

China's Belt and Road Initiative and the emerging geographies of global urbanisation

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Abstract: China's Belt and Road Initiative (BRI) is heralded as the largest investment in infrastructure in history and is expected to re-shape the geographies of urbanization in the coming decades. In this paper we review the burgeoning, yet still embryonic literature on the BRI. Our aim is to move beyond currently dominant framings of the BRI as a geopolitical or economic strategy that tend to overlook the complex embeddedness of infrastructure. Drawing on theories of planetary urbanization, we argue that the BRI constitutes a form of urbanization that is bound up with the socio-spatial and ecological restructuring of

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global capitalism. We illustrate this by mapping and analysing energy projects under the BRI. Overall, we outline a research agenda on the BRI that calls for: 1) a more nuanced analysis of its spatial and scalar politics; 2) approaching the BRI as a distinctly urban question; and 3) a disruption of the dominant China-centric discussions through critical in-depth case-study analysis.

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The full dataset is available at data.ncl.ac.uk.

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I. Introduction

China's Belt and Road Initiative (BRI) (also known as One Belt One Road: 一带一路) is heralded as the largest coordinated investment in infrastructure in history and is expected to re-shape the geographies of globalisation and urbanization in the coming decades (Huang, 2016; Fei, 2017; Wiig and Silver, 2019). Announced in 2013 by President Xi Jinping, the BRI provides the institutional, political and financial apparatus for Chinese state and corporate investment exceeding \$900 billion in infrastructure projects in over 125 countries, connecting China's less-developed central and western regions to the rest of Asia, Europe, Africa, the Middle East and Central and South America. Through two major infrastructure policies – the Silk Road Economic Belt (SREB) and the Maritime Silk Road (MSR) – the BRI looks to internationalise China's model of infrastructure-led development, create the conditions for profitable investment abroad (thereby fixing its domestic crisis of surplus liquidity), and cement China's presence as a political and economic superpower. According to the Chinese Communist Party, the initiative constitutes “a new system of global economic governance” that “integrates the historical symbolism of the ancient Silk Road with the new requirements of today” (OLGBRI, 2017: 1-4). The language used by Beijing promises a governance creed based on openness, co-operation and win-win outcomes derived from mutual interest that aims to “uphold the global free trade regime and the open world economy in the spirit of open regional cooperation” (NDCR, 2015). The purported principles on which the BRI vision is built, then, are of free and open markets functioning on the basis of strong state-led investment in infrastructure. Notwithstanding, this image of the BRI as mutually beneficial has recently been marred somewhat by issues over debt distress in host countries (Hurley et al., 2018). Concerns about ‘debt trap diplomacy’ were raised particularly after the high-profile take-over of the Hambantota port in Sri Lanka, forcing Xi Jinping to defend the initiative and reassure partner countries at the 2019 BRI forum in Beijing.

Given that the BRI is at once vast in scope and ambition, yet remaining – in the words of Ferdinand (2016: 944) – a “vague, aspirational and open-ended” policy, it has naturally been highly

controversial and has attracted a great deal of debate. Indeed, the opaqueness of the BRI vision, Narins and Agnew (2019: 2) argue, has been fostered deliberately to create a “useful fuzziness” that leaves leaders opportunities to craft “a new, as of yet undefined, geopolitical identity in the future.” Discussions on the BRI – its underlying motivations and its possible implications for global and regional development – have tended to focus on the policy either as a geopolitical strategy intended to solidify China’s position as a global power and to align its neighbours politically and economically to the country’s strategic priorities, or as a political economic project designed to export a model of infrastructure-led growth and provide a spatial fix for China’s chronic crisis of overproduction and surplus liquidity (Overholt, 2015; Cheng, 2016; Liu and Dunford, 2016; Flint and Zhu, 2019). Although analysis of the BRI is starting to broaden thematically, there is nevertheless a tendency in the literature to focus on the role of nation-states. There is also a predominant focus on transport and trade infrastructure as defining the transformations underlying the BRI, rather than the complex political and material embeddedness of such emblematic infrastructures. Subsequently, conceptualisations of the initiative in the existing literature are characterised by disproportionate attention to national territory and lines or corridors across space.

Conversely this paper argues for a more nuanced approach to understanding the spatial imaginaries of the Belt and Road. Drawing on Brenner and Schmid’s (2014; 2015) notion of planetary urbanization, we suggest that the proposed projects, policies and initiatives that constitute the Belt and Road envisage a significant socio-spatial restructuring of global capitalism based on nodes and infrastructure corridors that connect new sites of accumulation to extractive landscapes. The nodal geographies of the BRI combine established spaces of global finance (e.g. Singapore, London) and extraction (e.g. oil fields of the Arabian Gulf) with historic and revived spaces of ancient trade (e.g. Mombasa, Khorgos–Almaty) and new spaces of extraction (e.g. the Arctic). This is driving a particular form of spatial and scalar development that Wiig and Silver (2019) call ‘Silk Road urbanism’.

It is highly likely the BRI will continue to burgeon as a focus of academic research across a host of disciplines. In an effort to assess the current state of scholarly engagement with the BRI and to identify potential future directions, the paper proceeds in three parts. First, we draw on debates in the study of planetary urbanization to argue that the BRI is driving a particular form of urbanization that is bound up with the socio-spatial restructuring of capitalism. This provides a comprehensive survey of existing work on the BRI, outlining the key areas of interest, lines of debate and research imperatives. Secondly, we draw on planetary urbanization debates to argue that the BRI is driving a particular form of urbanization that is bound up with the socio-spatial restructuring of capitalism. Thirdly, we apply this framing to explore the complex questions of urbanisation and global transformation through a case study of the energy sector. We present a map of energy projects under the BRI that illustrates these emerging geographies of development. To conclude, we

outline a research agenda on the BRI that calls for: 1) a more nuanced analysis of its spatial and scalar politics; 2) approaching the BRI as a distinctly urban question; and 3) disruption of the dominant China-centric discussions through critical in-depth case study analysis.

2. Research themes on the Belt and Road

Literature concerning the BRI, although still embryonic, is nevertheless rapidly expanding through a proliferation of research agendas. Broadly speaking, the majority of existing Anglophone research tends to frame the BRI either as a geopolitical strategy to expand and solidify China's position on the global stage, or as a political economic project aimed at creating the conditions for continued economic growth. Additionally, there is also growing interest in framing the BRI as a form of cultural imperialism, and in understanding its potential implications for sustainable development. Crucially, however, the urban dimensions of the BRI tend to be overlooked in the literature. We summarise these themes in Table I.

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Explanations for the geopolitical underpinnings of the BRI tend to revolve around three interrelated questions. This first seeks to understand the Belt and Road – particularly the SREB element – as an extension of China's domestic policies to increase political control over its western provinces (Clarke, 2016, 2017; Summers, 2016). Summers (2016), for example, argues that the BRI is not a new strategy, but rather has emerged out of older policies to develop the western states as a bridgehead to Asia, the Middle East and Europe. Since the fall of the Soviet Union, many of the countries on China's western border have remained economically under-developed and are seen by Beijing as being poorly governed and unstable. Clarke (2016: 564) has pointed to the importance of the BRI as an attempt to integrate the Uygur Autonomous Region of Xinjiang and to “utilise this region's unique geopolitical position to facilitate a China-centric Eurasian geo-economic system.” In this sense, the BRI can be understood as a state-building exercise designed to consolidate Beijing's power and influence in frontier regions and construct China as a coherent and stable ‘whole’.

Secondly, much of the literature points to the international motivations underpinning BRI as a geopolitical strategy to increase China's global influence (Clarke, 2017). Most authors agree that Xi's vision for the Belt and Road is consistent with, and builds on, previous policies implemented to increase China's presence on the world stage incrementally. This began with the ‘opening up’ strategy initiated by Deng Xiaoping in 1978 that sought to liberalise aspects of the Chinese economy and improve relationships with the country's non-communist neighbours. This trajectory was then escalated through the ‘go out’ policy from 1999 under which the Chinese government sought to internationalise key industries and companies and encourage foreign investment. The BRI, then, is

seen as the next phase of China's half century-long effort to establish itself as a global economic and political superpower (Du and Ma, 2015; Ferdinand, 2016; Po and Li, 2017). To Zhang (2016) the BRI is emblematic both of China's increasingly dynamic and multifaceted international presence, on the one hand, and its increasingly contentious relationships with other states on the other. He writes of China as a country that is "struggling to cope with a complex set of foreign policy challenges along its periphery and to exercise its agency to shape the regional order" (Zhang, 2016: 771). This increasingly assertive aspect of China's geopolitical strategy is illustrated in its policy of island-making in the South China Sea (Rice et al., 2016). Although not officially part of the Maritime Silk Road, this policy nevertheless reflects many of the same underlying motives around territorial integrity, bolstering sovereignty, protecting trade routes and opening-up areas for resource extraction.

Thirdly, there is enormous interest in observing and anticipating how the Belt and Road policy will impact potential host countries. Fundamentally, the strategic vision encapsulated in the maritime road and overland belt represent an attempt to realign geopolitical and economic relations across Eurasia and to quite literally to construct a new continental and even global geography (Overholt, 2015). China's 'Eurasian pivot', some have argued, is part and parcel of a broader agenda to align the economies of central Asia with China's economy, to construct the continent as a coherent 'whole' symbiotically linked to the coherent nation of China (Xiaotong and Belgibayev, 2014; Mayer, 2017). While a number of scholars point to the contentious relationships this creates with states that see the BRI as a threat to sovereignty or national interest, others are interested in the ways other states see opportunity in the BRI. For example, in Europe many countries see China's eagerness to invest in transportation and trade links as an opportunity to attract capital from outside the European Union, particularly in areas still struggling after the financial crisis of 2008 (Cassarini, 2016; Herrero and Xu, 2017).

While the geopolitical aspects of the BRI have received a great deal of attention, other scholars argue that this should primarily be understood as an economic policy. Indeed, Cai (2017: 5) argues that there is a tendency in the literature to "overstate geostrategic dimensions of the project while underappreciating the economic agenda." Analyses from the political economy perspective have suggested that the BRI is a response to the combined challenges of stagnating domestic economic growth, a lack of profitable investment opportunities within China and a growing concern over surplus liquidity (Summers, 2016). In effect, the Chinese domestic economy is – to draw on the Marxian terminology – struggling to overcome a structural crisis of overproduction (Harvey, 2014). The construction of mega infrastructures that connect China to neighbouring economies serves the dual purpose of absorbing surplus domestic capital and aligning the material and financial flows of the global economy with Chinese economic interests. Thus, the BRI can be interpreted as a spatial fix that allows China to export its model of state-led infrastructure growth to other countries, and to seek out profitable investment opportunities abroad. Part of this involves a spatial re-balancing of

China's economy through the development of central and western provinces, which the CCP see as gateways to the West for Chinese capital (Summers, 2016; Clarke, 2017).

Other authors argue that the BRI is reflective of broader changes in the relationship between the state and market in China, a trajectory that began in the late 1970s when Deng first started to introduce market-based reforms (Liu and Dunford 2016; Jie 2017). On the one hand, the Chinese Communist Party must maintain its legitimacy by continuing to facilitate economic growth and rising standards of living whilst encouraging a degree of private enterprise. The internationalisation of Chinese industries is one way of achieving this. On the other hand, the CCP also has a strong imperative to discipline foreign investment. In this sense, the BRI goes hand in hand with the CCP's three-tiered guidelines designed to discourage what the party sees as unwise investments (like gambling, entertainment and sports) and encourage sound investments, particularly in infrastructure, that align with strategic priorities. The geopolitical and political economic interpretations of the BRI are certainly most prevalent in this emerging literature. While in much of the literature these explanations are held as distinct, Flint and Zhu (2019) argue that they should be understood together as a "single logic" in the transformation of the global political economy. The BRI, they argue is a unifying concept that brings together the profit-maximising goals of corporations with the strategic priorities of states, thus "entwin[ing] economic agendas with geopolitical goals" (Flint and Zhu, 2019: 95-6).

There is also a growing body of literature that focuses on the semiotic meanings associated with China's Belt and Road vision. The official CCP literature on the BRI and language used by top officials stresses the inclusivity of the policy, emphasising openness, cooperation and win-win solutions that facilitate strong and green domestic growth in host countries. Much of the rhetoric draws on the 'spirit' of the historic silk roads around mutually beneficial trade and cultural exchange (Liu and Dunford, 2016; Clark, 2017; Rolland, 2017). This framing is certainly powerful in that it allows China to pursue an outward-looking growth agenda whilst positioning itself as a benevolent facilitator abroad. Some have argued, however, that this language obscures China's imperialist intentions that underpin the BRI. "Few doubt," suggest Sidaway and Woon (2017: 1), that under the BRI "all Silk Roads lead to China." Indeed, to Callahan (2016), the BRI policy is not simply about influencing the "hardware" of the global economy through infrastructure development, but also the "software" of global governance by exporting Chinese values, norms and ideas. In this sense, the BRI can be seen not just as a geopolitical or economic policy, but as a deeply cultural project.

Attention to the ecological dimensions of the BRI is still embryonic in the literature, and the little that has been written on this subject has tended to adopt reductionist and uncritical perspectives on the environment. Some commentators point to the potential of developments along the Belt and Road to offer sustainable forms of growth through ecological modernisation. Indeed, Hong (2016) has suggested that the BRI shares several important principles with the UN Sustainable

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Development Goals. However, while some argue that this represents an opportunity to foster clean and climate-sensitive forms of growth (Shah, 2016; Wang and Wang, 2017), others argue that the BRI policy will increase China's environmental footprint and lead to higher levels of greenhouse gas emissions (Li et al., 2017; Zhang et al., 2017; Ascensão et al., 2019). Strikingly, although the official rhetoric attached to the BRI is couched in the language of sustainable and green innovation, a report by the World Resources Institute found that between 2014-2017 the majority of energy and transportation investments under the BRI were linked to carbon-intensive sectors and technologies (Zhou et al., 2018). Moreover, Tracey et al. (2017) suggest that the BRI provides a mechanism whereby China can export some of its more ecologically destructive operations and externalise some of its domestic pollution challenges. Additionally, some see the BRI as a form of resource grabbing. By investing in resource extraction projects (e.g. oil and gas drilling), which are centripetally connected to China's urban and industrial nodes, the BRI enables China to address its resource scarcity issues. In particular, Len (2015) has linked the BRI strategies to China's energy security challenges.

Since the announcement of the BRI in 2013 the academic literature exploring its various aspects has burgeoned, particularly around the themes outlined above: national political economy, geopolitics, cultural narratives and sustainable development. The urban dimensions of the BRI, however, have so far been under-explored.

3. The BRI as planetary urbanization

Much of the discourse on the BRI – and most of the academic literature – concerns national economies and the geopolitical relationships among states (see Table 1). In other words, most existing analyses emphasise nation states to be the containers of this world economic vision. Visual representations of the Silk Road Economic Belt and the Maritime Silk Road, however, suggest a different story. Maps of the initiative envision a global geography of nodal points hyperconnected to one another by corridors of transport, trade and communication infrastructures. They reflect, in other words, a re-territorialisation of global capitalism in an explicitly *urban* form. By this we mean that the BRI presents a re-imagined geography of capitalism based on a reconstitution of strategic nodes through a vast infrastructural architecture for resource extraction from new hinterlands. As such, in this section we argue that the spatial restructuring envisaged under the BRI is emblematic of what a growing number of theorists are calling planetary urbanization (see Brenner, 2014).

The principal contribution of the planetary urbanization literature is to frame the urban as a *process* rather than a *spatial category* in order to disrupt assumed distinctions between urban and rural. Urbanization, according to this thesis, does not simply refer to the emergence and growth of cities as distinct entities, but rather describes a broader process of spatial restructuring under capitalism that produces dense agglomerations of people, things and finance, on the one hand, and

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vast extractive hinterlands or 'operational landscapes', on the other hand (Brenner and Schmid, 2014; 2015). In other words, urbanization emerges from a dialectical relationship between concentration and expansion that drives transformation not just in cities, but across the entire surface (and subsurface) of the globe. The spatial conurbations that we call cities, in this respect, are understood as one of the manifold and multifarious material expressions of the processes of urbanization (Gandy, 2014). As Brenner (2014: 20) puts it, agglomeration "presupposes the enclosure and operationalization of large-scale territories located well beyond the city," which are "comprehensively produced, engineered or redesigned through a surge of infrastructural investments, enclosures and large-scale territorial planning strategies." Urbanization is, put simply, driving transformations that are planetary in scope.

While the planetary urbanization concept has certainly been influential in shaping urban theory, it has also received a great deal of criticism. In the broadest sense, commentators have questioned both the originality of the argument and its efficacy in developing new ideas for emancipatory or progressive forms of urbanization (Shaw, 2015; Walker, 2015; Ruddick et al., 2018). Indeed, Schindler (2017) argues that the discourse around planetary urbanization, in its prioritisation of grand theory, has tended to overlook multiple and contradictory forms of urbanization, particularly in the so-called Global South, and gives no conceptual room to account for differences in lived experience. Taken together, these critiques amount to a strong defence of cities as important ontological categories in urban theory and practice. Given that cities are the pre-eminent arenas of political contestation, the erasing of difference between urban spaces, in the words of Davidson and Iveson (2015: 648), risks "robbing critical urban theory of a concept and an orientation that is crucial to both its conceptual clarity and its political efficacy."

To be sure, there are inevitable tensions involved in using the planetary urbanization thesis, which has so far focussed on the Global North and western notions of global capitalism, to understand the BRI. Fei (2017), for example, introduces the concept of "worlding developmentalism" as a less broad-brush concept that considers the complex interactions between the strong Chinese state, internationalising Chinese corporations and the agency of actors in host regions, in the transformation of global capitalism. Yet, we maintain that grand visions sometimes merit grand narratives, and the BRI, if nothing else, certainly presents a unifying strategy for global development. If its ambition is planetary in scale, our critique of it should – at least in part – reflect this. Indeed, the BRI, this paper argues, should be understood in precisely these terms; as part of a large-scale socio-spatial restructuring of capitalism, characterised by the concentration of production, finance and commodity trade at key nodal points (Colombo, Gwadar, Hong Kong, Mombasa, Singapore, Xi'an, etc.), and the opening up or re-connecting of vast landscapes of extraction across Central Asia and Africa. To be clear, planetary urbanization does not currently provide the conceptual tools to engage in detail with literatures on Chinese urbanism or the history of state/market relations in

China (see Lin, 2007; Li and Mykhnenko, 2018). Rather, it presents a vision of Chinese-led development where the urban is, to use Merrifield's (2013: 910) language, "apparently boundless, riven with new contradictions and tensions that make it hard to tell where borders reside and what's inside and what's outside."

The dialectic between expansion and contraction that characterises planetary urbanization is reflected in the node/corridor geographies of the Belt and Road. Mega infrastructure corridors are significant, not just because of their size and scope, but because of the way they reconfigure the geographies of connectivity and marginalisation (Wilson and Bayón, 2015). To Priemus and Zonneveld (2003) the notion of corridors indicates a particularly urban form of transregional development where growth is achieved through connectivities between economic hubs. Indeed, the notion of a corridor as a more or less linear line across space, connecting conglomerations, hubs and gateways through flows of commodities, information and people, is associated with a very different spatial imaginary from that of the nation-state. The use of corridors and nodes as a development concept, or a basis for planning praxis, is closely bound up with processes of deconstruction and reconstruction of territorial relations (Pain, 2010). Moreover, commentators increasingly argue that infrastructure corridors are emerging as *the* dominant spatial and scalar form of global development in the post-Cold War and neoliberal era (Bouzarovski et al., 2015; Starr et al., 2015; Hildyard and Sol, 2017). In this respect, the BRI, which is at the same time an expression of China's state power *and* an attempt to internationalise Chinese corporations, reflects a set of deep contradictions in the changing relationship between state and market-led development. The BRI is hereby conceptualised as a contradictory vision for global urbanization based on node/corridor infrastructures that ground – or materialise – global flows of capital, are sustained and countenanced by the metabolic transformation of dispersed environments and societies, and re-orientate the continents of Asia, Africa and Europe to a wave of accumulation with China at its centre.

4. Urbanisation through infrastructure: the case of energy

Having brought planetary urbanisation debates into conversation with the BRI, we now turn our attention to what this means in practice. The following section explores the emerging node/corridor geographies of the BRI through an examination of the financing and construction of energy-related infrastructure. Indeed, the infrastructure proposed within the BRI is considerably more diverse than improving transport networks between participating countries. Energy infrastructure connectivity is a significant motivating factor for China as a means of securing energy resources, internationalising Chinese companies, increasing geopolitical influence, and as a focus of international investment (Len, 2015; Gholz et al., 2017; Duan et al., 2018). Through the lens of planetary urbanisation, therefore, the BRI can be understood as a mechanism by which China is connecting its rapidly growing cities

and industrial centres to sites of energy extraction around the world through a complex network of connective infrastructures (trade routes, pipelines, transmission lines, etc.).

4.1 Financial instruments

The BRI is premised on the vast mobilisation of finance through new and developing channels and mechanisms. Several political instruments have been established to finance infrastructural investments domestically and internationally, and to encourage the cooperation of recipient countries, both of which are required for the successful realisation of the BRI.

The financial instrument that has attracted the most interest, particularly from western commentators and critics, is the Asian Infrastructure Investment Bank (AIIB) (Callahan and Hubbard, 2016; Yu, 2016; De Jonge, 2017; Wilson, 2017). A multilateral development bank with 61 member states to date and its headquarters in Beijing, the AIIB was opened for business in early 2016. The bank has three primary roles within Chinese policy. Firstly, the AIIB is intended to encourage and accelerate investment in infrastructure in the BRI region through the provision of syndicated loans and bank credit. By offering good credit ratings to countries along the Belt and Road, Renminbi bonds can be issued in China (NDRC, 2015), simultaneously filling the gap in infrastructure investment in poorer recipient countries where high risks and long construction cycles tend to deter investors (Yu, 2016) and relieving the crisis of over-accumulation that has intensified in China following the Global Financial Crisis (Callahan and Hubbard, 2016). Secondly, the AIIB reflects China's frustration with the slow pace of reforms in existing multilateral institutions that are dominated by American and European interests, as China's voting powers have failed to reflect the shift of global influence eastwards (Wilson, 2017). Thirdly, some have suggested that the establishment of the AIIB multilateral financial institution is a means of depoliticising bilateral financing deals that could otherwise be contentious (Callahan and Hubbard, 2016). Despite China's significant vote share within the AIIB (26.6%, giving it power of veto over major decisions), the organisation's independence from a single donor gives it credibility when negotiating loans with recipient countries (Callahan and Hubbard, 2016). This is particularly pertinent in the wake of failed Chinese-financed infrastructure projects, including the controversial Myitsone Hydroelectric Dam in Myanmar that was backed by \$3.6 billion of Chinese investment and approved by the military junta that ruled the country until 2011. Following a radical change of government, Myanmar overturned the project citing significant negative environmental impacts, the displacement of thousands of people and the terms of investment that saw 90% of the electricity produced by the dam being returned to China.

In addition to the multilateral AIIB, which encompasses a wider range of member states from across Eurasia to facilitate international trade and cooperation, there are several other prominent instruments that allow China to build networks with a more select group of recipient countries. Political instruments include the Shanghai Cooperation Organisation (SCO), which was initially

established in 2001 and consists of China, Kazakhstan, Kyrgyzstan, Russia, Tajikistan and Uzbekistan, India and Pakistan (Troops, 2016); and the Cooperation between China and Central and Eastern European Countries, known as the “16+1”, founded in 2012 (CEEC, 2018). Interestingly, whilst touted as China’s “grand geopolitical project threaten[ing] a new East-West divide in Europe” (Jakimów, 2017), in the *Visions and Actions* document for the BRI, the 16+1 is excluded from a long list of, principally Asian, multilateral mechanisms (including the SCO) that are set out as integral to the BRI.

China has also emerged as a major player in international development finance, principally through its global development banks, the Export-Import Bank of China (or Exim Bank) and the China Development Bank. These institutions are rapidly overtaking traditional development organisations in terms of investment and lending in the so-called global south. Regarding the financing for energy projects, these two banks now provide nearly triple the amount of lending by Western multilateral banks (Gallagher, 2018). Indeed, between 2000-2017, Gallagher et al (2018) estimate that they provided in excess of \$225 billion in overseas energy development financing, with the effect of both increasing the total amount of energy financing and expanding the number of countries receiving finance for energy projects.

Planetary urbanisation provides a useful lens for examining these emerging financial-political mechanisms for several reasons. The emerging global geographies of BRI finance have an explicitly urban character – a fact that is overlooked in much of the literature. Hall (2017), for example, shows how International Financial Centres (IFCs) act as key nodes in the movement of global finance; providing liquidity, connecting investors, and offering essential financial services and expertise. BRI finance, therefore, is necessarily channelled through a small number of IFCs, which connect surplus liquidity within mainland China with hosts of infrastructure projects. In recent years Hong Kong, Singapore and London have all emerged as crucial urban nodes of BRI finance (Ortmann and Thompson, 2016; Subacchi and Oxenford, 2017; Li, 2018). Moreover, the deployment of international finance itself creates uneven geographies of production and consumption. Baidur and Kamath (2009), for example, argue that because IFIs operate through market mechanisms to provide infrastructure financing they often reinforce processes of decentralisation in host countries. This, they suggest, results in a bias towards financing projects at key nodes within a recipient country.

4.2 Infrastructures and connectivities

We now turn our attention from finance to the actual infrastructure projects of the BRI. The *Visions and Actions* document identifies “facilitating connectivity” as one of its five cooperation priorities (NDCR, 2015). Sidaway et al. (2017) highlight how this focus upon infrastructure connectivities helps to construct narratives around the BRI of mobility and flows, rather than focusing upon static notions such as territory. These narratives are an essential component of a wider effort by the People’s Republic of China to pitch the BRI as a collaborative project embracing the “silk road spirit”

and create “win-win solutions”. Within the Visions document, and indeed in much of the focus upon infrastructure connectivity in existing commentary on the BRI (for example, Herrero and Xu, 2017), the primary focus is upon transport infrastructures. This extends to both the road, in the form of a “focus upon key passageways, junctions and projects, giving priority to linking up unconnected road sections, removing transport bottlenecks... and improving road network connectivity”, and to the belt, with an aspiration to “build smooth land-water transportation channels, and advance port cooperation; increase sea routes and the number of voyages” (NDRC, 2015). This focus on mobilities and flows, we argue, envisions a particularly urban form of global development based on infrastructural hubs and corridors connecting extractive hinterlands with sites of production and consumption. Moreover, understanding these infrastructure connectivities on the planetary scale forces us to consider how sites of extraction and sites of consumption/production are locked together in a dialectic of mutual transformation.

Our analysis shows that the BRI covers a wide range of energy-related infrastructure projects, including the opening-up of new sites of extraction (e.g. liquid natural gas in the Arctic, solar farms in North Africa, hydropower in Laos), facilities for processing (e.g. refineries), new transportation routes (e.g. electricity transmission, oil and gas pipelines, port developments), developing alternative forms of generation (e.g. waste-to-energy), and facilitating consumption (e.g. district heating, electrification programmes). Indeed, Fallon (2015) recognises energy insecurity (and subsequently energy infrastructures and their connectivity) as one of three primary motivating factors for the BRI, given China’s heavy reliance on imported energy. Figure 1 shows energy infrastructure projects with Chinese investment under the BRI umbrella since 2013. Projects are clustered around China’s western and southern borders, as well as East Africa and around the nodes of the China-Pakistan Economic Corridor. As noted earlier, energy-related investments under the BRI have been overwhelmingly in carbon-intensive and fossil-fuel dependent technologies (Zhou et al., 2018). As such, coal and liquid natural gas (LNG) projects are dominant, but there has also been investment in renewables, notably hydropower.

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Figure 1 illustrates how the node/corridor geographies of the BRI are less linear and more complex than common representations would suggest. The projects shown on the map reflect a diverse range of energy-related interests, which taken together, represent one of the metabolic forms of planetary urbanisation. Certainly, many projects are explicitly intended to extract energy from other countries for consumption in China’s urban and industrial regions. For example, China and Russia’s cooperation on the Yamal LNG project is opening up new extractive hinterlands (Liu, 2018). And Laos has been described as a “battery” for China because of the scale of hydropower

development that is underway in the region (see RFA, 2019). Many other projects, however, are not driven directly by a need to secure energy flows for China's consumption, but are oriented more towards advancing China's international aid profile, securing construction contracts for state-owned enterprises and seeking profitable investment opportunities for financiers.

In addition to describing and mapping these emerging geographies of energy finance and infrastructure development, the concept of planetary urbanisation also encourages us to think through the complex connections between infrastructure projects and the transformations they drive in other places. Marks and Zhang (2019), for example, explore the connections between hydropower projects in Laos and retail-led urban developments in Bangkok. By tracing the electrical connections between displaced and marginalised rural communities in Laos and urban developers and financiers in Thailand, they present an analysis of urbanisation that considers the effects of uneven development far beyond the boundaries of cities. The diverse infrastructural connectivities represented in Figure 1, then, illustrate the significant shifting geographies of global capitalism around operational landscapes, connective corridors and nodal hubs.

5. Conclusion: a research agenda

If the Chinese Communist Party realises even part of its ambitious vision for the Silk Road Economic Belt and the Maritime Silk Road, these policies are likely to shape processes of globalisation, urbanization and development significantly in the 21st century. Yet, scholarship on the BRI in political economy and the political and social sciences more broadly has tended to frame the significance of the policy in fairly narrow terms. As such, there is a great need for critical and conceptually nuanced analysis, both of the BRI as a more or less coherent whole and of its constituent parts. Our analysis of energy projects financed under the BRI demonstrates the complex, heterogeneous and uneven geographies emerging through the BRI, and the range of technological, political, institutional and social dimensions involved.

We apply a conceptual framework for understanding how the infrastructure developments envisaged under the BRI umbrella are bound up with the constantly shifting socio-spatial relations of planetary urbanization. The planetary urbanisation thesis, if nothing else, has certainly invigorated debate in urban scholarship in recent years. We are sympathetic to many of the critiques of this theory, particularly its inadequate account of the situated forms of production and the metabolic flows out of which the planetary abstraction emerges. Nevertheless, what Brenner and colleagues have developed is a powerful language for understanding the material and spatial relations of capitalism in the 21st century on the macro scale. We find this language useful when considering the scope and ambition of mega-visions for development like the BRI.

Subsequently, by way of conclusion we offer three principal ways in which critical geography scholarship can contribute to emerging debates on the BRI:

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- (1) *Offer a more nuanced analysis of the BRI's spatial and scalar politics.* Within existing literature on the BRI, notwithstanding a growing body of valuable critical scholarship, there is a tendency to adopt a reductionist understanding of space and scale. This has manifested itself in the dominant focus on relationships between nation-states and large transport and trade infrastructures. There is a need for a greater understanding of the ways in which the BRI is likely to create uneven geographies and reconfigure scalar relations, not only between nation-states but also between regions and nodes. In other words, geographers can contribute to an understanding of how the BRI is bound up with the production of space.
 - (2) *Approach the BRI as a distinctly urban question.* Building upon the need for a greater understanding of the spatial and scalar politics of the BRI, this paper has argued that greater attention should be paid to the urban dimension. As the example of energy infrastructures illustrates, the BRI is based on a re-imagined geography of extractive landscapes connected through pipelines, transmission cables, trade routes and corridors to nodal points of convergence. Framing the BRI as planetary urbanisation, therefore, goes beyond simply understanding how the initiative will change particular cities, but rather encompasses a broader understanding of how urban growth is preconditioned on the mobilisation of resources, finance, people and commodities through networks that extend across the entire surface and subsurface of the globe. Interrogating the BRI in these terms, we argue, is important in shaping our understanding of the processes of global urbanization in the 21st century.
 - (3) *Counter dominant China-centric discussions through in-depth case study analysis.* To date, much of the literature on the BRI has focused on the role of China, and there is a lack of detailed empirically-led scholarship on the political, material and metabolic transformations the BRI is driving in host regions. Critical geography can contribute towards an understanding of how this policy will drive material change in (potential) host regions and the role of these regions in determining how the policy manifests.

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Table 1. Existing research agendas on the Belt and Road Initiative.

	Research agenda	Description	Key references
Geopolitical	Domestic motivations of China	Achieving regional stability in Central Asia to increase territorial integrity of western provinces in China and consolidate power over minority populations. State building project	Clarke (2016); Summers (2016) Clarke (2017)
	International motivations of China	Assuming greater influence on the international stage Outward-looking foreign policy	Du and Ma (2015); Ferdinand (2016); Mayer (2017); Poh and Li (2017); Swaine (2015) Poh and Li (2017); Rolland (2017); Summers (2016); Zhang (2016)
	China's relationships with other states	The various implications the BRI policy will have both on host countries and those not included.	United States of America: Overholt (2015); Rolland (2017). European Union: Callahan (2017); Casarini (2016); Herrero and Xu (2017); Minghao (2016); Zheng (2017); Zeng (2017). Russia: Bennett (2016); Palit (2017). India: Brewster (2017). Central Asia: Sternberg et al. (2017); Toops (2016). Africa: Chen (2016). Pakistan: Irshad et al. (2015)
Political	Spatial fix	Securing growth in a context of a domestic crisis of over-production and inadequate opportunities for domestic investment	Cai (2017); Cho Han (2017); Clark (2017); Huang (2016); Overholt (2015); Summers (2016); Zhang (2017)

	Changing relationship between the state and the market	Market-based domestic reforms, internationalisation of Chinese corporations	Jie (2017), Liu and Dunford (2016)
	Development of central and western provinces of China	Re-balance Chinese economy Develop central and western provinces as the 'gateway' to Middle East and Europe	Cai (2017); Summers (2016) Clarke (2017); Summers (2016)
Cultural	'Soft' power through cultural narratives	Drawing upon the mystic of the Silk Road, values of inclusiveness and the "Silk Road Spirit" Exporting Chinese values	Clark (2017), Liu and Dunford (2016); Rolland (2017); Sidaway and Woon (2017) Callahan (2017)
	Sustainable development	BRI as a way to achieve SDGs via ecological modernisation	Hong (2016); Sharh (2016); Yang et al. (2016)
Environmental	Environmental impacts	Externalising domestic environmental risks Implications of proposed projects for energy consumption and climate change Implications of proposed projects for water security	Tracey et al. (2017) Wang and Wang (2017); Zhang et al. (2017) Li et al. (2015);



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Figure 1. Financial value of energy-related projects that form part of the Belt and Road Initiative. All of the projects are at least partially funded by Chinese investors, often the Asian Investment Bank or the Export-Import Bank of China. Note on the dataset: Project data were obtained from an extensive search of news articles, reports and blogs that was up to date in August 2019. ECN (2016) and BUGDPC (2019) were particularly useful as a starting point for the searches. The list is unlikely to be exhaustive as project information can be difficult to obtain, and projects are regularly proposed or cancelled. Data was mapped using QGIS Desktop 3.8.0. The full dataset is available at data.ncl.ac.uk.