1. Green silk: China’s governance gamble

INTRODUCTION: A GOVERNANCE APPROACH TO BELT AND ROAD

The People’s Republic of China (PRC), in little over a decade, has evolved several major initiatives that have the potential to influence global governance and related levels of human, environmental and economic sustainability. The first of these is the idea, formally taken up since 2007 and increasingly embedded in PRC’s Five-Year Plans, of guiding the Chinese economy towards a sustainable and socialist ‘Eco-Civilization’ that aims to bring human developmental and environmental needs into harmony. The second is the acceleration of the Belt and Road Initiative (BRI) (yidai yilu) from 2013, which has expanded beyond its Silk Road origins to include much of Eurasia and parts of the Middle East, Africa, the Indo-Pacific and beyond to the Arctic region. China has promised funding of $1.25 trillion into the project by 2025, with $575 billion already being invested into BRI corridors outside of China by 2019, while total investment in the long term from diverse sources may reach $8 trillion (World Bank 2019b; Tracy et al. 2017; Dellios 2018). Belt and Road projects, meetings and funding had, by 2018, engaged more than 100 states and international organizations at diverse levels (Summers 2018). The BRI agenda has extended to the point where it is now appropriate to speak of the Belt and Road Initiatives rather than a single framework for development. The third major trend is the PRC’s increasing engagement with multilateral governance, whether by cooperation with existing organizations or by creating new fora for managing change. Many of these fora and agendas overlap BRI corridors, whether geographically, such as China’s key role in the Shanghai Cooperation Organization (SCO), or in terms of functional engagement, as exemplified by the PRC’s effort to ensure a correlation between its green investment and the UN’s Climate Change agenda and Sustainable Development Goals (Dong et al. 2018; UNEP 2016 & 2019a).

Since 2013 an increasing volume of material concerning the Belt and Road Initiative, whether labelled as the BRI, One Belt One Road, or China’s New Silk Roads, has been written from diverse and often partisan perspectives.
These include assessments of its economic impact on the global economy; its role as a multi-regional megaproject shaping Eurasia, the Asia-Pacific and nearby regions; as a transformative geopolitical agenda creating new security challenges; or as a de facto Chinese ‘Grand Strategy’ (see for example Rolland 2020; Ito 2019; Zhou & Esteban 2018; Goh & Reilley 2018; Ghiasy & Zhou 2017; Stanzel et al. 2017; Miller 2017b; Ehteshami & Horesh 2017; Clarke 2017). Much of this material, however, falls under three rubrics: general accounts that provide descriptions of BRI projects and corridors, focus studies looking at particular problems or issues associated with the BRI and its funding, or political assessments linked to China as a major protagonist in regional and global affairs (Hafeez et al. 2018; Hurley et al. 2018; Teknal 2018). There are studies which look at the BRI through the English School of International Relations and patterns of institutional adaptation (Dian & Menegazzi 2018); treat it as a form of offensive or defensive realism (Kaplan 2016; Wang 2016); assess its environmental challenges and whether it can become a ‘green development platform’ (Liu 2018a; Rao & Baruah 2018; Tracy et al. 2017; Chen et al. 2016); outline its influence on specific countries, bilateral relationships, and policy areas (Mayer 2018; Keough et al. 2017); or see it as an emerging geopolitical driver in world affairs (Rolland 2020; Rolland 2017; Zhou & Esteban 2018).

Several important issues have not been adequately covered in existing works. The systemic differences among the BRI’s diverse economic corridors need more analysis, showing the relative gains of the involved parties and the limits to China’s capability to manage outcomes in different vectors. Furthermore, beyond the core land corridors and the Maritime Silk Road, new extensions have been added to the Initiative, including trans-African networks; new maritime routes, including the Polar Silk Road (‘Ice-Road’) and the Pacific Loop (the China–Oceania–South Pacific passage); plus prospects for extra funding into Latin America and the Caribbean. China’s relative power and influence in these extended areas, however, is limited and challenged by other major states, suggesting a need to critically assess divergent outcomes as the PRC’s policies evolve (Hong & Johnson 2018; PRC 2018a; Colton 2018; Lanteigne 2018; Dellios 2018; Lanteigne 2012). Further investigation is needed of the linkage across these developmental, environmental and security issues to understand the degree to which the BRI will engage China in new types of transnational collaboration working at bilateral, regional and, increasingly, global levels.

The success of the BRI is hinged on shifts in the PRC’s domestic governance, the implementation of its Eco-Civilizational agenda (linked to socialist transformations and sustainable development), new patterns of knowledge production, and the ability to push forward areas of transparency and participation despite recent trends towards authoritarian centrisim (Economy 2018; Stromseth et al. 2017; Tracy et al. 2017; Qin et al. 2017; Hansen & Liu 2017;
Huan 2016; Pan 2015; PRC 2015a; Oswald 2014). Likewise, the means to assess or ‘benchmark’ the BRI’s environmental and security outcomes will be increasingly important in providing corrective feedback on the governance of these new ‘Silk Roads’. Rather than a new form of win-win ‘globalism’, the BRI could lead to an asymmetric pattern of limited co-governance undermined by existing geopolitical rivalries. This potential failure of shared governance is more important even than the straightforward great power competition that has become increasingly evident between China and the US through 2013–21. The evolution of a more balanced multilateralism, with a partial institutionalization of BRI processes, may be needed to offset these environmental, developmental and security risks (Hurley et al. 2018). To date, these governance issues have been addressed across several criteria (Russel & Berger 2019; Cheng 2018; He 2018a; Wang 2017b), but need further critical analysis to help diverse publics, stakeholders, policy-makers and academics understand the complex issues at play as the Belt and Road transforms development across several continents and two oceans.

Part I of the book addresses the PRC’s efforts to engage in domestic ecological reform and ‘green’ the Belt and Road, thereby improving sustainable development across the BRI’s Eurasian economic corridors, using a form of networked knowledge production that would support this process. Chapter One provides an overview of China’s ‘governance gamble’ as it expands the Belt and Road Initiative along diverse economic corridors where its governance capacities and influence remain limited. A crucial question is whether China’s quest for a twenty-first-century Eco-Civilization will shape its wider environmental cooperation, or whether polluting industries and practices will be externalized onto poorer BRI partners, creating either a pattern of global co-governance or asymmetric exploitation. Chapter Two explores the parallel idea of an eco-civilization in the context of a global anthropogenic transformation, showing how China, since 2007, has been constructing and implementing an ambitious agenda with the linked goals of social justice and ecological sustainability. In the third chapter the potential greening of the BRI is explored, including an assessment of transnational pollution trends and the impact on ecological boundaries, plans for resilient cities, the evolution of governance norms, and the uneven environmental outcomes to date for such projects. The information and ideational base needed for a truly sustainable Belt and Road is explored in Chapter Four, which looks at the evolution of the Silk Road narratives and the institutions shaping its knowledge base. Alongside new digital and satellite technologies, China has to become a credible knowledge-production centre if it is to remain a leader in the global transformations of the twenty-first century. However, the prospect of an emerging Sino-cybersphere based on national security needs may undermine the ability for this to become a truly globalized exchange network.
Chapter Five looks at the Eurasian Land Bridge and the China–Central Asia–West Asia Economic Corridor, which are extensions of the Silk Road Economic Belt (which has been evolving since 2013), now augmented by the more northerly China–Mongolia–Russia Corridor. Both Russia and China see these as enhancing Eurasian geopolitical cooperation and creating localized natural economic territories, but these processes also create particular environmental and political challenges for states such as Kazakhstan and Mongolia. Success in these corridors of the BRI will rest on building strong partnerships with the EU, Russia, Kazakhstan and Mongolia, along with other partners in the wider Central Asia region. However, the impact on such states will need to be carefully calibrated, with the BRI solving existing problems as well as expanding positive transnational flows. Mongolia has areas of ecological vulnerability and pollution risks (including weather-related disasters and climate change vulnerabilities), while Kazakhstan has water resource pressures across the Aral Basin and serious problems with transborder pollution in eastern and northern river systems. Both corridors suffer from ongoing soil damage, desertification and biodiversity losses. The environmental, strategic and cultural interests of these states go beyond existing Russian, Chinese and BRI frameworks, suggesting alternative paths of middle power and small-state activism.

Part II addresses the security nexus engaged by the BRI as a whole, but particularly across the maritime links of the wider Indo–Pacific region. Contestation across this zone, involving both traditional and non-traditional security areas, has made it very hard for China to present itself as a net security provider, both along the BRI corridors and globally. Chapter Six assesses the expansion of China’s Maritime Silk Road into an extended network of economic and security interests that stretches across the Indo-Pacific and has galvanized reactive ASEAN (Association of Southeast Asian Nations), Indian, US, Japanese and Australian foreign policies. Several of these maritime corridors have suffered extensive pollution, high pressure on maritime resources (in the South China Sea and across the Coral Triangle), and a range of non-traditional security problems, including piracy, refugee flows, overfishing and the dumping of toxic waste in oceanic waters. The BRI offers numerous opportunities for Asian, Indian Ocean and Pacific Island states, but needs to further factor in the regional threat perceptions and deepened cooperation with regional organizations and communities such as ASEAN and the Indian Ocean Rim Association (IORA). In spite of a history of Chinese cooperation on non-traditional security threats, such as humanitarian disaster relief, drug flows and transnational terrorism, this has not translated into a wider pattern of transparent military cooperation. Rather than a focus on cooperation, the BRI seems to be intensifying existing geopolitical rivalries in the South China Sea and the Indian Ocean, with the US, Australia, Vietnam and India particularly opposed to China’s expanded military presence.
Chapter Seven addresses whether China can be seen as an emerging net security provider along these corridors, rather than as a growing security threat. China’s foreign policy formally rests on the principle of non-interference, enshrined in the Five Principles of Peaceful Coexistence and the PRC’s ongoing critique of hegemonic and unauthorized ‘humanitarian interventions’ in international affairs. However, this is tempered by a military policy embracing ‘active defence’, augmented by the ‘new missions’ of the People’s Liberation Army (PLA) in support of China’s wider interests. Combined with the PRC’s growing economic power and political influence, this means that China is deeply engaged with global security issues, ranging across UN operations, humanitarian assistance and disaster relief (HADR) missions, anti-piracy operations, climate change risks and cyber threats. However, the PRC has only gradually increased the pace of its military diplomacy, seeking to present a cooperative face for enhanced PLA power projection capacities along BRI corridors. Heightened tensions in the East and South China Seas, India’s enduring threat perceptions, and concerns over influence in the wider Pacific have not been resolved by the win-win rhetoric of the BRI. A shift of focus may be possible if PRC security operations align more closely with the non-traditional security needs of the Belt and Road Initiative, protecting shared sea-lanes, maritime resources and environmental needs. Continuing tensions with the US and its allies would need to be reduced before China can evolve into a net security provider rather than a ‘security problem’ at the regional and global levels.

Part III explores China’s emerging vision of global order that has been challenged both by failures to positively engage several important states and their alliances, but also by problems in implementing and extending co-governance approaches to the BRI as a whole. Chapter Eight addresses the issue of whether China’s overlapping governance frameworks (including the BRI, SCO, BRICS and RCEP) are enough to constitute a new form of globalism. Here the ability to manage strong opposition from the US and India will be crucial, as will sustained bargaining for a more permissive approach by the EU and Japan. To succeed in this, however, the PRC will need to create a more sophisticated vision of a future global system than currently predominates in Chinese government or academic circles. So far, the ‘harmonious world’, the inclusive ‘all-under-heaven’ (tianxia), and the ‘community of common

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1 SCO is the Shanghai Cooperation Organization, BRICS represents the Brazil, Russia, China, South Africa group, and RCEP is the Regional Comprehensive Economic Partnership, which embraces ASEAN states and those countries which have free trade agreements with ASEAN (namely, Australia, China, India, Japan, the Republic of Korea and New Zealand). A list of acronyms and abbreviations can be found at the start of the book.
destiny’ concepts and models of co-governance (gongtong zhili), and even the ‘Health Silk Road’ agenda, have not been sufficiently reassuring to allow robust partnerships with India, Japan and the EU, nor to gain the acceptance, let alone the trust, of the US. Overall, critical issues such as Chinese repression in Xinjiang and Hong Kong; poor early handling of the COVID-19 outbreak; ongoing tensions in the South and East China Seas; and rising cooperation among the US, Australia, Japan and India via trilateral and quadrilateral security dialogues have set limits on how far China has room to gain acceptance as a shaper of Indo-Pacific and global affairs. Here, China and the BRI will need to present a ‘credible learning curve’ to improve the PRC’s declining soft power, with ecological and developmental sustainability the easiest areas to achieve improvement given China’s current ideological frameworks.

Chapter Nine outlines one of the key paradoxes of China’s ‘going out’ via the BRI. China, since the 1990s, has increased its multilateral cooperation internationally, engaging in existing frameworks and seeking to adapt other institutions to their needs, as well as creating new organizations. The BRI is a loose network of diverse agendas now coordinated by central Chinese policy frameworks and funding mechanisms, leading to strong sovereign control and limited multilateralization. This creates patterns of asymmetric interdependence with limited power diffusion, and may result in a revised ‘soft hierarchy’ of multipolar, multilevel actors. Such a development could enhance the soft-balancing capacity and economically based ‘sticky power’ (Mead 2004) of China via the BRI without rigid institutionalization. However, it would still be a form of asymmetric co-governance with PRC institutions as dominant partners. Furthermore, China’s increasing authoritarianism domestically and criticisms over its early handling of the COVID-19 crisis have made it hard to assume leadership on a range of global issues (McClory et al. 2020; for alternative views, see Zhang & Wu 2019). This may well set eventual limits on the BRI as a new phase of alternatively structured globalization, unless new patterns of multilateralization begin to shape Belt and Road corridors into accountable frameworks for shared development.

The Conclusion draws these themes together and asks whether the BRI can be one pillar in an enhanced global governance, allowing China to emerge as a normative power and as part of a stabilizing global network partnership. The PRC has already begun to move in this direction in its support for investment in ‘green’ technologies, for the Paris Climate Change Agreement, and for broadly based sustainable development, as well as in its effort to curtail non-traditional security challenges (PRC 2021 & 2019a; Ferguson 2021; Ferguson & Dellios 2018; Hong 2017). This process needs to be further enhanced by increased multilateralization of investment into the BRI; a further push towards green investment compatible with the global Sustainable Development Goals (as emphasized within PRC policy circles, PRC 2021); reform of BRI project
transparency and implementation (as suggested by several major studies, see Russel & Berger 2019; Rolland 2020); complementary but separate development funding by other states into global ‘soft infrastructure’ (Sachs et al. 2020); plus increased systematic information on the successes, failures and evolution of BRI corridors. However, systemic threat perceptions of the BRI and PRC foreign policy activism see rising Chinese influence as excluding US leadership and Western liberal and democratic values. Unless serious revisions are made in the wider Silk Road agenda, a contested BRI could lead to an asymmetric configuration of limited co-governance which exacerbates existing geopolitical rivalries. The potential failure of shared global governance in the medium term could expand the great power competition of the early twenty-first century into a new ‘long-century’ of global disorder. Under such conditions, the shared challenges of climate change, environmental stewardship, equitable sustainable development and health crises will be increasingly hard to meet. Indeed, a revised, partly multilateralized and genuinely Green BRI (GBRI) would help avert these risks. Only then can the BRI become one effective pillar of a global governance that meets human needs within the parameters of ecological sustainability.

Regardless of China’s emerging capacities as a ‘pole of power’ in the international system, it is only by enhanced patterns of cooperation that it can become a net global provider of comprehensive security and sustainable development. The evolution of ideas and norms associated with the BRI, and related patterns of implementation and institutionalization, will determine its success or failure as source of order and growth. This chapter will further explore these capacities and their limitations by exploring the current pattern of infrastructure development along the diverse corridors of the BRI, which have differential benefits for Chinese global influence. One of the biggest challenges is whether the task of building a Chinese Eco-Civilization within the PRC, itself a daunting task, can be expanded into greening the BRI, in effect transforming into a global shift towards sustainable development. At present this is both an incomplete and contested process. In consequence, efforts to shape a new of globalization based on Chinese co-governance approaches suffer from an ongoing asymmetry of power across BRI partnerships, a lack of trust with major powers (including the US, India and, in large measure, Japan), and ongoing failures to transform the BRI into an increasingly Green BRI (see further below).

The following four sections in this chapter explore the key areas of focus in this book, namely, the limits of construction on the Silk Road, negotiating global co-governance with Chinese characteristics, different corridors and diverse capacities, and the relevance of the evolution of China’s Eco-Civilization to the greening of the Silk Roads.
THE LIMITS OF CONSTRUCTION ON THE SILK ROAD

In ancient times silk was a rare and valuable commodity. It was traded across thousands of miles, transported both by land and sea, and was worn by Roman and Chinese emperors alike. For Chinese imperial officials, the quality of the silk robes they wore and the emblems on their chest panels indicated their rank within the government bureaucracy or the army, a trend which had become highly formalized by the Qing Dynasty. Green, traditionally interpreted as various shades of green and blue, was associated with growth, plants, spring and tranquillity, symbolically linked to the east, the element of wood, and to the murals and porcelain of the Song Dynasty (Welch 2013; Nilsson 2017). In the twenty-first century, the Silk Roads have become a metaphor for expanding connectivity, trade and wealth, with the Silk Road through Central Asia formalized as the Silk Road Economic Belt and the sea route as the Maritime Silk Road. In 2013, Xi Jinping, in major speeches in Kazakhstan and Indonesia, joined these two vectors of Chinese influence, rebranding them as the One Belt One Road (OBOR) agenda, otherwise translated as the Belt and Road Initiative (BRI). The BRI has been seen as a driving force in Eurasia’s economic transition and even as a de facto global grand strategy for China in the twenty-first century (Zhou & Esteban 2018; Clarke 2017; Stanzel et al. 2017; Ferguson & Dellios 2017). The primary goals of the BRI were laid out in the PRC’s primary vision document, authorized by the National Development and Reform Commission (NDRC), the Ministry of Foreign Affairs and the Ministry of Commerce, as promoting ‘policy coordination, facilities connectivity, unimpeded trade, financial integration and people-to-people bonds’ (NDRC 2015, see further Soni 2018). What remains to be seen is whether this can become a Green BRI (GBRI) based on sustainable development practices and sound environmental policies (see Chapter 3). Likewise, the recent quest to link this to a Health Silk Road and a ‘Community of Common Health’ has yet to gain much traction with Western international audiences (Mardell 2020; see further Chapter 8).

Although silk is no longer a major item of trade along the Silk Roads, a host of primary goods, resources and manufactured products flow along its numerous transport and trade corridors, linked by land, sea, air and improved telecommunication hubs. In some scenarios, an efficient BRI could boost global trade by 12%, with a gain of 20–45% for some Eurasian states (Lam 2018). Beyond physical goods, however, other items are ‘traded’. Flows of finance, investment, aid and political influence have come down these roads, leading to major debates about the relative gains experienced by China and its partners. Alternative initiatives have been suggested or developed by Russia, India, Germany, Australia and the US, some seeking to link up with Chinese
projects, others in direct competition with and countering PRC influence (Wu 2018). Ideas, languages and religions have also spread along these routes, with the historical Silk Roads being especially important for the dispersion of Hinduism (by sea into Southeast Asia but also, for a time, into Central Asia), Buddhism (across Northeast Asia via Central Asia), Islam (by land and sea) and, to a lesser degree, Christianity. Today information, propaganda, illicit trade goods, people and transnational challenges flow more readily along the open corridors of the BRI, increasing the need to enhance transborder cooperation and improve regional approaches toward managing non-traditional security threats (Ferguson 2018; NDRC 2015).

In the twenty-first century another important ‘commodity’ being negotiated along the new Silk Road revolves around modes of management and governance, framing the way business is done, infrastructure is financed and built, borders are managed, and bilateral and regional relations are formatted. China has shaped the norms and processes that structure the BRI and its main funding organizations, including the China Development Bank, the Asian Infrastructure Investment Bank, the Silk Road Fund, the SCO Development Bank and the SCO Development Fund. Major fora, such as the Belt and Road Forum for International Cooperation, the Boao Forum and SCO Summits, also provide avenues for Chinese influence. Bilaterally, the PRC has also maintained its cooperative diplomacy, even with small states as diverse as Cambodia, Tajikistan, Greece and Fiji (Szadziewski 2021). More widely, ‘connectivity projects help put China at the centre of a thickening web of linkages, bolstering Beijing’s capacity to set the standards by which trans-border networks operate’ ranging from finance structures to railway gages and electricity-line standards (Goh & Reilly 2018).

The BRI has gained increasing traction and definition within China’s policy frameworks since the National Development and Reform Commission paper of 2015, with the BRI now embedded in its foreign policy and security papers, and even entrenched in the revised Party Constitution from 2017 on, with a pledge to pursue President Xi’s signature project (NDRC 2015; PRC 2021; PRC 2017a; PRC 2017b; Goh & Ruwitch 2017; Xinhua 2017a). Beyond its presidential endorsement, Wang Huning and Wang Yang, members of the BRI Leading Small Group, have five-year positions on the Politburo Standing Committee, indicating continued political support for this megaproject (Goh & Reilly 2018). Indeed, the BRI has become embedded across many areas of Chinese government and has now become the focus of a ‘knowledge production’ industry designed to promote and implement related policies (see Chapter 4). The BRI is seen as especially important due to its ‘connectivity power’, and to ‘the influence a central government accrues through infrastructure projects that connect its domestic periphery and neighbouring states to the central core economy’ (Goh & Reilly 2018). This goes beyond earlier periphery policies
and toward an inter-regionalism that positions China at the centre of a transformative economic and development agenda with global reach, if not with global acceptance.

A degree of caution, however, is advised as to how far these general metaphors of roads, belts, hubs and connectivity can act as substitutes for coherent systems, either in terms of policy frameworks or the functional foundations of regional economies. In recent history, several countries within Eurasia have sought to position themselves as bridges or key drivers of twenty-first-century connectivity: Turkey sought to be the transitional bridge across Europe, the Middle East and Central Asia; Ukraine positioned itself as a bridge between West and Eastern Europe (an unsuccessful proposal put forward from 2010); Afghanistan proposed itself as the ‘Heart of Asia’, linking east and west, north and south; and Kazakhstan has claimed its position as a modernizing economy at the centre of the Silk Road, trying to balance its multi-vector foreign relationships (Sullivan 2018; Kassenova 2017; Yamin 2013; Yanukovich 2010).

Today, few of the proposals seem convincing, undermined by changing conditions and the disruptive crises in Ukraine and Syria. Only Kazakhstan’s engagement with the Eurasian Economic Union (EEU) and the BRI has partly sustained its geopolitical Eurasianism, though serious challenges remain in diversifying its economy, modernizing its system of governance and engaging in democratic reforms (Bohr et al. 2019; Sullivan 2018; Kassenova 2017). Likewise, the Conference on Interaction and Confidence Building Measures in Asia (which places Afghanistan in the ‘Heart of Asia’ dialogue process) has a limited ability to solve Afghanistan’s security or developmental problems, in spite of strong diplomatic support from China (Tiezzi 2014; Mostafa 2013). When turning to the BRI, closer scrutiny is needed of its interacting components rather than just the scope of its ambitions. A set of diverse projects and networks that are rapidly evolving become evident in this light, but still need considerable input, financially, intellectually and operationally, before their successful completion (see Chapters 5 and 6).

In particular, the ‘green’ environmental policies, related ecological cooperation plans and ‘blue ocean’ agendas attached to BRI planning remain largely declarative and have seen limited implementation to date (Tracy et al. 2017; PRC 2017a; PRC 2017c). It was hoped that these policy additions would ensure sustainable development along BRI corridors, as well as make these projects acceptable to Western partners and co-funding institutions, such as the Asian Development Bank, the World Bank, the Asian Infrastructure Investment Bank, the European Bank for Reconstruction and Development, the European Investment Bank, and the Inter-American Development Bank (PRC 2021). Largely aligned with the 2030 Sustainable Development Goals (SDGs), it is possible to gain a sense of the rather provisional and exploratory
nature of these agendas in the development goals outlined in *The Belt and Road Ecological and Environmental Cooperation Plan*:

To 2025, we will integrate the concepts of ecological civilization and green development into Belt and Road Initiative and create a favorable pattern of well-grounded cooperation on eco-environmental protection. Focusing on six economic corridors, we will beef up cooperation platforms and personnel exchanges; formulate and implement a series of support policies and strengthen information support; foster a cluster of high-quality green brands in railway, electric power and other key areas; apply a set of green financial instruments into investment and trade projects and lead capital flow to socio-environmentally friendly industries; and establish a group of international platforms for environmental business cooperation, including industrial cooperation demonstration bases, environmental technology exchange and transfer bases, technical demonstration and promotion bases, and science and technology parks. (PRC 2017c, Section II.iii)

In spite of the environmental frameworks added to the BRI and the Asian Infrastructure Investment Bank (AIIB), and efforts to coordinate their policies with both the SDGs and climate change agendas, considerable criticism has been made of poor or rushed environmental governance for past and prospective projects driven by Chinese interests (AIIB 2016; Chen et al. 2016; see further Chapter 3). This has included sustained criticism of dam projects that change river flows downstream into Southeast and South Asia, and fears of increased environmental impacts due to economic stimuli and growing energy needs unless balanced by eco-friendly policies and ‘green’ investment (for these interactions, see Rauf et al. 2018; Ascensão et al. 2018). In the worst-case scenario, the ‘greening’ of the Chinese economy might be undermined by shifting polluting industries and manufacturing into other countries along the BRI with poorer environmental protections, a trend historically paralleling the ‘dispersal’ of Western environmental ‘externalities’ (Tracy et al. 2017; Hafeez et al. 2018; Dellios & Ferguson 2017; Dong et al. 2017). There are signs that China is beginning to improve some of these policies, for example, in its cooperation with Kazakhstan over pollution in shared river systems, in the changing patterns of dam construction within China, and in the application of learning derived from controversies and reversals of some projects along its peripheries (Ho 2017; Kiik 2016). However, to date this remains very much an ad hoc process rather than a deep revision of the BRI process as a whole (see further Chapter 3; Hong & Johnson 2018).

Beyond this lies an emerging debate about how far the dialogue-based and largely bilateral contractual structure of BRI agreements can evolve into a pattern of cooperative and effective governance. Such governance would need to embrace environmental sustainability, human development, national resilience and related requirements for comprehensive security across troubled regions and stressed communities. Chinese actors (including government,
party, military, intellectual and business groups) see the BRI as a solution for many of the PRC’s domestic, regional and global challenges, embracing both defensive and expansive orientations (Teknal 2018). However, such sustainable governance is inherently transnational, often embracing more than two states and a host of legal, business and social frameworks. Here, much more than physical infrastructure is required to ensure a shared and prosperous future along BRI pathways. Institutional and ideational capacities across organizations such as the SCO, the AIIB and BRICS have begun to provide some of the necessary management for these expanding economic corridors. Likewise, China has sought increasingly to align some of these projects with the global climate change agenda, the Sustainable Development Goals and health needs (see PRC 2021; Mardell 2020; UNEP 2019a; Ferguson & Dellios 2018; Cao & Gong 2016). However, much more needs to be done to avoid a destabilizing regional and global governance deficit as the full impact of the BRI emerges over the coming decades to mid-century.

DIFFERENT CORRIDORS: DIVERSE CAPACITIES

The original segments of the BRI included the Eurasian Land Bridge, the China–Mongolia–Russia Economic Corridor (CMREC), the China–Central Asia–West Asia Economic Corridor (CCWAEC), the China–Indochina Peninsula Economic Corridor (CICPEC), the China–Pakistan Economic Corridor (CPEC), the Bangladesh–China–India–Myanmar Economic Corridor (BCIM–EC), and the China–India–Nepal Economic Corridor (CNIEC) (NDRC 2015; Zhou & Esteban 2018). Since 2015 Chinese planners have expanded this framework to include European and African networks; potential extensions within India (which, following renewed border conflict in 2020, are unlikely to continue); new maritime routes, including the Polar Silk Road and the Pacific Loop (the China–Oceania–South Pacific passage); plus prospects for Latin America and Caribbean projects to access extended BRI funding (PRC 2018a; PRC 2017a; Ferguson 2018). Due to these expanding networks, diverse informal maps of OBOR and the BRI have been published since 2013, but no single official map exists. These maps include the de facto engagement of ports, railways and new highways linking east and west Africa, as well as enhanced connectivity northward to the Mediterranean (Van Staden 2018; Bennett 2017; HKTDC 2016).

Each of these corridors or roads, however, exhibits unique features, benefits and challenges, in many cases fulfilling different needs for the involved parties. CPEC expands China’s existing links with Pakistan, gains it secondary access to the Indian Ocean, and is strongly driven by Chinese state interests, regulatory practices and investment from the PRC’s state-owned enterprises (SOEs) (Miller 2017a). At the same time, infrastructure investment in CPEC
solidifies Pakistan’s control of territories claimed by India, leading to strong protests from India against perceived Chinese infringements and criticism of the gap in regulative norms within the wider BRI framework (MEA 2017; Nazki 2017; Ferguson 2018). India, though supportive of the general SCO agenda, was unwilling to endorse the BRI as a major driver of regional cooperation, in spite of efforts in the Qingdao Declaration to phrase this in the context of coordinated development and ‘mutually beneficial and equal partnership in the SCO space’ (SCO 2018, Section IV). Likewise, BCIM-EC, though a logical outgrowth of earlier regional dialogues (such as the Kunming Initiative, a Track II informal process2), has struck environmental opposition to its large infrastructure and dam projects, received criticism over the potential exacerbation of non-traditional security concerns, and raised local concerns over relative Chinese dominance in decision making (Miller 2017b; Dellios & Ferguson 2017). Here, though India has become a major partner in the AIIB, it remains in large measure a ‘spoiler’ and a critic of China’s overall BRI agenda. This is problematic, since India, as a rising power in its own right, and as a member of BRICS and the SCO, has considerable influence across inner Asia and the Indo-Pacific, regions which are central to Silk Road frameworks. India’s willingness to engage in proactive dialogue and its own regional investment has become increasingly notable in recent years, especially with Russia, Myanmar, Afghanistan and Mongolia, as well as across the Indian Ocean littoral (see Chapters 5 and 6). Likewise, the potential for India to deepen its alignment with Japan, the US and Australia via the Quadrilateral Security Dialogue remains a distinct possibility under the emerging policies of the Biden administration through early 2021.

The Eurasian Land Bridge and the China–Central Asia–West Asia corridor are logical extensions of China’s earlier Great Western Development project and the Silk Road Economic Belt. They have become part of a security engagement by China with the wider Central Asia region, deepening the complex, ongoing dialogue with the EU, and requiring the careful balancing of Chinese and Russian interests (Li 2016; Ferguson 2018; see further Chapter 5). The China–Mongolia–Russia Economic Corridor (CMREC) is an extension of China’s dominance as a trading partner and investor into the Mongolian economy, based largely on mineral and metallic resource imports, but it also provides a means of balancing mutual relations with Russia. The China–Mongolia–Russia corridor represents a partial accommodation with wider

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2 Track II diplomatic processes are informal diplomatic exchanges that often include a range of non-state actors, academics, business, civil and society groups, along with government officials acting in their personal capacity, seeking to shape or frame an agenda either by backchannel dialogue or low risk conferences (for further context, see Mapendere 2005).
Russian interests, linking up with Putin’s pivot to the Far East, crucial economically as sanctions and tensions with the West continue. Efforts at coordinated development among these three nations were outlined in the *Roadmap on the Development of Cooperation between the Russian Federation, the People’s Republic of China and Mongolia for the Medium Term*, coordinating this with Mongolia’s Steppe Road programme, thereafter evolving into the China–Mongolia–Russia Economic Corridor plan (Tracy et al. 2017). President Putin, in particular, sees this corridor as one mechanism to harmonize the relationship between the EEU and BRI projects, which might emerge as a Continental Economic Partnership, an idea evolving from discussions held at the July 2015 SCO Summit and reiterated mid-2018 (SCO 2018, Section IV; Lo 2017a; Grieger 2016). Both Russian and Chinese initiatives open up the future likelihood of improved rail, road, air, pipeline and logistic hubs across Mongolia and Northeast Asia, though concerns have been raised about the impact on fragile steppe ecosystems and freshwater resources (Zhang & Zhang 2017; Tracy et al. 2017).

For Mongolia, however, the embrace of China and Russia remains a strategic dilemma, with the country retaining the doctrine of ‘permanent neutrality’ while actively seeking to develop wider relations via its ‘Third Neighbour’ policy, drawing in partners as diverse as South Korea, Japan, India, Canada, Australia, Hungary, Iran, Brazil and the US (Li 2017a; Qin 2017a; Lkhaajav 2016). If anything, enhancing BRI investment along this corridor will deepen Chinese and Russian economic dominance (China receives up to 85% of Mongolia’s exports, while Russia is Mongolia’s second largest trade partner and major source of energy imports) and may intensify domestic tensions within Mongolia. This has been a major factor in the country’s willingness to accept financial and security engagement with India, including a $1 billion credit line announced in 2016 (Hiscox 2018; Tseten 2016; Stobdan 2016). Likewise, Mongolia has been cautious of too direct an engagement with the SCO, where it remains an observer rather than a full member. As part of its multi-partner policy, it has sought limited security cooperation with India and NATO, the last via the Individual Partnership and Cooperation Programme (Bayarbat 2017).

Likewise, the China–Indochina Peninsula corridor and its related Maritime Silk Road (MSR) connections began as a rationalization of China’s existing economic engagement with ASEAN and parts of South Asia. However, these projects also intensify a series of complex security challenges not easily eliminated by flows of trade and investment. The perceived securitization of China’s BRI interests by the construction of facilities in the South China Sea, the increased penetration of PRC interests and the PLA Navy (PLA-N) into the Indian Ocean and the Pacific, and the central role of energy security along the MSR have led to strong counter-reactions from the US and India, and, to
a lesser degree, Japan, Australia, France and ASEAN. As a result, Chinese initiatives have to cope not only with enhanced non-traditional security challenges, but with more traditional forms of military competition, increased risk, and alliance counter-balancing.

This can be seen in the 2018–21 Indo-Pacific naval and military operations of the US, Japan, Australia, India, the UK and Vietnam, even though individual freedom of navigation operations (FONOPs) have not been transformed into a cohesive alliance of containment against Chinese power projection into the South China Sea. However, the rhetoric of a ‘Free and Open Indo-Pacific’ has gained considerable leverage in Japanese, US, Indian and Australian foreign and defence policies as a counter-strategy to the BRI and Chinese influence, though treated in a more cautious fashion by ASEAN (Rossiter 2018; ASEAN 2019; Le Thu 2019). In turn, in April 2018 China conducted the largest naval exercise it had ever run in the South China Sea, involving 48 naval vessels, 76 fighter aircraft and some 10 000 personnel, indicating its ability to project power into nearby waters (Greene 2018). After increasing tensions through October 2018, the US conducted major maritime exercises off the Philippines in November, including operations by two aircraft carriers (Mahtani 2018).

Thereafter, Australia’s Indo-Pacific Endeavour 2019 naval task force made visits across the Indo-Pacific, and the extensive multinational Talisman Sabre war games of July 2019 (involving 34 000 troops) indicated the ability of US allies to project power across the region. In parallel, the renewal of the Quadrilateral Security Dialogue (Quad 2.0) through 2019–21 has been driven by a renewed ‘balance of threat’ that could become the foundation for a quasi-naval alliance directed against Beijing’s interests (Kliem 2020). Taken as a whole, however, the MSR and its Pacific Ocean extensions represent a heady mix of economic opportunity and security rebalancing that has yet to be normalized (see further Chapter 6).

The gains, opportunities and interests for China vary across these different corridors. Chinese power (whether military, economic or in terms of influence) also varies across these diverse pathways, depending on regional frameworks and the mix of partnerships and opponents at the national level. The PRC’s military and economic power has continued to rise. This is partly due to the BRI itself, but in the Asia Power Index, as estimated by the Lowy Institute, China’s power still remained second to the US regionally in 2018 and 2019, with serious gaps in its recent military combat experience, alliance networks and energy trade dependencies (Lowy Institute 2018 & 2019; Lemahieu 2019; McClory et al. 2019). Through 2020 China emerged as a global superpower, with a relatively fast recovery from the pandemic though somewhat diminished diplomatic influence within Asia, and will only close its comprehensive power gap with the US by around 2030 (Lemahieu & Leng 2020). Furthermore, Chinese power cannot be equally mobilized into all regions
and along all corridors. The SCO, for example, represents a region where the PRC’s diplomatic presence is strong, while its influence on ASEAN is partly offset by both the US ‘rebalance’ (which persists as policy even if no longer in name) and enduring threat perceptions of Chinese military dominance. China’s ability to engage in the BRI’s more extended initiatives is especially problematic. This can be seen in the roads and passages recently added to BRI, especially the Polar Silk Road and the Pacific Loop, and in proposals to bring Latin American engagement under BRI frameworks. In these added areas the PRC’s influence has been contested, and its governance capacity on major security, economic and environmental issues remains rather limited.

In the case of the Pacific Islands, a growing Chinese economic presence has been viewed cautiously by Australia, the US and France, while Japan has established its own track of economic, aid and environmental engagement (Colton 2018; Lanteigne 2012, 2018; Haywood-Jones 2015). Fiji, in particular, has adopted a ‘look north’ policy towards China, partly to pressure positive re-engagement by Australia, New Zealand and the US from 2012 onwards (Wallis 2013). The West and North Pacific does overlap China’s perimeter of defensive engagement as the ‘second island chain’, but the South Pacific is of less direct strategic interest (Sen 2015). To date, the PRC has only provided small amounts of indirect military aid to Fiji, Papua New Guinea (PNG) and Tonga, but does have economic interests in upgrading port facilities. In the South Pacific, China’s increasing soft power engagement and ‘soft balancing’ has lifted its diplomatic and economic profile, with Australia and New Zealand considering how best to engage the islands in a cooperative fashion while maintaining a security presence (Colton 2018; Hameiri 2015; Rolfe 2015; Haywood-Jones 2013; Lanteigne 2012).

Tensions rose again in early 2018, with Australia warning against the building of military bases in the South Pacific, in part over-reacting to Chinese funding of a major wharf upgrade in Vanuatu and fears of ongoing port visits by PLA-N vessels (Wroe 2018a). Both Chinese and Vanuatu officials denied any plans for a naval base on the island, noting that the next scheduled PLA-N visit to the island was a hospital ship (McGarry 2018; Reuters 2018). Tensions continued over the level of China’s influence in the Pacific, thereafter more focused on debt and sovereignty issues. Such fears were raised again in mid-2018 by Australia’s Foreign Minister but were bluntly rejected by the Chinese Ambassador, Cheng Jingye (Wroe 2018b). The debt levels of some of the smaller Pacific states also suggest the need for careful management; for example, Tonga, Samoa and Vanuatu have exhibited potentially unsustainable borrowing from China, a trend already noted in some existing BRI countries (Uren 2018; Moak 2018; Hurley et al. 2018; Hayward-Jones 2013). However, by 2019 there had only been one case of an asset sale due to a failing BRI loan, Sri Lanka’s Hambantota port project, whereas 39 cases of debt distress
resulted in write-offs, refinancing or deferment (Tiberghien 2019; Kratz et al. 2019; Brautigam 2020). High levels of debt are problematic for developing countries, with possible negative blow-back onto the PRC economy itself. Trends suggest problems in the sustainability of high-volume outward lending, but China’s leverage should not be exaggerated: in one analysis of 40 cases, many ‘involved an outcome in the favour of the borrower, and especially so when host countries had access to alternative financing sources or relied on an external event (such as a change in leadership) to demand different terms’ (Kratz et al. 2019; see further Brautigam 2019). However, such relations do give the PRC extra political and policy leverage when dealing with smaller states heavily engaged in development pretexted on the successes of the BRI.

The overall media blitz on these issues seems more focused on geopolitical competition than financial or environmental governance concerns. The Australian government has launched policy initiatives to maintain its relevance in the Pacific region, as was evident when it supported the Pacific’s Boe Regional Security Declaration, which Australia signed onto in September 2018. It embraces an expanded and inclusive approach to regional security in the Pacific Ocean, resisting foreign influence with the creation of a ‘fusion centre’ for integrated awareness across non-traditional security challenges such as ‘illegal fishing, people trafficking, drugs smuggling and maritime safety’ (Brewster & Bergin 2018). The so-called ‘Pacific pivot’ has been driven in large measure by Australia’s ‘strategic denial instinct’ in relation to China and the hope for a recalibrated and inclusive ‘Pacific family’ relationship with these islands, including PNG and Timor-Leste (Dobell 2019). By 2020 this was extended via the ‘Pacific Step Up’ programme, along with supplementary aid ($304.7 million) targeted at helping regional recovery from the COVID-19 crisis (Australian Government 2020). This strategy is also linked to hard power projection options. In November 2018, the US, Australia and PNG confirmed their joint development of Lombrum naval base on PNG’s Manus Island, an initiative that may be of some concern to both the PRC and Indonesia (Laksmana 2018). The development of the base on Manus Island may have been aimed at heading off possible Chinese investment into a port there, but also offers Australia the opportunity of forward deployment of air and naval power, alongside its access to Butterworth airbase in Malaysia (Dobell 2019; Davis 2019; Goldie 2018).

Australian public opinion, according to the 2018 Lowy Poll, was more concerned with terrorism and North Korea’s nuclear programme than any direct military threat from China, which was seen as more of an economic partner. However, 77% of those surveyed were concerned that a conflict between China and the US could draw in Australia via its alliance with the US (Oliver 2018). These trends began to shift in 2019, with declining confidence in a ‘responsible’ China and limited trust in US leadership, and a growing willing-
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ness (77%) to resist China’s military activities in the region. However, climate change, cyberattacks, international terrorism, and North Korea’s nuclear capabilities were rated higher as potential threats over the coming decade (Kassam 2019). By mid-2020, 55% of Australians surveyed said Australia’s relationship with the United States was more important than the relationship with the PRC, with only 40% seeing China as more important, despite it being the largest trade partner. Ironically, these ratios were mitigated by the fact that 55% of Australians saw China more as a trade partner than a security threat, with 41% seeing the reverse, though there was still a growing trend of threat perception compared to 2018 (Kassam 2020). However, Australia’s call for an independent investigation into the source of the COVID-19 outbreak led to Chinese trade restrictions, including barriers and tariffs on coal, barley, beef, dairy, cotton, lobsters, wine and timber through 2020–21, with Australia’s diplomatic overtures being rebuffed in February 2021. This has deepened public opinion against China, intensified internal security monitoring against illicit foreign influence, and forced a rethink of the wider relationship. By late 2020, 81% of Australians saw China negatively, a negative trend replicated in varying degrees in the UK, Germany, the Netherlands, France, Canada, Italy, Sweden and Japan (Silver et al. 2020).

Limits to China’s influence are also evident in the Polar Silk Road, proposed by China to link East Asia, Russia, the Arctic and northern Europe in a shared maritime and economic corridor. This ‘add on’ has been stimulated by the impacts of climate change in the Arctic Ocean, which has made the northern sea corridor more attractive for international shipping, opening up these areas for extended economic and resource development. The Arctic contains approximately 30% of undiscovered gas and 13% of undiscovered oil resources globally, mostly offshore in less than 500 metres of water, making border delimitation important in relation to energy access (Orttung 2011). China has recently promoted itself as a ‘near-Arctic state’ (jin beiji guojia), seeking to gain benefits from trade routes that avoid the ‘Malacca Straits dilemma’ (a vulnerable chokepoint in its energy imports), to open a new vector of cooperation with Russia, and to engage in new patterns of scientific research and environmental diplomacy (PRC 2018a; Lanteigne 2018). As articulated in its white paper of early 2018, China’s Arctic Policy, the PRC sees itself as playing a constructive role in addressing eco-environmental issues, climate change monitoring, the careful use of Arctic resources, and the promotion of regional peace and stability (PRC 2018a). The rationale of Chinese engagement is clearly spelt out early in the document:

China is also closely involved in the trans-regional and global issues in the Arctic, especially in such areas as climate change, environment, scientific research, utilization of shipping routes, resource exploration and exploitation, security, and global
governance. These issues are vital to the existence and development of all countries and humanity, and directly affect the interests of non-Arctic States including China. China enjoys the freedom or rights of scientific research, navigation, overflight, fishing, laying of submarine cables and pipelines, and resource exploration and exploitation in the high seas, the Area and other relevant sea areas, and certain special areas in the Arctic Ocean, as stipulated in treaties such as the UNCLOS and the Spitsbergen Treaty, and general international law. As a permanent member of the UN Security Council, China shoulders the important mission of jointly promoting peace and security in the Arctic. The utilization of sea routes and exploration and development of the resources in the Arctic may have a huge impact on the energy strategy and economic development of China, which is a major trading nation and energy consumer in the world. China’s capital, technology, market, knowledge and experience is expected to play a major role in expanding the network of shipping routes in the Arctic and facilitating the economic and social progress of the coastal States along the routes. China has shared interests with Arctic States and a shared future with the rest of the world in the Arctic. (PRC 2018a, Section II)

However, despite the legitimating arguments of this policy document, China is a relative latecomer to active governance in the Arctic, while several other states, especially Russia, Canada, Norway, Denmark and the US, have established roles in the region. This has been formalized via the Arctic Council (which has been operating since 1996) with member states including Canada, the US (via Alaska), Russia, Finland, Norway, Sweden, Denmark (which has external sovereignty over Greenland and the Faroe Islands) and Iceland. The Arctic Council includes representation from six indigenous organizations and has expanded the number of observer states to include France, Germany, the Netherlands, Poland, Spain, the UK, China, India, Italy, Japan, Singapore and South Korea.

The potential militarization of the Arctic has become a major concern, with Russia declaring it a priority area of national interest, expanding its naval and air presence, as well as building or refurbishing numerous northern bases (Bodner 2015; Klimenko 2015; Russian Federation 2009; Arctic Progress 2010; for the mix of nationalist and geo-economic interests, see Devyatkin 2018). On the other hand, Russia has also engaged in a comparatively positive pattern of diplomacy on Arctic issues through 2010–21, with successful agreements on exclusive economic zone (EEZ) border delineations with Norway in the Barents Sea in 2010–11, a continuing dialogue with the Arctic Council and the UN Commission on the Limits of the Continental Shelf in support of its seabed resource claims, support for a Russia–Japan Arctic research agenda, and the creation of an eight-nation Arctic Coast Guard Forum, thereby aiding Russia–Canada cooperation (Salinas & Hoag 2016; Maxie & Slayton 2016; Conley & Rohloff 2015; Tschudi 2014). Nonetheless, in September 2018 the UK announced enhanced military cooperation with Norway and Iceland, including the rotation of 800 Royal Marines for special training in Norway,
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and future patrols of Typhoon and P-8 Poseidon aircraft in northern waters, pretexted on rising military activity and a Russian build-up of capacities in the Arctic, with wider implications for the North Atlantic (MOD 2018; House of Commons Defence Committee 2018). Even US President Trump’s bizarre August 2019 bid to ‘buy’ Greenland was interpreted in the context of improving Arctic security, possibly against increased Chinese Arctic influence, although in reality it was driven by economic interests and access to rare earth elements, now more readily available in northern areas due to climate change (Rasmussen 2019; DoD 2019; Paulick & Machacek 2017).

China became an observer to the Arctic Council in 2013, with the aim of having an increased say in Arctic governance, and hoping to ensure access to improved shipping routes and extended northern resources. This accords with a steady expansion of its maritime interests and capabilities, operating across trade, fisheries and naval abilities (Ferguson & Dellios 2017, pp. 107–17; IISS 2014). The Northern Sea Route (NSR) avoids the Malacca Straits dilemma and allows further diversification of energy supplies, in addition to future access to other Arctic resources including ‘coal, nickel, copper, tungsten, lead, zinc, gold, silver, diamonds, manganese, chromium and titanium’, plus uranium and, potentially, rare earths from Greenland (IISS 2014). The Northern Sea Route takes less time to navigate than the Suez route (up to 16 days shorter), bringing serious savings in running costs per trip for large cargo ships (lowering fuel costs by approximately 20–26%, whilst also avoiding Suez Canal fees). Since 2017 it has been described as a ‘blue economic passage’ in Chinese thinking, with the first Chinese container ship making the crossing in 2013 (Lanteigne 2018; Siegl et al. 2018; IISS 2014). In earlier optimistic estimates, China had expected increasing engagement in northern trade routes, with 5–15% of the country’s trade value traversing the Arctic by 2020. However, only 29 vessels in total used the NSR in 2017, though higher figures occurred through 2011–13, and overall tonnage increased between 2013 and 2017 (Lanteigne 2018; Drewniak et al. 2018; Prior & Walsh 2018; Maxie & Slayton 2016; Conley & Rohloff 2015; IISS 2014). China began running specially designed cargo ships through the passage from 2018, and also proposed the construction of a Trans-Arctic cable that will improve secure communications with Europe (Xie & Wang 2021). Nonetheless, concerns remain about the environmental effects of increased resource exploitation and shipping, including the use of heavy fuel oils that result in black carbon pollution and prolonged effects from spills or discharges (Gallucci 2018; for plans for a heavy fuel oil ban, see Prior & Walsh 2018).

Juxtaposing these developments is China’s limited hard-power capacities in the region. It had no military bases in the far north, and only two icebreakers, the Xuelong (Snow Dragon) and the Xuelong 2, which became operational in 2019 and began its first Arctic expeditions in 2020. This compares poorly to
Russia’s 40 private and government icebreakers (with new vessels currently being built), plus its eight floating nuclear power stations being used in northern waters (Drewniak et al. 2018; Chi 2017; Conley & Rohloff 2015; Brigham 2008; Weitz 2011). China’s military operations have also been limited, with small PLA-N exercises near Alaska in 2015, and joint naval operations with Russian forces in the Barents Sea in 2017 (Lanteigne 2018). In theory Chinese submarines, including new ballistic missile submarines (SSBNs) such as the Type 094, could operate in these waters, but the PLA-N had only four of these operational in 2020, with two more on the way, while the Type 096 is only expected to go into production later in the 2020s (Hackett et al. 2020, 2019; Harris 2016). There has been no indication of a desire by China to maintain permanent strategic patrols in the Arctic, though the Pentagon is watching for the future deployment of SSBNs in the Arctic Ocean as part of China’s triadic nuclear deterrence (DoD 2019; Chen 2019).

When China expressed growing interest in the Arctic, Russia first interpreted this as potential competition for resources and regional influence. For Russia, the Arctic (exclusive of more southern Siberian sectors and inland areas) accounts for 15% of the country’s GDP and 25% of its exports, with 58–80% of the gas in the Arctic lying within Russia’s exclusive economic zone, making it a crucial vector for its future economy (Maxie & Slayton 2016; IISS 2012). However, Russia and its national companies have long faced the challenge of drawing in sufficient funds to develop these resources, especially given the harsh conditions of the north. This has led to a new phase of cooperation with China as a vital financial partner. Already major investments have been made into Yamal peninsula gas projects, supported by China National Petroleum Corporation (CNPC) and China’s Silk Road Fund (totalling 29.9% of project funding), while some initial planning has begun on possible rail lines and fibre optic and sea cables from Finland to China via Siberia (Bertelsen & Gallucci 2016; Lanteigne 2018; Xie & Wang 2021). Wider patterns of investment can be observed, into infrastructure and mining industries in Greenland; oil exploration, iron mines and aluminium production in Iceland; and a large number of smaller transport and energy processing deals linking Northeast China and the Russian Far East (many still uncompleted); and planning for future access to Arctic fisheries is underway (Tetu & Lasserre 2017; Bertelsen & Gallucci 2016; Pan & Huntington 2016; Hastings 2014; DoD 2019). Russian fears of non-littoral states becoming too dominant have been moderated by limitations of observer rights within the Arctic Council and reassuring statements in China’s white paper respecting Arctic states’ sovereignty, rights, jurisdictions and traditions (PRC 2018a, Section III: Lanteigne 2018).

In sum, China has found a ‘chair’ in Arctic multilateral governance, but relies on Russian cooperation for strategic leverage in the wider polar region. Economic gains have nonetheless been slow to accrue, affording some lead
time for further study of Siberia and the Arctic’s fragile ecosystems. Serious pollution has already been noted in northern Siberian river systems, along with pipeline leakage in seismically active areas and an increase in industrial pollution along some coastal areas of the Russian Far East, including the dead zone of Vladivostok Bay (Gertcyk 2015; Liesowska 2015). Although China’s vision of a ‘green Silk Road’ may help moderate these trends, there are still serious steps needed for internationalization of these emerging norms:

The BRI could play a role for China to achieve its policy objectives in the Arctic. Nevertheless, for Chinese investment under the BRI to succeed in the Arctic region, it is crucial to protect the vulnerable Arctic environment and ensure sustainability. Apart from respecting Arctic countries’ regulations, the Chinese government appears willing to take responsibility to regulate Chinese activities along the Belt and Road. This is evidenced by various forms of industry self-regulation as well as non-binding government documents that have been published to guide Chinese business in the Arctic. What is missing for building a green Belt and Road in the Arctic so far, however, is hard law and an effective compliance regime for Chinese companies to maintain high environmental standards in the region. The Chinese government is currently drafting a regulation on overseas investment. If strict environmental standards can be integrated into domestic Chinese law as a criterion for approving overseas investment, this would be an opportunity to improve the BRI’s green image in the Arctic (Liu 2018a, p. 62).

We can see, then, that China has embraced a vastly diverse set of opportunities and risks in its expanding network of economic corridors and passages, which now include over 7000 projects, summarized under the BRI rubric (Rauf et al. 2018). There have even been reports that China plans to build a permanent airbase not far from its Zhongshan Station in Antarctica, a facility that would be able to handle heavy transport aircraft in support of its scientific missions, though it is unclear how this could link into existing BRI networks (Liu 2018c; Silk Road Briefing 2018). China is still evolving its policy orientations towards the Antarctic and has some ability to advance its interests via the existing Antarctic Treaty System, though it may seek to expand its commercial krill fisheries in southern waters, operating within international conservation guidelines (Liu 2019; Liu & Brook 2018). However, China and various Chinese agencies have limited ability to systematically govern these extended corridors unless sophisticated norms are implemented via effective national and multilateral institutions. This is particularly the case in the effort to ‘green’ these developmental pathways, briefly outlined in the next sections (see further Chapters 2 and 3).
FROM CHINA’S ECO-CIVILIZATION TO GREENING THE SILK ROADS

The Chinese government and society have come to increasingly recognize the human and financial costs of environmental damage, air pollution and water scarcity accelerated by industrialization, rising national needs and the heightened societal expectations unleashed through the ‘China Dream’ (Economy 2018; Ferguson 2019). Economic, social and developmental policies, along with associated foreign-relations issues, have been integrated through the concept of China as an evolving Eco-Civilization. This approach gained intellectual credibility through the 1980s and 1990s, with 1987 marking the start of government engagement with developmental issues. This was followed by an increasing environmental emphasis in the 16th National Congress of the Communist Party of China (CPC) in 2002, whereby a sound ecology was viewed as one of the three pillars of a civilized and developed economy, further formulated through 2002–05 (see Zhou 2016). The creation of an Ecological Civilization as a strategic task was initiated at the policy level as early as October 2007 at the 17th Congress of the CPC. It was further articulated in the Central Committee of the CPC’s working report of 2012 and became part of the Party constitution, thereafter gaining strong government support under Xi Jinping through 2013–20 (CPC 2017b; Huan 2016; Ferguson 2019; Zhou 2016). The ‘construction’ of an Ecological Civilization, which was given the status of a National Development Strategy, was further embedded in the 13th Five-Year Plan (for 2016–20) and received endorsement in major meetings of the CPC and the NPC (National People’s Congress) in 2017 and 2018 (Xinhua 2017a). The project, at first a top-down ‘sociotechnical imaginary’, has allowed a social space for environmental activism in contemporary China, while at the same time managing public discontent and containing protest over pollution and associated health problems (Hansen et al. 2018; Hansen & Liu 2017). Social and media environmentalists, such as Pan Shiyi, Wang Canfa, Chai Jing and Ma Jun; NGOs, such as Friends of Nature and the Institute of Public and Environmental Affairs (IPE); and ‘not in my backyard’ protests against polluting industries have made this a domestic test of the government’s legitimacy, alongside corruption issues (Economy 2018; Guo 2017b; Smith 2017).

Environmental and population crises have a long history in China. The successful mastery of irrigation techniques and agricultural expansion allowed the extensive growth of the population and power of early Chinese states, first along major rivers in northern and central China, transforming the ecology of river basins, adjacent plains and coast areas, and then shifting to intensified rice production in the south (Ball 2016; Darwin 2008). Classical philosophers
(from Confucius on) directly supported agriculture as the ‘root’ or foundation of governance on which the other branches of society and state were established (Bray 2008; Shouyi 1982). China, in the pre-modern period, doubled the area of land under cultivation between 1650 and 1800, expanding irrigation networks and using new crops such as maize and sweet potatoes, thereby reaching a population level of circa 430 million by 1850 (Darwin 2008). The problem of maintaining a large population on the land without excessive human suffering and environmental exploitation became a serious challenge, linked at times to patterns of flight from the land and rural revolts (see further Ferguson 2019). However, by the second half of the nineteenth century it seems that over-exploitation of the land, deforestation, soil erosion and silting of the rivers created something like an ‘ecological backlash’, with the shift in course and declining flow of the Yellow River to the coast being only one outcome (Darwin 2008, p. 273; for governance interactions, see Pietz 2015).

In the twenty-first century, this is reflected in the contemporary challenge of boosting national wealth and increasing GDP per capita for over 1.4 billion people. This includes the provision of energy and food security, guaranteeing rural livelihoods and reducing air, water and soil pollution with their related health costs (Tracy et al. 2017; for various GDP impact estimates, see Yin et al. 2017). In this context, the transition towards an Ecological Civilization in the twenty-first century is a national necessity and a key means of legitimating the rule of the CPC in the coming decades. Since China has become the world’s largest greenhouse gas emitter, remains the most populous state, and has the technical and financial ability to reduce its emissions, the PRC may be regarded as a de facto ‘climate superpower’ (Viola & Ribeiro 2012). This equates with it being a crucial partner in the agenda for global environmental sustainability, climate change policies, and the UN’s Sustainable Development Goals (see further Chapter 8). Furthermore, the Ecological Civilization agenda is a way of generating a sense of historical narrative in which China’s concerns remain at the centre of the evolving global future:

Ecological civilization is a governmental framework for developing China’s environmental laws and policies, supporting technological innovations that are seen as essential to solve the country’s enduring and now well-known threats of environmental degradation without hampering economic growth. As we have argued … it is more than that. It is an imaginary of the global future, and it is the Communist Party’s promise to the Chinese population. It holds that under the continued leadership of the Party, it is possible to make a historical move from one kind of ‘civilization’ to another.

... It is an imaginary of a utopian harmonious world in which production and consumption continue to grow, where technology and science have solved the basic problems of pollution and environmental degradation, and in which the Chinese population lives as middle-class citizens under the leadership of the Communist Party. (Hansen et al. 2018, p. 201)
The vision of an Ecological Civilization, linked to a mobilized civil society and a democratic balancing of freedom and community, was discussed in Soviet circles from a Marxist viewpoint in the early 1980s, and further developed by Roy Morrison in the mid-1990s (Morrison 1995, pp. 5–18; Huan 2016; Ferguson 2019; Foster 2017). It has been seen in Western scholarship as sustainable development in the context of a fully modern and industrialized society which emphasizes green energy sources with a minimal global-footprint, and even planned de-growth to protect essential ecological systems (Oswald 2014; Garcia 2012; Spangenberg 2014). It sees the need to restrain unlimited economic growth and capital accumulation, a shift towards a more equitable society with modest goals, and the harmonization of production to maintain biological diversity within a functioning ecosystem (Magdoff 2012). To some it suggests the need for a revolutionary transition:

The dire facts constituting today’s Earth-system emergency are stubborn things, and the world’s options are clearly limited. What is needed in the end across the globe as a whole, in order to create the new, essential ecological civilization, is nothing less than a worldwide ecological and social revolution against the capitalist mode of production – a revolution that is most likely to emerge first in the global South, given the depth of the economic and ecological crises there and the struggle against economic and ecological imperialism. … [T]he future depends on the rise globally of a new environmental proletariat, representing the greater part of today’s endangered humanity, and providing the revolutionary impetus for a more substantively equal and ecologically sustainable world. (Foster 2017, p. 543, italics in original)

Environmental and socialist concerns thus joined in a critique of the capitalist system and Western historical narratives, rejecting the leading role of global corporations and the limited ability of governments and the existing inter-state system to manage social and environmental crises (Korten 2017). Unfortunately, this criticism was less detailed in providing politically feasible alternatives that could be adopted within realistic timeframes. This concern for resilient ecologies, viable economies and sustainable societies is now found in renewed trends within twenty-first-century climate change negotiations (seeking rapid transition to low emissions) and the Sustainable Development Goals, allowing for humane development within ecological constraints.

The most ambitious government mobilization of an Eco-Civilizational agenda can be found in twenty-first-century China. This focuses on the process of Eco-Civilization construction (shengtaiwenming jianshe), including the transformation toward a ‘socialist Eco-Civilization’ where social justice and sustainability needs come together to shape a new relationship between human civilization and earth processes (Huan 2016, p51, 60; see further Hansen & Liu 2017; Foster 2017). By 2012 Eco-Civilization construction had become a central goal of the Chinese government ‘alongside economic growth, polit-
ical modernisation, social development and social construction’ (Huan 2016, p. 54). Related policies were outlined in the Decision to Comprehensively Deepen the Reform of Several Major Issues of 2013, the Integrated Reform Plan for Promoting Ecological Progress of 2015 and central policy documents such as the 2014 National New-type Urbanization Plan and the 13th Five-Year Plan for Economic and Social Development of the People’s Republic of China, 2016–2020 (PRC 2015a & 2016; Huan 2016; Pow 2017). In parallel, it has been argued that sustainable development within the BRI will need to be built in across ‘social, economic environmental, physical and political (SEEPP) systems’ (Peter & Swilling 2014, p. 1595; see further Dellios 2018). The effort to shape a new relationship between humankind and nature within the context of an evolving socialism is noted in the preamble to the Integrated Reform Plan for Promoting Ecological Progress:

Based on the fundamental context of China being in the primary stage of socialism and in the particular characteristics new to China in the present phase, and in order to build a beautiful China, handle correctly the relationship between humankind and nature, and solve serious ecological and environmental problems, it is essential to safeguard China’s ecological security, improve the environment, ensure that resources are used more efficiently, and step up efforts to promote the formation of a new pattern of modernization in which humankind develops in harmony with nature. (PRC 2015a, I.1)

Rather than simply a schema of rigid definitions and related benchmarks, Eco-Civilization is a conceptual approach towards a set of political processes linking socialist, developmental and environmental issues:

At the level of philosophy and ethics, eco-civilization is a weak eco-centrist (environmentally friendly) natural or ecological relation value and morality; at the level of political ideology, eco-civilization is an alternative economic and social formula differing from the dominating capitalist one; at the practical level, eco-civilization construction refers to the part of appropriate relation between humans and nature throughout the process of creating a socialist civilization, or the governments’ daily-work of ecological and environmental protection; in the specific context of modernization and development, eco-civilization construction refers to the green dimension of socialist modernization and economic and social development. (Huan 2016, p. 56)

China’s Eco-Civilization agenda is a mix of sloganeering, genuine aspiration, evolving policy formation, and partial implementation (see further Chapter 2). China remains an authoritarian state, with central leadership asserted by the CPC and Xi Jinping, including considerable government influence on economic activity through central planning and the role of state-owned or managed enterprises. It may be one of the few developing states able to mandate such profound changes to its means of production and patterns of
resource use. Combined with the serious environmental and rural stresses experienced by its population, a revision of China’s industrialist orientation towards alternative paths of modernization is understandable (Hansen et al. 2018; Foster 2017). To this end, a wide range of policies has been launched by the PRC since 2007. A small sample of the ecological programs and initiatives developed by Chinese government agencies, ministries, companies and media follows.

1. **Integration of environmental planning**
   Environmental planning has been integrated into ongoing Five-Year Plans and other key planning and policy documents, and in the cadre-evaluation of officials there has been a move towards mainstreaming environmental issues in government and official awareness (Hansen & Liu 2017; Pow 2017; Economy 2018). However, this does not apply to the CEOs of state-managed companies, which until recently remained driven by the quest to access international markets as part of the ‘going out’ of the Chinese economy, as well as the usual push for profits and total market share (Smith 2017).

2. **Publications on the Eco-Civilization**
   There has been a wave of publishing and writing about China’s Eco-Civilization, sustaining this debate at the academic and public levels. Since 2007, ‘more than 4000 articles and books containing the keyword “eco civilization” have been published and more than 170,000 articles published in mainstream press-media evoke the concept in China’ (Heurtebise 2017, p. 7). This is a rapid turnaround from earlier PRC government policies, where as late as 2011 the publication of air pollution levels in cities such as Beijing (as was done by the US Embassy) was still regarded as a sensitive issue (Economy 2018, pp. 151–3).

3. **Ecological redline system**
   There has been sustained implementation of an ‘ecological redline system’, called for by Xi Jinping in May 2013, based on crucial ecological standards and barriers, with thresholds being established for different areas of land usage (Huan 2016; Tracy et al. 2017; Economy 2018). Between 2013 and 2015, a number of Air Pollution Prevention and Control Action Plans were developed, alongside general guidelines supporting structural reforms supporting the transition towards an Ecological Civilization, upgrading earlier environmental protection laws enacted as early as 1979 (Hansen & Liu 2017; CAAC 2014).

4. **Green evaluation indexes**
   A system of green evaluation indexes for economic development has been created in which growth assessments are moderated by environmental costs,
with the ultimate aim of reducing levels of emissions per unit of GDP. Via the 2015 Paris Agreement, the PRC committed itself by 2030 to achieve peak carbon dioxide emissions, to lower carbon dioxide emissions per unit of GDP (carbon intensity) by 60–65% from 2005 levels, and to increase the share of non-fossil fuels in primary energy consumption to circa 20% (Tracy et al. 2017; Huan 2016). The 13th Five-Year Plan, which began in 2016, included serious commitments to expanded non-fossil-fuel power production by 2020: 340 GW hydropower, 58 GW nuclear power, 210 GW wind power and 110 GW solar power (Yuan et al. 2018, p. 97). Greener, intelligent production and building design have also been foreshadowed as major factors in the 2021 Five-Year Plan, as well as a carbon neutral target for 2060 (Wong 2020). However, China has continued to invest in coal-based as well as renewable energy infrastructure, both domestically and abroad. Though it is on target to meet is Nationally Determined Contribution (NDC) to emission cuts, this is viewed as a rather unambitious target which will not deliver the proposed limitation of global temperature rises to below 2°C, let alone the preferred 1.5°C target (CAT 2020a). Furthermore, the impact of the pandemic crisis has been to slow international supply chains, leading to an increase in Chinese approvals for new coal plants using domestic coal reserves (Schlenzig 2020).

5. **Eco-compensation**

Plans for a system of eco-compensation, along with a multi-tiered emission trading scheme and the use of green credit principles, have been drawn up, with national level emission trading schemes being introduced in 2021–2025 (PRC 2015a, Sections 42–43; Huan 2016; Tracy et al. 2017; Qi & Cheng 2018).

6. **Renewable energy investment**

There has been massive investment into renewable energy sources, with over $78.3 billion committed in 2016, and an emphasis on solar and wind power (Economy 2018). Hydro-resources within China are still being expanded, partly due to local perceptions that such dams boost provincial revenues by up to 16%, while geo-thermal production has yet to be developed on a large scale (Moore 2018; Guschin 2018). Electricity production still remains heavily reliant on coal-powered plants and, to some degree, on 38 nuclear power stations, with 20 more planned. Moreover, China still has some 46 polluting coal-to-chemical and coal-to-gas plants, with 22 more being built (Economy 2018). However, this is lower than the 182 new coal plants that had been planned, with many of these halted or delayed due to over-supply issues and as part of China’s coal abatement and energy-efficiency plans (Myllyvirta & Li 2017). For a ‘global cost-optimal’ path to meeting the Paris 2015 targets, China may need to phase out more coal power plants by 2040, and modify any

7. Green finance for the transition to renewables
A partial transition to renewables has been aided by an emerging system of ‘green finance’, with China accounting for 40% of global renewable capacity in 2017 (IEA 2017; PRC 2015a, Sections 45–46; Economy 2018; Turner 2018). Furthermore, it should be noted that estimates of ‘carbon overheads’ on low-carbon energy infrastructure investment and initial implementation remain low, at less than 4% of China’s total carbon emissions in various scenarios modelled through to 2035, suggesting much larger, long-term emission savings from this transition (Yuan et al. 2018). The scope of Chinese ambitions can be seen in one futurist recommendation:

The proposal of the State Grid Corporation in China to build by 2050 a $50 trillion global wind and solar power grid, called the Global Energy Interconnection, has attracted enormous attention. According to the World Economic Forum, China is proposing to construct wind farms in the North Pole and solar farms at the equator crossing international boundaries, and conceivably accounting for the majority of the world’s energy generation, superseding fossil fuels. (Foster 2017, p. 455; for linkages to the BRI and NE Asia power grids, along with legal and security issues, see Zhang et al. 2018a; Elliott 2019)

8. Environmental management certification
There has been an increasing trend for some Chinese companies to voluntarily adopt environmental management certification schemes designed to meet overseas OECD standards, e.g., ISO 14001 certificates, which involve the creation of Environmental Management Systems (for strengths and weakness of this approach, see Vílchez 2017). Even in highly polluting industries, efforts are now being made to provide mechanisms for sustainable construction, utilizing a mix of economic incentives, regulations and supportive innovation (Chang et al. 2016; Tracy et al. 2017). The enthusiasm for ‘green’ or ‘sustainability’ labelling, however, is largely driven by government policy and consumer trends, along with marketing and profit motives, and has limited ecological impact.

9. Eco-cities
Some 230 ‘eco-cities’ are planned to be created within China, improving on shortcomings in early construction phases that have transformed China’s urban environments (Li & Yang 2015; Tracy et al. 2017). These projects often include a techno-scientific foundation alongside eco-aesthetic conceptions that claim to improve the relationship between humans and nature, but may in practice push environmental costs as externalities into areas adjacent or along
transport routes to these new cities (Pow 2017). Major ‘prototype’ projects have begun, for example, with Tianjin Eco-city (developed in conjunction with Singapore), but failing or suspended settlements, such as the Dongtan and Nanhui eco-cities, are a reminder that success is not guaranteed by simply labelling a city ‘sustainable’ or ‘green’ (Wang & Mell 2019; Pow 2017; Chang 2017). Problems in land use, investment and real-estate markets, along with gaps in communicative planning, collaboration and implementation, have been identified as blockages for some of these projects (Wang & Mell 2019). Comprehensive approaches were subsequently developed for urban spatial management, integrating sustainable land use and environmental protection, with Xiamen (Fujian province) being one early project among 28 cities and counties (UNEP 2016). Hopefully, this may provide significant learning opportunities for the development of resilient, smart and ‘intelligent’ cities, potentially acting as special economic zones, along the BRI.

10. State Forestry Administration
The importance of China’s State Forestry Administration has increased greatly since 2003, alongside large-scale reforestation programs – such as the vast Three-North Shelterbelt Forest Program (the ‘Green Great Wall’), running through 1978–2050 across parts of Xinjiang and along the fringes of the Gobi – and national logging bans in natural forests (Huan 2016; Tracy et al. 2017; Tan & Li 2015). Such programs gained international recognition when one of the 2017 UN Champions of the Earth awards went to the Saihanba Afforestation Community, which had spent decades helping reforest denuded land in northwest China (Hansen et al. 2018).

11. Ministry of Environmental Protection
China’s Ministry of Environmental Protection has been gradually enlarged and empowered over the course of a decade, since it was elevated in 2008 to a cabinet ministry. In 2018 it became the Ministry of Ecology and the Environment (MEE), with increased activity in the prosecution of environmental breaches and the use of higher penalties, as well as updates to policy documents, including the Environmental Protection Law (EPL) and a revised Atmospheric Pollution Prevention and Control Law (Jing 2018; Tracy et al. 2017; Zhang et al. 2017; EU–China Environmental Governance Programme 2014; Economy 2018). However, the Ministry remains understaffed and underfunded given its huge task (Smith 2017). The scale of the problem can be indicated by levels of non-compliance among many companies in China: ‘An inspection of nearly 20,000 firms in twenty-eight cities in the first half of 2017 found that approximately 14,000 failed to meet air pollution emission standards and more than 4,700 did not have the proper certification and/or were sited in unauthorized locations’ (Economy 2018, p. 174).
Importantly, the idea of an Eco-Civilization was not viewed as a purely national agenda, since China’s state-permeated capitalist system remains deeply enmeshed in the competitive and capitalist global economy, with efforts from 2017 to link ‘Green Guidance’ principles to the BRI as it evolved (Belt and Road Portal 2017; Liu 2018a). This means that any transition for the Chinese economy has global aspects. Green–left and ecological Marxist positions have been outlined by Xueming Chen from Fudan University, noting that capitalism, with its emphasis on open-ended economic growth, means that China needs to work towards an alternative path of modernization that would, in turn, lead global trends away from unsustainable production and wasteful lifestyles (Chen et al. 2017, pp. 564–5; Huan 2016, p. 62; Hansen et al. 2018; Wang & Bramwell 2012). Combined with growing public awareness of environmental and scientific issues, it has given the PRC government greater leeway in contributing to global agreements on climate change and the Sustainable Development Goals as part of an ‘anthropocentric surety’ for a cleaner future (Hansen & Liu 2017, p. 2). Moreover, the convergence of Chinese government environmental policy with the UN’s climate change and SDG agendas can be a way of increasing China’s soft power, and create an indirect UN mandate supporting the BRI (Lynch 2018; Economy 2018).

Aside from implementation within China, the mediating test case for this global ‘eco-civilizational initiative’ is whether China will be able to ‘green’ the economic corridors of the BRI (see further Chapter 3). Concerns have already been expressed that BRI planning does not sufficiently mandate strategic environmental assessments (SEAs) and environmental impact assessments (EIAs), which are often conducted voluntarily or within limited timeframes (WWF 2018). Likewise, environmental and social impact assessments (ESIAs) are, at times, incomplete or bypassed:

ESIAs, even when conducted, are rarely translated into the local language and made publicly available. Consultations by Chinese developers with local civil society and environmental groups are rare and, when they occur, are often insufficient. There has been a disconnect thus far between Beijing’s proclamations on implementing a Green BRI and environmental practices on the ground. (Russel & Berger 2019, p. 13)

As environmental protection improves within coastal China, the possibility exists of polluting industries being moved first into less developed areas of the country, then into BRI zones of activity (Tracy et al. 2017; Economy 2018). Many countries along the Eurasian BRI corridors have limited environmental stewardship records and poor levels of human security protection (EPI 2020; Ferguson 2018; Delliós & Ferguson 2017). It has been suggested that some examples of this ‘export’ of ‘dirty-industries’ already exist, with poor and illegal timber industry practices in nearby parts of the Russian Far
East and expanded cement production in Tajikistan (Economy 2018; Tracy et al. 2017). Likewise, in PNG, the major supplier of tropical logs to the PRC, clear-felling of forests and illegal timber exports have been linked to Chinese demand, with corrupt extensions of locally issued permits undermining regulation efforts (Doherty 2018). Other examples include recycling industries shifting to Turkey, India and, perhaps, East Africa following the PRC’s 2018 ban on the importation of plastic waste (Johnston & Earley 2018). There is also potential for the future relocation of glass, chemical and metals industries, such as moving some steel production to new South African plants. Likewise, provisional plans have been made to shift electricity production towards long-distance grids linking to hydropower production in Siberia and the Russian Far East, along with the expansion of wind turbine production in northwest China, Mongolia and the Siberian Arctic (Tracy et al. 2017).

In spite of some shifts in BRI contracts in 2017 towards hydropower (22%) and other renewable power sources (up to 7%), around 12% of these projects are still related to the coal industry (WWF 2018). Indeed, at the same time as China is engaging in a partial internal coal abatement programme (to reduce carbon emissions and health problems), it remains a major investor into coal projects globally: for BRI projects, ‘65% of the total energy generation funds are invested in coal-based power plants’, with only a limited place for renewables (Rauf et al. 2018). Parallel problems in controversial dam projects have already complicated Chinese projects in Tibet and Southeast Asia, along with claims of Chinese companies clear-felling forests in Myanmar (Russel & Berger 2019; Dellios 2018; Eisenman & Stewart 2017). Here, China may need to develop stronger stakeholder participatory approaches to the BRI, while state partners, in turn, need to take a more active role in critically assessing differential benefits and how their societies, environment and climate change resilience will be affected (Hong & Johnson 2018).

Another challenging area has been China’s management of its food security, partly based on acquisition of farms and farmland overseas (see further Ferguson 2019). The PRC is now a net food importer, with 19.4% of its own arable land contaminated, and the arable land per capita declining from 0.16 to 0.09 hectares from 1961 to 2015 (World Bank 2018a; for slightly different soil contamination figures, see CAEP 2018). China would prefer to be self-sufficient in staple foods and grains but wishes to do so without expanding the area under cultivation and without further degradation of Chinese soil and natural environments. Indeed, one of the core aims of its Eco-Civilization agenda is revised management of its food security and environmental resources, based on better use of domestic land, return of marginal farmland for reforestation (‘Green-for-Grain’ policies, centrally funded to $66.6 billion) and greater care in the use of fertilizers and water resources (UNEP 2016; Norse & Ju 2015).
Beijing recognizes food imports could become a critical issue in a world seeking to feed growing populations in Asia, Africa and South America (Niu et al. 2017; NTS 2010). Food investments and land acquisitions (on a limited but rising scale) by China have occurred in 33 countries, including Russia, Ukraine, Thailand, Indonesia, Cambodia, the Philippines, Australia, New Zealand, sub-Saharan Africa, the US and Canada (Kenderdine 2018; Niu et al. 2017; Brautigam 2016). Land purchases can complicate bilateral relations. For example, in Tajikistan 1500 Chinese farmers were brought in to grow rice in Khatlon province on 2000 hectares, leading to local tensions (Eurasianet 2011c). Strong public criticism of such farm acquisitions has occurred in Australia, and they have been largely blocked in Iceland, in spite of positive cooperation there in relation to geothermal energy, mining and potential aquaculture ventures (Guschin 2015; Hastings 2014). The cost of staple foods may continue to rise due to the shifting impacts of climate change and desertification across the wider Central Asia region and parts of Africa: ‘in the next 25 years soil degradation could cause a 12% drop in global grain harvests, and a 30% rise in grain prices. Without a long-term strategy to resolve the problem, desertification will affect food supplies, cause migration and threaten the stability of many countries and regions’ (Liu 2016).

As such, China’s food policies will have a significant impact on global trends. These threat perceptions, however, should not be exaggerated. The PRC’s net need to import food, including the rising consumption of protein and highly processed foods, has been beneficial to producers overseas, including the US, France, the Netherlands, Australia, New Zealand and Brazil (WITS 2018). Though ‘land grab’ scenarios have been exaggerated (Brautigam 2016), China will still have to carefully calibrate its now partly internationalized and ‘off-shore’ food security programs to sustain cooperation with partner states, including those along BRI corridors (PRC 2016a; Zhang 2016). In turn, trade tensions with the United States and Australia will complicate this agenda, raising questions within China about its political choice of import sources for products such as soya beans, sorghum and oilseeds, as well as compliance issues in relation to the WTO (Kenderdine 2018; Ng 2018).

There are already signs that China has begun to respond to some of these international concerns. Aside from the general frameworks already found in the Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road (NDRC 2015) and the AIIB’s Environmental and Social Framework (2016), China has expanded norms for its wider BRI operations. Recommendations for improved standards for Chinese companies were made in the Guidelines for Sustainable Overseas Forest Resources (2009) and the Guidelines for Social Responsibility in Outbound Mining Operations (2014), though these guidelines remain voluntary and have few means of enforcement (Tracy et al. 2017). Likewise, ecological concerns
found a major place in later key documents, such as the *Vision for Maritime Cooperation under the Belt and Road Initiative*, *China’s Arctic Policy* and *The Belt and Road Ecological and Environmental Cooperation Plan* (PRC 2017a; 2017c; 2018a). Documents such as *Guidance on Promoting Green Belt and Road*, authorized by the Office of the Leading Group for the Belt and Road Initiative, emphasize voluntary cooperation to ensure ‘eco-environmental safety’, with information on the BRI being released through Belt and Road State Information Big Data Technologies Company via the ‘Baidu Cloud’ (Belt and Road Portal 2017). Green and sustainable development via the BRI were once again emphasized in the 2021 white paper, *China’s International Cooperation in the New Era* (PRC 2021, Chapters III and IV). Such efforts suggest an impetus to foster self-regulation and responsible policies, but have yet to be structured into an international compliance regime (Liu 2018a; see further Chapter 9 on asymmetric co-governance as an emerging trend).

Serious investment in green energy production has begun along some of the corridors, such as wind power production in Mongolia, along with solar power plants for the CPEC corridor, though clean-coal plants remain a major part of BRI planning (Kiani 2016; Freiman 2016; WWF 2018). Likewise, China has begun to develop improved standards of environmental assessment, as well as some consultation methods with civil society groups in BRI countries, including public consultation and complaints-handling mechanisms within the AIIB (Camba & Yao 2018; AIIB 2017). Expanded cooperation between several Chinese agencies (including the Ministry of Ecology and the Environment and the National Development and Reform Commission) and the US’s Environmental Protection Agency (EPA) has also begun. Such collaborations could increase the capacity and implementation of environmental protection across a range of issues, including air and water quality, remediating contaminated soil, and improving environmental laws and compliance (EPA 2017 & 2010). There has also been a limited start to the systematic mapping of biodiversity patterns, ecosystem services, and key vulnerabilities along many BRI corridors, though China is preparing the technological and observational means for such data collection via satellite sensing capabilities (Tracy et al. 2017; NDRC 2015). The boom in think tanks assessing China’s economy, along with university networks studying the SCO and the Silk Roads, may begin to reduce this information gap, but much more needs to be done to lay the basis for systematic knowledge of BRI impacts at the regional and global levels (see further Chapter 4).

Information related to the BRI is being collated by several agencies including:

- The National Development and Reform Commission, one of the main policy and coordinating groups for the BRI. The NDRC, working with the
Ministry of Foreign Affairs and the Ministry of Commerce, has released key documentation, including the 2015 *Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road* and the 2017 *The Vision for Maritime Cooperation under the Belt and Road Initiative*, as well as regular news releases on BRI, development and environmental issues.

- China’s Ministry of Science and Technology, using data from the National Remote Sensing Centre, with support from the Chinese Academy of Social Sciences, its Centre for Regional Security Studies, and the Institute of World Economics and Politics.
- The BRI Space Information Corridor, which has expanded digital services aimed at supporting business, environmental, communication and security needs, based on the PRC’s increasing use of orbital technologies, new 5G networks, information integration and Big Data services.
- The Universities Alliance of the New Silk Road, which includes 60 universities from 22 countries.
- The Chinese Academy of Social Sciences’ *Collaborative Innovation Centre of Silk Road Economic Belt Research*, which cooperates with other institutions from China, Russia, Central Asia, East Asia, Australia, and several European states.
- The *Silk Road Think Tank Network* (SiLKS), which was launched by the Development Research Center of the State Council of China and has 54 partners across the world. It runs conferences and leadership forums, pledging to support and advise on government policy on the BRI (Xinhua 2017b).
- The Asian Infrastructure Investment Bank (linked to its *Environmental and Social Frameworks*), which collects project knowledge, engages in public consultations, and has complaints-handling mechanisms (Camba & Yao 2018; AIIB 2017). However, the AIIB only provides a relatively small part of total funding to the BRI, with a target of around $10 billion per year in funding programs and a likely ‘loan book’ forecast total of circa $45 billion by 2027, with the China Development Bank and China’s Export-Import Bank being larger investors (AIIB 2019; Ferguson 2018; Farchy 2016). Indeed, it is important to stress the distinction between the AIIB and the BRI, though the timing of the two programs does overlap and much AIIB funding goes into BRI projects (Nicolas 2017). For example, both India and Australia are active members of the AIIB but have little or no formal engagement with BRI projects (see further Chapter 6).

This informational context is not just a question of data collection, but the ideation needed to put the BRI into its global context (Dellios 2017). Put simply, ‘greening’ the Silk Roads at this stage remains an ad hoc process
driven by diverse interests and pressures, requiring rapid evolution of its governance capabilities in the coming decade. Insofar as the BRI can be seen as a new phase of globalization driven by and through developing nations, this is a crucial issue for global aspirations towards sustainable development (Ferguson 2018; Hansen et al. 2018; Zheng 2017).

NEGOTIATING GLOBAL CO-GOVERNANCE WITH CHINESE CHARACTERISTICS

The expanding nature of the BRI is a challenge for preventive governance of associated environmental and developmental risks. This is partly driven by the very openness of the BRI, as envisaged by Xi Jinping at the first Belt and Road Forum in 2017, where it was emphasized that partners were welcome from all continents, including the Americas (Xi 2017a; Dellios 2018; Goh & Chen 2017). However, the PRC’s economy, in PPP (purchasing power parity) terms, is larger than any of the current partners in the BRI, approximately six times that of Russia, and in 2019 was almost 2.5 times that of its nearest competing rising power, India. This gives China and its investing companies and banks a leadership role in these new Silk Roads, but also poses major challenges for managing these projects and fulfilling related governance and security duties. China at present lacks the comprehensive ability to manage all these problems unless the BRI as a whole moves towards an improved pattern of bilateral and multilateral cooperation. However, aside from the multilateral AIIB (one among many funding sources), the initiative sits more at the level of an asymmetric pattern of co-governance in which Chinese leadership is partly accepted, partly contested by its partners, leaving problems in the relational balance among states and the development of accepted norms and their implementation (see Chapters 6 and 9).

China, from 2019, has begun to consider ways to reduce persistent criticism of its transnational systems of governance, including expanded Chinese investment into some projects to avoid potential debt traps for partners, sustainable infrastructure management, higher levels of local consultation, improved health cooperation, and a wider spread of benefits across stakeholders, all part of learning curves for both the Eco-Civilization agenda and for the BRI itself (PRC 2021; Hansen et al. 2018; Ferguson 2018). This was fielded as part of the Belt and Road Summits of 2019, outlining the beginnings of a ‘BRI 2.0’, but also in the wider recognition that corruption remains a major challenge when investing in underdeveloped states with weak governance capacities (Tiberghien 2019). China itself has experienced significant problems with corruption in the wider society, business circles, government, and even elite cadres of the CPC. This has led to long-term agendas to ‘strike hard’ against corruption, which has been a high-profile agenda within a modernizing PRC.
for several decades. Such campaigns may at times be used to root out political enemies, a claim made against Xi Jinping in recent years, but they are also directed at sustaining acceptance of CPC ‘one-party rule’ into the future (Brown 2018). Corruption remains a real problem for inclusive growth in a globalizing and expanding economy, with China’s ranking having improved to 78th least corrupt in 2020, but with ongoing public perceptions of corruption in government and up to 28% of public service users paying a bribe for services, though overall government performance was rated positively (Vrushi 2020; Zuniga 2018). In turn, China has come to realize that segments of investment into BRI projects have become ‘corrupted’, leading to bad debts that threaten to blow back into the PRC economy. Both corruption and limited partner government capacities have complicated this process. This has led to efforts to change PRC corporate culture, as well as some experiments at co-governance with host countries, such as South Sudan and Zimbabwe (see further below). Here, however, China runs up against its own ‘non-interference’ and ‘win-win’ principles, indicating limits to how far it can manage this problem via direct oversight or multilateral norms.

The notion of co-governance is firmly embedded in PRC notions of government and cooperation at diverse levels, including the concepts of *quanqiu gongzhi* (global co-governance) and *guojia gongzhi* (state co-governance), with a primary focus on inter-state cooperation and, thereafter, engagement of a wide range of actors in dealing with pressing issues, including dialogue with local governments, state agencies and companies (see Ferguson & Dellios 2017). Though cautious about the erosion of national sovereignty under some interpretations of globalism, the need for improved global cooperation has been increasingly clear to Chinese leaders over the last three decades, leading to debates on how this could be further achieved from the early 2000s onwards. Co-governance stresses ‘the holistic nature and the public administrative content of global governance, manifesting itself in moves away from government to the non-government sector, from state to society, and from territorial to non-territorial politics where consensual, discursive decision-making creates political authority’ (Gottwald 2016, p.129). This drives the PRC’s increased use of both multilateral, regional and multilevel forms of diplomacy alongside its complex bilateral networks (see Ferguson 2018).

Although this shift in approach does point towards both multilateralism and cooperative forms of multipolarity, the problem of differential power levels among partners makes this a difficult balancing act. Even with the best of will, the stronger partner may have undue influence, and even coercive capacity, in some cases. Capacity differentials make the positive management of bilateral relationships problematic for both parties. This can be clearly seen in the PRC’s early engagement with South Sudan, which gained independence from the north only in 2011, but thereafter continued to be plagued by severe inter-
nal instability, civil war, problems in rebuilding its export economy, massive flows of displaced people and famine (for earlier PRC problems and reactions in Sudan, see Ghiselli 2018). China was willing to engage with South Sudan as a developmental partner but soon found that the relationship suffered from a ‘pronounced asymmetric administrative and negotiating capacity’, with South Sudan’s ministries and officials having had limited ability to manage complex financial agreements (Large 2013, p. 2). China was willing to help provide governance training for both government officials and its ruling party, laying the basis for future loans and investment that could help with infrastructure, agriculture and educational development (Large 2013; ICG 2017). In this early period, South Sudan’s limited state capacity was more of an obstacle than fears of the PRC’s political ambitions in Africa, whether they are interpreted in terms of diversified access to oil resources or wider strategic influence (Patey 2017). Thereafter China, which remained the country’s largest export trading partner (receiving over 95.5–99% of its exports through 2016–18, mainly of crude petroleum), retained a strong interest in the stability of South Sudan and provided peace support roles with a large (700 strong) peace-keeping infantry battalion from 2015 on (ICG 2017; DFAT 2018a; Chen 2016a).

Likewise, relations with Zimbabwe became contested due to corruption that might have undermined major loans of $4 billion being committed by the PRC from 2014 on:

Zimbabwe’s debt to China is estimated to be $1.107 billion by the end of 2016. Indeed, such was the apparent fear in Beijing of losing finance to local corruption – and the inability of Zimbabwe to pay back its outstanding debt to Sinosure [China Export & Credit Insurance Corporation] – that back in 2015 it insisted on the placement of Chinese officials directly into position within the Zimbabwean government and parastatal offices to provide oversight and engineer reforms to management procedures, arousing resentment within elements of the Zimbabwean governing party ZANU-PF. (Alden & Jiang 2019, p. 645, brackets added)

Rather than a blanket approach, the PRC has evolved differential and nuanced partnerships with many states to cope with this asymmetry in capacities, interests and levels of development. Since the 1990s a flexible terminology of diverse ‘partnerships’ (cihai) has been increasingly used, with China having over 50 of these special relationships (Feng & Huang 2014). Likewise, structural theories suggest that the PRC may have asymmetrically differentiated its early relations with neighbouring states in East Asia, using selective strategies of accommodation with states such as Japan and Thailand rather than seeing them merely as US allies (Huang 2015).

Asymmetry can be used in creative ways within wider strategic orientations and foreign relations frameworks. Asymmetric conflict and asymmetric strategies allow an apparently weaker state or actor to use alternative approaches
to undermine, divert or overcome putatively stronger opponents. Likewise, weaker partners can engage and even entangle more powerful partner states in their own affairs. In the case of China, diverse military strategies have been seen as asymmetric: the early focus on people’s war and guerrilla operations to erode traditional military forces (used against the Japanese and then the Nationalists in the civil war), the use of enhanced cyber capacities as a non-kinetic means of countering a technological superpower, and inexpensive but disruptive space-related capabilities (anti-satellite weapons, satellite hacking and ground-based lasers) to potentially undermine US strategic and orbital dominance (Fritz 2017). Beyond this, managing asymmetric relationships between states has a long tradition in Asia:

Fortunately, China and its East Asian neighbors have a rich history of successfully managing asymmetric relationships in the pre-modern era. … A normal asymmetric relationship is not an equal exchange, but is one of negotiation rather than coercion.

The three dimensions of asymmetric relationships can be seen in both traditional and contemporary Asian relationships and more broadly in international relationships in general. The main function of the tribute system was to ritualize the exchange of the deference of tributary states for the imperial recognition of the legitimacy of their rule and hence the guarantee of non-interference by China. Currently, China’s diplomacy under the Five Principles of Peaceful Coexistence respects the autonomy of its partners, and other states are careful not to engage in actions that would imply disrespect for China. But normalcy does not resolve asymmetric differences, it merely provides a stable framework of negotiating them. (Womack 2010, pp. 4–5)

In western international relations, power asymmetry is understood as a major problem both for power-balance theories and for the shaping of effective regional organizations based on notional equality and multilateralism. Historically, China, in spite of periods of relative dominance, has at times been a relatively weak state subject to foreign invasion, or was one power among many in a polycentric system of states, as found, for example, during the Southern Song period and in the first half of the twentieth century (Ferguson & Dellios 2017; Womack 2010). From the point of view of power transition theories, a state may be an emerging regional hegemon but still have a long way to go before being able to challenge a global superpower such as the United States, even if ranked ‘number two’ in terms of comprehensive national power (Mearsheimer 2015; Yan 2006). In the Lowy Asian Power Index for 2019 and 2020 China was still behind the US in terms of converting its diverse power resources into influence, though well ahead of Japan and India in these terms (Lemahieu & Leng 2020; Lowy Institute 2019; Lemahieu 2019). This leaves the PRC with the problem of managing a competitive relationship with the US as a slowly declining but still global superpower, while elsewhere in Asia it
has to balance relationships among a large number of small, middle and rising powers without increasing their threat perceptions (Womack 2010).

One way beyond this relational dilemma is to engage these asymmetric partners and competitors in patterns of cooperation where shared benefits are clearly outlined and structurally generated. This is the geopolitical and strategic logic of the BRI, beyond China’s direct economic gains. Trade, investment and loan benefits from the BRI form the basis of stronger political relations and in many cases augment engagement in regional multilateral organizations; for example, supporting trends in the SCO, RCEP (the Regional Comprehensive Economic Partnership) and ‘ASEAN-plus’ frameworks. For China, asymmetric co-governance, for all its limitations, is also a way to try to engage major global powers, including Japan, India, the EU and even the US, bilaterally. It has become a more important option with the failure of China’s effort to forge a respect-based system of ‘new great power relations’, an idea which has gained some traction with Russia but has been unsuccessful with India and the US (Charap 2017). To date the co-governance approach has had some success with European states, increasing their individual engagement in the BRI, and in 2018 with Japan, which has supported increased cooperation between the Asian Development Bank and the AIIB. However, invitations to Australia, India and the US to further engage with the BRI have had little success, though India is a member of the AIIB and had been willing to support some aspects of the Bangladesh–China–India–Myanmar economic corridor (BCIM-EC) (Ferguson 2018).

The logic of co-leadership might work for China under conditions of the dynamic balancing among a group of cooperative powers (multipolarity) but remains deeply problematic if reduced to competition within a ‘G2’ framework (see Chapter 8). At best, ‘asymmetric co-governance’ would be a stepping stone towards a global system in which China has an accepted and stable role in global affairs – that is, ‘global governance with Chinese characteristics’ (for evolving elucidations, see Chan 2008 and Chen 2016b). The most ambitious interpretations suggest that the PRC wishes to use the BRI as the basis of a successful grand strategy, creating a bargaining coalition that allows a transformation of the international system to reflect Chinese values, definitions, interests and growing status (Zhou & Esteban 2018; Ekman 2017). For critics, this is a covert quest for hegemony, with China undermining US primacy and Western liberal values without necessarily having to go to war (Kaplan 2016; Ellings & Sutter 2018). A major test case for the PRC’s credibility, then, will be the evolution of its Eco-Civilization domestically and whether it can improve governance of the BRI, coping with a wide range of

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3 Group of 2 (the US and China as global leaders).
environmental and security issues that challenge Eurasia and the Indo-Pacific (see Chapters 2 and 3).