapter 9

# Environmental and Ecological Challenges in Central Asia: A Comparative Analysis of the Renewable Energy Policies of Central Asian Nations

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### **ABSTRACT**

*Oil was discovered in Uzbekistan in 1885, in Kazakhstan and Turkmenistan in the 1900s, and since then the geopolitical interests of these hydrocarbon-rich states have always remained predominant. During the Soviet era, they were energy peripheries of the Union. Post dissolution, these nations reaped the rents generated from hydrocarbons which translated to economic development in the region. However, Kyrgyzstan and Tajikistan are hydrocarbon energy poor and do not dominate the geopolitics of Central Asia. However, it is critical to note that the ecology of Central Asia was massively impacted by Soviet projects in the regions, for instance the nuclear waste in Kazakhstan or the drying up of the Aral Sea and the Belt and Road Initiative projects since 2013. Nations have announced their net-zero targets and doled out renewable energy projects. This chapter will compare the renewable energy policies of Central Asian countries.*

### **INTRODUCTION**

The environment and economy of Central Asian nations stand at a critical juncture. This group comprises five landlocked nations, with Kyrgyzstan and Tajikistan situated as upper riparian states and the remaining three as lower riparian states. Among these nations, some possess abundant natural resources, including hydrocarbons, as seen in the cases of Uzbekistan, Kazakhstan, and Turkmenistan; while others rely on hydropower, exemplified by Kyrgyzstan and Tajikistan. Despite the region's economic development

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variance, nations must make a difficult trade-off to invest in clean technologies to lower emissions at a high cost or compromise the ecology of the region through utilization of cheap energy.

Since the discovery of oil and natural gas, Central Asian nations were pivotal to the preponderance of the Soviet Union. Countries rich in hydrocarbons were supplying oil and natural gas. At the same time, Kyrgyzstan and Tajikistan generated hydroelectric power for the Soviet Union. The tasks were assigned to nations presuming a possible dissolution, that a balancer would be required to de-escalate the tensions manifested in Central Asia's politics. The Soviet projects and operations in Central Asia have lasting effects on the ecology of Central Asian region. Upon the dissolution of the Soviet Union, the five nations got total control over their natural resources and the resources of their ontological prior -Soviet Union- present in their countries. Despite that challenges remain, such as the damming of the Amu Darya and Syr Darya rivers is affecting the upstream nations due to the shortage of supply. These nations have been growing as their economies took off after a tumultuous 1990s. By the early 2010s, their growth rates averaged 6%. Increased growth rate was accompanied by increased demand for energy. As the domestic demand for energy grows, and multi-modal connectivity projects such as BRI emerge, the ecology of the region tends to be damaged. Kazakhstan is responsible for more than 50% of Central Asia's emissions, and the energy intensity of Uzbekistan is four times higher than the EU's average and twice the world average, as per International Energy Agency.

In 2019, Uzbekistan launched the concept of Environmental protection. In 2021, President Kassam-Jomart Tokayev unveiled the Environmental Code, which introduced the best available techniques (BAT). Such policy intervention acts as a precursor for designing renewable energy policies, such as Kazakhstan's carbon-neutral strategy 2060, which this chapter will focus on. It is essential to compare the renewable energy policies of Central Asian nations, as it can help a researcher ascertain the political processes involved in understanding the demand for clean energy strategies by understanding the lobbying of environmental NGOs, the strength of the civil society, state capacity, and the influence of domestic energy actors and trans-national actors in renewable energy policymaking and implementation. In the aftermath of the comparison, an emphasis will be laid on the political process of Kazakhstan, as it is a significant emitter of CO<sub>2</sub> in the region.

Kazakhstan stands out as the most important country in Central Asia when it comes to renewable energy policies and its evolving environmental landscape. This distinction is grounded in several key factors. Firstly, Kazakhstan boasts vast and diverse renewable energy potential, particularly in wind and solar resources, which surpasses that of its Central Asian neighbours such as Uzbekistan, Turkmenistan, Tajikistan, and Kyrgyzstan (IRENA, 2018). These reserves provide a unique opportunity for Kazakhstan to lead the region in transitioning towards sustainable energy sources, aligning with global efforts to combat climate change. Moreover, Kazakhstan has demonstrated a commitment to fostering a conducive regulatory environment for renewable energy investments, attracting both domestic and international stakeholders. However, despite these promising developments, the nation faces the challenge of balancing its renewable energy ambitions with concerns over environmental deterioration, as the extraction of mineral resources and land degradation persist (Strikeleva, 2018; Hu et. al, 2020). Thus, Kazakhstan's role as a pivotal player in Central Asia's renewable energy landscape underscores the need for comprehensive environmental policies to mitigate potential ecological repercussions while harnessing its green energy potential effectively.

Furthermore, it is critical to understand why more and more actors are showing interest in the renewable energy of the region. One must also realise the lasting ecological impacts of the Soviet developmental projects across Central Asia and the effects of BRI.

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