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The Nexus between Authoritarian and Environmental Regionalism: An Analysis of China's Driving Role in the Shanghai Cooperation Organization

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“The nexus between authoritarian and environmental regionalism: An analysis of China’s driving role in the Shanghai Cooperation Organization”

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Abstract

This article sheds light on the growing environmental activism of non-democratic regional organizations (NDROs) by investigating the case of the Shanghai Cooperation Organization (SCO), addressing the following research questions: What explains the emergence of environmental regionalism in the SCO? What are its characteristics and effects? We conduct a case study analysis of the SCO environmental agenda, zooming into the energy sector. The article shows that China has acted as the driver of environmental regionalism in the SCO, using its material and entrepreneurial leadership capacities to engage the other member states in environmental cooperation, with an emphasis on the production of renewable and alternative energy. We reveal how China has not only provided positive incentives for the establishment of regional environmental institutions, but also has financed member states' green energy transition, operating predominantly at the bilateral level. In so doing, China has pursued a two-fold strategy: consolidating its regional leadership in Eurasia, while promoting its economic statecraft and its bid for global environmental leadership. Through the case of the SCO, the article provides a set of empirical and theoretical contributions to the incipient debate on the nexus among regime types, ROs, and environmental protection.

Keywords: environmental regionalism, non-democratic regional organizations, Shanghai Cooperation Organization, China, regime types-environmental protection nexus, renewable and alternative energy.

Introduction

Environmental issues have gained a prominent position in the agendas of regional organizations (ROs) due to the increasingly severe impact of climate change on political stability and socio-economic development across world regions. As such, ROs have turned into new relevant actors of global environmental politics, alongside traditional global governance institutions (Balsiger and Prys 2016; Elliott and Breslin 2011; Haas 2016). Despite the growing scholarly attention devoted to environmental regionalism¹, we know very little about the behavior of a specific type of RO that has proliferated across many regions, particularly in Eurasia: Non-democratic ROs (NDROs). This article aims to shed light on NDROs' growing engagement in environmental initiatives by investigating the case of the Shanghai Cooperation Organization (SCO), addressing the following research questions: What explains the emergence of environmental regionalism in the SCO? What are its characteristics and effects?

We conduct an in-depth case study analysis of the SCO environmental agenda and institutions, zooming into the renewable energy sector. The article shows that China has used its material and entrepreneurial leadership capacities to engage the other SCO member states in regional environmental cooperation, with an emphasis on the development of renewable and alternative energy production capacity. In the absence of a regional development bank of the SCO (opposed by Russia), China has provided positive incentives for the establishment of regional environmental institutions and financed member states' green energy transition, operating predominantly at the bilateral level. In so doing, China has pursued a two-fold strategy: consolidate its regional leadership in Eurasia, while promoting its economic statecraft and its bid for global environmental leadership, turning into a dominant player in the renewable energy sector.

Through the case study of the SCO, the article provides a set of empirical and theoretical contributions to the incipient debate on the nexus among regime types, ROs, and environmental protection addressed by the Special Issue 'Sustainable Development, Regional Governance, and International Organizations'. First, the article shows that NDROs like the SCO also engage in environmental cooperation as part of their effort to deal with transnational environmental challenges. Second, the article reveals how regional autocratic powers with a strategic interest in environmental issues can foster environmental regionalism in NDROs and domestic green energy transitions in their member states. Third, our case study highlights the relevance of power-based approaches for explaining environmental regionalism, particularly in world regions populated by NDROs, complementing explanations centered on the role of epistemic communities, transgovernmental networks, and supranational institutions (Haas 2016).

The article is structured as follows. Section one bridges the gap between the literature on environmental regionalism and the scholarship on NDROs and authoritarian regionalism, introducing the driving role of regional authoritarian powers and exploring the relationship between regime types and environmental protection. Section two discusses the research design, methodology, and data. Section three analyzes the emergence and characteristics of

¹ We define 'environmental regionalism' as a predominantly state-led project based on intergovernmental negotiations aimed at promoting regional cooperation and institution building in the environmental sector.

environmental regionalism in the SCO. Section four conducts a within-case analysis of the SCO member states' transition towards renewable and alternative energy production, illuminating the driving role of China in it. We conclude with an interpretation of findings and an examination of the article's empirical and theoretical contributions.

1. NDROs as new actors of global environmental politics: bridging the gap between environmental and authoritarian regionalism

Situated between the domestic and the global, regions have emerged as a strategic policy space for states to govern interdependence and provide collective goods (Acharya 2017; Börzel and Risse 2016; Söderbaum 2016). This is particularly the case with respect to transnational environmental challenges, which can generate severe negative externalities among neighboring states related to air and water pollution, decreasing agricultural production, natural disasters, and public health emergencies. Scholars have emphasized the need to rescue the analysis of environmental regionalism from the broader debate on global environmental governance (Balsiger and VanDeveer 2012; Balsiger and Prys 2016; Elliott and Breslin 2011), moving beyond the dichotomy between the global and the regional efforts that has dominated the literature on global environmental politics (Biermann et al. 2009; Oberthür and Gehring 2006; Van Asselt, Sindico, and Mehling 2008). Environmental regionalism has become increasingly relevant given the difficulties in negotiating global environmental agreements, and the benefits of a regional focus shaped upon the environmental challenges and international characteristics of specific world regions (Balsiger and VanDeveer 2010; Conca 2012). There is a broad consensus that regional agreements are facilitated by greater similarities in terms of interests, norms, and values, as well as by the smaller scale of collective action, which make the regional level a potentially cumulative and catalytic path towards effective global environmental governance (Conca 2012; Halle 2011).

The emergence of environmental regionalism: Identifying the gap

Regional environmental cooperation was initially propelled by the evolution of global environmental politics,² which accelerated in the 1990s, leading to the emergence of a multilevel international architecture composed of partly overlapping institutions (Andonova and Mitchell 2010; Haas 2016; Keohane and Victor 2011; Raustiala and Victor 2004). UN agencies, international financial institutions (e.g. the World Bank as well as regional development banks), and external donors (e.g. foreign governments, the EU, and international NGOs) were the drivers of the emergence of environmental regionalism, supporting (or even demanding) interstate environmental cooperation at the regional level (Kulauzov and Antypas 2011). That said, as pointed out by Elliott and Breslin (2011), the key role of external actors in the genesis of regional environmental efforts should not eclipse the growing relevance of regional actors as drivers of environmental regionalism.

² As noted by Elliott and Breslin (2011), the founding documents of ROs across different regions hardly mention the issue of environmental protection.

Although regional environmental initiatives have emerged across all world regions, these have received relatively scant attention compared to regional security cooperation and economic integration (Balsiger and Prys 2016). The IR literature has traditionally focused on issue-specific regional environmental governance agreements, such as international river basin management (Conca 2012; Giordano et al. 2013; Schmeier 2013) and marine governance of regional seas (Weinthal 2002; Kütting 2000), which it analyzed as a component of the emerging global environmental governance architecture (Andonova and Mitchell 2010; Keohane and Victor 2011; Raustiala and Victor 2004). More recently, IR scholars have started to develop a comparative research agenda on the role of ROs as platforms for the promotion of regional environmental cooperation (Balsiger and Prys 2016; Balsiger and VanDeveer 2010; Balsiger and VanDeveer 2012; Elliott and Breslin 2011; Haas 2016). In-dept research has been conducted on the EU environmental agenda³ (Orsini and Kavvatha 2020; Selin and VanDeveer 2015; Vogler 2011; Wurzel, Zito, and Jordan 2013). Some work has been done on environmental cooperation in ROs other than the EU, such as the Association of Southeast Asian Nations (ASEAN) (Elliott 2012; Varkkey 2014; Yoshimatsu 2014), the Arctic Council (Kankaanpää and Young 2012; Rottem 2020), and the South Asian Association for Regional Cooperation (Jha 2004; Majaw 2020; Matthew 2012). This literature confirms that environmental regionalism is a global phenomenon that extends beyond Europe and the West. However, the rationale for ‘going regional’, as well as the modes and effects of environmental regionalism, variate across regions depending on the configurations of power and interests, and on states’ collective views about multilateral cooperation (Elliott and Breslin 2011; Haas 2016).

Scholars from different theoretical approaches emphasize different drivers of environmental regionalism. Institutionalist scholars stress the agency of technically-oriented international institutions (e.g., secretariats) in the provision of the material resources, information, and training that enable member states to engage in environmental governance (Biermann 2017; Biermann et al. 2009; Haas 2016; Miles et al. 2001). Constructivist scholars emphasize the driving role of transnational expert networks (i.e., epistemic communities) in producing technical knowledge that orients states towards regional environmental cooperation through inter-bureaucratic learning (Haas 2015; Haas and Stevens 2011; Victor 1998). According to Haas (2016), constructivism and institutionalism display the greatest explanatory power for understanding the emergence of regional environmental initiatives across regions. However, explanations centered on the agency of international institutions and transgovernmental networks suffer from a liberal bias, which makes them hardly applicable to world regions characterized by weak intergovernmental institutions, states’ rejection of external interference in domestic affairs, and significant power asymmetries.

In these regional contexts, power-based arguments may have a stronger explanatory capacity. Power-based approaches assume that powerful states drive the emergence of regionalism by providing smaller states with material (financial) incentives (i.e., acting as regional “paymasters”, see Grieco 1997; Mattli 1999) and articulating persuasive ideas about collective action (i.e., steering the regional agenda and persuading neighboring states to

³ Europe was the first region to formalize (by treaty) regional environmental action through the 1986 Single European Act, which was followed by a variety of other – increasingly demanding – requirements to integrate environmental concerns in all the issue areas of the European integration process (Vogler 2011).

follow their lead, see Nabers 2010; Nolte 2011). In so doing, regional powers can stimulate regional collective action in a given policy area and influence its modes and effects (Mattli 1999; Nolte 2011; Flesmes 2010). Regional powers support regionalism for promoting stability in their neighborhood, securing access to strategic resources, and increasing their diplomatic clout at the global level (Ebert and Flesmes 2018; Flesmes 2010). The literature on regional powers has focused on trade integration (Mattli 1999; Krapohl 2017; Krapohl, Meissner, and Muntschick 2014) and collective security (Buzan and Wæver 2003; Lemke 2002; Frazier and Stewart-Ingersoll 2010), disregarding the issue of environmental protection. On the other hand, scholars of environmental regionalism have illuminated the relevance of regional powers in the promotion of environmental governance initiatives, with a focus on Sub-Saharan Africa (Compagnon, Florémont, and Lamaud 2011; Elliott and Breslin 2011). However, this literature has struggled to connect with the theoretical insights on regional powers' impact on regional governance structures and processes.

Power-based approaches are particularly relevant for investigating environmental regionalism in Eurasia, a region that has witnessed the proliferation of a specific type of RO: NDROs. NDROs are ROs in which the leading state and most of the member states are not democracies.⁴ The environmental regionalism scholarship has overlooked the growing activism of NDROs in the domain of environmental protection. We argue that exploring the emergence, modes, and effects of NDROs' environmental agendas is key to advance our understanding of the logics of environmental regionalism and of the nexus among regime types, ROs, and environmental protection.

Authoritarian regionalism and environmental protection

The growing relevance of autocratic states' international projection has stimulated a body of literature that explores the emergence of the so-called "authoritarian regionalism" (Libman and Obydenkova 2018) and the institutional characteristics and effects of NDROs, with a focus on Eurasia (Obydenkova and Libman 2019). The literature shows that regional autocratic powers drive the creation of NDROs, such as the SCO and the Commonwealth of Independent States (CIS), shape their institutional design, and provide the bulk of their budget (Libman and Obydenkova 2018; Obydenkova and Libman 2019). Regional autocratic powers – like China and Russia – instrumentalize NDROs to secure regime survival and prevent the proliferation of liberal democratic ambitions in their own regions (Cooley 2015, 2019; Cooley and Heathershaw 2017; Diamond, Plattner, and Walker 2016; Tansey 2016; Kneuer et al. 2019; Libman and Obydenkova 2018). The literature illustrates how NDROs have been used to boost autocratic regimes' stability through "zombie" election monitoring (Cooley 2015) and security cooperation (Obydenkova and Libman 2019; Cooley and Heathershaw 2017; McDermott 2012). These measures allow regional autocratic powers to assist friendly autocratic regimes and disseminate autocratic norms and practices in their respective regions (Kneuer et al. 2019; Obydenkova and Libman 2019). Additionally, Libman and Obydenkova (2018) show that regional autocratic powers use NDROs as platforms for redistributing economic resources to smaller and economically weaker autocracies, insulating them "from domestic turmoil or

⁴ Member states of NDROs are not necessarily consolidated autocracies but also hybrid regimes (see Libman and Obydenkova 2018; Obydenkova and Libman 2019).

discontent, as well as from the potentially threatening influence of international democratic actors” (Libman and Obydenkova 2018: 152). In so doing, regional autocratic powers consolidate geopolitical relations with their neighbors, while consolidating their status and influence at the global level (Libman and Obydenkova 2018).

The literature on authoritarian regionalism has so far disregarded the analysis of how NDROs deal with the issue of environmental protection. Analysis of the behavior of NDROs in the environmental domain is key for two reasons. First, it contributes to the comparative research agenda on the drivers and effects of environmental regionalism. Second, it contributes to the debate on the nexus among political regimes, ROs, and environmental politics. The level and quality of democracy has emerged as a key explanatory factor in the analysis of the determinants of states’ commitment to environmental protection (Fredriksson and Neumayer 2013; Obydenkova and Salahodjaev 2016, 2017; Steves, Treisman, and Teytelboyn 2013). There is an established idea in the literature that democracies are more likely to commit to environmental protection than non-democratic states (Obydenkova and Salahodjaev 2017). Scholars argue that this is related to the fact that in a democracy the electorate tends to value long-run benefits projects over short-run (Obydenkova and Salahodjaev 2017: 186), and that the median voter tends to express a preference for greater environmental quality (Bättig and Bernauer 2009). The other feature that makes democracies more likely to adopt environmental protection measures is the presence of an active civil society engaged in environmental activism (Obydenkova and Salahodjaev 2016).

While several empirical studies established a positive relationship between the levels of democracy and the quality of environmental policies, the literature is far from reaching a consensus. Steves, et al. (2013) find no clear effect of the levels of democracy on the adoption of environmental protection laws and institutions. Fredriksson and Neumayer (2013) argue that is not countries’ level of democracy that determines their climate change policies, but rather their historical experience with democracy (i.e., their democratic capital stock). Obydenkova and Salahodjaev (2016, 2017) claim that it is the level of social cognitive capital within democracies that determines a state’s commitment to environmental protection. Another group of scholars, from the literature on authoritarian environmentalism, argue that authoritarian regimes are better placed to deal with environmental threats than democracies, due to their ability to mobilize society in support of environmental goals and the absence of ‘distracting’ elections which could force a change of course on the regime’s environmental policy (Ahlers and Shen 2018; Gilley 2012; Lo 2015). Libman and Obydenkova (2014) argue that, in contrast to what happens in consolidated democracies, in hybrid and autocratic regimes the efficiency of environmental protection is determined by the specific preferences of the national government. This implies that autocratic regimes with a strategic interest in addressing environmental challenges, and endowed with relevant technical and financial capacities, can push forward environmental agendas not only domestically but also at the international level. As previously discussed, regional autocratic powers traditionally define the agendas of NDROs. Consequently, the interests and capacities of regional autocratic powers are likely to be the key drivers of environmental initiatives in NDROs.

Exploring the behavior of NDROs in the field of environmental protection is particularly relevant since the majority of NDROs are composed of extractive economies that produce and export hydrocarbons and minerals. One might expect that the combination of autocratic

membership and extractive – carbon intensive – economies results in a limited attention to environmental issues. However, evidence from different world regions shows that NDROs like the Gulf Cooperation Council (Atalay 2018) and the League of Arab States (UNEP 2014) have articulated environmental agendas with an emphasis on energy efficiency. This confirms that NDROs' behavior in the environmental domain must be investigated in practice, paying particular attention to the role of regional autocratic powers. Despite the growing scholarly attention devoted to authoritarian regionalism in Eurasia, little work has been done on how Eurasian NDROs deal with environmental protection. We address this gap in the literature by investigating the genesis, characteristics, and effects of environmental regionalism in the SCO, focusing on the issue of renewable energy.

2. Research design, methodology, and data

We conduct an in-depth case study analysis of regional environmental cooperation in the SCO, identifying the driving actors behind the emergence of the SCO environmental agenda and institutions. Additionally, we zoom into the issue area of renewable and alternative energy production, generating within-case evidence that allows us to illuminate the logic and effects of environmental regionalism in the SCO. Through the case of the SCO, we aim to generate empirical evidence and theoretical insights that can advance our understanding of environmental regionalism in NDROs, in Eurasia as well as in other world regions.

The case study: the SCO environmental agenda and the issue of renewable energy

The SCO is a RO whose creation was announced in June 2001 in Shanghai by six states: China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan⁵. The literature agrees that China was the driving actor behind the emergence of the SCO, which it considered a key tool for advancing its strategic objectives in Eurasia: improve Sino-Russian relations, consolidate mutual trust and cooperation with post-Soviet states, gain access to strategic energy supplies, and create a peaceful regional environment that contributes to its domestic political stability and economic development (Cheng 2011; Chung 2006; Guang 2007; Rahman 2011; Yuan 2010; Zhao 2013). To achieve that, China financed the institutionalization of the SCO⁶ and sustained – politically and diplomatically – the expansion of its regional cooperation agenda (Cheng 2011; Chung 2006; Libman and Obydenkova 2018; Obydenkova and Libman 2019; Zhao 2013). The SCO's initial core objectives were the promotion of border security, the establishment of regional confidence-building measures, and the fight against terrorism, religious extremism, and secessionism (Ambrosio 2008; Chung 2006; Song 2014). That said, the SCO has gradually expanded its mandate beyond transnational security challenges, to include issues like intra-regional trade and investments, transport and energy infrastructure, and environmental protection (SCO 2020c). The SCO has also expanded its membership by including India and Pakistan, which joined the RO in 2017. As a consequence, the SCO is now

⁵ A preliminary regional cooperative framework – the “Shanghai Five” – had already been established in 1996 by China, Kazakhstan, Kyrgyzstan, Russia, and Tajikistan.

⁶ China promoted the creation of the SCO permanent secretariat, financing the construction of its head-quarters (located in Beijing) and providing the bulk of its staff (Chung 2006).

the largest RO on the planet, representing 23% of the global habitable area, 40% of the world population, and 46% of the world economy (World Bank, 2021). In terms of resource consumption, the SCO countries account for 40% of global electricity consumption and 42% of the planet's CO₂ emissions (IEA 2020).

Obydenkova and Libman (2018) characterize the SCO as a NDRO, inasmuch as all its members (except India) are autocracies or hybrid regimes. If we consider the Multiplicative Polyarchy Index of Varieties of Democracy (V-Dem), a proxy to quantify a country's level of democracy that ranges from 0 to 1, the SCO averages 0.06 (Coppedge et al. 2021).⁷ The literature shows how the SCO has contributed to the consolidation of authoritarian regimes and the promotion of common norms and values such as political stability, non-interference in domestic affairs, and the moral equivalence between democracy and other forms of government (Ambrosio 2008, 2010; Song 2014). The combination of a membership predominantly composed of non-democratic states (including the regional power China) which are also extractive economies that rank among the world's top emitting countries, makes the emergence of the SCO environmental agenda puzzling and relevant to address.

Furthermore, the leading role of China in the SCO affords a prime opportunity to explore the impact of regional powers' leadership on the advancement of environmental regionalism within NDROs. Since 2013, the Chinese government has promoted a gigantic effort to cut down coal consumption⁸ with the aim of addressing extreme air pollution levels. Besides the implementation of drastic domestic measures⁹, China has displayed a growing activism in international environmental negotiations, as proved by its proactive role in the adoption of the 2015 Paris Climate Agreement, where China committed to peak its carbon emissions by 2030. China has taken advantage of the US's withdrawal from the Paris Agreement under the Trump administration to further consolidate its global climate leadership. In the framework of the UN 2020 General Assembly, President Xi announced that China intends to achieve 'carbon neutrality' by 2060 (Xi 2020), reaffirming China's strategic interest in leading the global transition towards de-carbonization. To achieve these targets, China has invested massively in renewable energies, turning into the world's leading producer, manufacturer, and consumer¹⁰ of renewables¹¹ (Brandt and Rawski 2019). This led China to become one of the biggest financers of green energy projects across the world, bankrolling domestic renewable energy transitions in Latin America, Africa, and indeed Eurasia. To do so, China has exploited different multilateral cooperation platforms, the most prominent of which are the Belt and Road Initiative (BRI) and the SCO. We explore the impact of China's growing environmental activism by tracing the key steps in the emergence of the SCO environmental

⁷ As a reference, the EU-27 averages 0.7.

⁸ Since 2006, China has been the global leader in annual carbon emissions, surpassing the US (Jones 2007).

⁹ In 2013, the government announced a huge USD 277 billion investment to curb air pollution in Beijing (Quigley 2013).

¹⁰ In 2019 13% of energy consumed in China came from renewable sources, compared to 11% in the US and 18% in the EU. China has committed to increase that proportion to 20% by 2030, but to do so it needs to move away from coal, which in 2019 still made up 58% of its energy mix (China Power Team 2021).

¹¹ Nearly one third of every solar panel and wind turbines in the world is located in China. China is also home to half of the world's electric cars and 98% of its electric buses (Hove and Sandalow 2019).

agenda and institutions, and conducting a within-case analysis of the China-led transition towards renewable and alternative energies in the SCO member states.

Data

To generate empirical evidence on the emergence, modes, and effects of environmental regionalism in the SCO we utilized a combination of qualitative and descriptive quantitative data. We relied on secondary literature and official documents issued by national, regional, and multilateral institutions to determine the drivers and characteristics of the SCO environmental agenda. To identify all the renewable/alternative energy projects financed by Chinese banks in the SCO countries, we combined several sources of information. First, we used China's Global Energy Finance dataset (Gallagher 2021), which provides information on energy projects financing by China's two most global policy banks: the China Development Bank and the Export-Import Bank of China. We complemented this information with China's Overseas Development Finance Database (Ray et al. 2021), which includes all the overseas loans provided by the two Chinese policy banks to governments, intergovernmental bodies, and state-owned entities between 2008 and 2019. We integrated this data with information provided by the official websites of the AIIB, the Silk Road Fund, the ICBC, and relevant Chinese state-owned enterprises, which allowed us to identify projects that were not included in the abovementioned databases. Finally, to corroborate data on the size of the loans, co-financing with other banks, and start/end dates and installed capacity of the projects, we checked official sources of the governments of the countries where the energy infrastructure projects were installed, as well as the websites of the companies in charge of executing the projects. To give consistency to the data, we limited the time range to projects announced between 2005 and 2020, since the sources of information for projects that were constructed before 2005 are less reliable.

3. The emergence of environmental regionalism in the SCO

The origin of regional environmental cooperation in the SCO could be traced back to the Tashkent SCO Presidential Summit of 2004. There, the SCO member states established a link between security and economic development, discussing a set of regional cooperation programs that went beyond the SCO's traditional focus on security began to emerge. In 2005, the SCO members took a step further, approving the 20-year Program of Multilateral Trade and Economic Cooperation, whose aim was to push forward regional cooperation in trade, transport infrastructure, and the rational use of natural resources (Guang 2007). The program included 120 development projects of regional interest, 19 of which were related to cooperation in the energy sector (Norling and Swanström 2007). In the framework of the Program, member states' experts started to meet to discuss proposals on how to expand cooperation in the field of environmental protection (SCO 2018).

The turning point in the emergence of the SCO environmental agenda was the approval – in July 2015 – of the SCO Development Strategy 2015-2025, which established an explicit link between economic growth and environmental protection. The strategy assigned “major importance to the cooperation in environmental protection, ecological safety (and) prevention of the negative effects of climate change” (SCO 2015: 10). Furthermore, it

formalized the organization of high-level meetings of member states' heads of environmental ministries and agencies, which in turn created the conditions for fostering exchanges of information and best practices among the SCO countries. In particular, the strategy emphasized the relevance of "cooperation in the field of advanced environmental protection technologies, renewable and clean energy, and energy efficiency in order to support sustainable development" (SCO 2015: 9).

In June 2018, during the SCO annual presidential summit held in Qingdao, the heads of state approved the SCO Concept for Cooperation in Environmental Protection, whereby member states committed to cooperate in maintaining ecological balance, restoring biodiversity, and pursuing sustainable development (MOFA 2018). It is worth noting that few months before, in April 2018, China had hosted the 10th meeting of the SCO environmental authorities in Beijing, where member states agreed upon the concept of environmental protection cooperation. In June 2019, during the SCO presidential summit held in Bishkek, the heads of state approved the 2019-2021 Action Plan for the implementation of the concept of environmental protection cooperation (SCO 2019a). The Plan includes a set of measures to strengthen regional coordination in the field of environmental protection (e.g., joint training of personnel), facilitate the adoption of shared environmental protection standards in fields like waste management (including hazardous waste), and promote market opportunities for environmental services, products, and technologies within the SCO (SCO 2020a).

In September 2019, member states gathered again in Moscow to announce their decision to implement cooperation projects in the areas prioritized in the SCO Concept for Cooperation in Environmental Protection and in the Action Plan (SCO 2019b). To do so, they established issue-specific working groups in the following areas: preservation of biodiversity, climate change adaptation and mitigation, waste management, environmental education, and scientific and technological cooperation (SCO 2019b). Additionally, they launched the Program for the Development of the Environmental Well-Being of SCO Cities, whose aim is to reduce urban population's vulnerability to anthropogenic impacts on cities' ecosystems (SCO 2019b). The program stimulates the development of joint research projects on how to improve the environmental situation of the SCO cities through the provision of environmental services and technologies (SCO 2020a). In the context of the UN-sponsored 2020 World Environmental Day, the SCO Secretary-General, Vladimir Norov, reaffirmed the centrality of environmental protection in the SCO cooperation agenda, declaring that "environmental issues have become one of the main components of economic models for the development of States, including the SCO member states, which have reached to concrete understandings on them" (SCO 2020a).

China's driving role in the emergence of the SCO environmental agenda and institutions

There is a broad consensus in the literature that China was the driving force behind the creation of the SCO, providing political leadership, and financing its institutionalization (Cheng 2011; Chung 2006; Guang 2007; Libman and Obydenkova 2018; Rahman 2011; Yuan 2010; Zhao 2013). As pointed out by Zhao (2013: 447), "many of the concepts and ideas that have structured the SCO are owed to China's initiative", and environmental protection is no exception. In fact, China has actively promoted the incorporation of environmental issues in

the SCO agenda, which represents the regional component of China's rising global environmental leadership.

The first example of China's driving role in the SCO environmental agenda is the creation of the China Center for SCO Environmental Cooperation (CSEC), which was launched by the Chinese government in 2012 and became operative in 2014. The CSEC is in charge of coordinating the SCO environmental protection efforts. China fully finances and administrates the CSEC, hosting it within its Ministry of Ecology and Environment (CSEC 2019a). The second example of China's leading role in the SCO environmental agenda concerns the establishment of the SCO Environmental Information Sharing Platform (EISP). The EISP was launched in June 2014 as a result of the Chinese government's proposal to create a regional platform for stimulating exchanges of information on environmental policies and regulations among the SCO members. The Chinese government conceived the EISP as a source of technical knowledge in support of the improvement of domestic environmental policies and the development of regional environmental governance, particularly in the field of clean energy (CSEC 2018).

Funding to advance the SCO environmental agenda was initially expected to come from six sources: (a) the Chinese Government; (b) the other member states; (c) the SCO Development Fund; (d) the SCO Development Bank; (e) international financial institutions and foreign governments; and (f) member countries' enterprises and civil society organizations (CSEC 2019a). However, both the SCO Development Fund and the SCO Development Bank have failed to materialize, predominantly due to Russia's resistance to the idea of creating a regional financial framework dominated by Chinese institutions (Libman and Obydenkova 2018; Gabuev 2017). Based on the official information published online, we can observe that China has filled this funding gap, taking over the EISP through the CSEC¹² (CSEC 2019b). This was the result of President Xi Jinping's strong interest in accelerating the development of the EISP through the support of the Chinese government (CSEC 2019).

Another clear example of China's leadership in the promotion of environmental regionalism in the SCO is the fact that the first eight meetings of the SCO environmental authorities organized by the CSEC were all held in China (see Table 1). Furthermore, there are clear overlaps between the agenda of these events and the environmental agenda that China is promoting in other multilateral fora such as the BRI. This is corroborated by the fact the CSEC publishes – on behalf of the EISP – material related to the environmental agenda of the BRI, as well as of other multilateral fora in which China is involved, such as ASEAN and the Lancang-Mekong Cooperation.

[INSERT TABLE 1 HERE]

The Director-General of the CSEC, Zhou Guomei, acknowledged in the Chinese press the extent to which China has led the SCO environmental agenda: "Under the SCO framework, China has held 13 training programs and seminars on environmental themes, including green economic development, solid waste disposal and water pollution control, drawing more than

¹² Interestingly, all the books and reports published by the EISP, as well as the newsletter that publicize the progress of the SCO's environmental protection efforts, are managed by the CSEC on behalf of the EISP.

200 officials, experts and entrepreneurs from SCO member states” (Hou 2019). In the same interview, Zhou provides another indication of the Chinese government’s effort to generate synergies between China’s broader multilateral environmental agenda and the SCO: “The Chinese government will continue the Green Silk Road Envoy Program and offer 1,500 training opportunities for environmental officials from places involved in the Belt and Road Initiative, which will also benefit many officials from SCO states” (Hou 2019).

4. China as the driver of a green energy transition in the SCO countries

China is the world's largest energy consumer and emitter of CO₂. At the same time, in the quest to diversify and de-carbonize its energy matrix, China has become the world leading investor in renewable energies. Between 2009 and 2019, USD 44 out of every USD 100 invested in renewables worldwide came from Chinese companies and banks (see Figure 1). In 2019, China invested 88.4 billion USD, followed by the EU which invested 68 billion USD, the US which invested 55.5 billion USD, Japan which invested 16.5 billion USD, and India which invested 9.8 billion USD (BloombergNEF 2020). An analysis of all renewable capacity additions between 2009-2019 shows that China installed by far the highest amount of new renewable capacity (excluding large hydro) over the 10 year period, adding 451GW, which represents 36% of the world total of renewable additions¹³ (Ajadi et al. 2019: 16). Data from China's Global Energy Finance (Gallagher 2021) shows that, although Chinese investments focused predominantly on non-renewable sources (72%) between 2000 and 2019, China’s cumulative financing of renewable energy projects accelerated exponentially between 2009 and 2019, growing 720% while Chinese financing in non-renewables grew 260%.

[INSERT FIGURE 1 HERE]

Unsurprisingly, China has pushed forward a green energy agenda within the SCO (Yuan 2010). In 2009, the Chinese government proposed the creation of the SCO Development Bank, which would be responsible for financing the development of energy infrastructure interconnections among the SCO countries. However, the project has remained on hold due to Russia’s fear of Beijing’s excessive credit expansion in the region (Gabuev 2017; Libman and Obydenkova 2018). In the absence of a regional development bank, the SCO members have turned to China for bilateral loans and investments. Funding for energy projects has come, mostly, from two Chinese policy banks (the China Development Bank and the Exim Bank), a commercial bank (the Industrial and Commercial Bank of China, ICBC), and lately from the Asian Infrastructure Investment Bank (AIIB), a China-led multilateral development bank (Knoerich and Urdinez 2019).

While the energy projects financed by China in the SCO members have traditionally been fossil-based projects, a greener energy agenda has gradually emerged within the SCO linked to the BRI. Incentives to migrate to a green energy matrix are still low in the SCO countries, as they have the largest coal and gas reserves in the world, and one of the largest oil reserves. However, both China and the other SCO members realized that they could benefit from

¹³ Europe comes second, with 267GW added (21.3%), and the US third with 151GW (12%).

increasing investments in renewable and alternative energies. As regards the other SCO member states, we can identify three main benefits: (i) the diversification of the energy matrix, which will consolidate energy security and avoid power outages and blackouts; (ii) the reduction of imports of fossil fuels from abroad; and (iii) the cut down of greenhouse gas emissions.¹⁴ On the other hand, China pursues two main goals through the development of a renewable energy agenda within the SCO: (i) the creation of new markets for the renewable energy equipment produced by Chinese companies such as Goldwind, Longyuan Power, JinkoSolar or LONGi Green Energy Technology; (ii) the consolidation of the BRI's geopolitical relevance, inasmuch as the SCO renewable energy projects can in the same time be categorized as BRI priority projects (and thus access the BRI priority funds) and serve to strengthen the energy infrastructure connecting China to Central Asia.

Since 2005, Chinese banks have financed 41 energy projects in the SCO countries, 16 of which are in renewable and alternative energies. In total, China financed USD 12.6 billion for projects in renewable and alternative energies of an estimated added capacity of 11 GWh. As Figure 2 shows, 85% of Chinese loans are in fossil energy projects, and the renewable and alternative energy projects are smaller and geographically concentrated between northwest India and southern Kazakhstan, with Pakistan as the epicenter of the China-led green energy agenda.

[INSERT FIGURE 2 HERE]

However, when we look at the temporal evolution of Chinese banks' financing of energy projects in the SCO countries, we can identify two waves. The first wave took place before 2015 and had its peak in 2012. The second wave is post-2015, peaking in 2017. In the first wave, only 7.5% of Chinese loans went to non-fossil energy projects. After 2015, this percentage grew to 33%. The 2015 cutoff is important, as that is the year when the SCO launched its 2015-2025 environmental strategy. Among the SCO countries there is great heterogeneity in the percentage of renewable and alternative energy projects, as well as in the percentage of projects co-financed by development banks and/or national policy banks from SCO countries other than China (see Figure 3).

[INSERT FIGURE 3 HERE]

Gallagher (2021) shows that China's policy banks have been the workhorse of the country's global energy agenda, estimating that – since 2000 – the China Development Bank and the EximBank have financed renewable and alternative energy projects totaling USD 18 billion and USD 46.3 billion, respectively, which makes a total of 64.3 USD billion. The SCO member states received USD 11.6 billion (or 18% of the 64.3 USD billion), which makes them the main target of China's global green energy agenda. Furthermore, since its establishment, the AIIB has been an important additional provider of renewable energy financing in the SCO countries, filling the gap left by the absence of a SCO regional development bank. During a

¹⁴ This is not a minor point considering that a recent study estimated that the world's highest mortality rates associated with PM2.5 from fossil fuel combustion are in China, India, and the geographical area between Pakistan and southern Kazakhstan (Vohra et al. 2021).

meeting between the SCO Secretary-General Vladimir Norov and the AIIB President Jin Lique, which took place in Beijing in 2020, the AIIB was formally invited to join the SCO Interbank Consortium as a partner bank (SCO 2020b). To date, the AIIB financed five renewable energy projects in the SCO countries: The Zhanatas wind power plant in Kazakhstan, the Nurek Hydropower Rehabilitation Project Phase I in Tajikistan, the Tarbela 5 Hydropower Extension in Pakistan, the Ayana Anantapuramu NTPC Solar Project, and the Rajasthan 250 MW Solar Project-Hero Future Energies in India.

The geographical focus of Chinese financing in renewable and alternative energy projects in the SCO countries has been on three regional clusters (see Figure 4). Hydro projects are concentrated in the mountainous area that covers northern Pakistan and the territory of Tajikistan and Kyrgyzstan. Wind projects, with the exception of The Zhanatas wind power plant in Kazakhstan, are concentrated in the southern Sindh province of Pakistan, which has great wind energy potential. Solar projects are concentrated between the desert of Lal Sohanra in Pakistan and the western provinces of India, with large promise in the state of Rajasthan due to its high solar radiation. Finally, the two nuclear power plants are both located in Pakistan: the Karachi Nuclear Power Complex (K-2/K-3) and Chashma Power Station Units 3 and 4.

[INSERT FIGURE 4 HERE]

We proceed to discuss two emblematic examples of China's driving role in the SCO member states' transition towards renewable energy sources, which illustrate how Chinese banks have compensated for the lack of a regional development bank in the SCO. The first case concerns four wind energy projects in the China-Pakistan Economic Corridor (CPEC). The second case regards the recovery of a malfunctioning hydroelectric power plant in the framework of the Central Asian Power System (CAPS). The former illustrates how China promotes its own economic statecraft when pushing forward a wind energy agenda in the SCO: Chinese banks provide the funding and Chinese companies execute the work. This in turn shows how Chinese banks are more likely to finance renewable energy projects if those present opportunities for their credit-linked companies. The latter reveals how Chinese banks are filling the gap left by the Soviet Union after its dissolution, providing credits to reconstruct transmission lines and renew old hydroelectric plants.

Wind energy projects in the China-Pakistan Economic Corridor (CPEC)

CPEC is a key component of the BRI, which aims to forge greater global connectivity through infrastructure development. CPEC currently includes 17 energy projects among its "priority projects" (CPEC 2017). Nearly 75 percent of the generation capacity of these projects is coal fired. Given Pakistan's urgency to decrease its oil and gas imports – oil accounts for nearly 29 percent of Pakistan's total imports – CPEC prioritized coal projects. One of the reasons why CPEC's energy agenda has focused on coal was the urgency to execute energy generation projects fast enough to eradicate the blackouts hurting Pakistan's economy (Downs 2019). However, in the last two years, the Pakistani government has started to give priority to wind

projects due to the bite-size investment costs, fewer challenges in finding ideal sites with grid interconnection options, and a short development and construction timeline” (Malik, Qasim, and Saeed 2018: 9). Chinese banks showed a strong interest in financing Pakistan’s wind energy transition. The World Bank has also stepped in, providing a USD 450 million loan for financing six wind power projects in the Jhimpir wind corridor, with a combined capacity of 310 MW (Choudhury 2019).

In the framework of the CPEC, Chinese banks financed the construction of four wind farms in Jhimpir: The Hydro China Dawood wind farm, the Sachal Wind Farm, the UEP Wind Farm, and the Second & Third Wind Farm by Three Gorges (see projects P1, P6, P7 and P9 in Figure 4). The first wind project financed by a Chinese bank was the HydroChina Dawood wind farm in 2015. The ICBC offered a USD 115 million loan to the parent company of the farm, the Arif Habib Group (CPEC 2021a). The ICBC loan was backed by Sinosure, China’s state-owned provider of export credit insurance, which works under the administration of the PRC Ministry of Finance. The windfarm was constructed (and it is currently maintained) by Hydrochina, a company affiliated to one of China’s largest state-owned infrastructure conglomerates. Furthermore, the wind turbine generators were provided by Goldwind Science and Technology, the largest manufacturer of wind turbines in China (Hong 2020). The second project was the Farm, built between 2015 and 2017, which was also financed by ICBC (USD 133 million), backed by Sinosure, constructed and maintained by Hydrochina, using Goldwind’s turbines (Goldwind 2021; CPEC 2021b).

The third project was the UEP Wind Farm (started in 2015 and completed in 2017), which is the largest wind power project developed under CPEC, with a capacity that doubles that of the previous two (100 MW) (CPEC 2021c). China Development Bank provided a USD 252 million financing and China Gezhouba Group Company Limited (CGGC) was in charge of the construction.¹⁵ Also, in this case, Goldwind provided the wind turbine-generators. The operator of the UEP Wind Farm is United Energy Pakistan, a subsidiary of United Energy Group, a Chinese enterprise that in 2012 secured a credit line of \$5 billion from China Development Bank for its Pakistani operations and other potential acquisitions. The fourth project financed by Chinese capital is Three Gorges’ Second & Third Wind Farms, which have a total capacity of 100 MW. As in the case of the UEP Wind Farm, the China Development Bank provided financing (USD 224 million), while implementation was carried out by China Three Gorges Corporation, a state-owned enterprise which built 41 similar wind farms in China (WindPower 2021). As in the previous projects, the wind turbines are provided by Goldwind (Goldwind 2021).

Financing the rebuilding of the Central Asian Power System (CAPS)

The CAPS was created with the support of the Soviet Union in the 1970s and interlinked the power networks of present-day Uzbekistan, southern Kazakhstan, Kyrgyzstan, Tajikistan, and Turkmenistan. Soviet planners designed the CAPS to exploit the region’s massive hydropower and thermal energy potential. However, the collapse of the Soviet Union resulted in the

¹⁵ The CGGC – whose main shareholder is the state-owned China Energy Engineering Corporation – has been the constructor of several projects in the SCO countries, such as a 254 MW hydropower station on the Chilik river in Kazakhstan (Global Times 2010) and a 40 km section of the Hazara Motorway in Pakistan (CGTN 2017).

breakdown of regional energy integration in Central Asia (Boute 2019: 23). Since 1991, this infrastructure continued to operate without proper maintenance and with outdated technology. Then China stepped in by financing two projects aimed at recovering this infrastructure. The first project is the construction of the Moinak Hydroelectric Power Plant, a new hydroelectric plant on the Sharyn River – in the southeastern part of Kazakhstan, between Almaty and the Chinese border – which supplements the grid with 300 MW. Originally, the Moinak hydroelectric project development started off in 1985, yet it was discontinued in 1992 due to the severe economic crisis faced by Kazakhstan. The transmission system for the project was developed in two stages at a cost of USD 48 million, which was financed via grants from the World Bank. The recovery of the pre-existing infrastructure, was financed by the China Development Bank (USD 200 million) and by the Development Bank of Kazakhstan (USD 50 million). Furthermore, to increase the plant's power generation capacity, a project to divert Kentsu River's flow was undertaken in 2015 (NS Energy 2020). China International Water and Electric – a state-owned enterprise subsidiary of the Three Gorges Corporation (in charge of the wind farms in Pakistan) – was appointed as the engineering, procurement, and construction contractor for the project. The project was completed in 2013 and has been operational since then.

The second project is the restoration of the Nurek Hydropower Plant in Tajikistan, which is the largest hydroelectric station in Central Asia with an installed generation capacity of more than 3 GW that provides 70% of Tajikistan's electricity (Besant-Jones et al. 2012). Nurek's infrastructure – like the majority of hydropower plants in Tajikistan – considerably deteriorated during the Tajik Civil War (1992-1997).¹⁶ As a consequence, the plant is operating at 77% of its installed capacity (AIIB 2017). China is currently financing the rehabilitation of Nurek through the AIIB, in co-financing with other multilateral banks. As a matter of fact, the World Bank will finance the bulk of the first phase of Nurek's rehabilitation, providing USD 225.7 million out of an estimated total of USD 350 million, while the AIIB will finance USD 60 million. This phase started in 2017 and is expected to be completed by the end of 2023. Andritz, an Austrian company, was contracted to execute the first phase. Of all the projects with Chinese financing that we reviewed, this is the only one where a Chinese company is not executing the work. Interestingly, one of the reasons the AIIB and the World Bank funded the project is that “the Project will lead to 29 million tCO₂e reduction in emissions and contribute to Tajikistan's international commitment under the United Nations Framework Convention on Climate Change (UNFCCC, ratified in 1992) and its Kyoto Protocol (ratified in 2008)” (Besant-Jones et al. 2012: 8). In addition, the study identifies Tajikistan as the Central Asian country most vulnerable to climate change, arguing that the Project will improve dam safety and flood prevention (Besant-Jones et al. 2012: 9).

Conclusions

¹⁶ The collapse of the USSR, and the subsequent breakdown of the regional energy-sharing arrangements that had been in place since Soviet times, forced Tajikistan to reorganize its electricity system to become independent of the former Soviet energy system. However, in the midst of such readjustment, the civil war broke out. Virtually no money was spent on the maintenance of the domestic energy infrastructure during the civil war years, which resulted in a deterioration of the turbines and electrical systems of the country's hydropower plants (Olcott 2012).

This article investigated the origins, characteristics, and effects of environmental regionalism in the SCO, uncovering the driving role of China in it. To do so, we traced the key steps in the emergence of the SCO environmental agenda, showing how China exercised political leadership in support of incorporating environmental issues in the SCO's agenda, and financed the establishment of regional technically-oriented bodies in charge of facilitating environmental cooperation among the SCO states. Additionally, we conducted a within-case analysis of the issue area of renewable and alternative energies, revealing how China has financed domestic green energy transitions in the SCO countries, whose development model has traditionally been fossil based. China did so by mobilizing its policy and commercial banks in coordination with its construction companies and green-tech enterprises. This allowed China to promote its own economic statecraft while pushing forward a green energy agenda in the SCO. Interestingly, China has acted predominantly at the bilateral level, financing and constructing 16 renewable/alternative energy projects (worth a total of USD 12.6 billion), which are geographically clustered between northwest India and southern Kazakhstan, with Pakistan as the epicenter of China's regional green energy agenda. In so doing, China filled the funding gap left by the collapse of the Soviet Union and the absence of a regional development bank of the SCO, becoming the engine of Eurasia's green energy transition.

Our case study rises a series of questions regarding the impact and viability of environmental regionalism in the SCO. The high-level meetings and technical institutions that China set up in the framework of the SCO have not delivered tangible results yet. Future research will have to establish whether the SCO environmental institutions can move beyond the discursive level and produce domestic and/or regional policy changes. As regards the field of renewable energy production, it remains to be seen whether the green energy agenda promoted by China through bilateral investments will evolve into a broader regional governance initiative. China's push towards green energy within SCO is part of the country's global leadership bid in the field of renewables, and it follows China's traditional approach to overseas infrastructure development, which is based on the top-down employment of Chinese construction companies and financial institutions. As such, the SCO green energy agenda is likely to continue as long as it allows China to promote its economic statecraft and pursue its broader geopolitical objective of enhancing the BRI. In the long run, the viability of the SCO – China-led– green energy agenda depends upon three additional conditions: (a) that the huge availability of gas and oil resources in Russia – which increases Russia's opportunity cost of supporting a renewable energy agenda within the SCO– does not exacerbate economic competition between China and Russia; (b) that smaller SCO countries' need to improve their energy security does not lead them to de-prioritize renewables; and (c) that China's regional leadership does not exacerbate bilateral tensions with India, a geopolitical rival that recently joined the SCO and that has displayed a fast-growing interest in the renewable energy sector.¹⁷ Finally, it remains to be seen whether China's regional green-energy bid will contribute to further autocratic consolidation in the SCO states. Like fossil fuel plants, renewable energy plants can be incorporated into centralized, state-led energy governance,

¹⁷ In November 2020, Prime Minister Narendra Modi declared that India has the fourth largest renewable power capacity in the world and that he wanted to turn India into a global manufacturing hub in the renewable energy sector (Koundal 2021). Some of India's largest renewable energy companies (e.g. Adani Green Energy Limited, Tata Power, Torrent Power, Suzlon Energy, ReNew Power, Muppandal Wind, and Welspun Energy) could potentially compete with their Chinese counterparts in developing energy projects in the SCO countries.

providing autocratic/illiberal regimes with privileged access to strategic energy and financial resources that can allow them to tighten their authoritarian grip.

This article has taken a step in the direction of bridging the gap between the literature on environmental regionalism and the scholarship on authoritarian regionalism, providing a set of empirical and theoretical contributions that advance our understanding of why and how NDROs deal with environmental issues. The article conducts the first in-depth case study analysis of regional environmental cooperation in a Eurasian NDRO, the SCO. Our analysis is particularly relevant since the SCO is the largest RO in the world and is composed of extractive economies (with the partial exception of India) that rank among the biggest CO₂ emitting countries worldwide. By illuminating China's political and financial leadership in the SCO environmental agenda, the article reveals how a regional autocratic power can instrumentally foster environmental regionalism to pursue its own geopolitical (strengthening its regional/global power status) and economic (creating new markets for its technology and ensuring strategic access to non-fossil energy supplies) interests. This corroborates the self-interest reasons behind regional autocratic powers' leadership within NDROs (Ambrosio 2008; Cooley & Heathershaw 2017; Kneuer et al. 2019; Libman & Obydenkova 2018; Tansey 2016), while showing that those are not incompatible with the promotion of environmental initiatives in their own regions. More broadly, our case study highlights the relevance of power-based approaches for explaining environmental regionalism, particularly in regions populated by NDROs, complementing explanations centered on the role of epistemic communities, transgovernmental networks, and supranational technical institutions (Haas 2016).

Finally, the article contributes to the debate on the relationship between regime types and environmental protection (Obydenkova & Salahodjaev 2016, 2017), revealing how non-democracies can engage in collective environmental action, particularly when the region's most powerful state has a strategic interest in pushing forward a regional environmental agenda. Although the generalization scope of our findings is limited to the case of the SCO, the empirical evidence and theoretical insights generated by this article add to our understanding of the logics of environmental regionalism and of the nexus among political regimes, ROs, and environmental protection.

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