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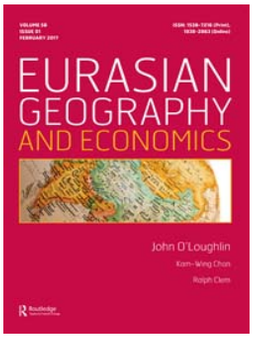

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China's new Eurasian ambitions: the environmental risks of the Silk Road Economic Belt

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ABSTRACT
China is moving ahead with the Silk Road Economic Belt, an ambitious infrastructure development agenda with the distinct promise of regional and sub-regional economic development. However, the initiative will create new environmental risks across the entire Eurasian continent, especially in countries with predominately poor records of environmental governance, including the former Soviet republics and Russia. Concurrently, on the domestic front, the Chinese Government has launched a new policy paradigm, "ecological civilization," to dramatically improve environmental regulations, reduce pollution, and transform industries by adopting new green technologies and higher environmental standards. But does China's intention to go through a "green shift" domestically resonate with these new transborder infrastructure development mega-projects? This paper will attempt to answer this question by juxtaposing China's new domestic policy paradigm with environmental standards currently proposed in its global outreach projects focusing on China-northern Eurasia and China-Russia, including trade exchanges in natural resources.

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Introduction

In the fall of 2013, the Chinese Government announced two ambitious multi-billion dollar regional integration initiatives, the Silk Road Economic Belt and the twenty-first century Maritime Silk Road,[1] comprehensive infrastructure development mega-projects spanning a vast geographical space in Eurasia and East Africa, while also linking China with Europe, the Indian Ocean, and the Persian Gulf (Xinhua 2015a). The scale of these proposed investments is truly unprecedented. Beijing has pledged to invest USD $1.25 trillion worldwide by 2025, exceeding any previous

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regional investment record made either by the US or the Soviet Union in their past geopolitical rivalry for global domination (Shambaugh 2015). Launching the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (together with Russia, Brazil, India, and South Africa – BRICS), the two regional alternatives to the IMF and the World Bank, also positions China as a new global decision-maker in allocating financial resources for large-scale economic developments.

Naturally, these new global ambitions of China have added concerns for environmentalists weary of its own internal ongoing environmental crisis, unmatched in its sheer scope when measured by levels of air and water pollution, water shortages, and soil erosion so severe that they are proven to reduce the lifespan of the country's population (Silk 2013; Economy 2014). In addition, environmentalists have also been critical of China as a world leader in greenhouse gas emissions (GHGs), generating, together with India and other Asian countries, nearly half of all global carbon dioxide emissions (Levi 2015).

Against this backdrop, the recent Chinese announcement of a new developmental phase in its domestic policies, referred to as "an ecological civilization," one of five interconnected pillars for the development of a "new beautiful China," may appear to be disingenuous. The government claims that China is ready to leap forward through "a green shift," transforming or phasing out polluting industries, reducing emission levels per GDP, and restoring degraded ecosystems (Xinhua 2015b). This announcement is backed by a series of bold environmental policies, including an updated Chinese Environmental Protection Act and new logging bans in China's natural forests in its northeastern provinces. It may indeed be the case that China has accumulated enough institutional capacity to finally open up the next chapter in its development, following a path previously travelled by Western countries undertaking ecological modernization a few decades earlier.

Yet the changes in China's domestic policy priorities toward a greener economy do not necessarily imply that they will affect its new infrastructure development projects taking place outside of Chinese borders. In fact, quite the opposite could happen: the Silk Road Economic Belt, for example, might create a framework enabling China to outsource its polluting industries elsewhere, while at the same time shifting its domestic economy gears to a new phase defined by the adoption of green technologies and the embrace of a knowledge-based and service-oriented economy. The enabling conditions are currently in place, given that the Chinese Government has a received green light for its Silk Road projects from many partnering countries eager to attract Chinese investments.

What, then, can be the incentive for the Chinese Government, acting as the leader in these new regional development projects, under the absence of external pressure to comply with environmental or social standards, to account for the unavoidably large social and environmental externalities of these projects? This paper will address this question by juxtaposing China's recent domestic environmental policies against environmental standards and criteria currently proposed for China's global outreach projects. A special focus will be given to the China-Russia

and China-Central Asian projects, given their immediate proximity to China and the crucial role these regions play in supplying China with the natural resources necessary for its economic growth.

The literature on ecological modernization will guide the analysis (Hajer 1995; Langhelle 2000; Mol and Spaargaren 2000; Dryzek 2005; Mol 2006). The distinct elements of ecological modernization observed earlier in highly industrialized Western countries will be discussed, with some attention given to the specific institutional contexts in which these policy reforms were adopted and meaningfully carried out. Does China exhibit these core elements, and in what ways does the Chinese institutional context enable, or vice versa, inhibit, the decoupling of its economic growth from environmental degradation?

This paper concludes that China's approach to dealing with its growing global environmental impact is double-sided. Juxtaposing China's new domestic environmental policies and its outbound commitments indicates a growing schism. Domestically, China has exhibited the key elements of ecological modernization, especially in industries exposed to Western market pressures and in new expanding economic sectors such as renewable energy, launching a new ambitious commitment to build its own "ecological civilization." Yet it is "racing to the bottom" in terms of trans-boundary and overseas development projects involving non-Western countries from which China derives a large share of its natural resources. The findings suggest that the greening of China's own economy does not currently seem to have any impact on China's planning of the Silk Road Economic Belt. A careful analysis of the existing documents and statements associated with this ambitious infrastructure development initiative shows very little consideration for strategic environmental assessment (SEA),[2] or environmental impact assessment (EIA).

This paper is organized into four parts as follows: first, it reviews theories of ecological modernization and outlines a theoretical pathway for China's environmental "scaling up." Second, it assesses the most recent developments in China's domestic environmental regulations, with the underlying question of whether those steps are consistent with the ecological modernization hypothesis. Third, China's global outreach and investment projects are assessed, focusing on Sino-Russian economic cooperation and the Silk Road transborder projects. Finally, the fourth section discusses these findings and provides some policy-related recommendations on how the schism between China's inward and outward environmental aspirations can be bridged.

Ecological modernization and green growth: the elements

Unlike the theoretical approaches associated with zero-population growth and the steady-state economy, viewing the relationship between economy and environment as a zero-sum game (Ehrlich 1968; Olson and Landsberg 1975; Daly 1985), literatures on ecological modernization assume that economic growth is compatible with environmental protection (Hajer 1995; Langhelle 2000; Mol and

Spaargaren 2000). Moreover, some scholars contend that ecological modernization is a pre-condition for future growth (Weale 1992), as competitiveness in knowledge-based post-industrial economies will depend on the adoption of the best available technologies and a de-coupling of economic growth from environmental degradation (Pearce 1992; Ekins 2000).

Currently, there exists no single theory of ecological modernization but rather several complementary approaches emphasizing different aspects of it; namely, the possibility of a "win-win" scenario for economic growth and the environment (WCED 1987; Weale 1992; Hajer 1995), the importance of technological solutions for addressing environmental challenges (Humphrey, Lewis, and Buttel 2002; Nordhaus and Shellenberger 2007), and the underlying role of ecological values, ideas, and attitudes gradually changing societal preferences and institutions (Inglehart 1990; Mol and Sonnenfeld 2000). All of these approaches are consistent with the Environmental Kuznets Curve hypothesis, which implies that the relationship between growth and the environment is an inverted u-shape: environmental quality deteriorates in the early stages of economic growth and improves after societies pass a certain threshold in their economic and social development beyond which basic human needs are met, cleaner technologies are developed, and the satisfaction of "higher" preferences are sought out, including those for protecting the environment, usually expressed in the consumers' willingness to pay more for more environmentally responsible products (Roca 2003; Dinda 2004), thus creating market incentives for modernizing polluting industries.

Among the most distinct elements of ecological modernization, the following three features are mentioned consistently throughout the literature: (1) a devolution of power to the higher (international) or lower (subnational) levels on environmental decision-making structures, thus institutionalizing the idea of "think globally, act locally"; (2) a reliance on market-based approaches for solving environmental problems, in addition to traditional command-and-control policy instruments. These approaches usually utilize policy tools which help internalize the cost of environmental damage (e.g. pollution taxes, tradable permits, certification schemes); and (3) a more integrated policy-making process, as well as policy monitoring and feedback between government, industry, science, and civil society (Hajer 1995; Carter and Mol 2006; Mol 2006; and many others). Consequently, science and technology assume a key role in resolving environmental problems where scientists and experts are invited to participate in the policy deliberation process, usually in the form of thematic committees, on a par with government officials, industries, and in some cases, moderate environmental groups (Mol and Spaargaren 2000).

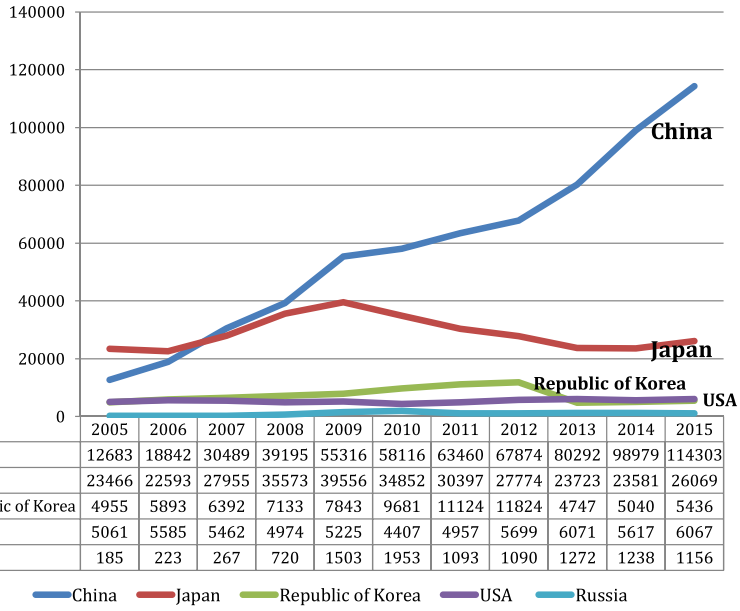
That being said, not all developing societies, while passing the much-disputed threshold of meeting basic human needs,[3] come to embrace the core principles of ecological modernization automatically. In East and South East Asia, among the first and second generation of "Asian tigers," the discourse on ecological modernization was initially seen as "too Western," coming from very prosperous and

well-established industrialized countries, but ill-suited for the objectives of early stage state-led rapid industrialization and "catching up" development. Perhaps the most outstanding case of late industrializers, China was initially among the most adamant to not compromise the objectives of its rapid industrialization in favor of the discourse of sustainable development articulated in the ground-breaking Brundtland Commission Report of 1987.[4] In the last two decades, however, China's position began to change, with the adoption of new laws, investments in cleaner technologies, and the signing of multilateral and bilateral treaties on biodiversity protection and climate change. This prompted a debate among energy policy experts on whether or not Beijing is undergoing a genuine "green shift" from a coal-addicted economy of overproduction and large industrial output toward a low-carbon economy. A possible sign of this shift was a recent drop in coal-dominated electricity output, for the first time in 50 years, and an increasing reliance on renewable sources of energy (Li 2016; Wubbeke and Conrad 2016). However, this drop could also be a function of an economic downturn rather than of a genuine decoupling of economic growth from resource use.

Given that upgrading technology can be unaffordable for many polluting industries without some form of government compensation or subsidy, shifting these industries abroad can be yet another enabling condition for domestic ecological modernization. In fact, Western Europe's ecological modernization was achieved partly through a displacement of polluting industries to less industrialized countries, and thus from a global perspective, environmental damage was simply exported rather than genuinely reduced (Khor 1992; Hajer 1995). In the case of China, undergoing its own variety of green shift while initiating technological upgrades and moving up on the global production chain, the relocation of polluting industries to countries with little industrial output, weak environmental and labor standards, and governments too eager for foreign investment mirrors the position which China was itself in just a few decades ago. Among the first candidates for relocation due to their high pollution wastes are the cement and steel industries, chemicals, and materials and metals production (Li 2016).

China's green shift in domestic policies

In addition to the specific policy instruments adopted by societies undergoing a process of ecological modernization to stimulate a decoupling of economic growth from environmental degradation, an institutional context where such policies are adopted also matters. Some observers note that ecological modernization is more distinctively observed in corporatist societies rather than in pluralist ones, due to the former exhibiting a culture of planning, intervention, and a close consensual relationship between government, industry, and labor (Schmitter 1979; Siaroff 1999). Notably, the governments in classical corporatist states such as Norway, Sweden, and Denmark, while maintaining a somewhat interventionist policy style more suitable for pushing through ecological modernization reforms costly for



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
China	12683	18842	30489	39195	55316	58116	63460	67874	80292	98979	114303
Japan	23466	22593	27955	35573	39556	34852	30397	27774	23723	23581	26069
Republic of Korea	4955	5893	6392	7133	7843	9681	11124	11824	4747	5040	5436
USA	5061	5585	5462	4974	5225	4407	4957	5699	6071	5617	6067
Russia	185	223	267	720	1503	1953	1093	1090	1272	1238	1156

Figure 1. The number of ISO 14001 certificates in China, Japan, South Korea, US, and Russia, 2005–2015. Source: ISO (2016).

the industry, also remained relatively open to the input of environmental NGOs. In Norway, for example, the clearest case of democratic corporatist systems, several key moderate environmental groups were routinely included in the policy deliberation process by being invited to participate in numerous thematic state committees, including those on the most economically and environmentally important issues such as the Green Tax Committee (Dryzek et al. 2003). It has therefore been argued in the political economy literature that the consensual policy deliberation approach common in corporatist democracies has a distinct advantage for delivering ecological modernization reforms, as compared to pluralist systems defined by the institutionalized rivalry between powerful interest groups (usually representing industry) attempting to influence policy outcomes, while excluding less powerful players, such as environmental or social NGOs, from participating in policy framing and deliberation (Lijphart and Crepaz 1991; Dryzek 2005; Poloni-Staudinger 2008).

With this as a backdrop, the political economy of China, whose own variety of state-market relationship does not fit any common typology (Hall and Soskice 2001), has perhaps distinct institutional traits and configurations which may serve either as an advantage or obstacle for undertaking the ecological modernization process previously taken by some of its Western counterparts. In fact, some scholars argue that China's environmental governance, like its economic governance, is "unlike that of any other state" (Beeson 2016) and therefore is unlikely to follow any existing blueprint. Yet other scholars (Mol 2006; Yee, Lo, and Tang 2013), while acknowledging the limits of making a direct comparison between countries

defined by large political and cultural differences, nevertheless acknowledge China's enlargement of environmental governance into political, economic, and social institutions as the beginning of ecological modernization. From this vantage point, it can be argued that the Chinese Government has already embarked on the path previously travelled by very advanced industrialized countries, for example, in shifting away from command-and-control policy instruments to market-based tools (Buamol and Oates 1989) or in expanding the scope of environmental governance by relying on non-state actors for policy framing, deliberation, and feedback while delegating some responsibilities for monitoring and control to public–private partnerships.

The incentives for making these shifts in domestic environmental policies are clear. As China has pursued a deeper integration into the world economy; for example, by welcoming foreign direct investment (FDI) and joining, in 2001, the WTO, it can no longer afford to ignore the policy paradigm by which global Western consumers – the main buyers of Chinese products – make their purchasing choices. However, the enduring skepticism of many environmentalists regarding China's intention to transform its industries can perhaps be explained by the fact that the changes in Chinese policies have been very incremental. In 2003 when President Hu Jintao took office with the promise of modernization and development, environmental sustainability was mentioned for the first time on a par with economic growth (Hu 2005). The two notable proxies of ecological modernization; namely, the concerns for global environmental problems such as climate change, and participation in multilateral environmental agreements such as the 1997 Kyoto Protocol on Climate Change of the UN Framework Convention on Climate Change or the 2000 Cartagena Protocol on Biosafety to the Convention on Biological Diversity CBD, gradually appeared in China's official policy position, becoming, by the mid-2000s, a well-established domestic policy item (Shi and Zhang 2006; Gilley 2012). In September 2015 President Xi Jinping pledged USD $2 billion for new global Sustainable Development Goals, adopted at the UN Summit in New York on 25–27 September 2015 (*The Guardian* 2015).

Arguably, in the last several years China has introduced all three elements of ecological modernization into its domestic environmental governance. First, China has adopted a number of market-based and voluntary instruments, in addition to and sometimes instead of, traditional and rigid command-and-control policies (Shi and Zhang 2006). Moreover, an increasing number of Chinese companies have pursued environmental measures outside of officially adopted standards, mostly under external (market) pressure, for higher ecological standards.

This trend is best illustrated by the rapidly growing number of voluntary environment management certification schemes. In the late 1990s Chinese companies began to pay attention to voluntary environmental standards, starting with the "softest" types (e.g. ISO 14001),[5] to ensure that their products met the standards of ecological management adopted in OECD countries. From 2000 onward, the number of ecological management certificates issued to Chinese companies grew

sharply (Qi et al. 2011, 2012) to bring China, by 2007, to the position of a world leader in ISO 14001 certificates. Since then the number of ISO 14001 certificates in China has continued to increase while slowing down or even dropping in many other countries, including the United States and Japan (Figure 1; Shvarts and Gerasimchuk 2010; Shvarts, Bunina, and Knizhnikov 2015).

It is important to note, however, that despite the increase in voluntary standards, companies operating in China, including Western corporations, have continued to pollute at levels much higher than those observed in the West. For many multinationals, China has remained a "low cost pollution heaven," attractive for its lower costs of labor and lower environmental standards (Maoliang et al. 2013). In addition, China's local governments, in their "worship of economic growth and development" (Wang, He, and Fan 2014), are often reluctant to report cases of pollution by multinational corporations because of their desire to attract and keep FDI, even at the cost of not implementing China's environmental law.

A second indicator of ecological modernization, the engagement of civil society in decision-making, is the weakest spot in the green shift a la China. There are very few channels that exist for civil society voices to participate in China's environmental policy deliberation, formulation, and feedback. Meanwhile, growing local protests against environmental pollution add pressure on China's government to be more attentive to public concerns. The forms and the scope of these protests have undergone a dramatic change, from small-scale protests over issues concerning property rights (NIMBY, or "not in my backyard" local opposition), to more public space and citizenship rights issues demanding public control over the quality of air, water, and over large environmental risks associated with industrial and infrastructure development.

Air pollution has a wide national impact on health and wellbeing and therefore can mobilize very large urban as well as rural populations, as smog does not stop at the boundaries of urban or industrial areas. Moreover, activist networks have been formed with the help of social media and the Internet and have begun to link many of the smaller anti-pollution local protests into larger regional movements. In fact, environmental degradation is now the leading cause for the more than 180,000 popular protests in China each year (Economy 2014) and potentially can be a very politically destabilizing factor. A recent study showed that Chinese urban dwellers willing to get engaged in street protests for environmental causes are generally more dissatisfied with the political system (Zhong and Hwang 2016). The *ex-ante* absence of civil society voices in the planning of large industrial sites undermines, *ex-post*, the legitimacy of governmental decisions to approve such projects, especially in cases when something goes wrong (Steinhardt and Wu 2016). An explosion that occurred in a warehouse in the Chinese city of Tianjin in the summer of 2015, killing more than one hundred people and sending hundreds of tons of toxic chemicals into the air, fueled a worldwide criticism of China's poor environmental safety standards and practices (*BBC News* 2015).

Responding to these spontaneous and potentially very sensitive political factors, state authorities have been experimenting with encouraging (state-controlled) media to speak up about environmental concerns, while also creating new avenues for people to participate in environmental monitoring and, in some cases, in EIAs.[6] In 2015 the Ministry of Environmental Protection issued the *Measures on Public Participation in Environmental Protection* in an attempt to channel the unruly energy of protests into a controlled process, "to facilitate public participation in an orderly and lawful manner" (UNEP 2016, 23).

In addition, China's Environmental Protection Law, amended in 2015, broadens the mandate of governmental agencies to release pollution data to civil society.[7] The guidelines accompanying this law, released by the Ministry of Environmental Protection under the title *Promoting Public Participation in Environmental Protection*, stipulate that the public should have enough information "to hold polluters accountable." The law encourages the wider use of civil lawsuits against polluting enterprises and holds local officials responsible for how well they protect the environment. The updated Environmental Protection Law builds on previously adopted regulations, such as the inclusion of a public hearing in EIA processes and in the 2005 requirement for public disclosure of pollution data, used widely by environmental NGOs working in China (Martens 2006) and by Chinese citizens expressing their opposition against environmental pollution in social media (Hook 2013). It is very likely that the environment will remain a very salient issue within China's public agenda, with the rising middle class showing stronger preferences for a cleaner environment and healthier lifestyles, significantly undermined by the existing public health risks spurring from thick smog blanketing Chinese cities.

A third indicator of ecological modernization, expanding environmental governance to higher and lower levels of political authority, can also be increasingly observed in China, with the government increasing its engagement in multilateral and bilateral environmental agreements and projects. Thus, China's global commitments on climate change have completed a U-turn in the past decade, from being a passive observer at the United Nations Framework Convention on Climate Change negotiations, with no binding greenhouse gas (GHG) reduction targets (as a non-Annex 1 country), to voluntarily committing itself to emission reduction goals under the ambitious bi-lateral climate change agreement made between China and the United States in 2014, where China pledged that its total GHG emissions would peak in 2030, but would start to decrease after that. To do so, the government promised to establish a national cap-and-trade program in the heavy polluting industries (*The Times* 2015) and to reduce emissions per GDP unit by 45% by 2020.

China has made large investments in advanced technological solutions to environmental degradation problems. In 2010 China became the world's largest manufacturer of wind turbines and solar panels (Bradsher 2010). In 2014 the Chinese Government invested more money than any other world government in

green technologies, USD $90 billion, which is almost twice the amount compared to the USD $52 billion invested by the US Government (Koch-Weser and Meick 2015). The precursors to China's ambitious new green agenda were the National Environmental City Programs, the piloting of a green GDP approach, the use of tradable emission permits to regulate sulfur dioxide emissions (Shin 2013), and green credits for reduced emissions (Wang and Chen 2010). Although not all these innovations were successful, they did not discourage Chinese political leadership from embarking on even more ambitious policy projects, including 230 low-carbon eco-cities with an emphasis on "low energy consumption, pollution and carbon emission" (Zhou, He, and Williams 2012).

In February of 2014, after Beijing broke its air pollution record by reaching a concentration of fine particle pollution 16 times that of the recommended upper limit, causing an uproar and protests among its residents, Premier Li Keqiang officially declared, at an annual parliamentary meeting, a "war against pollution" while presenting a list of new environmental targets and policies (Economy 2014; Kaiman 2014). Keqiang's bold statements sat well within China's rising policy discourse of building an "ecological civilization," first announced at the 18th Congress of the Chinese Communist Party held in November 2012 (Wang, He, and Fan 2014). At this Congress, the government released detailed guidelines for advancing ecological progress via introducing it in four steps: (1) strengthening property rights over the use of natural resources, (2) creating specific thresholds for the ecological protection of different landscapes and land types, (3) implementing a system for environmental compensation, and (4) reforming environmental management (Oswald 2014).

On 26 September 2015, the very day when President Xi Jinping delivered a speech at the UN headquarters at the Sustainable Development summit, in which he made several significant pledges,[8] the China State Council published (in English) a comprehensive plan on how China should reduce pollution and protect the environment: *An Integrated Reform Plan for Promoting Ecological Civilization* (Government of China 2015). This new policy was prepared by 12 relevant government departments under the coordination of the National Development and Reform Commission (NDRC) and was scheduled to be fully established by 2020 (De Boer 2015).

The new policy called for improvements in the following areas: property rights, regulating the use of natural resources, environmental protection, phasing out subsidies for fossil fuels, international cooperation and local-level initiatives, and controlling carbon emissions. The latter implies increasing the share of non-fossil fuels that make up primary energy consumption, controlling and reducing the amount of carbon dioxide emissions in proportion to GDP, developing a more efficient use of energy and reducing the burden on ecosystems by minimizing human impact, restoring ecosystems, and removing most harmful industrial complexes from Chinese territories (Hu 2015; Xinhua 2015b). These new commitments entail a restructuring of the Chinese economy in favor of less polluting production and

services while upgrading outdated technologies or shifting more environmentally harmful production abroad.

Among the most polluting Chinese industries, the cement sector stands out for its detrimental impact on the environment and for both its outdated technologies and overproduction. China is accountable for almost 60% of all global cement production due to its unprecedented construction boom. In 2015 the environmental cost of cement manufacturing in China was estimated at USD $31.5 billion per year, with the majority of it coming from the health hazards of air pollution (ICCS 2015). Having remained practically unchallenged by environmental regulations up until recently, the industry will now face a new burden associated with paying for the external costs of pollution when the new laws become fully enforced under the *Ecological Civilization* policy package, requiring mandatory disclosure of environmental information by listed companies.

Cement producers are major users of heat and electricity generated from coal, which emits large amounts of toxic compounds, making the sector one of the main contributors to the thick smog that often shrouds Chinese cities. Under the new environmental legislation the industry will face two choices: to upgrade technology to make it less polluting or pay up for the costs of environmental damage. Both choices imply significant costs which jeopardize the economic viability of the industry, a major national employer. China's cement sector will require at least USD $45 billion of investment to achieve a green shift in line with the new *Ecological Civilization* targets (ICCS 2015), which could result in either the closing down or phasing out of the most outdated factories. The prospect of job losses resulting from either closing cement facilities or from their technological upgrade (upgraded factories will rely less on manual labor), create a significant political dilemma for a Chinese Government weary of rising unemployment rates from economic slowdown. Hence the government has entertained a third option – relocating the unwanted facilities outside of China, together with their outdated production processes, pollution, and environmental externalities, as well as the excessive labor force. This option promises a triple dividend for the government: saving the industries, keeping the jobs, and avoiding the large costs associated with environmental externalities.

China's global outreach

Import of resources

In order to sustain its economic growth fueled by rising domestic consumption while at the same time setting up higher goals for preserving its natural environment and restoring already degraded ecosystems, China will require more imports of energy and natural resources including fossil fuels, wood and wood products, fish and seafood products, and electricity. Although very rich in natural and especially in mineral resources (CIA 2016), China has relied extensively on importing

(commodity code: 270900)

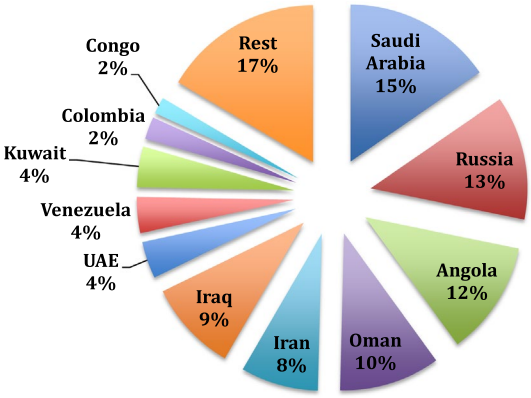


Figure 2. China's import of petroleum oil and oils obtained from bituminous minerals, crude, 2015. Source: United Nations (2016).

both renewables and non-renewables in order to fuel its production and processing facilities, often trading them back as finished products. Recently, however, China has begun to change its "bringing-in vs going-out" strategy, by relocating its resource processing facilities (usually, low value-added) to neighboring countries under the rubric of "capacity cooperation." An additional layer of this strategy is the acquisition of foreign companies, active participation in privatization, and the provision of tied loans, in order to secure access to resources, processing facilities, and contracts abroad (Hu 2015; Lu 2016).

Oil and petroleum products

Russia plays a major role in China's importation of both bio-resources and non-renewable resources. In 2015 almost 13% of oil and petroleum products were supplied by Russia, second only to Saudi Arabia with 15.5% (Figure 2). Notably, Russian crude exports to China have more than doubled in the past five years, signaling a new phase in energy cooperation between Moscow and Beijing. The turning point was the opening in 2011 of the Eastern Siberia Pacific Ocean Pipeline after the signing of a contract between the China National Petroleum Corporation and Russia's Transneft and Rosneft. In June 2016 international news sources reported that Russia became the top supplier of oil to China, surpassing Saudi Arabia for the first time on a cumulative basis (*Trade Arabia* 2016). By 2018 Russia has committed to increase its oil supply to 30 million tons/year, supplying 360 million tons of crude to China over the next 25 years (Bloomberg Report 2016a).

Natural gas

In terms of natural gas in gaseous state, China imports almost all of its gas from three countries; Turkmenistan, Uzbekistan, and Myanmar (Table 1). Qatar, Australia,

Table 1. Import of non-renewable resources to China, 2015.

Import of natural gas in gaseous state (commodity code: 271121)			Import of natural liquefied gas (commodity code: 271111)		
Country	Million USD$	%	Country	Million USD$	%
Turkmenistan	7,682	79.2	Qatar	2817,74	31,7
Myanmar	1,588	16.4	Australia	1630,34	18,3
Uzbekistan	371	3.9	Malaysia	1416,38	15,9
Kazakhstan	49	0.5	Indonesia	1247,97	14,1
US	0.13	0.01	Nigeria	180,866	2
			Russia	107,885	1,2
			Rest of the world	1497,30	16,8
Total gas in gaseous state	9,690	100	Total liquefied gas	8,899	100

Source: United Nations (2016).

Malaysia, and Indonesia are the largest suppliers of liquefied natural gas (LNG), collectively supplying almost 80%. In 2015, Russia supplied 1.2% of all LNG imports into China, a 25% increase from 2014. Russia's gas supply to China is expected to continue to increase in the coming decade. The mega-deal between China National Petroleum Corp and Russia's Gazprom, the "Power of Siberia," signed in May 2015, will involve 38 billion cubic meters of natural gas per year delivered to Northern China from gas fields in Eastern Siberia starting in 2019–2021. The total investment in this project is estimated to be at USD $70 billion (*RBC News* 2015). The largest Russian-Chinese venture ever signed, the "Power of Siberia," is a key part of Moscow's pivot toward China in the context of the EU's stated intentions to reduce its energy dependence on Russia.

Over the past two years, China and Russia's mutual interests have expanded dramatically. Currently, China has large stakes in Yamal LNG, where China National Petroleum Corporation owns 20% of its shares and China's Silk Road Fund owns 9.9% (*Financial Times* 2016). The Chinese Government is also currently negotiating a loan to Rosneft for the development of the Vankor oil and gas field located in the north of Krasnoyarsk Kray, in Siberia, as well as other oil fields in Russia.

Hydroelectricity

Russia supplies almost 50% of all imported electricity to China and may remain the main source of electricity import growth until 2030 (ERI RAS 2013). In 2014 China imported 6.75 bln kWh of electricity (CIA 2016), of which 3.9 bln kWh were supplied by the Russian Far Eastern Federal District, constituting about 1% of all electricity consumed by China (FCS Russia 2014). The proposed construction of several new major hydropower plants (HPPs) in the Russian Far East, including the Nizhne Zeyskaya and Selemdzhinskaya hydro power stations, is intended to meet China's growing energy demands. Theoretically, these HPPs can help reduce China's reliance on fossil fuels, thus contributing to bringing down the level of CO_2 emissions. However, the total environmental utility value of these projects is uncertain: rather than replacing current coal-based energy sources, the new HPPs could instead drive up China's energy consumption. Meanwhile, the construction

Table 2. Import of renewable resources to China, 2015.

Import of fish, crustaceans, mollusks and other aquatic invertebrates (commodity code: 03)			Import of wood and articles of wood; wood charcoal (commodity code: 44)		
Country	Million $USD	%	Country	Million $USD	%
Russia	1171,79	18,5	Russia	3125,939	16,8
USA	1084,758	17,2	USA	2219,512	11,9
Norway	339,62	5,4	Canada	1497,17	8
Canada	547,49	8,6	New Zealand	1344,237	7,2
New Zealand	356,92	5,6	Thailand	1261,271	6,8
Japan	248,272	3,9	Indonesia	983,829	5,3
Indonesia	277,11	4,4	Viet Nam	864,195	4,7
Chile	160,125	2,5	Lao People's Dem. Rep.	479,963	2,6
Thailand	166,18	2,6	Papua New Guinea	678,708	3,6
Other Asia	193,748	3	Australia	840,835	4,5
Rest of the world	1789,95	28,3	Rest of the world	5331,359	28,6
Total	6335,95	100	Total	18627	100

Source: United Nations (2016).

of the new dams is likely to jeopardize the stability of freshwater ecosystems in the Amur River Basin. The construction of the Zeya and Bureya hydroelectric reservoirs have already resulted in the destruction of large areas of forest and marshland. The unnatural hydrological changes have caused a deterioration of the floodplain wetlands, affecting the ecosystems of more than a thousand kilometers of the Amur River, disturbing the mass-migration of Siberian roe deer, and flooding some regional and national protected areas (Nikitina, Simonov, and Egidarev 2015).

Since 2015 China has been promoting the idea of Global Energy Interconnection, a global network of ultra-high-voltage (UHV) transmission lines connecting large renewable energy bases. In 2016 China State Grid Corporation championed the *China-centric Global Electricity Interconnection* agreement, which was promptly signed by the Russian State Grid, Rosseti, together with other major companies of the world (Interfax 2016). Based in Beijing, China's new global green energy scheme intends to integrate electricity received from large hydro projects in northern Eurasia with wind turbine-generated electricity from the Siberian Arctic. In its *Declaration on Cooperation on Global Energy Interconnection Development and Cooperation Organization,* China State Grid Corporation claims to strive toward "meeting the global demand for electricity in a clean and green way, to implement the United Nations' *Sustainable Energy for All* and to serve the sustainable development of humanity" (GEIDCO 2016).

While this global green energy grid proposal can be viewed as an attempt to find solutions to "de-carbonize" global development, the recent development of UHV transmission lines linked to the construction of giant hydropower stations in biodiversity hotspots and indigenous strongholds in Southwest China, presents alarming signals regarding the necessity of having social and environmental safeguards in place to accompany such large infrastructure development schemes when going global (Simonov 2016).

Fish and aquatic resources

China also imports a significant amount of fish and seafood, with Russia being responsible for 18% of all imported seafood products (Table 2), 97% of which is frozen unprocessed fish sold at discounted prices. Because the majority of fish (pollock, salmon) is sold as unprocessed product with low value added, the margin of profit is low and the incentives for overharvesting are very high. In addition, the pressures for overfishing are exacerbated by several factors; namely the growing demand for seafood in the Chinese domestic market, the re-export of these processed resources to overseas markets, and the use, in traditional Chinese cuisine, of sea species with threatened or at-risk status such, as sea cucumbers and sea urchins.

Forest products

In the last two decades China has become the world's largest market for timber and timber products. The main countries exporting timber to China are Russia, Canada, New Zealand, and the United States, together responsible for 44% of China's total timber import (Table 2). In 2015 Russia remained the largest exporter into China of timber products and charcoal, accounting for 17% of all timber imports to China. Russia has played a very important role in sustaining the high growth levels of Chinese wood-based industries, with the Russian Far East being the key timber supplier to the Northeast provinces, China's timber processing hub. Being rich in forest resources, the Russian Far East is home to a wide diversity of animals, plants, and trees, including Mongolian Oak (*Quercus mongolica*) and Manchurian Ash (*Fraxinus mandshuricum*), species protected by the Convention on International Trade in Endangered Species. These tree species are currently at a high risk of illegal logging. According to estimates made by the World Wide Fund for Nature (WWF) in 2013, at least half of the volume of Mongolian oak exported from the Russian Far East into Northern China was of illegal origin (Smirnov et al. 2013).

In the last few years the Chinese Government made a decisive step to halt the degradation of its own native forest ecosystems. Responding to growing pressures on its remaining natural forests, the government announced a new forest protection strategy, declaring moratoriums on commercial logging in natural forests in select Chinese provinces, with the intention to eventually phase out logging in all intact forests across China by 2020. In April 2014 the government of Heilongjian Province, which accounts for 30% of China's domestic log supply, announced a logging moratorium in all native provincial state forests, previously extensively degraded due to the centuries of heavy use and rapid development in manufacturing and wood processing. Yet these well-intended domestic policies, while protecting China's remaining natural forests, have already had a negative spillover effect for many forests abroad (Sun, Canby, and Liu 2016; EIA 2013; Laurance 2011). It is possible that this policy will lead to the export of China's "ecological footprint" from its own forests to those of its regional neighbors, potentially driving

even higher the volume of illegally logged timber from Southeast Asia, Africa, and Northern Asia (Russia) (Viña et al. 2016).

The logging volumes of valuable timber species in eastern Russia – oak and linden – have increased, mostly due to growing demands in China (Fedichkina and Lankin 2016), where imported timber now accounts for more than half of China's total timber supply (Sun, Canby, and Liu 2016). It has been well documented that China's investments in the Russian forest sector often went toward the opening of primitive sawmills, producing rough-sawn lumber that was exported to neighboring Chinese provinces (Newell and Simeone 2014; EIA 2013; *Russia Beyond the Headlines* 2013). These sawmills were also used as purchasing sites for valuable timber illegally logged in the last remaining hardwood forests in the Russian Far East.

Responding to mounting international criticism of China's growing engagement with the extraction of timber resources in overseas markets, the Government of China introduced recommendations for Chinese companies operating abroad, starting with the *Guidelines for Sustainable Overseas Forest Resources Management* (Government of the People's Republic of China's 2009) and, more recently, *the Guidelines for Social Responsibility in Outbound Mining Operations* (CCCMC 2014). Yet these recommendations are voluntary, accompanied with no real tools for enforcement, and thus are unlikely to be effective without real pressure coming either from the market, civil society or government.

To sum up, Russia has emerged in the last decade as China's largest supplier of non-renewable (crude oil) and renewable (seafood and timber) resources, taking over the position of Saudi Arabia as China's top supplier of crude oil, while retaining its leadership among China's top suppliers of seafood and timber resources.

China's overseas investments

By 2015 the level of China's FDIs had grown ten-fold since 2005, exceeding USD $1 trillion (Table 3), while at the same time transforming the global landscape of international loans and investments (Wang and Zadek 2016). Asia (East and West) has been the largest destination for China's investments, followed by Africa, Europe, North America, the Arab World, Middle East and North Africa , South America and Australia.

Unlike many of their Western counterparts, for example the IMF, Chinese investments and loans have no political conditionality attached and therefore are more easily accessible for countries which otherwise might have limited access to Western lending agencies. The Chinese policy of a "no-strings attached" approach implies fewer environmental and social standards for projects receiving the loans.

From the outset, Chinese investments naturally followed China's interests in securing access to natural resources and energy in less developed countries – in East Asia, Africa (including Sub-Saharan), Central Asia, and South America. Infrastructure development and resource extraction have been the leading profiles for Chinese investments in these regions. Also, under "infrastructure development,"

Table 3. China's accumulated worldwide investment, 2005–2015 (USD billion).

Australia	East Asia		West Asia		Sub-Saharan Africa		North America		Europe		South America		Arab World, Middle East and North Africa	
	Indonesia	31,9	Russia	37,7	Nigeria	36,8	US	134,3	UK	38,1	Brazil	45,5	Saudi Arabia	27,2
	Rest of region	137,7	Kazakhstan	27,5	Ethiopia	20,6	Canada	45,3	France	19,8	Venezuela	17,2	Algeria	21,6
			Rest of region	114	Rest of region	184	Rest of region	15	Rest of region	145	Rest of region	62,2	Rest of region	77,6
87	Total	170	Total	179	Total	241	Total	195	Total	203	Total	125	Total	126

Source: American Enterprise Institute and the Heritage Foundation (2016).

a very wide range of projects took place, ranging from road building, railroad development, and hydropower construction to building pipelines, electricity grids, and other projects (Schiere and Rugamba 2011; Grimsditch 2012; Wang and Zadek 2016).

In parallel, China has invested quite significantly in the financial markets, technologies, and real estate of more prosperous Western economies. In 2014 China's State Council adopted a new, more permissive approach to regulation over China's outward FDI, under *Circular Concerning the Catalog of Investment Projects Subject to Governmental Approvals*. These new Chinese investment rules removed the approval requirements for most FDI projects of less than USD $1 billion, while delegating administrative authority over most FDI projects of less than USD $300 million to competent provincial government agencies (State Council 2014). These changes are expected to boost the level of China's overseas investments in all regions of the world, given the global reach of Chinese economic interests.

In 2016 China's outbound investment exceeded inbound investments, making it a net exporter of financial capital. Among the leading destinations for China's outward cumulative (2004–2016) investment is the US (USD $134 billion, with China invested in the US financial sector and real estate); Australia (USD $87 billion, mostly in in metals, coal, and gas); Canada (USD $45 billion, with the main investment sectors being the financial market, auto industry, real estate, and the oil/gas industry). Outside of the West, the top recipients of Chinese investments are Brazil (USD $45,5 billion in a variety of sectors, including the mineral industries, banking, hydropower, and the auto industry), Nigeria (USD $37 billion in oil, infrastructure, and construction), Indonesia (USD $32 billion mainly invested in coal, steel, and railways), and Russia and Kazakhstan (USD $38 billion in Russia and USD $27 billion in Kazakhstan, in the energy and mineral resource industries) (Table 3).

China's FDI outflows to the Silk Road Economic Belt and the twenty-first century Maritime Silk Road countries (together constituting the Belt and Road Initiative, or BRI), increased to USD $18.9 billion in 2015 from about USD $400 million in 2004, with average annual growth between 2004 and 2015, amounting to 43% (higher than the 35% average annual growth of China's total FDI). In 2015 China's investment in BRI countries mainly flowed to Singapore (USD $10.5 billion), Russia (USD $3 billion), Indonesia (USD $1.5 billion), the United Arab Emirates (USD $1.3 billion), and India (USD $0.7 billion) (Belt and Road 2016; MOFCOM 2016). Within Russia, in 2015 China invested mostly in mining (USD $1.5 billion), financial services (USD $767 million), agriculture/forestry/fishery (USD $346 million), and manufacturing (USD $276 million) (MOFCOM 2016).

The level of China's investments in Russia has, however, remained rather modest, totaling almost USD $38 billion from 2004 to 2016, which is partly due to Russia's earlier restrictions on foreign investments in its oil and gas sector. In addition, recent economic sanctions imposed by the United States and the European Union on Russia (in 2014) have prompted Chinese banks to exercise more caution in regard to dealing with their Russian counterparts in order not to jeopardize their

own relations with the West.[9] In 2016 it was not yet clear whether China would bring up the level of direct investments in Russia to USD $9–$12 billion/year by 2018–2020, as it had proposed earlier. Falling oil prices and a rapid restructuring of China's international investment portfolio from energy and resources to the high tech industry, entertainment, and tourism possibly signaled a more modest investment future for Chinese FDI in Russia (*Kommersant* 2016a).

However, it is expected that China's outbound investments in the Russian economy will turn around and continue to increase within the next several years as planned, especially in the energy sector and infrastructure developments under the Silk Road Economic Belt initiative (East Russia 2016). Overall, over the next decade China's FDI in Silk Road infrastructure projects is expected to increase trade for the participating markets by USD $2.5 trillion (Lim 2016).

China's twenty-first century Maritime Silk Road and Silk Road Economic Belt

In October 2013 Chinese President Xi Jinping introduced the twenty-first century Maritime Silk Road and the Silk Road Economic Belt as a "jointly built" mega-project while calling for its acceleration to "connect Asian, European and African countries more closely and promote mutually beneficial cooperation to a new high level and in new forms" (NDRC 2015). Two years later, in March 2015, the Chinese Government released a more specific policy document, *Vision and Actions on Jointly Building the Silk Road Economic Belt and 21st-Century Maritime Silk Road* (Ministry of Foreign Affairs of China 2015), expanding the goals beyond infrastructure development, to also include the establishment of a free trade regime and the creation of new industrial parks. Altogether, the proposed Silk Road Economic Belt envisions integration on seven fronts – transport, energy, trade, information, research and development, agriculture, and tourism. The project's geographical scope includes:

> … China, Central Asia, Russia and Europe (the Baltic); linking China with the Persian Gulf and the Mediterranean Sea through Central Asia and West Asia; and connecting China with Southeast Asia, South Asia and the Indian Ocean … On land, the Initiative will focus on jointly building a new Eurasian Land Bridge and developing China-Mongolia-Russia, China-Central Asia-West Asia and China-Indochina Peninsula economic corridors … At sea, the Initiative will focus on jointly building smooth, secure and efficient transport routes connecting major sea ports along the Belt and Road. The China-Pakistan Economic Corridor and the Bangladesh-China-India-Myanmar Economic Corridor are closely related to the Belt and Road Initiative (NDRC 2015).

Yet despite such a vast geographic scope and the unprecedented scale of investment pledged by Beijing for these projects, estimated at USD $1.25 trillion by 2025 (Shambaugh 2015), the document mentions environmental protection only in passing. Environmental values are briefly acknowledged in the section "Unimpeded trade:"

> We should promote ecological progress in conducting investment and trade, increase cooperation in conserving the eco-environment, protect biodiversity, tackle climate change, and join hands to make the Silk Road an environment-friendly one (NDRC 2015).

There is no mention of EIAs or SEAs. Although it contains a clear description of basic financial, infrastructure, trade, and even cultural policies to be used when dealing with participating countries, the document does not contain any policy guidance on ways to advance "green development," establish environmental safeguards, and ensure sustainability to prevent or mitigate new risks emerging from large infrastructure projects (Simonov 2016).

Among other large regional integration projects in which China acts as a political entrepreneur and leader, the China-Russia-Mongolia mutual integration initiatives are perhaps most consequential for the environment because of their vast geographical scope containing many sensitive ecological areas. In May 2015 Russian and Chinese leaders agreed during a bilateral meeting in Moscow to link each country's regional integration projects, namely China's Silk Road Economic Belt and Russia's Eurasian Economic Union (EEU), instead of competing with each other for influence over the same geopolitical space in Central Asia. The joint declaration, *On Cooperation in Coordinating Development of EEU and the Silk Road Economic Belt*, announced the common goal of coordinating the two projects in order to build a "common economic space" in Eurasia, with EEU members Russia, Kazakhstan, Kyrgyzstan, Belarus, and Armenia, through negotiations on a trade and investment agreement with China. At the same time Moscow pledged to secure access to the USD $40 billion Silk Road Fund for upgrading Russia's infrastructure (Gabuev 2015).

The subsequent meeting between the Chinese, Russian, and Mongolian presidents, held as part of the BRICS-SCO (Shanghai Cooperation Organization) summit on 9 July 2015, in Ufa (Russia), also attempted to harmonize the various regional integration projects. The main tri-lateral policy document of the meeting, *The Roadmap on the Development of Cooperation between Russian Federation, the People's Republic of China and Mongolia for the Medium Term*, reconciled each nation's regional mega-projects in Eurasia, including Mongolia's Steppe Road program (Government of the Russian Federation 2015). *The Roadmap* discusses the creation of a Mongolia-China-Russia railway company and railway infrastructure, the construction of new transnational automobile highways, new airports and logistical transportation hubs, the creation of a new transnational pipeline from Russia to China (via Mongolia), and other major projects with significant environmental risks. The document briefly mentions that the parties "should cooperate on environmental protection."

On 23 June 2016 presidents Putin, Xi, and Elbegdorj signed a trilateral plan, *China-Mongolia-Russia Economic Corridor (CMREC)* to build an economic corridor between China, Mongolia, and Russia to facilitate transportation links and economic cooperation among the countries (Xinhua 2016). As stated in the plan, China, Mongolia, and Russia would strengthen cooperation in areas of transportation infrastructure connectivity, ports, and border checkpoint construction, industrial capacity, while also improving mutual investment, trade, and the economy. The main rationale of the plan is to "align China's Silk Road Economic Belt initiative, Russia's development strategies, especially its transcontinental rail plan, and

Mongolia's Steppe Road program" (2016). Connection with Russia by rail and road through Kazakhstan, and further with Europe, is also envisioned.

The environmental risks of such linear infrastructure projects are common and widely acknowledged in literature (Laurance, Stouffer, and Laurance 2004; Ree, Smith, and Grilo 2015; and others) and by regional and local environmental NGOs.[10] Building new railroads, highways, power lines, and gas and oil pipelines across ecologically sensitive areas can cause significant environmental damage such as habitat loss, transformation and fragmentation, oil spills, local pollution, proliferation of dust and salt (along highways), and other impacts. The WWF's (2015) study on Chinese investments in Africa emphasizes that infrastructure projects can threaten the integrity of ecosystems if "areas of ecological sensitivity [do not] receive special attention in development planning activities" (2). Linear infrastructure can have major negative impacts on soils, hydrology, and water ecosystems (Iwata 2003).

To illustrate these risks, the proposed transportation corridors from Jilin and Heilongjian linking them with Russia's eastern seaports in Primorsky province (corridor "Primorye-1" and corridor "Primorye-2"), connecting them with the Trans-Siberian railway as the major Asia-Europe transportation corridor, were mapped over ecologically sensitive areas including the critical habitats of the Amur tiger and Far Eastern leopards (both endangered species). The construction of these corridors, primarily funded by Chinese companies and banks, is welcomed by the Russian Ministry of the Economic Development of the Far East (Minvostokrazvitie 2016), but opposed by regional environmentalists and scientists (*Kommersant* 2016b), whose voices, however, are completely dwarfed by the public discourse surrounding much-needed foreign investments in Russia's depressed eastern region.

Another newly proposed transportation corridor for the Silk Road Economic Belt, Louguhe (洛古河)-Pokrovka, which envisions a new bridge across the Amur River in Heilongjian province, would dissect two nature reserves and open for exploitation unique old-growth forests. The lack of coherent and transparent planning mechanisms for China-Russia transportation corridors, which should identify and map the presence of ecologically sensitive areas, or "no-go" areas,[11] will almost inevitably turn these projects into areas of haphazard development. Biodiversity values and other ecosystem services in "corridor countries" are not yet mapped, and there is currently little or no effort within Silk Road projects to avoid harming those values.

As it currently stands, none of the policy documents accompanying China's Silk Road infrastructure development projects include strategic EIAs – perhaps the most important risk mitigation tool for large infrastructure development projects (Grimsditch 2012), requiring the participation of civil society in project pre-planning and monitoring. The absence of EIAs in Chinese overseas investment projects had been previously acknowledged in many regional case studies (Sautman and Yan 2009; Van Dijk 2009; Mol 2011).

In 2016 the USD $1 billion Chinese loan for building a hydropower plant on the Eg River in Mongolia was suspended at the Kremlin's request due to high environmental risks for the freshwater ecosystem of Lake Baikal located downstream (Bloomberg Report 2016b). The lack of strategic EIAs in the initial project development plan is to blame for halting this project (Vzglyad Delovaya Gazeta 2016), although some point to political maneuvering among the three countries rather than genuine consideration for environmental risks (Bloomberg Report 2016b).

Relocating polluting industries from China along the Silk Road

The Chinese Government is now explicitly supporting Chinese companies to move excess capacity abroad, with the countries of the Silk Road identified as being most suited for such a relocation, as the construction of transport and energy infrastructure is said "to create an important foundation for the transfer of low-value added labor-intensive industries from China" (Lu 2016). However, there is growing concern among regional and international environmental non-governmental organizations that in so doing China is going to green its own industries by relocating polluting productions or unsustainable resource extracting practices to less developed countries (Lang and Chan 2006; Munson and Ronghui 2012; Caceres and Ear 2013).

As an example, Tajikistan fits the bill as the poorest of the former Soviet states. De-industrialized after the Soviet collapse, its economy relies on remittances from Russia (responsible for 50% of its GDP). As previously mentioned, the cement industry would be the first candidate for relocation from China along the Silk Road due to its poor environmental record and overproduction. In 2011 China's, Huaxin Cement company signed an agreement with Tajikistan to build a 1.2 million ton per annum (mta) cement plant near the capital, Dushanbe. In March 2016 a second 1.2 mta Huaxin plant opened in northern Tajikistan. In addition, a 2015 joint venture between a private Zhejiang producer and Tajik Cement, opened a 60 mta cement production facility, with the potential to expand to 1.5 million tons per annum. Since 2010 the production of cement in Tajikistan has increased fivefold, whereas environmental regulations have remained weak and governance lacking in transparence, thus making it very difficult to monitor their adherence to environmental standards (Van der Kley 2016). It is likely that the increased volume of cement will be required for the construction of the giant Rogun Dam on the Vakhsh River, officially launched by Tajik leader Emomali Rakhmon at the end of October 2016, despite fierce opposition from neighboring Uzbekistan (*The Diplomat* 2016).

Further, in the early spring of 2016, the Chinese Government proposed to Russia's Ministry of the Development of the Far East to relocate some of its production facilities to the Russian Far East, provoking criticism among local populations. The environmental costs would outweigh the benefits given that the industries selected for relocation included "environmentally dirty" metallurgy, cement production, and chemical plants that are particularly damaging for biodiversity rich

ecoregions defined by pristine freshwater ecosystems and intact forest landscapes (Fedichkina and Shvarts 2016).

In particular, the combination of China exporting its heavy industries and the poor environmental record of former Soviet Republics (including Russia), creates additional risks for northern Eurasian ecosystems bordering with China: the Amur River Basin, the Altai Mountains, Transbaikalia, and Central Asia. Even the Arctic, valued by China for developing the Northern Sea Route as an alternative to the busy Suez Canal route, is exposed to these new risks.

Discussion and conclusion

If China's partners do not wish to become the pollution "dumping ground" for China's ecological civilization, they need to push for the adoption of meaningful social and environmental standards in the early stages of infrastructure development planning. At a minimum, these standards should not be lower than those currently adopted domestically by the Government of China, otherwise the environmental and social externalities associated with China's economic development will simply be shifted to its outbound development partners. Most importantly, the Silk Road Economic Belt projects should be subject to strategic EIAs – arguably the most crucial safeguard to mitigate environmental risks – which will routinely monitor and assess these projects, from their inception, to planning, and finally to their implementation. Such assessments should include extensive stakeholder consultations, especially with communities and groups potentially affected by these development projects.

Besides national governments, investment banks can play an important role in introducing environmental standards, especially in countries with weak regulatory climates. For example, the World Bank requires projects to adhere to its environmental assessment policy, "to improve decision-making, to ensure that project options under consideration are sound and sustainable, and that potentially affected people have been properly consulted" (World Bank 2013).

Given that the AIIB will provide a large share of financing China's new ambitious overseas projects, with an initial USD $50 billion in capital it can play a key role in pushing for effective environmental standards among all parties applying for these funds. The presence of several EU countries among the AIIB's founding members increases the likelihood that the AIIB will be more sensitive to such environmental requests than the BRICS's New Development Bank, its financial counterpart in funding Silk Road projects. Some of the AIIB's founding members, such as Germany (4.57% of shares), Australia (3.76%), France (3.44%), and the UK (3.11%), are expected to push for high levels of social and environmental standards and practices on a par with those adopted earlier under the Bretton Woods system: the World Bank/IFC Group, Asian Development Bank, and the European Bank for Reconstruction and Development.

Indeed, some steps for creating environmental standards under the AIIB's umbrella have already been taken. The first AIIB draft of the Environmental and Social Framework was leaked in September 2015 to several regional NGOs in Asia for their feedback and resembled its counterpart, the World Bank Safeguard Policies draft. But unlike the World Bank's four-year stakeholder consultation process (completed in 2016), the AIIB's timeframe for stakeholder consultations (completed in late 2015) was unusually short, just one month in length, and the avenues available for stakeholders' input was limited to videoconference calls conducted only in the English language. By comparison, the World Bank procedure of reviewing and updating its environmental and social safeguard policies had three distinct review phases, running from 2012 to 2016, with a special consultations website: consultations in national languages with stakeholders in 54 borrower countries, 8 dedicated Indigenous Peoples consultations, and 5 topical expert consultations (labor, biodiversity, non-discrimination, GLBTQ/the ASEAN SOGIE, and cultural heritage).

There is also an important role to play by multilateral environmental agreements to promote and mandate the adoption of SEAs in projects involving more than one country. The 1997 Espoo Convention on EIA in a Trans-boundary Context appears most relevant.[12] The Convention mandates that the parties to the Convention should notify and consult with one another when planning any projects that could have a significant environmental impact beyond their national borders. In 2003 the Convention adopted the Protocol on SEA (which came into force on 11 July 2010), mandating that the parties integrate environmental assessments into their programs in the early planning stages. Previously known as a European convention under the UN Economic Commission for Europe (UNECE), the Espoo Convention and its Protocol on SEA are open for accession to countries outside of Europe. Notably, some non-EU member Silk Road countries – Kazakhstan, Kyrgyzstan, Ukraine, Belarus, Moldova, Armenia, and Azerbaijan – joined the Convention. The Russian Federation, as the successor of the Soviet Union, signed the Convention in 1991 but has not yet ratified it.[13]

Thinking through recent domestic and international initiatives introduced by the Government of China in light of ecological modernization theories and insights, this paper has provided evidence of China adopting policy instruments and commitments that are reminiscent of the ecological modernization of the industrialized West. Yet the differences are also very striking, and can, in fact, derail China's green shift. With the political culture of routinely breaking environmental laws, including by local authorities, the road to implementing this new ambitious agenda is challenging. Among the core differences with the West's ecological modernization remains China's lack of transparency in the way environmental data is handled and very limited oversight by civil society.

Moreover, viewing China's domestic ecological modernization in isolation from China's regional and global "going out" strategy, including the Silk Road Economic Belt, leaves out crucial elements of this process. In fact, China's green shift may be

achieved partly through the export of polluting industries and the degradation of natural resources in countries which find themselves at the lower, and therefore more vulnerable, positions of the global production chain. Thus environmental damage and pollution may be simply exported rather than genuinely reduced – a criticism which can potentially apply to any country undergoing a "green shift."

Among other risks posed by the Silk Road Economic Belt is the lack of meaningful social safeguards to protect local populations from the adverse impacts of the proposed mega-projects; a "race to the bottom" in terms of local and national environmental standards (under the banner of reducing unnecessary "red tape" or creating "an attractive investment climate"); poor communication between the planners of the integration policies and various stakeholders of the Silk Road Economic Belt members; and a lack of public consultation common for major investment projects.

On a more positive note, the new regional integration model proposed by China may also present some opportunities; for example, innovative policy tools and more advanced environmental safeguards as compared to those employed by the international environmental frameworks and national governments of the 1970s and 1980s in the West, as the precursor to the 1987 Brundtland WCED. The access to green technology and green finance mechanisms currently promoted by the Government of China is also an asset.

However, the window of opportunity to establish meaningful environmental governance for Silk Road Economic Belt projects is currently limited to the initial phase of strategizing, planning, and major project approval, the most susceptible stage for "greening" these projects. It is likely that by 2020, the Silk Road Economic Belt strategy will be finalized and the rules of the game established, with very long-term repercussions for the entire Eurasian continent, and beyond.

Notes

1. It is also known under the name of the "Belt and the Road Initiative" (BRI), "One Belt One Road", or the "New Silk Road."
2. SEA helps avoid cumulative environmental effects and impacts.
3. For most of the pollution indicators, the turning point lies within the range of $3000–$10,000 GDP/per capita. See Dinda (2004, 442).
4. Chaired at the time by former Norwegian Prime Minister Gro Harlem Brundtland, the World Commission on Environment and Development (WCED) produced a report titled "Our Common Future" (1987) which laid out the foundation for the new global policy paradigm on sustainable development. The report offered, for the first time, the core three pillars of sustainable development – social fairness, environmental protection, and economic development – which have shaped the agenda of numerous multilateral agreements, national policies, corporate standards, and civil society initiatives.
5. The ISO 14001 standard developed by the International Organization for Standardization offers a general framework for handling environmental issues within a company. As voluntarily certification scheme on managerial principles, it does not regulate the environmental activities of organizations.

6. In 2013, the environmental groups Green Watershed and Green Kunming publicized their investigation of the site for a PX project in Kunming province, arguing that it will have a detrimental impact on air quality. The online debate resulted in two large demonstrations, which, in turn, prompted authorities to halt the project. These NGOs were designated by government to participate in EIAs and monitor petrochemical projects. See Steinhardt and Wu (2016).
7. These changes, made for the first time in 25 years, include a new performance assessment system; whereas public disclosure of pollution data became mandatory after 2005.
8. Xi Jinping announced that China will set up the South-South cooperation assistance fund with an initial contribution of USD $2 billion to support other developing countries to implement their post-2015 development agenda.
9. Deputy head of Vneshtorgbank (VTB), Yury Soloviev, interview in Vesti Finance, 16 June 2016. http://www.vestifinance.ru/articles/58732.
10. See, for example, Rivers Without Boundaries, http://www.transrivers.org/, or BROK http://ngo-broc.org/archives/category/english.
11. "No-go" areas is a planning tool proposed by several international environmental NGOs, such as WWF and Conservation International, for planning new mining operations in ecologically valuable forests (Dudley and Stolton 2002).
12. Convention of UN Economic Commission for Europe; entered into force in 1997. It was complemented by the Kyiv Protocol on SEAwhich entered into force in 2003.) http://www.unece.org/env/eia/welcome.html.
13. Russia signed but did not ratify the Convention.

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