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Book

Ten years of the Belt and Road Initiative : what has the BRI delivered for connectivity in developing countries?

Report

Ten years of the Belt and Road Initiative

What has the BRI delivered for connectivity in developing countries?

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Acronyms

ADB	Asian Development Bank
AGOA	African Growth and Opportunity Act
ASEAN	Association of Southeast Asian Nations
BCIM	Bangladesh–China–India–Myanmar Corridor
BRI	Belt and Road Initiative
CBIRC	China Banking and Insurance Regulatory Commission
CCAWA	China–Central Asia–West Asia Corridor
CCCG	China Communication Construction Group
CDB	China Development Bank
CICPEC	China–Indochina Peninsula Economic Corridor
CMEC	China–Myanmar Economic Corridor
CMREC	China–Mongolia–Russia Economic Corridor
CPEC	China–Pakistan Economic Corridor
CR	China Rail
CRBC	China Road and Bridge Corporation
EAEU	Eurasian Economic Union
FDI	foreign direct investment
GDI	Global Development Initiative
GNI	gross national income
MSR	Maritime Silk Road
NDRC	National Development and Reform Commission (China)
NELB	New Eurasian Land Bridge
ODA	overseas development assistance
OFDI	overseas foreign direct investment
RMB	renminbi
SEZ	special economic zone
SOE	state-owned enterprise
XUAR	Xinjiang Uygur Autonomous Region

Executive Summary

Since its launch in 2013, the BRI has sought to address a number of China's strategic priorities – enhancing regional cooperation, rebalancing domestic economic development, expanding trade opportunities and investment, addressing overcapacity, supply-side reform and enhancing its discourse power with developing countries. However, a key question is what the initiative has delivered for developing countries in terms of their development objectives and infrastructure connectivity across a range of sectors. In answer to this question, this report considers four cases: industrial development in Ethiopia; road infrastructure in Cambodia; energy in Pakistan; and connectivity in Kyrgyzstan. The regions and topics discussed serve to showcase the variety of objectives of countries joining the BRI, and the variety of outcomes the initiative has led to. Each case study looks at what the host country government wanted to achieve from the BRI, and the extent to which they have achieved their goals.

Six international economic corridors form the backbone of the BRI. Over time, these corridors have connected the initiative not only to Asia and Europe, but also to other regions, including Africa and Latin America. These corridors have changed in terms of the countries involved, and in terms of their progress; some projects have been cancelled, renegotiated and reshaped; some corridors have achieved considerable progress while others seem to have stalled, or have progressed more slowly). All of these evolutions have significantly changed the shape and forms the initiative has taken compared with the plans formulated and announced 10 years ago.

Patterns of Chinese overseas lending have also shaped the evolution of the BRI, from a boom period in 2009–2013 through a period of plateaued lending from 2013 to 2016 and a slowdown post-2016 due to a combination of factors, including slower Chinese economic growth and monetary tightening in the Chinese financial sector. This slowdown coincided with major bilateral debt restructuring in some developing countries that were heavily dependent on Chinese loans.

China is today the largest sovereign lender to the world, with over $1.5 trillion in direct loans and credits. Chinese lending has helped many developing countries reduce their infrastructure gap through the provision of otherwise unavailable finance for capital-intensive infrastructure projects. The policy banks China Eximbank and China Development Bank (CDB) have been the primary players in financing overseas infrastructure financing and construction, within BRI countries and beyond, with approximately $498.1 billion committed in official lending in the period 2009–2021. (While the BRI was announced in 2013, the pattern of overseas financing that supports many of the projects that constitute the BRI date back to 2009, reflecting the spillovers of capital that came from China's domestic economic stimulus and infrastructure finance as part of its response to the global financial crisis.) Transport and energy have dominated the overseas public finance portfolio, totalling around $202.15 billion and together constituting 65% of total official lending in these years.

In terms of trade, over the last 10 years Chinese exports have increased proportionately more than imports. While many factors, including domestic economic policies and competitive advantage, play a role in shaping bilateral trade, it is evident that bilateral trade patterns have become more uneven, and China has gained more in trade terms than many of its trade partners within the BRI. A brief outline of the conclusion of each case study is listed below.

Case studies of Chinese investment and infrastructure finance under the BRI

Ethiopia: potential unfulfilled

Chinese capital has played a key role in developing the manufacturing sector in Ethiopia through direct investment (in 2019 Chinese foreign direct investment (FDI) stock in Ethiopia amounted to $2.5 billion) and by building industrial parks and infrastructure. However, this has not been enough to achieve the levels of manufacturing growth sought by the Ethiopian government as other political and technical factors (e.g. Tigray conflict) have also impacted growth ambitions.

Cambodia: successful balancing act

The Cambodian government has succeeded in bringing in foreign capital to expand and rebuild its road network. Much of this capital was Chinese (in 2000–2021 China financed over $4 billion in infrastructure in the country), while other donors provided smaller contributions (e.g. Japan $2 billion and Asian Development Bank (ADB) $1.5 billion). This astute use of donor funding allowed the Cambodian government to achieve its objectives in terms of expanding the road network.

Pakistan: mixed picture

The majority of CPEC (China–Pakistan Economic Corridor) infrastructure have targeted energy infrastructure, including hydropower, coal-fired thermal power, wind, solar and transmission lines. Chinese energy investments in Pakistan have both increased energy security in Pakistan by expanding generation capacity and also weakened it by locking in coal technologies that are highly exposed to market volatilities and that risk becoming stranded assets under international climate accords and green market forces.

Kyrgyzstan: mission unaccomplished

China is Kyrgyzstan's largest trading partner and has played an important role as a foreign direct investor, accounting for 27% of FDI flow in 2022 and 35% of total FDI in the period 2013–2022 (National Statistical Committee of the Kyrgyz Republic, 2023). Chinese lending has been one of the key sources for infrastructure finance in the country in the last ten years. Chinese financiers have supported strategic infrastructure projects through a combination of loans and grants. This has helped the country to improve infrastructure and connectivity and is in line with its ambition to become a transit country in the region, but it has also led to high levels of external debt. Kyrgyzstan has not succeeded in its aim of diversifying the economy over the past decade: the share of the mining sector in the Kyrgyz economy has increased, while manufacturing's share has declined. Industrial growth has been influenced by various factors, including accession to the Eurasian Economic Union (EAEU) in 2015. Increased imports of industrial goods from China has also potentially had adverse effects on the domestic manufacturing sector.

Key takeaways

The BRI has delivered remarkable increases in connectivity. To illustrate, the time it takes to transport goods from cities in central and western China to the European market has reduced significantly, from 40 days by sea to 10 days with the introduction of CR Express trains (Belt and Road Portal, 2021). Considerable improvements in energy connectivity have been achieved through construction of gas pipelines such as four of five China–Central Asia gas pipelines.

Developing countries have benefited from access to infrastructure finance, but this has also resulted in high levels of debt to China in certain countries, such as Kyrgyzstan, Angola and Ethiopia. Chinese finance has also helped developing countries to divert capital to industrial development programmes and social needs, while reducing the costs of trade.

China has significantly increased its trade in the last ten years. Analysis of trade flows shows different trends across countries, but overall global Chinese exports have increased proportionately more than imports, attributed to the greater competitiveness of Chinese goods compared to goods of its less industrialised trade partners. China's exports to developing countries are characterised by high valued-added manufactured goods, while most exports from developing countries to China consist of lower value-added raw materials and agricultural products. Whether developing countries can turn this trend in their favour ultimately depends on their capacity in policy-making and the use of local content strategies to encourage inward FDI and localisation by Chinese enterprises.

In terms of China's strategic domestic objectives, it has utilised industrial overcapacity by promoting exports and expanding the market for its companies. This often included a shift of production capacity to where there is ready demand. Infrastructure projects with Chinese engineering and construction companies were often accompanied by procurement of construction materials from China, while investing in large-scale overseas infrastructure projects enables China to export its excess savings and utilise its investment capacity in other markets. Finally, energy projects under the BRI, such as the China–Central Asia gas pipeline and the Russian Gas Supply Pipeline Construction Project, have helped China achieve strategic energy supplies. The entire pipeline will transport 38 billion cubic metres of Russian natural gas to China annually from 2024 under a $400 billion 30-year energy deal signed between Russian state gas giant Gazprom and China National Petroleum Corp. The establishment of Chinese-owned mines, for instance in Kyrgyzstan, ensures access to raw materials.

This analysis of 10 years of the BRI shows that, while Chinese infrastructure finance contributed to achieving countries' economic objectives, the impact on developing countries depended on their economic policies, including their industrial policy and policies supporting the competitiveness of their producers, as well as capacity to manage external debt. The case study analysis shows how the BRI has delivered very different outcomes around the world, depending not so much on any specific choices on the Chinese side, but rather on the host country's characteristics, economy and politics. Going forward, host countries' own domestic context will remain a crucial factor in determining the outcomes of the BRI.

What to watch

- What will the next decade of the BRI look like? Will the initiative continue to expand? Will it be fundamentally reshaped? Will it be complemented by, or replaced with, other initiatives such as the GDI (Global Development Initiative)?
- In the context of a potential future rebalancing of the Chinese economy away from investment-led growth, what will the future of China's engagement with low- and middle-income countries and the BRI look like?
- How will the changes in public lending trends shape the future of the BRI? Will we see more appetite for private financing of infrastructure after the decline of official policy lending? How will that play out in low- and middle-income countries, given the limited presence of frameworks to support private infrastructure investment?
- What is the long-term impact of China's domestic energy needs on BRI countries? How will this affect the growing trend in 'higher value-added goods for raw materials' trade between China and developing countries?

The BRI in context

In 2013, the Chinese Government announced plans for a Belt and Road Initiative (BRI) to build 'connectivity' and new links across continents. The BRI was presented to the world as having the potential to promote new development pathways through investment and lending in host countries. However, this is not a given; as a powerful external change agent, the BRI also has the potential to increase a range of economic, environmental and political risks within and among BRI host countries. China argues that enhancing 'connectivity' via initiatives such as the BRI is one of the major avenues by which countries, especially low-income countries, can achieve their development objectives – but the scope and complexity of the BRI, and the lack of transparency and robust data surrounding it, make analysing the associated opportunities and risks challenging.

What is the BRI?

Primally envisaged as an initiative spanning Asia, Europe and the Pacific, the BRI has evolved to encompass Africa and Latin America as well. The BRI aims to promote infrastructure development, strengthen regional connectivity, enhance economic cooperation and foster people-to-people exchanges among participating countries. The 2015 Vision and Actions on Jointly Building Silk Road Economic Belt and 21st-Century Maritime Silk Road lays out clearly the ambitious objectives of the BRI (first publicly articulated in 1999):

> To promote the connectivity of Asian, European and African continents and their adjacent areas, establish and strengthen partnerships among the countries along the Belt and Road, set up all-dimensional, multi-tiered and composite connectivity networks, and realise diversified, independent, balanced and sustainable development in these countries. The connectivity projects of the Initiative will help align and coordinate the development strategies of the countries along the Belt and Road, tap market potential in this region, promote investment and consumption, create demands and job opportunities, enhance people-to-people and cultural exchanges, and mutual learning among the peoples of the relevant countries, and enable them to understand, trust and respect each other and live in harmony, peace and prosperity. (NDRC, 2015)

The concept of BRI connectivity focuses on building new links across continents by strengthening five types of connectivity: infrastructure connectivity; policy coordination; unimpeded trade; financial integration; and people-to-people bonds (Xinhua, 2019).

Figure 1 BRI connectivity

Source: Authors' own

The Chinese Government signalled its willingness to invest between $1 trillion and $8 trillion over the lifetime of the BRI. Of all the pillars, infrastructure connectivity is the one synonymous with the BRI and is the focus of this report.

The BRI seeks to establish a transport network consisting of a 'Belt', i.e. overland transport connecting China to Europe through Central Asia; and a 'Road', i.e. a Maritime Silk Road (MSR) to southern Europe through the Suez Canal and back to Asia, with a stopover in East Africa. Six international economic corridors form the backbone of the BRI. Infrastructure connectivity is to be realised through six international economic corridors via rail, road, seagoing transport, aviation, energy pipelines and integrated cyberspace networks. Access to markets for Chinese goods is a key pillar of the BRI, hence the focus on transportation connectivity. Examples of such projects include the Peshawar–Karachi motorway in Pakistan, the Addis Ababa–Djibouti railway (the first transnational electrified railway in Africa) and the China–Kyrgyzstan–Uzbekistan railway. Oil and gas projects under the BRI include the Datka–Kemin transmission line in Kyrgyzstan and the Karot hydropower station and Port Qasim coal-fired power plant in Pakistan.

The six corridors, discussed in more detail in section 2, are the new Eurasian Land Bridge, the China–Mongolia–Russia Corridor, the China–Central Asia–West Asia Corridor, the China–Indochina Peninsula Corridor, the China–Pakistan Corridor and the Bangladesh–China–India–Myanmar Corridor. Maritime Silk Road is a sea route connecting China's coastal regions with South and Southeast Asia, the South Pacific, the Middle East and Eastern Africa, all the way to Europe. Of these, the China–Pakistan Economic Corridor (CPEC) is regarded as a 'flagship project', and is of great significance to Beijing's goal of realising stability in the Xinjiang Uygur Autonomous Region (XUAR) by linking the XUAR through road, energy and rail projects with Gwadar port on Pakistan's south-west coast (Qin, 2017) amongst other objectives discussed below.

The BRI: evolution, drivers and aims

To fully understand the scope and aims of the BRI, it must be viewed in the wider context of Chinese Communist Party (CCP) strategic thinking, going back decades. The BRI builds on regional economic and security cooperation mechanisms designed to enable the CCP to meet its commitment to achieving national rejuvenation through the delivery of the 'Two Centenary Goals' (Liang Ge Yibai Nian): to build a moderately prosperous society by 2021 and forge a strong, democratic, culturally advanced, harmonious and modernised socialist country by 2049 with

a 'world-class' military. For example, the BRI builds on Beijing's domestic regional economic growth strategies such as the Great Western Development Strategy, the Strategy for the Rise of Central China and the Northern Revitalization Strategy, and the the 2002 'Going Out' strategy (走出去战略 *zou chu qu zhanlüe*), which led to an extensive programme of outward foreign direct investment (OFDI), and connected China's provinces and regions to the outside world (Du and Zhang, 2018). China also has a preference for piloting new reforms and policy approaches before they are rolled out more widely. As such, the BRI rollout draws on tried-and-tested development approaches that China feels it has abundant experience in leveraging and scaling up, such as the creation of special economic zones, high-tech industrial development zones and cross-border economic cooperation pilot zones to encourage domestic and foreign enterprises to invest and start businesses, promote foreign trade and optimise resource allocation.

This combination of policies has facilitated a steady increase in Chinese outward investment and lending over the past decades. This in turn has created new development trends, built new institutional relationships (often with ruling elites) and shaped political discourses within host countries and internationally. From a host country perspective, it has also created a set of expectations around what the Chinese want, and how they approach development.

Drivers and aims: managing vulnerability and risk

Some argue that the primary function of the BRI is to provide a 'favourable external environment for China's economic restructuring' (Qin, 2017). For others, the BRI is seen as constantly evolving, representing an important platform for achieving China's transition from 'world factory to world market' by moving towards high-quality growth (Wang, 2018). What is clear is that successive Chinese leaders have sought to address geopolitical and economic vulnerabilities through a wide range of reforms and policy measures. The BRI is one such initiative, externally facing yet managing both short- and long-term domestic vulnerabilities as well as perceived external risks.

Domestically, this includes provincial indebtedness, overcapacity and issues of supply-side reform, increasing wealth disparities between regions, and concerns over China's ballooning debt-to-GDP (gross domestic product) ratio. External political and economic risks have become greater concerns as China's exposure to overseas disruptions to supply chains (namely raw materials, energy and food) and asset values has increased. Geopolitically, the US pivot towards Asia under the Obama administration, a desire to reform the international economic system, alongside tensions on the Korean peninsula and in the South China Sea and an ongoing border dispute with India, have all reinforced Beijing's desire to engage in intensive diplomacy with its neighbours.

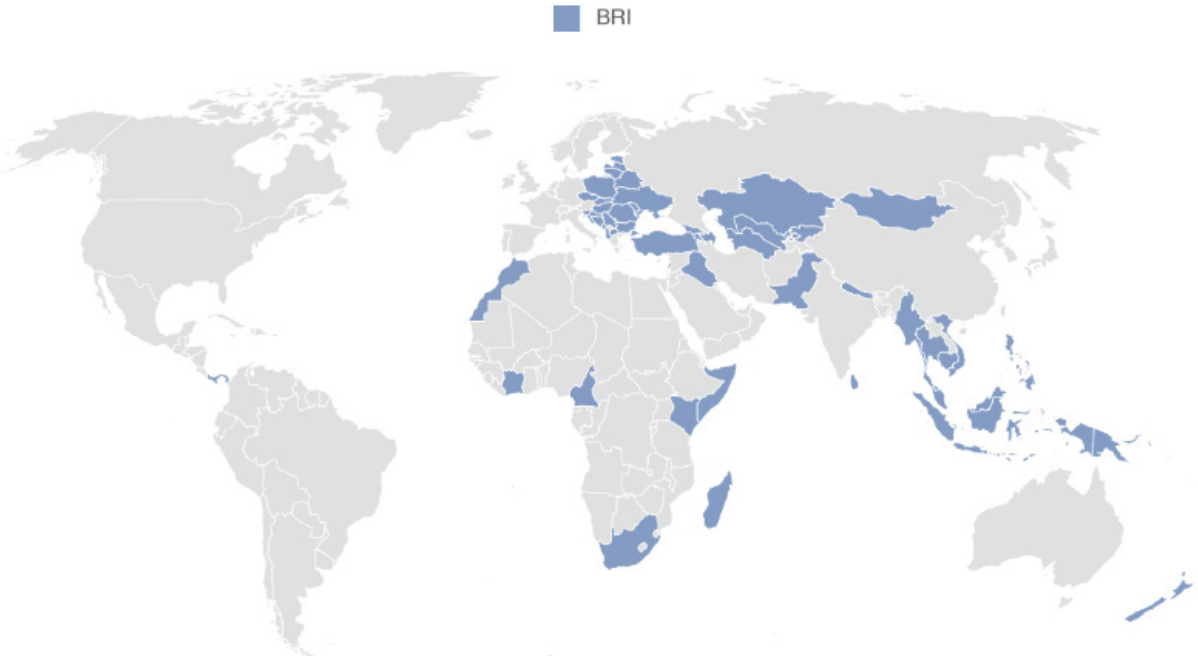
Enhancing regional cooperation and creating a favourable external political environment

For decades, China has sought to secure its 'periphery' (zhoubian) through diplomacy, institution-building, security and economic cooperation, aid and cultural exchange and, most recently, economic integration via the BRI. While there is no official definition of what constitutes China's periphery, Swaine (2014) suggests it encompasses Central Asia, South Asia, Southeast Asia, North-East Asia, parts of West Asia (the Middle East) and the South Pacific. It is no coincidence that the BRI targets these geographies. Many are also low- and middle-income countries that struggle to attract and access financing due to high regulatory, credit and political risks. The BRI, and partnership with China more broadly, is appealing to many of these countries: China can be a significant partner in terms of trade, investment and aid, without making demands for political or social reform.

Over the past decade, the BRI has rapidly gained momentum and transformed into an extensive network of projects, investments and partnerships. In 2017, when the Belt and Road Forum for International Cooperation was held, it had established partnerships with 56 countries (Figure 2). By 2023 this had grown to at least 149 countries (Nedopil Wang, 2023) and several international organisations, positioning China as a global leader in infrastructure development and economic integration (Figure 3).

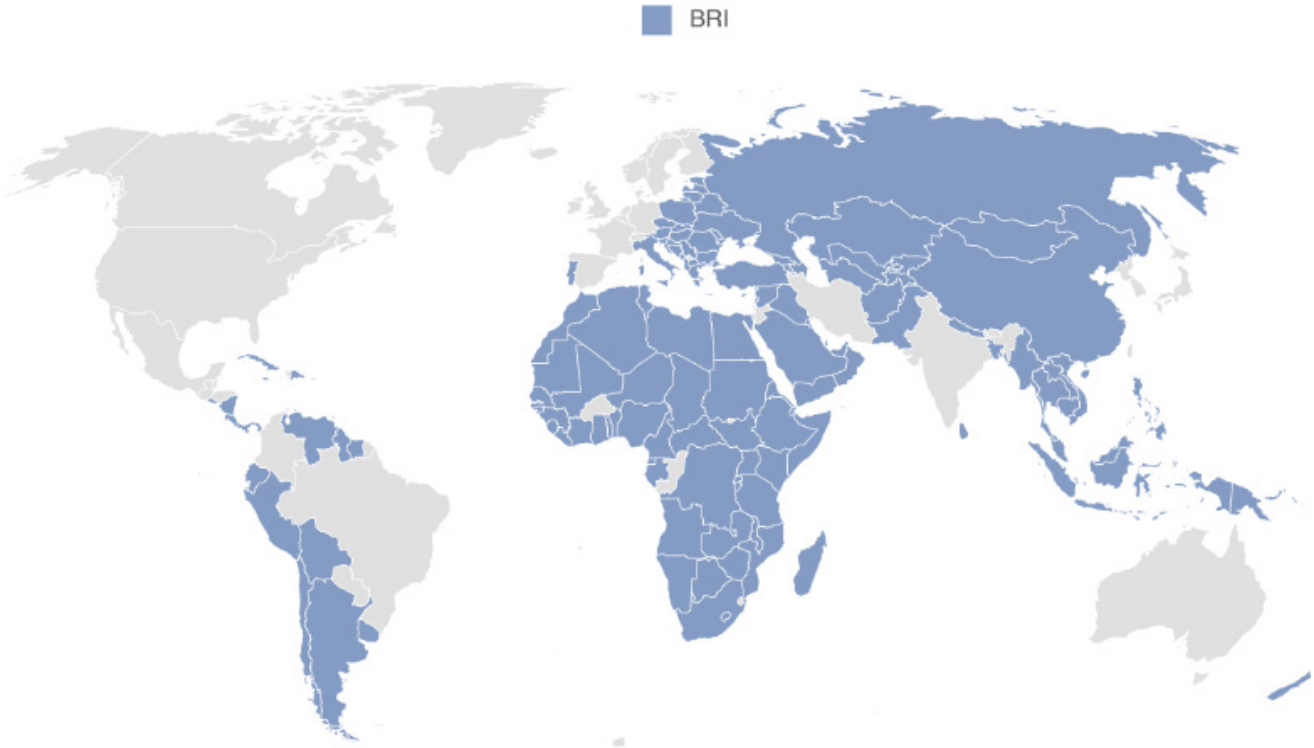
Developing connectivity via the BRI's economic corridors is intended to secure supplies and markets through trade routes that avoid chokepoints such as the Malacca Strait, ensuring reliable trade connections for China for both imports and exports. Chinese companies contribute to ensuring a steady supply of natural resources through their investments in extractives across the globe, as well as counterbalancing US economic and security relationships in Asia.

Figure 2 Countries that had signed BRI memorandums of understanding (MoUs) by 2017 (56 countries)



Source: adapted from Nedopil (2023).

Figure 3 Countries that had signed BRI memorandums of understanding (MoUs) by 2023 (149 countries)



Source: adapted from Nedopil (2023).

Driving economic development in China's Western regions and a new model of development

A core aim of the BRI is to help develop China's vast western hinterland (the Xinjiang Uygur autonomous region of Xinjiang, and Gansu, Tibet and Qinghai) and tackle imbalances in socio-economic development between the flourishing coastal provinces and less developed western and central areas (Du and Zhang, 2018). This is evident in BRI flagship initiatives such as the China–Pakistan and China–Myanmar Economic Corridors, which aim to support development in remote areas of Xinjiang and Yunnan provinces, respectively. For Beijing, the BRI offers an opportunity to rebalance trade and investment from eastern coastal areas inland to the centre and west and connect with consumer markets in Central Asia and beyond. China sees massive market potential in many Eurasian countries.

The BRI also offers an opportunity for Beijing to showcase 'development with Chinese characteristics'. China is keen to stress that it is providing developing countries with a new alternative to Western approaches, citing its own rapid growth as evidence enough of the success of the Chinese development model. For example, the Great Western Development Plan (Xibu Da Kaifa), launched in 1999, provides a 'blueprint for the BRI' with its focus on upgrading infrastructure and connectivity, improving production capacity, exploring untapped markets to expand consumption and improving SOE (state-owned enterprise) performance (Fang et al., 2019).

Expanding trade opportunities and investment

Alongside the rebalancing of China's regions, a critical function of the BRI is to expand trade opportunities and increase outward investment. Damoah et al. (2019) argue that, through the BRI, China wants to strengthen its trade relations with neighbouring countries by developing the new export markets and upgrading its production lines thanks to improved access to intermediate inputs. The aim is to expand overseas markets for the development of high-end manufacturing and to develop China's service industry. By 2020 China accounted for more than $78 billion in FDI stock to developing countries along the BRI, and the total debt owed to China by developing countries was $142.95 billion. Developing countries accounted for 38.8% of Chinese BRI investments. Countries with the strongest trade links accounted for most Chinese foreign direct investment. For example, Indonesia and Vietnam, top trade partners to China in 2020, were also the top recipients of OFDI among developing countries along the BRI.

Addressing overcapacity and facilitating supply-side reform

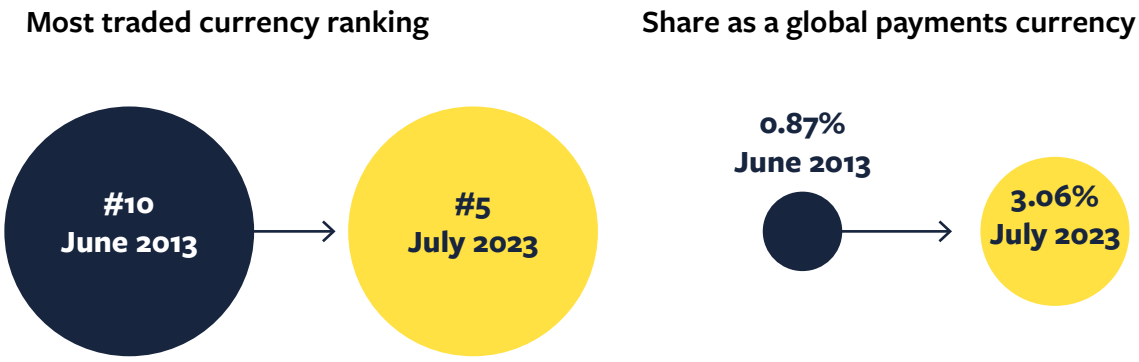
The global financial crisis of 2008 and the Chinese Government's response to it led to over-expansion of key sectors of the Chinese economy, causing extensive overcapacity. This includes not only overcapacity in terms of construction and production of materials such as steel and coal, but also in investment capacity and skills that are not getting high enough returns in China and can therefore be redeployed towards other markets. The BRI is seen as a 'spatial fix', whereby increased infrastructure financing in BRI countries would provide new demand for Chinese exports and opportunities for construction companies and investors.

Pushing back the dollar: reform of the international economic system and internationalisation of the RMB

The BRI is seen as presenting opportunities to reform the international economic system and support the internationalisation of the RMB (renminbi). In 2016, the renminbi was added to the Special Drawing Rights. China's growing trade, Belt and Road investments, expanding network of renminbi currency swaps, and official clearing banks and issuance of panda bonds are all helping to drive the internationalisation of the RMB.

In July 2023, the RMB was the fifth most-traded currency according to SWIFT, up from tenth in June 2013 (Figure 4). China plays a major role in the SCO (Shanghai Cooperation Organisation), and use of RMB is growing among its members. In July 2023, China proposed expanding the use of national currencies among SCO members (Global Times, 2023). The Russian invasion of Ukraine has given an additional boost to RMB use: 80% of contracts between Russia and China are now being settled in RMB and roubles (Chen and Lin, 2018).

Figure 4 Internationalisation of RMB



Source: compiled by authors using data from SWIFT monthly RMB tracker, 2023.

The BRI: institutional organisation

A decade on, what constitutes a BRI project is not immediately clear given the myriad investments, activities and projects operating under the BRI banner. Chinese and host country officials alike often find it difficult to articulate what constitutes an official BRI project, or the precise conditions that define a BRI project as opposed to general Chinese finance. Whether intentional or not, this lack of transparency makes it difficult to disaggregate the BRI from wider Chinese outward political and economic engagement.

According to Xinhua (China's official news agency), BRI activities include: carrying out projects through their complete lifecycle; the provision of goods and materials; technical support; dispatching medical teams; and delivering emergency humanitarian assistance (Xinhua, 2019). One 2018 report by the People's Bank of China and the City of London Corporation identifies 2,392 domestic projects in China amounting to RMB13 trillion and 1,485 foreign projects amounting to over $837.41 billion as being under the BRI. In fact, the proliferation of the term 'BRI' to describe everything from peer-to-peer

wealth management products, commemorative coins and research associations prompted the Leading Group in 2017 to issue a notice to prevent misuse of the term (Liu, 2019).

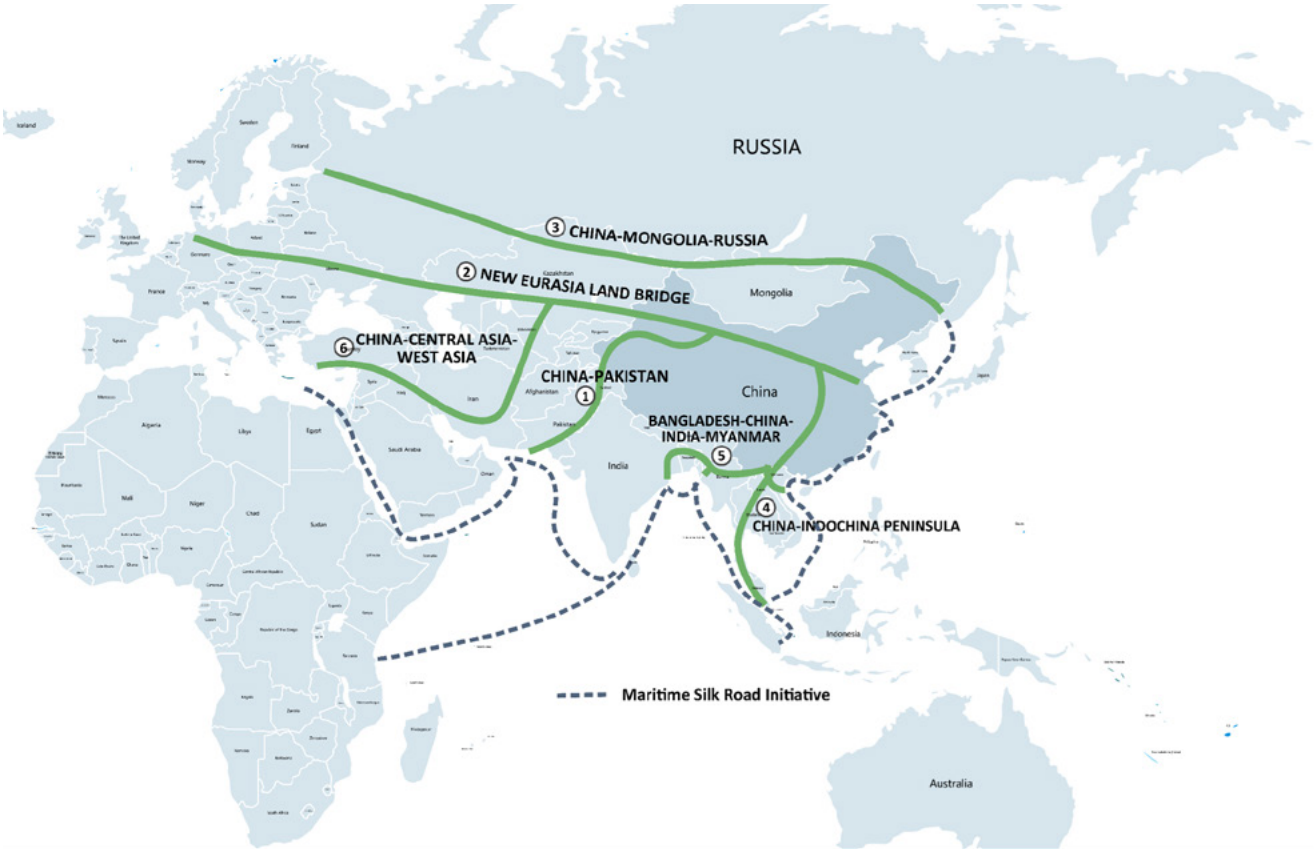
This lack of clarity is amplified by the fact that Beijing is unlikely to provide a definitive list of projects and activities, as well as by the multitude of Chinese actors involved. For example, BRI projects (as part of wider investment and foreign policy) are sanctioned and then undertaken by a myriad of policy, funding and delivery stakeholders, from the BRI Leading Group – covering development, trade, finance, foreign affairs and reform agendas, headed up by recently appointed Vice President Han Zheng – to government ministries, central, provincial and local SOEs, financial institutions, private investors, Chinese-led regional economic investment and trade forums and multilateral and third-party finance.

In terms of the major BRI infrastructure projects, most actors fall under the following categories: Lender; Risk Transfer (Political and Credit Insurance); Construction Company; and Project Developer. These actors range from SOEs (central and local) to individual investors with varying degrees of expertise and experience of managing risks. This diversity leads to inefficiencies, fragmented responsibilities and limited communication with host country agencies and communities. It also makes timely execution of BRI projects challenging. BRI projects have been paused or cancelled along several of the economic corridors (see section 2) and many projects under the BRI banner predate the announcement of the BRI in 2013.

Evolution of BRI economic corridors

Six international economic corridors form the backbone of the BRI: the Eurasian Land Bridge, the China–Mongolia–Russia Corridor, the China–Central Asia–West Asia Corridor, the China–Indochina Peninsula Corridor, the China–Pakistan Corridor and the Bangladesh–China–India–Myanmar Corridor. In addition, the Maritime Silk Road (MSR) sea route connects China's coastal regions with Southeast and South Asia, the South Pacific, the Middle East and Eastern Africa, all the way to Europe. The China–Pakistan Economic Corridor is regarded as a 'flagship project' and is of great significance to Beijing's goal of realising stability in the Xinjiang Uygur Autonomous Region (XUAR) by linking the XUAR through road, energy and rail projects with Gwadar port on Pakistan's south-west coast (Qin, 2017), amongst other objectives discussed below.

Figure 5 Belt and Road Initiative corridors



Source: complied by authors

Table 1 BRI corridors, Maritime Silk Road and their aims

Corridor	Start of the corridor in China	Aim and political significance
China–Pakistan Economic Corridor	Western China (Xinjiang)	Designated as a 'flagship' programme of the BRI; framed in the context of the strong China–Pakistan bond ('ironclad friendship') Aims to secure and reduce the passage for China's energy imports from the Middle East by avoiding existing routes from the Straits of Malacca between Malaysia and Indonesia
Bangladesh–China–India–Myanmar	Southwestern China (Yunnan)	Aims to connect East Asia, South Asia and Southeast Asia, and to link the Pacific and Indian Oceans. Focuses on infrastructure and energy projects
New Eurasian Land Bridge	Western and Eastern China (Lianyungang, Rizhao, Urumqi, Alashankou)	Aims to increase cooperation in energy/ natural resources and build regional markets in Central Asia
China–Mongolia–Russia	Northern China (Beijing-He-bei, Hohhot; Northeastern China (Tianjin, Dalian, Shenyang, Changchun, Harbin and Manzhouli)	Links the BRI with Russia's Eurasian Economic Union and Mongolia's Prairie Road Development initiative. Aims to improve transport connectivity and cross-border trade services through infrastructure development
China–Central Asia–West Asia	Western China (Urumqi, Kashgar)	Aims to expand cooperation in energy, infrastructure and trade with a focus on nuclear energy, aerospace satellites and new energy
China–Indochina Peninsula	Southern China (Nanning, Guangxi and Kunming, Yunnan)	Aims to connect Southwest China to countries on the Indochina Peninsula to enhance wider cooperation between China and ASEAN (the Association of Southeast Asian Nations)
Maritime Silk Road	Southern and Southeastern China	Aims to enhance China's state maritime-based economy, securing sea lines of communication (especially trade routes, such as in the Indian Ocean) and securing global terrestrial–maritime connectivity for food, energy, critical commodity supply chains

The China–Pakistan Economic Corridor

The China–Pakistan Economic Corridor (CPEC) begins in Western China (Xinjiang) and leads to Pakistani ports on the Arabian Sea. Perhaps reflecting the importance of Pakistani–Chinese relations, the CPEC was the only single-country corridor before the creation of the China–Myanmar Economic Corridor (see below). It is also a flagship corridor, so its success carries enormous importance for the BRI (Opitz-Stapleton et al., 2021).

The CPEC is the only BRI corridor with a dedicated secretariat, hosted by Pakistan's Ministry of Planning, Development and Special Initiatives, and an official website providing information on the status and plans for the corridor (https://cpec.gov.pk/). The CPEC was designed to be implemented in three phases: a short-term phase (2015–2022), a medium-term phase (2021–2025) and a long-term phase (2026–2030). The first phase focused on infrastructure, energy and port development projects. The second phase focuses on industrial development, aiming to establish special economic zones in various parts of the country.

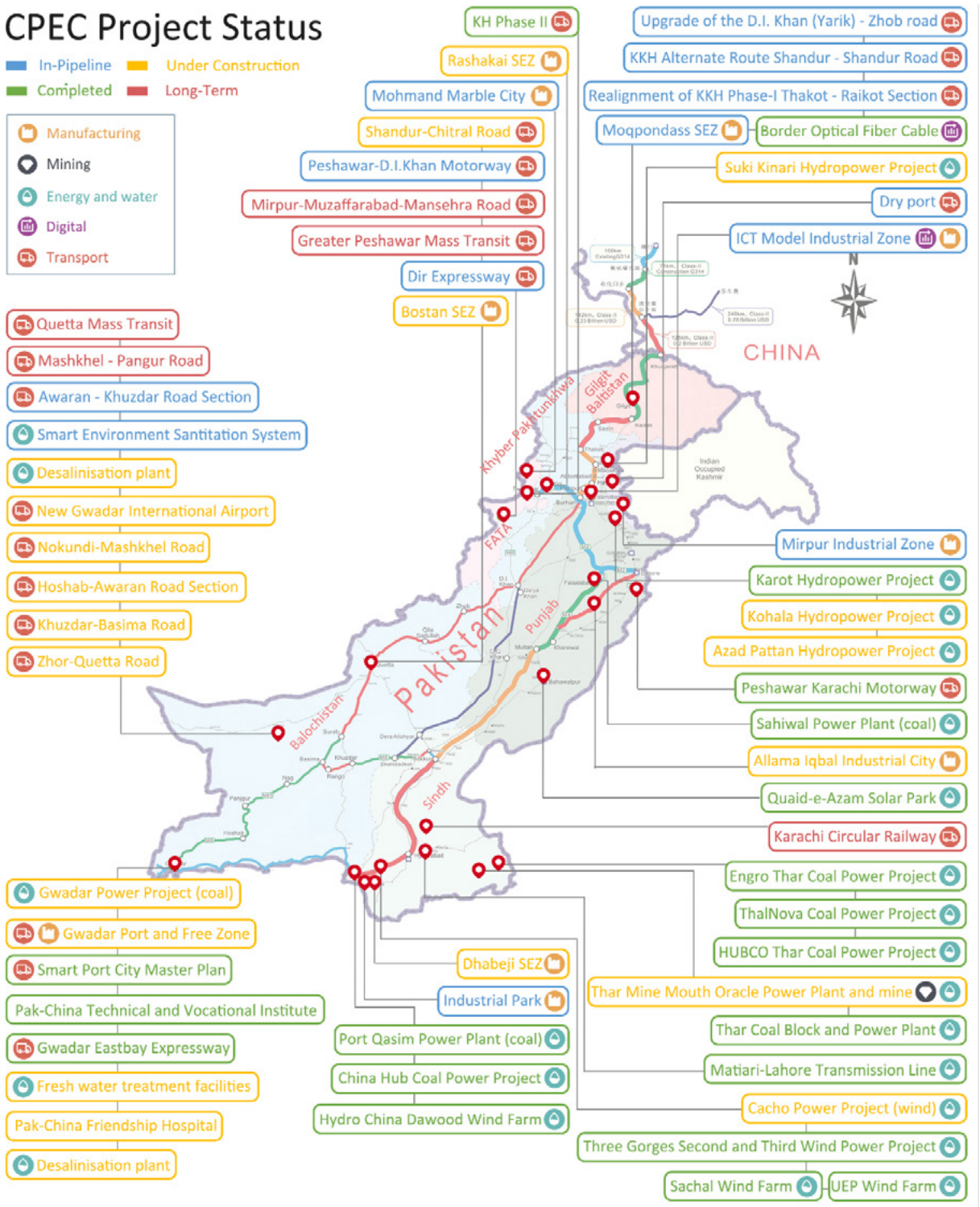
The CPEC is intended to secure the passage of China's oil and petrol imports from the Middle East by avoiding existing routes through the Straits of Malacca between Malaysia and Indonesia. For Pakistan, the CPEC offers an opportunity to modernise transportation systems and connect the deep-sea ports of Gwadar and Karachi to the XUAR in China and beyond by overland routes.

The CPEC's main planned projects were to include energy, land and sea transport infrastructure and industrial zones. In terms of energy, over 20 generation and transmission projects were planned, intended to provide over 12,600 MW. Of these, 14 projects have been completed, generating 8,220 MW, largely from coal, but also from wind, solar and hydro. The remaining projects are either under construction or still under consideration (Figure 6).

With regard to transport infrastructure, over 5,000 km of roads were to be built or revamped, in addition to the construction of urban transport systems in Lahore, Quetta and the Greater Peshawar region. Of these, 6 projects have been completed (for a little over 800 km), and 5 are under construction (out of 24 planned projects). Another important feature of the corridor is the hub in Gwadar, a port city in Pakistan's largest province, Balochistan. Balochistan's political situation is complex. Several insurgent groups are active in the region, demanding independence from the national government. The Gwadar hub was to include a deep-sea port and an airport, a free zone and other facilities including a power plant, water desalination systems, a new hospital and a training centre. Of these, the port and the road connecting it to national arteries, the development of a 'smart city' and the training institute have been completed.

The original plan also includes nine industrial zones, of which four have been completed, and digital infrastructure, including a completed 820km of fibre cable.

Figure 6 CPEC Project Status



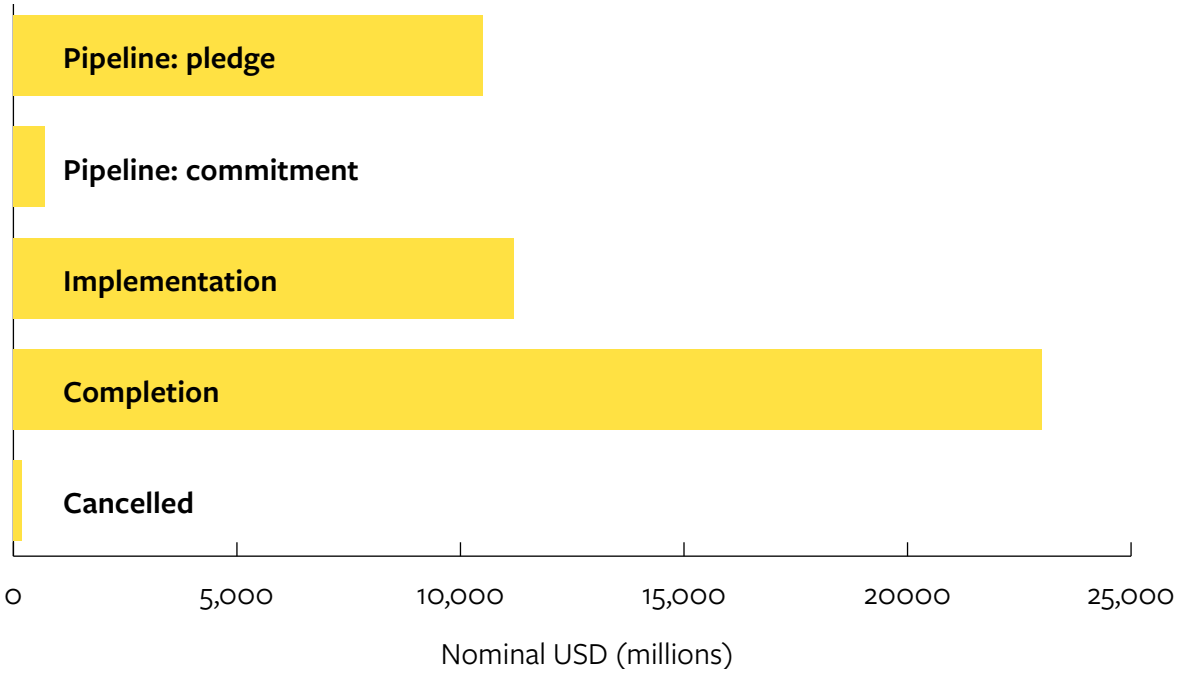
Note: The map has been compiled by the authors based on data from the CPEC official website (www.cpec.gov.pk). Some of the projects are not reflected in this map, including: Vaccine storage and transportation equipment; Poverty alleviation training; Emergency relief supplies; Pakistan Vocational and Technical Education Capacity build-up; Pakistan Vocational Schools equipment upgrade and renovation; Orange Line Metro; Digital Terrestrial Multimedia Broadcast (pilot); Hakla–DI Khan Motorway. Source: compiled by authors

Progress

Overall, the CPEC has made progress, notably in terms of energy projects and in the development of the Gwadar hub, but it is far from being completed according to the original, ambitious plans. In particular, transport and industrial development projects have seen limited progress. No new projects have begun under the CPEC long-term phase for the last five years and none of the quantitative goals under the CPEC Long Term Plan 2020 have been realised.

Overall, the corridor and related infrastructure have delivered limited economic growth. For instance, there is evidence that CPEC has improved transport logistics and promoted the development of some industries such as local construction and cement production, but overall it has not proved transformative, given its modest size compared to the Pakistan economy (Landry, 2023; McCartney, 2022).

Figure 7 Status of Chinese-financed projects in 2010–2017 (nominal USD)



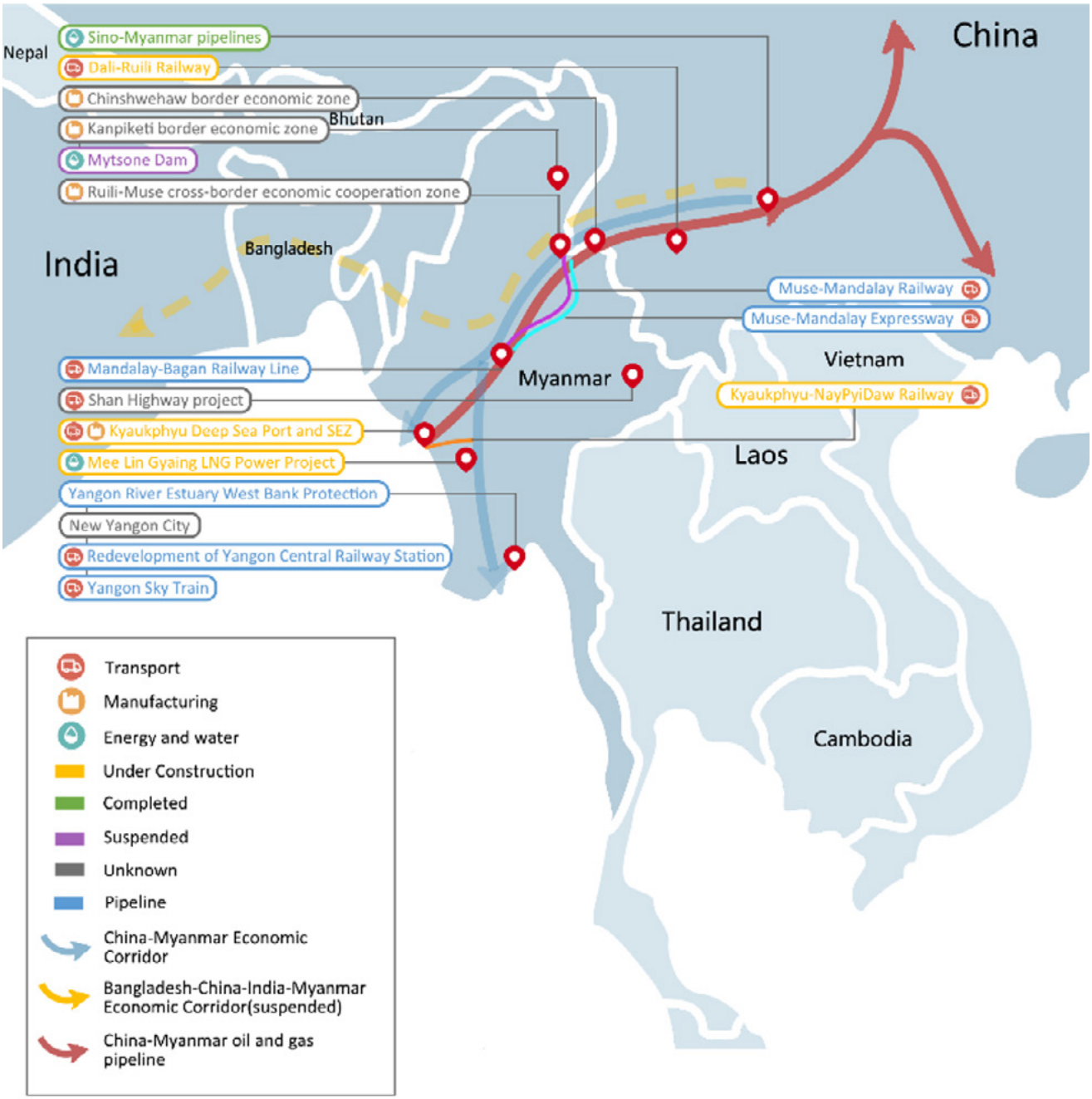
Source: Compiled by authors, based on AidData (2022).

The Bangladesh–China–India–Myanmar Corridor and the China–Myanmar Economic Corridor

The Bangladesh–China–India–Myanmar (BCIM) Corridor was originally conceived by a Bangladeshi academic in the late 1990s and early 2000s, and later adopted by participating states under what became known as the 'Kunming Initiative' starting in 2013. After the first BRI forum, towards the end of 2017–early 2018, the BCIM was replaced by the China–Myanmar Economic Corridor (CMEC), due to China's frustration over the slow progress of the discussions and India's opposition to the BRI, and the general deterioration in China–India relations (Peng, 2018; Aneja, 2019). The BCIM was not included in the list of projects and deliverables of the second BRI forum in 2019, marking the end

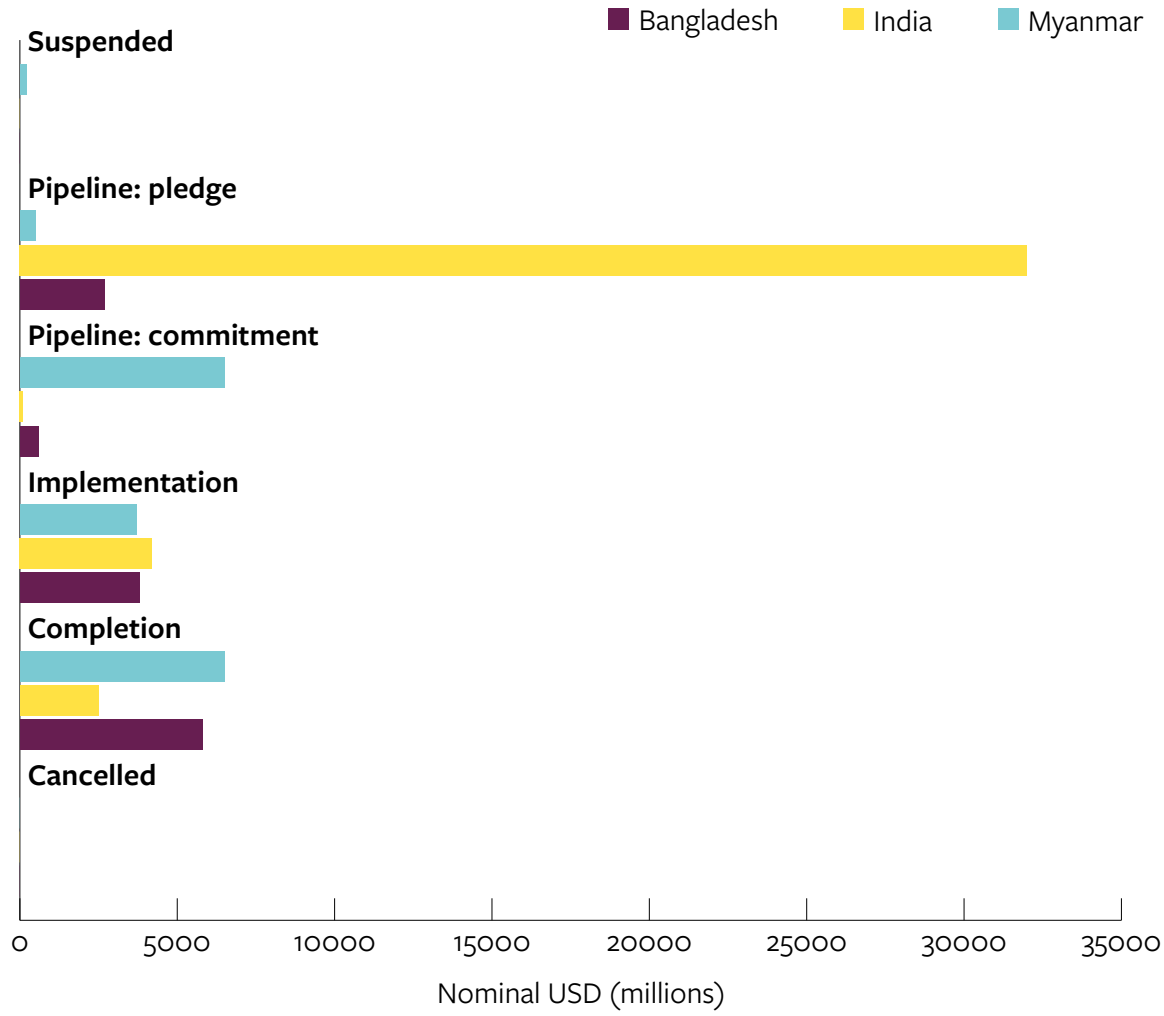
of any plans for it. CMEC, like CPEC, is a single-country corridor connecting the overland route of the BRI with the MSR.

Figure 8 China–Myanmar Economic Corridor



Source: compiled by authors

Figure 9 Status of Chinese-financed projects in 2010–2017 (nominal USD).



Source: compiled by authors, based on AidData (2022)

The CMEC links the coastal city of Kyaukphyu in Rakhine state, Yangon and Mandalay to Yunnan province in China through a host of infrastructure projects, including energy generation, transport networks, industrial zones and cooperation in public health and disaster risk management (Hammond, 2018; Lwin, 2018). China has reportedly proposed 30 projects under CMEC, including the Kyaukphyu–Kunming Railway, the Three Border Economic Zone, a Muse–Mandalay Railway, an urban development project in Yangon, a development project in Pathein and a deep-sea port and special economic zone (SEZ) in Kyaukphyu (Lwin, 2019).

Progress

Several projects have been completed or are moving ahead, including the deep-sea port and SEZ, as well as a Chinese-backed modular 135 MW gas-fired power plant in Kyaukphyu. Regarding the deep-sea port in particular, the National League for Democracy Government of Myanmar (ousted in 2021 by a military coup) had renegotiated the project to reduce costs, and to finance the deal through investment rather than lending, to reduce the burden on Myanmar's public finances (Calabrese and Cao, 2021). Other projects have stalled or been stopped, including projects

predating the BRI. For instance, the controversial Myitsone Dam project in Kachin State was halted in 2011 due to widespread opposition from environmental and human rights groups, as well as local residents. Other projects whose progress is uncertain include the railway from Muse to Mandalay, related road systems and multiple industrial zones (Millar, 2023).

The New Eurasian Land Bridge (NELB)

The NELB linking China to Europe was opened in the early 1990s, but is gaining new impetus from the BRI. The primary focus of this corridor is transport, trade facilitation and economic cooperation. Customs procedures have been simplified along the route, designed to accelerate trade along the corridor, which connects China to Europe through the cities of Lianyungang, Rizhao, Urumqi and Alashankou to Kazakhstan, Russia, Belarus, Poland and Germany, and on to Rotterdam and Antwerp.

Several transcontinental railway connections have been established, including the Chongqing–Xinjiang–Europe Railway, which extends to Duisburg in Germany through Poland; the Chengdu–Xinjiang–Europe Railway, stretching to Poland; and the Yiwu–Xinjiang–Europe Railway, which terminates at Madrid. Interconnected highways, power transmission lines and ports are being developed. The New Silk Highway was completed in 2018 linking Lianyungang in China with St Petersburg in Russia (Belt and Road Portal, 2023a).

Progress

As of 2017, the value of completed projects along the corridor amounted to more than $6 billion. The highest value of completed projects was in Kazakhstan, while Russia had the highest value of projects under implementation (Figure 10). Since then a number of important developments have taken place, including the opening of the Zhengzhou–St Petersburg freight train route in 2023, which has added an efficient and convenient international logistics channel connecting central China to Europe. However, the full potential of transit to European countries via this route is yet to be realised due to the Russian invasion of Ukraine and sanctions on Russia.

As of 2023 projects along this corridor include:

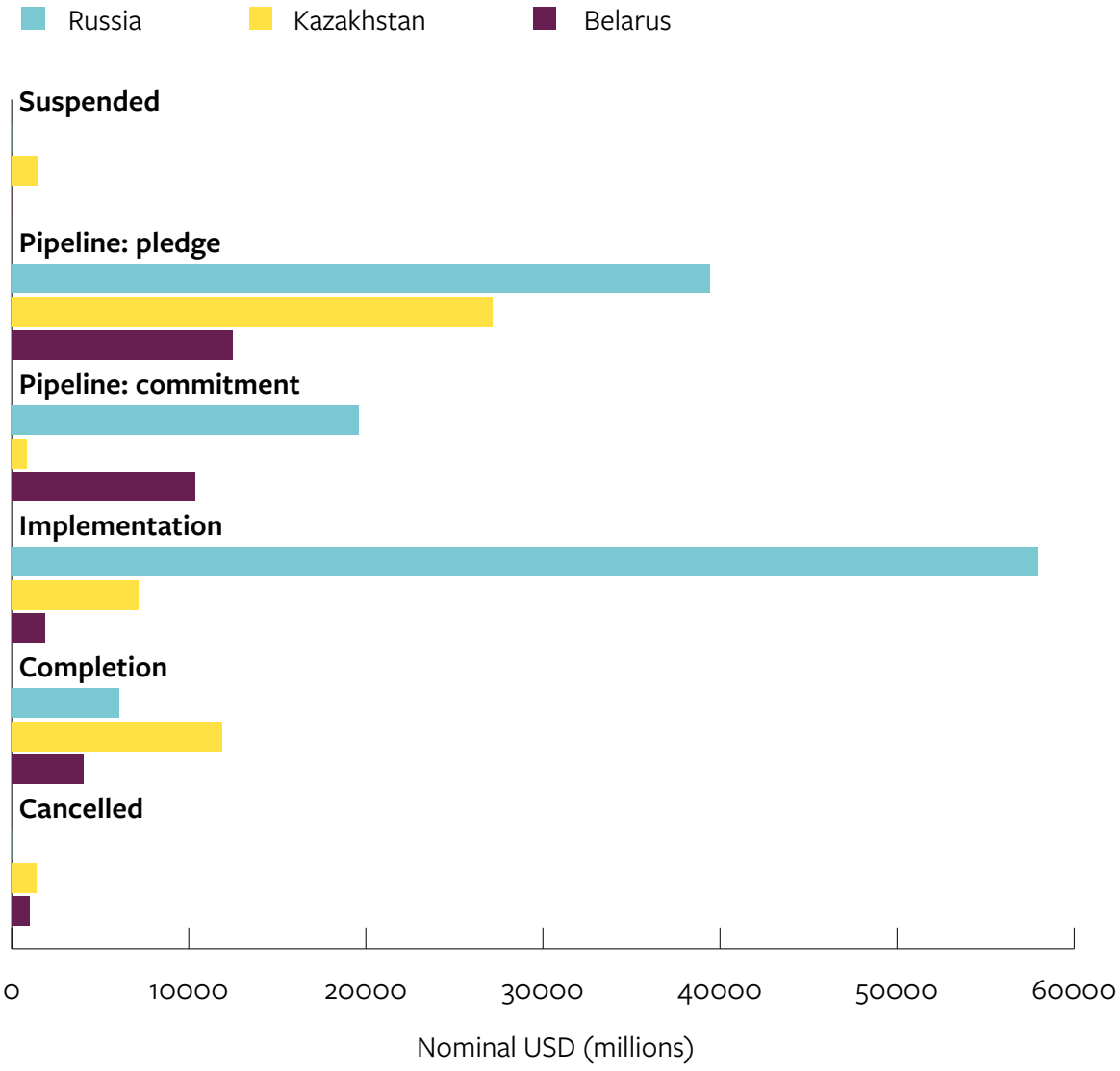
Completed

- The Khorgos International Border Cooperation Centre (dry port or inland port and trading complex at the border between Kazakhstan and China) was completed in 2015. Khorgos is an important transit port and rail interchange increasing cargo flow on the China–Kazakhstan corridor.
- The China Belarus Industrial Park includes more than 100 projects, half of them implemented by Chinese enterprises.
- Chinese Midea Group's joint venture with Belarus' Horizont Holding Company, producing electronics.

Under construction or at the planning stage

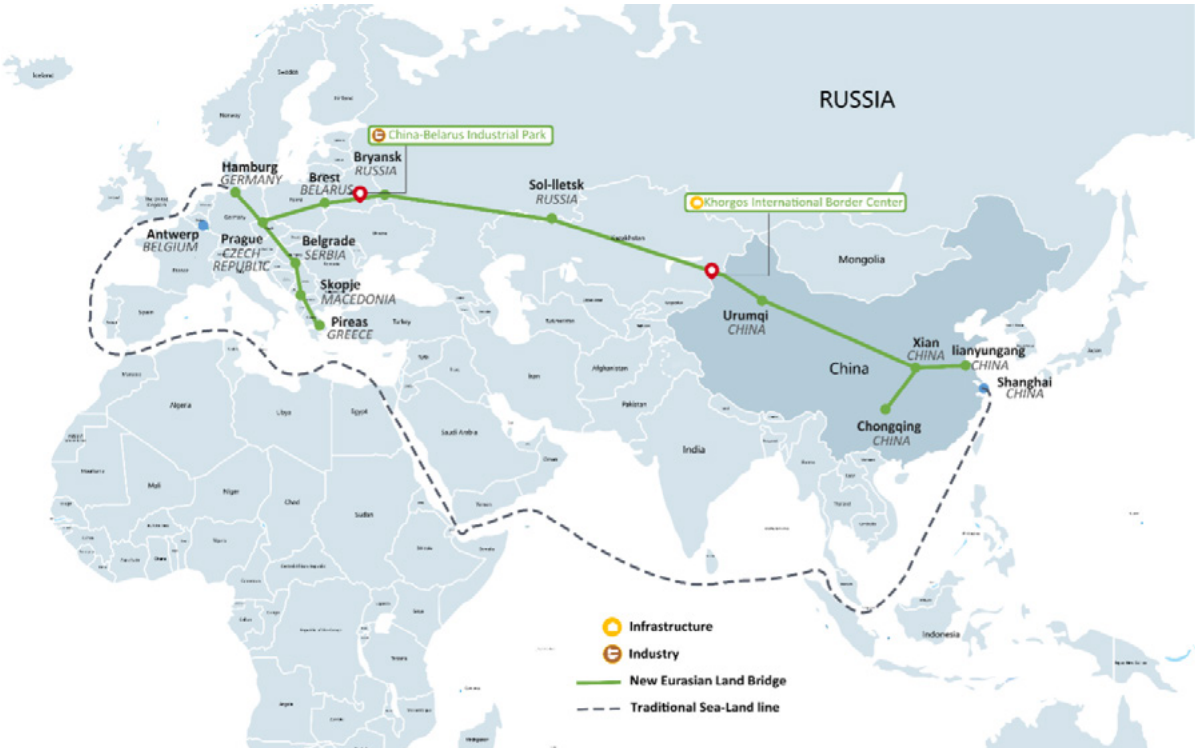
- A light rail transit project (originally planned to be financed as a soft loan of $1.5 billion from China Development Bank) (AidData, 2023a) in the Kazakh capital Astana has been delayed due to a corruption scandal (Sorbello, 2021).
- The largest project with Chinese finance in Belarus – the Nezhinsk mine – is expected to open in 2025.

Figure 10 Status of Chinese-financed projects in Russia, Belarus and Kazakhstan in 2010–2017 (nominal USD)



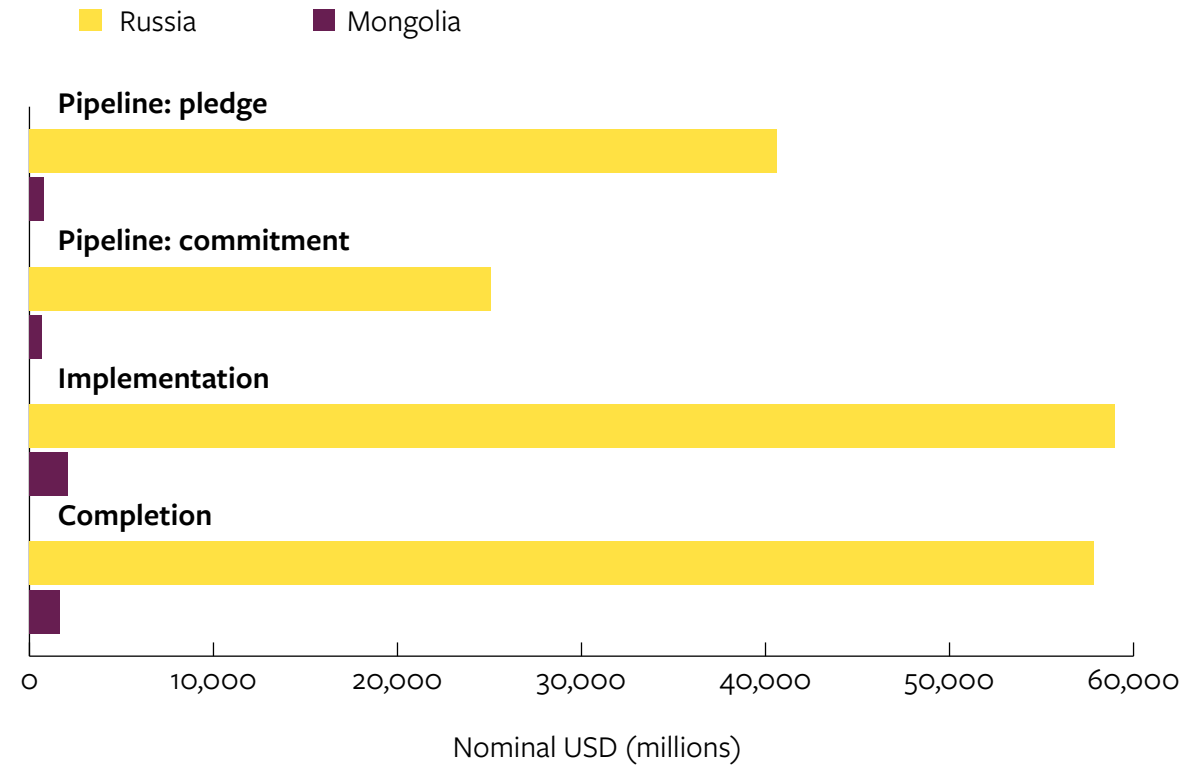
Source: compiled by authors, based on AidData (2022).

Figure 11 New Eurasian Land Bridge corridor



Source: Compiled by authors

Figure 12 Status of Chinese-financed projects in 2010–2017 (nominal USD)



Source: compiled by authors, based on AidData (2022).

Figure 13 China–Mongolia–Russia Economic Corridor

Source: Compiled by authors

The China–Mongolia–Russia Economic Corridor (CMREC)

This route links Northern China (through Tianjin) to Eastern Russia via Mongolia. The corridor aims to enhance cooperation among the three countries in various sectors, including transport, telecommunications and energy. The CMREC has two key traffic arteries: one extends from the Beijing–Tianjin–Hebei region to Hohhot and on to Mongolia and Russia; the other extends from Dalian, Shenyang, Changchun, Harbin and Manzhouli to Chita in Russia.

The initially approved list comprised 32 projects, including 13 in transportation and infrastructure, 2 in the industrial sector and 4 in trade facilitation and inspection procedures (Namzhilova, 2022). By 2017 Mongolia and Russia had $1.6 billion and $57 billion in completed projects respectively, with more projects under implementation (Figure 12, Figure 13). As of 2023, projects along this corridor include:

Completed

A 233 km cross-border rail line between the Tavan Tolgoi coal field and Gashuun Sukhait on the Chinese border (launched in 2022)

Under construction or at the planning stage

- Upgrading and developing the Middle Line Railway Corridor (feasibility study in progress)
- Power of Siberia 2 Russian Gas Supply Pipeline Construction Project from Mongolia to China (feasibility study results announced in 2022; pipeline is expected to begin in 2024 with planned completion in 2029) (Enerdata, 2023)

The China–Central Asia–West Asia Corridor (CCAWA)

This corridor starts from Western China and extends to Turkey and West Asia, passing through the Central Asian countries of Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan and Turkmenistan, Afghanistan and Iran (Figure 14).

The focus sectors are energy resources, industry and trade. By March 2023 the value of Chinese FDI stock in the five Central Asian countries had reached $15 billion (40% over pre-BRI levels) (Belt and Road Portal, 2023b).

Progress

In 2019 Central Asian countries accounted for at least 261 BRI projects with a minimum financing totalling more than $136 million (Aminjonov et al., 2019). Among the Central Asian countries, in 2010–2017 Kazakhstan had the most projects by value completed and in pipeline (Figure 15), and also most cancellations.

As of 2023, projects under this corridor include:

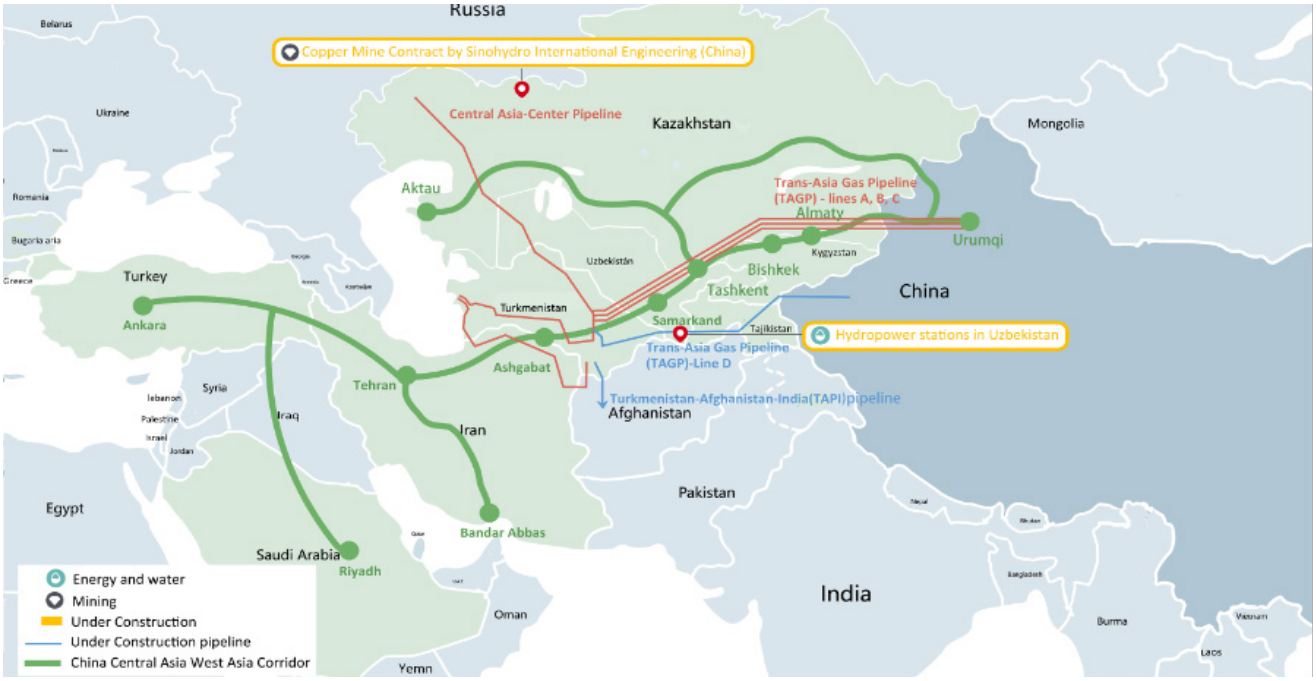
Completed

In 2022 Chinese Chery Automobile Co., Ltd. and Roodell Uzbekistan started manufacturing Chery cars at the ADM Jizzakh plant, in the Jizzakh Free Economic Zone in Uzbekistan.

Under construction or at the planning stage

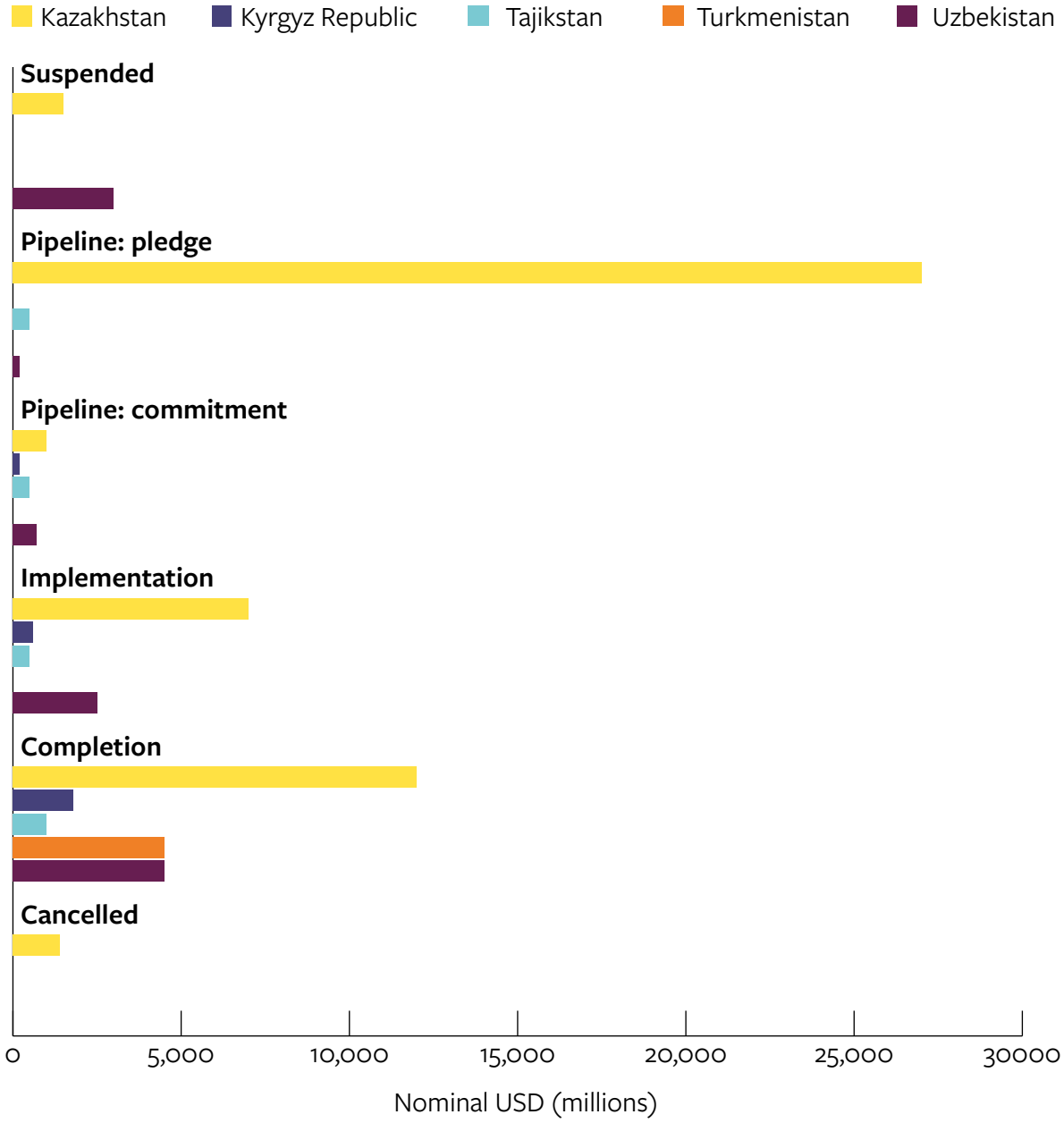
- China–Central Asia gas pipeline (four corridors constructed, fifth under consideration) (Silk Road Briefing, 2023)
- The Five Nations rail corridor: a proposed rail link between Iran and China via Afghanistan, Tajikistan and Kyrgyzstan (the Iranian part of the corridor is under construction)
- China–Kyrgyzstan–Uzbekistan railway (concept note approved, currently in the planning and design stage)
- Copper Mine Contract in Aktobe Kazakhstan ($995 million) by Sinohydro International Engineering (China) – agreement signed in 2022 and under construction
- A centre for the development of a broadband railway communication system in Kazakhstan (Kazakhstan Railways and Chinese Hytera) – signed in 2022 and under construction
- Hydropower stations (Kamolot, Farhad and others) in Uzbekistan (construction and modernisation, financed by China Eximbank) – signed in 2022 and under construction
- In 2022, Sinohydro Corporation won a turnkey contract from National Electric Networks of Uzbekistan to construct two 220 kV power lines from the Syrdarya (Sirdaryo) power plant to the new Zafarabad digital substation. The power lines will supply large industrial and household consumers in the Jizzakh and Syrdarya regions.

Figure 14 China–Central Asia–West Asia Corridor



Source: Compiled by authors

Figure 15 Status of Chinese-financed projects in Central Asia in 2010–2017 (nominal USD)



Source: compiled by authors, based on AidData (2022).

The China–Indochina Peninsula Economic Corridor (CICPEC)

The CICPEC was initiated in 2010 and subsequently incorporated into the BRI. It links Southern China (Nanning, Guangxi and Kunming, Yunnan) with Vietnam, Laos, Cambodia, Thailand, Malaysia and Singapore (Figure 16). Its interest areas are economic cooperation, trade and transportation. The initiative will support trade between China and ASEAN members. A free trade agreement has been in place since 2010.

Progress

The highest number of cancellations along the corridor is in Malaysia, where, as of 2017, the value of cancelled BRI projects stood at $11.58 billion. Vietnam had the highest level of completed projects in 2017 (Figure 17). Cancellations of projects in Malaysia followed changes in the government of the country, and were accompanied by allegations of inflated project costs (Zainuddin, 2021). As Figure 17 shows, Laos has the highest proportion of projects either completed or under implementation.

As of 2023, projects within this corridor include:

Completed

- Jakarta–Bandung High-Speed Railway
- China Malaysia Digital Free Trade Zone (completed in 2017)

Under construction

- Central route: Kunming (China)–Vientiane (Laos)–Bangkok (Thailand)–Kuala Lumpur (Malaysia)–Singapore. Kunming–Vientiane section was completed in 2023; Bangkok–Ratchasima is under construction, Kuala Lumpur–Singapore railway project has been cancelled (Tham, 2021)
- East Coast Rail Link in Malaysia – halted in 2018, resumed in 2019, currently under construction (CNA, 2022) and expected to be completed in 2026 (New Silkroad Discovery, 2022b)

Cancelled

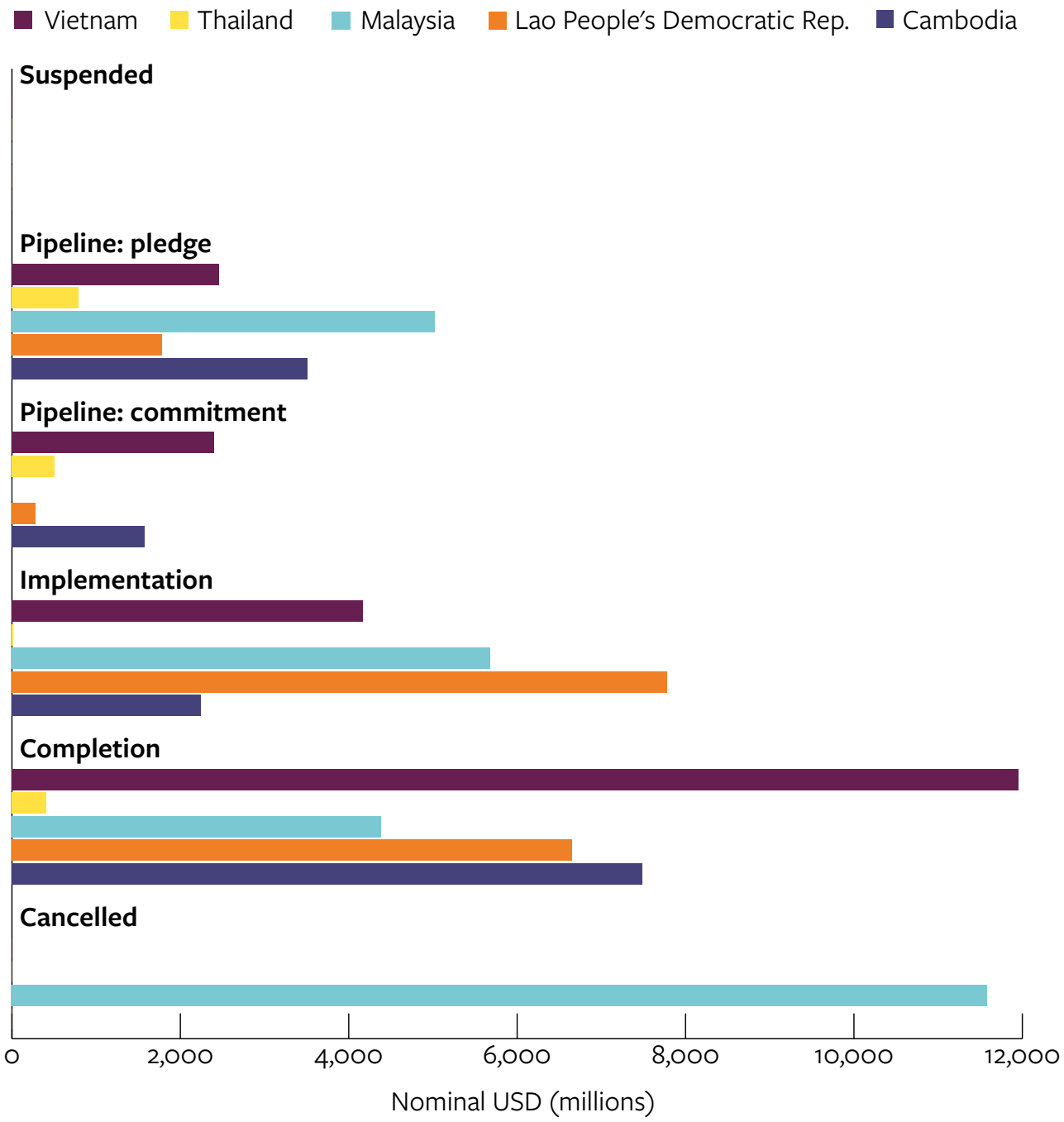
- Oil and gas pipelines in Malaysia (Bloomberg, 2018)

In summary, the BRI has changed considerably since it was first announced. First, the six originally planned BRI corridors have evolved in terms of countries (e.g. from BCIM to CMEC), but also in terms of progress, with projects being cancelled, renegotiated and reshaped (e.g. the Kyaukphyu deep-sea port in Myanmar). Some corridors have achieved considerable progress (e.g. CPEC), while others seem to have stalled, or have progressed at a slower pace (e.g. CMEC or some countries in CICMEC). Second, the BRI has moved beyond the overland 'Belt' and its corridors to encompass a (or several) maritime route(s). Over time, these have allowed connections not only to Asia and Europe, but also to Africa and Latin America. These changes have significantly altered the shape and form the initiative has taken, compared with the plans formulated and announced 10 years ago.

Figure 16 China–Indochina Peninsula Corridor

Source: Compiled by authors

Figure 17 Status of Chinese-financed projects in 2010–2017 (nominal USD)



Source: compiled by authors, based on AidData (2022).

Trends in China's overseas infrastructure finance, connectivity and trade

Infrastructure financing has defined the BRI. Much of this has been in hard economic infrastructure and connectivity, with bilateral lending and development finance playing a key role.[1] This overseas official financing provides resources for BRI partner governments to build up their domestic infrastructure capacity, and supports China's domestic industries by enabling SOEs and contractors to go out, win infrastructure tenders, and in turn support the export of Chinese goods, services and equipment.

China's overseas infrastructure finance

This section gives an overview of the global trends in China's overseas infrastructure finance and highlights the key BRI partner countries and regions that have been major recipients of Chinese finance. While not the only players or sources of capital, the policy banks China Eximbank and China Development Bank (CDB) have been the primary actors in financing overseas infrastructure financing and construction, within BRI countries and beyond, with approximately $498.1 billion committed in official lending between 2009 and 2021 (CODF, 2023). Commercial banks, namely ICBC (Industrial and Commercial Bank of China) and Bank of China (BOC), have also provided overseas infrastructure finance in the BRI, and have been involved in transactions alongside the two policy banks. However, official finance dominates: up to 2017, and for much of the period of the BRI, China Eximbank and CDB together accounted for nearly 70% of total overseas lending).[2]

While the BRI was announced in 2013, the pattern of overseas financing that supports many of the projects that constitute the BRI date back to 2009, reflecting the spillovers of capital that came from China's domestic economic stimulus and infrastructure investment as part of its response to the global financial crisis.

Focusing on patterns of overseas official financing, we can divide China's overseas lending into three distinct phases.

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1 By 'hard economic infrastructure', we refer to infrastructure projects that are material and tangible (rather than procedural or systems-based), that primarily serve economic productivity purposes.

2 Regarding data sources: for time-series analysis, we use Boston University Global Development Policy Center's China Overseas Development Finance (CODF) database, which collects data on loan projects in the period 2009–2021, focusing on official lending from the two major policy banks, China Development Bank and China Eximbank. While other datasets such as AidData's Global Chinese Development Finance Dataset also cover lending from commercial and other creditors, it does not cover the years after 2017, which misses out on more recent changes in lending patterns. As such, our use of the BU CODF trades off a longer timeline for breadth of financial institutions.

Figure 18 Composition of China's overseas finance, by creditor (2009–2017)

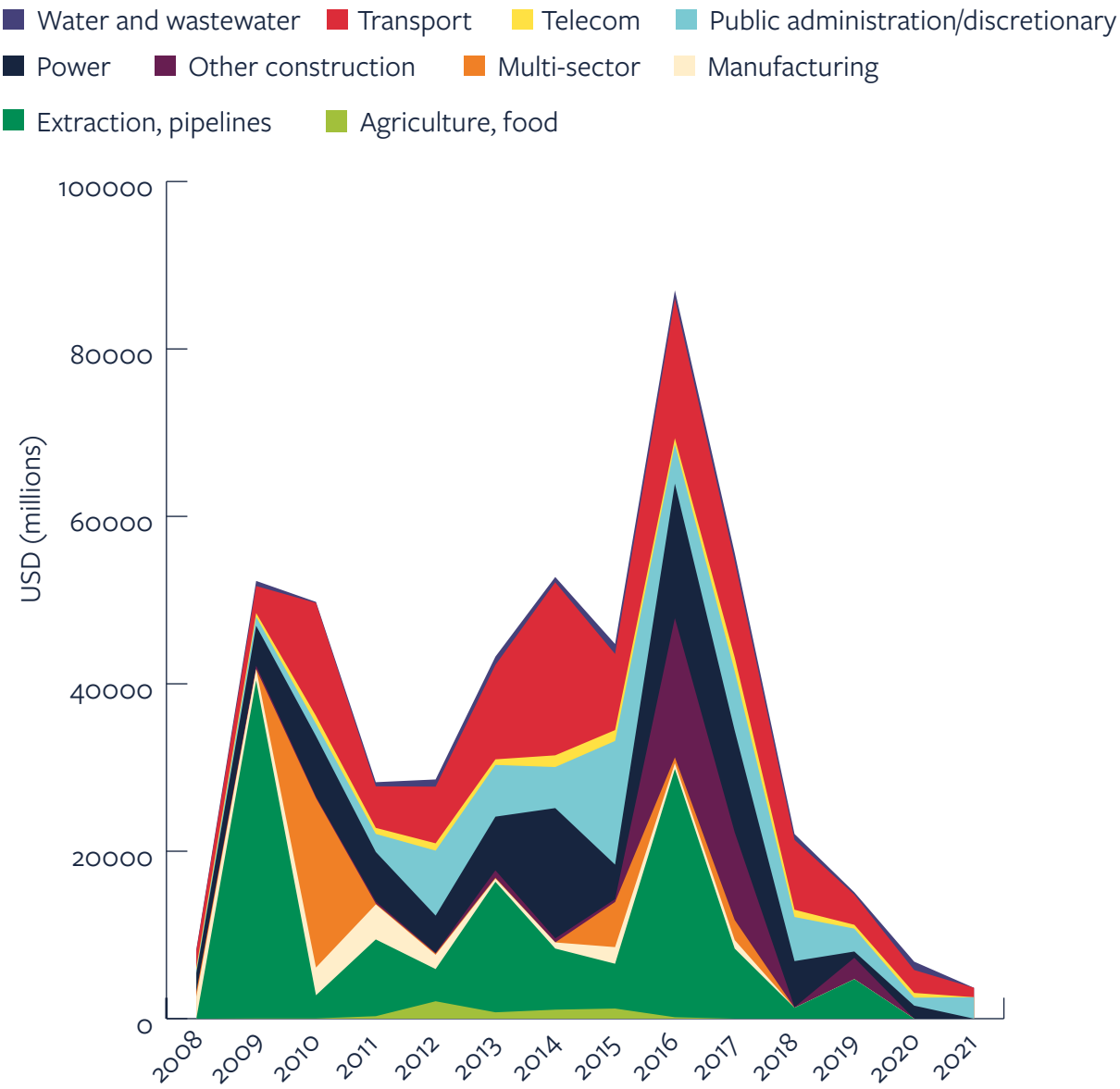
Creditor	%
Export-Import Bank of China	48
Other	9
China Ministry of Commerce	1
Bank of China (BOC)	2
Bank of China (BOC), China Development Bank (CDB), Export-Import Bank of China Industrial and Commercial Bank of China (ICBC)	3
Unspecified Chinese Government Institution	3
Industrial and Commercial Bank of China (ICBC)	14
China Development Bank (CDB)	20

Source: AidData (2022).

The early phase from 2009–2013 was a boom period – an outward burst of overseas lending which was eventually labelled as the 'One Belt, One Road' (yidai yilu) in 2013, and subsequently the 'Belt and Road Initiative' (BRI) in English. This period saw the offshoring of Chinese capital and industrial capacity overseas following the global financial crisis as China sought to use geographic expansion to resolve problems of capital accumulation at home. This coincided with a commodity price cycle in oil and other natural resources, which generated a boom in investment, government revenues and ability to borrow in resource-rich countries. There was a significant rise in lending in the extraction and pipelines sector, shown in Figure 19.

A second phase, from 2013–2016, saw China's overseas loans plateau as commodity prices – particularly oil – fell and China's economic growth slowed down into a 'new normal' phase. However, overseas lending in the transport and power sectors boomed, reflecting the expansion of the BRI and financing of high-value megaprojects in the transport sector, including flagship projects such as the Kenyan standard gauge railway (SGR). While policy bank lending peaked in 2016, much of this is dominated by a small number of deals in specific countries, notably Angola, while the overall trend in this period is one of gradual slowdown.

Figure 19 China's overseas policy bank lending by sector, 2008–2021



Source: CODF (2023).

Post-2016, there was a rapid slowdown and collapse in overseas lending.[3] This followed a period of domestic regulatory tightening in the financial sector, and a harder banking regulatory environment after 2017. This period also coincided with several major debt restructurings of project loans in Ethiopia and the Republic of Congo, and a high-profile (though inaccurately labelled) 'debt-trap' project in Sri Lanka, where the debt-strained government signed a concession for the port of Hanbantota with China Merchants Port Holdings Company (Bavier, 2019; Chen, 2019). The impact of COVID-19 exacerbated these trends.

3 2016 is an anomaly and does not reflect wider trends, as lending volumes are in large part dominated by a series of large loans to Angola.

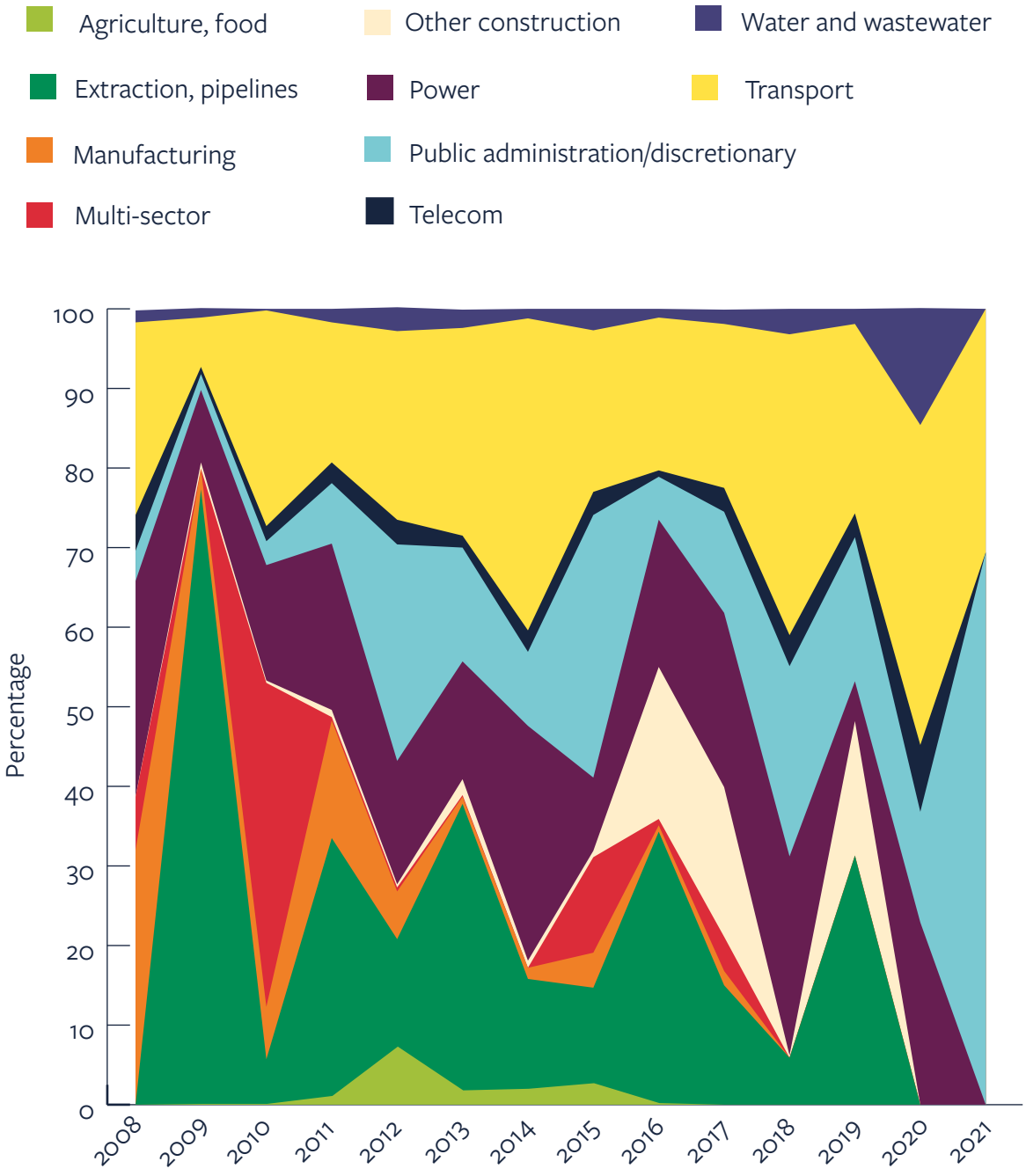
Since 2020, the Chinese Government has also launched sector-focused initiatives, in the form of the Health Silk road, the development of a 'Green' BRI and the Digital Silk Road, all of which constitute a form of branding of different components of Chinese overseas activity within the BRI. At the March 2023 National People's Congress, the 2023 Development Plan outlined the need to:

- ensure the success of a series of key initiatives in the tenth-anniversary series of the Belt and Road Initiative
- make efforts to consolidate and expand pragmatic cooperation with co-building countries, with a focus on achieving tangible results
- prepare for the upcoming Third Belt and Road International Cooperation Forum.

There has been a clear recalibration of the BRI, with the NDRC (National Development and Reform Commission) called upon to build 'small but beautiful' projects – to shift away from megaprojects in debt- and conflict-prone regions, and instead focus on quality and risk control and cooperation opportunities for third parties; e.g. the 'third market' deal signed between China Harbour and Al Ajlan Bros during President Xi's visit to Saudi Arabia in December 2022. The announcement of the Global Development Initiative (GDI) in 2021 signals a diversification in platforms when it comes to overseas cooperation with the Global South (Chen, 2022).

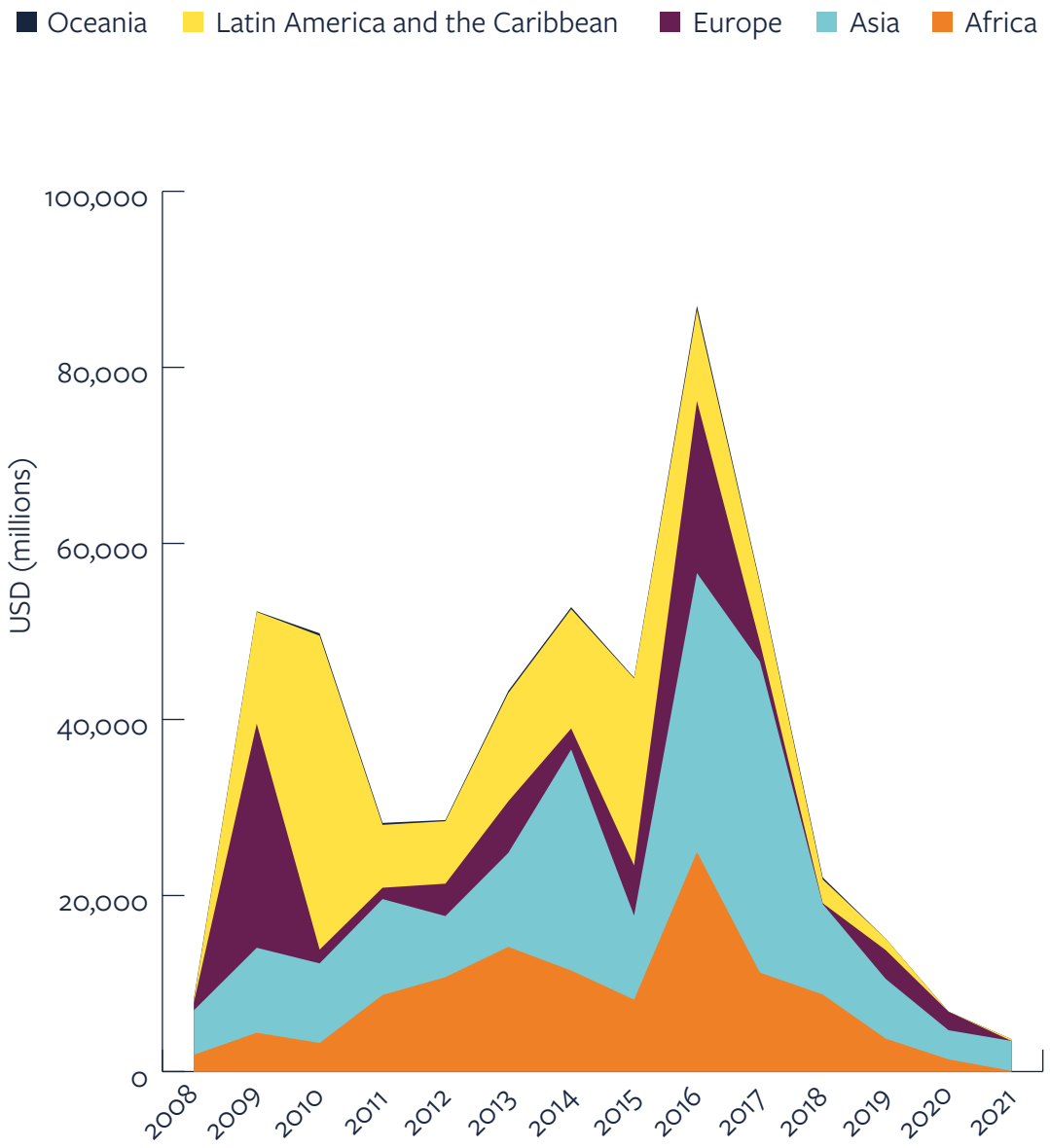
By sector, transport and energy dominated the overall lending portfolio from policy bank financiers, totalling around $202.15 billion between 2009 and 2021, together constituting 65% of total Chinese public lending in these years. Extraction and pipelines dominated in the early phases of overseas lending, prior to the announcement of the BRI. In more recent years, while overall lending volumes have decreased, lending going to public administrative/discretionary categories – i.e. more budget support-type lines of credit – have remained stable in overseas policy bank lending patterns.

Figure 20 China's overseas official lending by sector, 2008–2021



Source: CODF (2023).

Figure 21 China's overseas lending by region

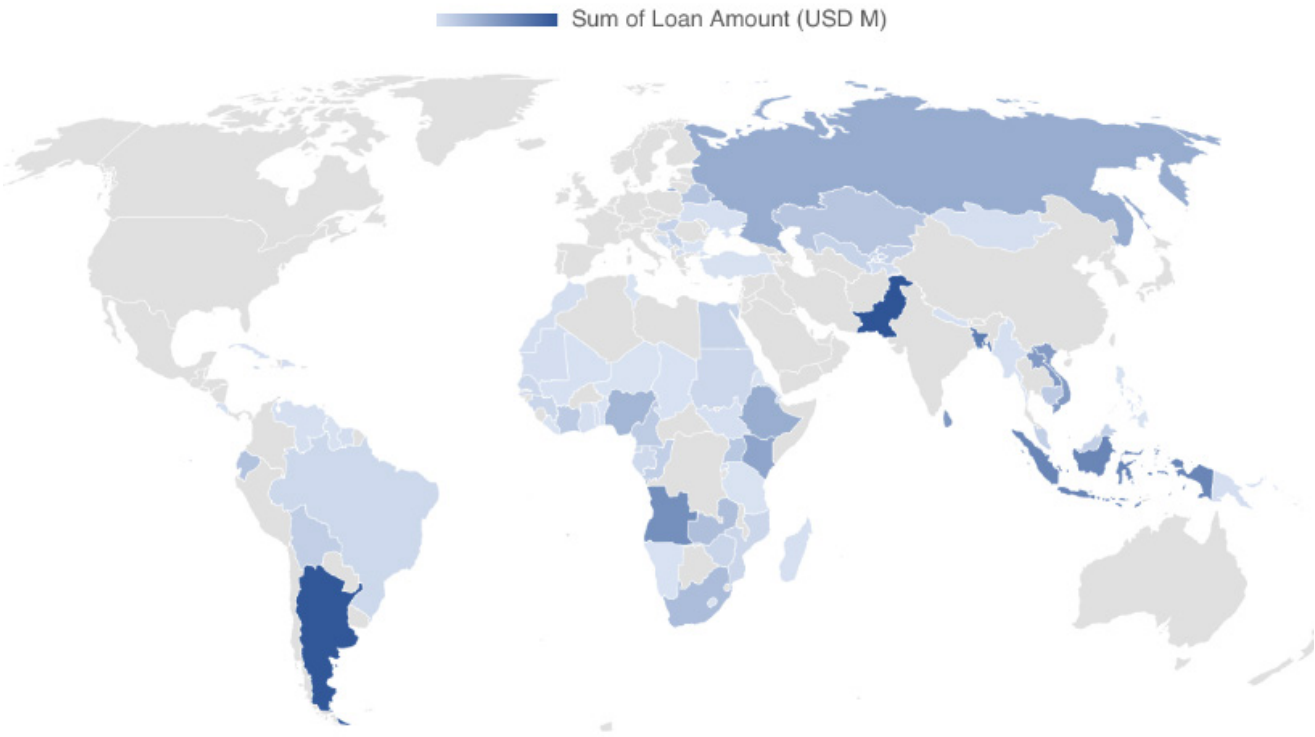


Source: CODF (2023).

While lending overall falls in all regions after 2016, regional trends show slight differences. While Latin America and Europe show a concentration of lending in the turn of the decade which then drops steeply (likely dominated by major lending to Russia and Venezuela in this period), lending to Africa rises gradually and peaks in the middle of the 2010s (with the 2016 peak dominated by lending to Angola). Asia has consistently been a major region for official financing, even as overall lending volumes have fallen.

Looking more closely at the power and transport sectors and geographic concentration, we find that overseas lending has been concentrated in a small number of countries.

Figure 22 Largest recipients of finance in power and transport sectors, by country, 2009–2021



Source: CODF (2023).

Pakistan, Argentina and Bangladesh are among the top recipients of loans in these sectors (Table 2). Lending to Pakistan and Bangladesh has in large part gone to support major economic infrastructure projects in these countries, much of it under the umbrella of the CPEC.

Table 2 Top 5 recipients of lending in the transport and energy sectors, 2009–2021

Country	USD (billions)
Pakistan	17.1
Argentina	16.7
Bangladesh	12.4
Indonesia	11.2
Angola	10.1

Source: CODF (2023).

Southeast Asian countries including Indonesia have been major recipients of policy bank lending, while Angola has been the largest African recipient, receiving nearly 40% of China's total lending in Africa up to 2019, according to SAIS-CARI data. In all these cases, Chinese participation in major national railway projects has been a common theme and a major contributor to lending flows; in some cases, rail projects predate the BRI's announcement, but have all been subsequently absorbed into them. While Argentina is not part of major BRI corridors, it has recently become a BRI signatory, reflecting its strategic status in China's engagement with Latin America.

These trends show the global scale of Chinese infrastructure financing and its wide geographic distribution. A small number of countries in each region stand out in terms of volumes of financing received. This reflects their strategic relationships

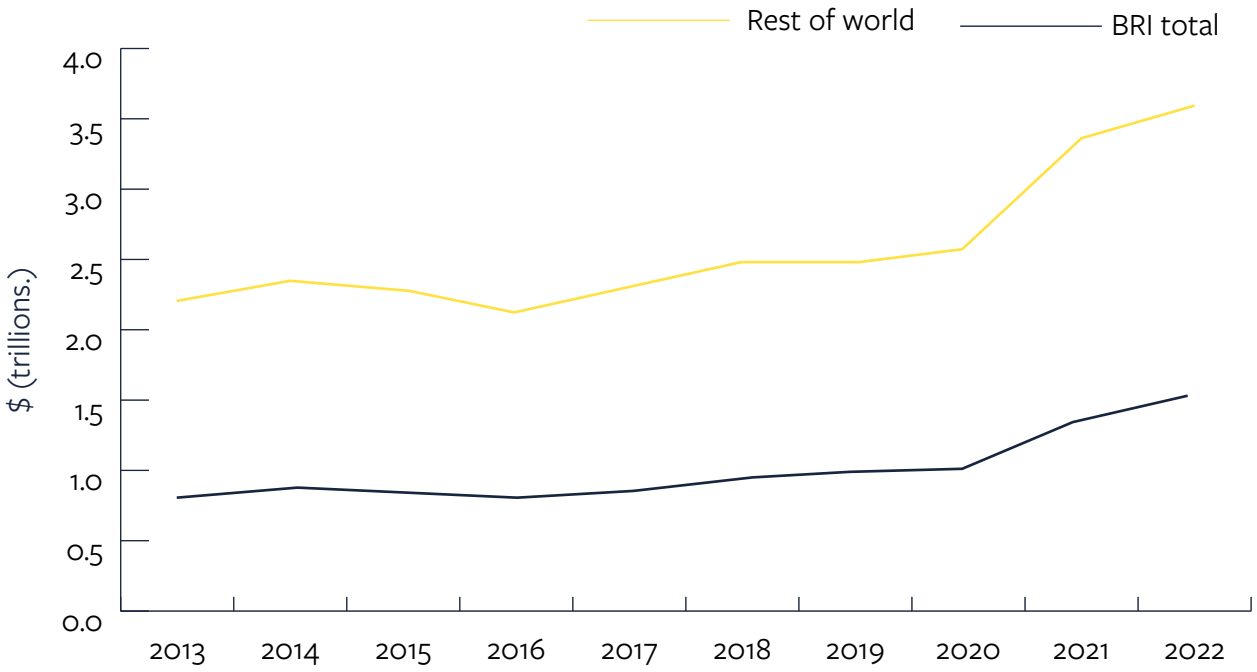
with China and their centrality in major corridors (though Bangladesh may be an exception in this regard), and their importance as economic hubs in their regions.

Trends in connectivity and trade

The BRI has delivered a remarkable increase in connectivity and trade. For example, in the period 2013–2021, the annual number of freight trains going from China to Europe has increased from 80 to 15,183 with an average annual growth rate of 55%. Where it used to take 40 days in 2013, the introduction of CR Express trains has reduced this to 10 (Belt and Road Portal, 2021). This has significant implications for trade opportunities for China and BRI countries.

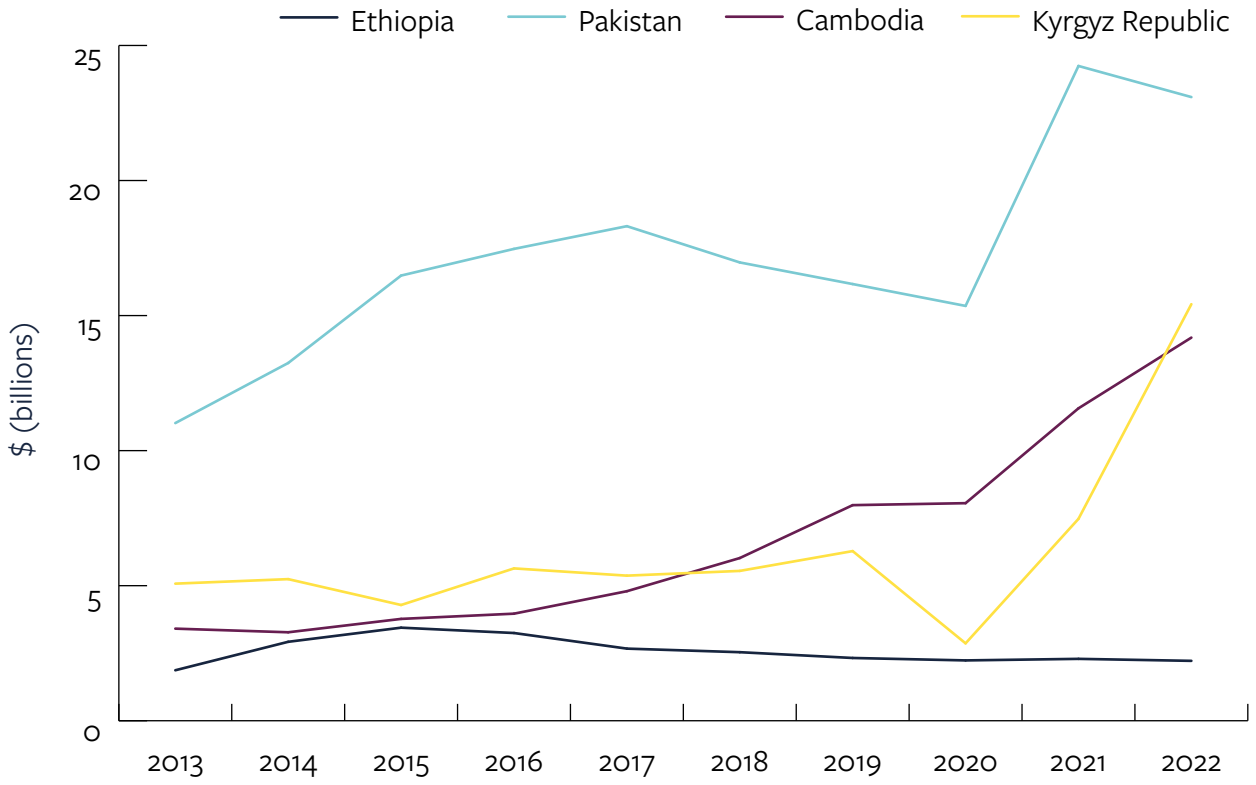
Chinese exports to BRI countries grew at a remarkable rate – by early 2023 China was exporting more (as a percentage of its exports) to BRI countries than to the US, the EU and Japan combined (Figure 25).

Figure 23 China's exports to the world and to BRI countries in 2013–2022



Note: For BRI countries, we used the list of countries that had signed BRI MOUs by 2023. Source: ITC/UNCTAD.

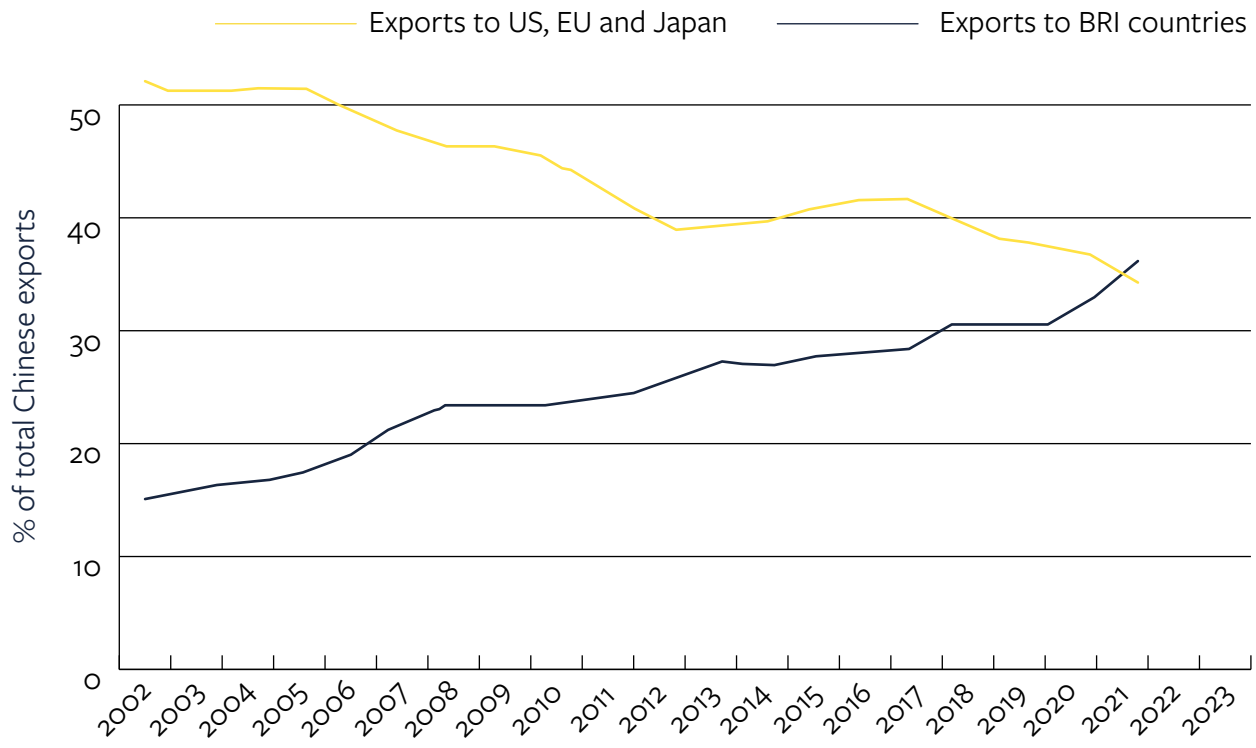
Figure 24 China's exports to selected countries in 2013–2022



Source: ITC/UNCTAD.

Rail transport accounts for a small proportion of China's trade with Europe – 4% of trade with the EU in 2020 (China–Europe routes were subsidised by the Chinese Government until 2023) (China Trade Finance Network, 2019; Batrak, 2022). It has been reported that rail trucks often come back empty to China (Ma, 2019). This can be attributed to two factors: first, sea routes still play a significant role in trade; and, second, trade patterns are uneven: data shows a higher proportionate increase in China's export of goods than its imports since 2013. For example, the increase in Chinese import flows in 2013–2022 has been proportionately less than the increase in exports, from $1.95 trillion in 2013 to $2.71 trillion in 2022, an increase of 39%, whereas exports have increased from $2.2 trillion to $3.6 trillion, an increase of 63%. This means that, while China has been able to increase economic cooperation in the last 10 years, its exporters have gained considerably more than its trade partners.

Figure 25 China's exports to BRI countries, the US, the EU and Japan

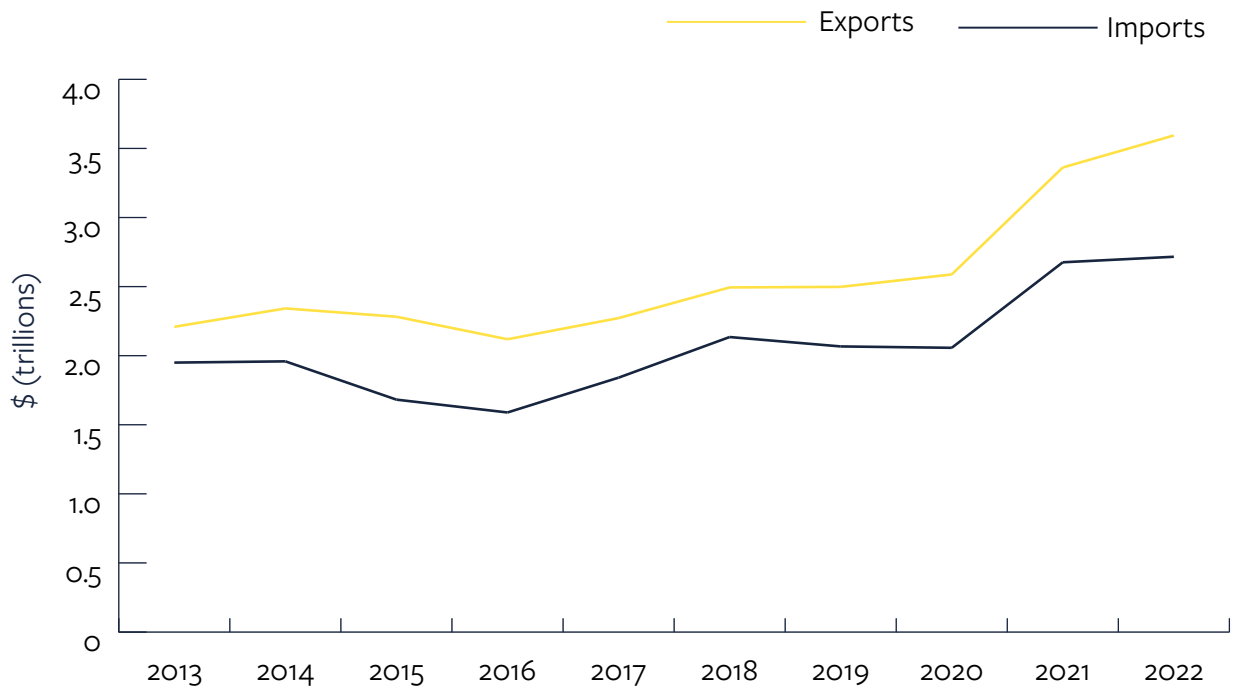


Source: The Financial Times (2023).

When we look at the individual cases analysed in this report, we can see that Chinese imports from Kyrgyzstan have increased by 30%, and imports from Pakistan by 6%, while exports from China to Kyrgyzstan increased by 203%, and to Pakistan by 110%. This shows that, in the last 10 years, Kyrgyzstan and Pakistan have gained less in trade proportionately than China. Exports to Ethiopia increased by 18.6% and by 316% to Cambodia, whereas imports from Ethiopia increased by 43% and from Cambodia by 405%. This shows that, despite a negative trade balance between China and Ethiopia and Cambodia, the last 10 years have benefited exporters from Ethiopia and Cambodia more than Chinese exporters to these countries.

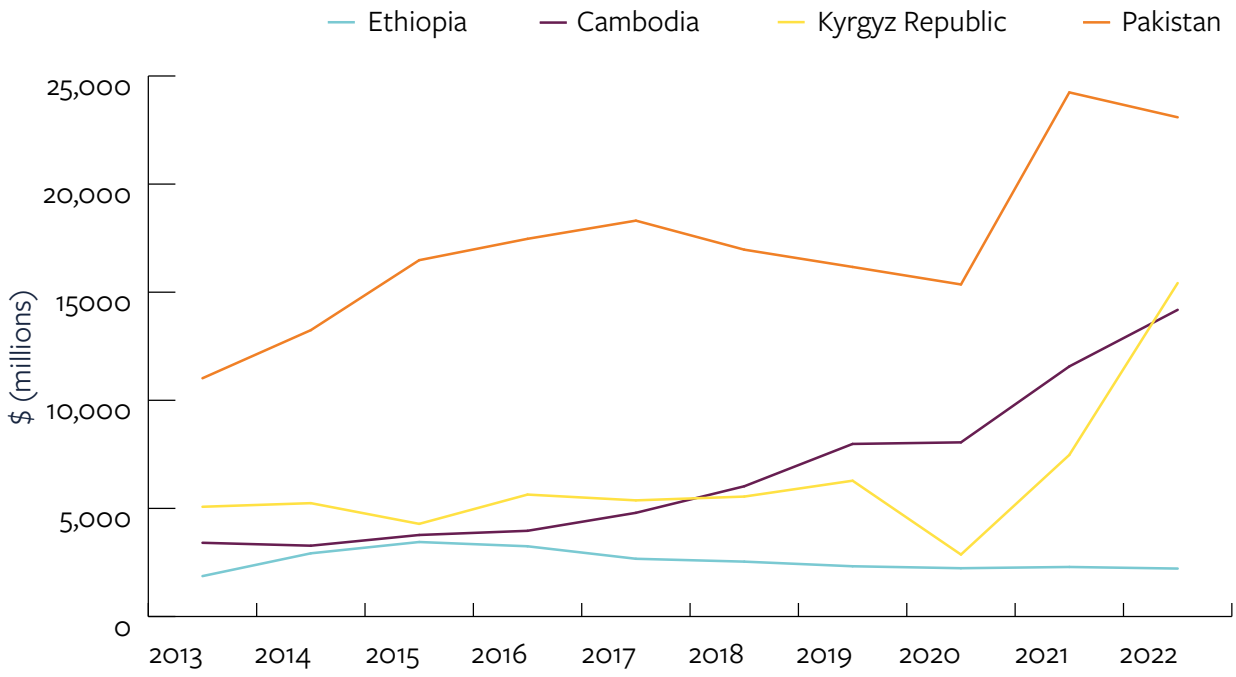
Chinese exports mostly comprise higher value-added manufactured goods and equipment, whereas imports from developing countries consist mostly of lower value-added raw materials and agricultural products. While many factors including domestic economic policies play a role in shaping bilateral trade, it is evident that trade patterns have become more uneven.

Figure 26 China's annual import and export flows with the world



Source: ITC/UNCTAD.

Figure 27 China's imports from selected countries, 2013–2022



Source: ITC/UNCTAD.

BRI Infrastructure finance and investment: case studies

This section examines Chinese infrastructure finance and investment in four BRI countries (Ethiopia, Cambodia, Pakistan and Kyrgyz Republic) and analyses whether these investments have contributed to the developmental goals of these countries.

Ethiopia: potential unfulfilled

Despite being a landlocked country with limited natural resources in a resource-rich continent, Ethiopia has achieved remarkable economic growth in recent years, albeit from a low base. Even so, with GDP per capita of $1,028 in 2022, Ethiopia is still a low-income country. Agriculture is the backbone of the economy, employing over 60% of the population and providing the main export products (coffee in particular).

The government has moved from an agriculture-led to a manufacturing-led strategy with the aim of creating jobs and increasing exports. The government has sought to develop its export-oriented manufacturing sector, with a bold industrial policy in three phases (Balchin and Calabrese, 2019). In the first phase, from the early to mid-2000s, the government focused on incentivising local investment aimed at production for export, primarily by providing preferential credit and offering favourable land lease rates. The second phase, from 2008, has focused on attracting foreign investors. The third phase aims to channel foreign investment into specialised industrial parks, in particular supporting foreign firms willing to foster links with domestic counterparts (Staritz and Whitfield, 2017).

The Ethiopian model of industrial development is characterised by the presence of industrial parks. The creation of industrial parks model allows the country to build infrastructure for the manufacturing sector without having to address the whole country's infrastructure deficit at once. After a Chinese investor established the first industrial park – the Eastern Industrial Park, in 2007 – the Government of Ethiopia launched a revamped industrial park policy in 2015. At the time of writing 13 public and 5 private industrial parks were operational (Fanuel et al., 2022). Of the five private parks, two are Chinese-developed and -owned (Eastern Industrial Park and Huajian), one is Taiwanese (George Shoes), one is owned by the Dubai-based Vogue International Agency (Velocity Industrial Park), and one is Bangladeshi (DBL Group).

The most recent document setting out the government's ambitions is the ten-year plan, 'Ethiopia 2030: The Pathway to Prosperity', which aims for the country to achieve middle-income status, with a per capita income of $2,220, by 2030. The plan sets out ambitious goals for the manufacturing sector, projected to grow much faster than other sectors (at an astonishing 20.6% of GDP between 2020 and 2030) and to become the main exporting sector, surpassing agriculture, by 2030.

The BRI and Chinese capital in Ethiopia

China and Ethiopia have very close political relations, underpinned by the establishment of a Comprehensive Strategic Cooperative Partnership in 2017. In 2018 the two countries signed an MoU

on cooperation within the framework of the Silk Road Economic Belt and the 21st Century Maritime Silk Road Initiative.

China is the second-largest importer of Ethiopian goods (after the US) – mainly oil seeds – and the largest source of Ethiopian imports. In terms of investment, over the period 2003–2019 Chinese FDI stock in Ethiopia grew more than 500-fold, from less than $5 million to over $2.5 billion. Almost 70% of China's FDI to Ethiopia in the period 1999–2017 was directed towards manufacturing, followed by construction contracting (13%) (Calabrese et al., 2021). Chinese FDI stock in Ethiopia is much higher than the EU's, which totalled €855 billion ($917 million) in 2019.

In addition to investing heavily in manufacturing in Ethiopia, Chinese actors finance infrastructure through lending. Over the period 2000–2020, China committed to disbursing $13.7 billion in loan commitments to Ethiopia, an amount equivalent to over six times its FDI stock. The majority of these loans financed transport ($4.8 billion) and energy infrastructure ($3.2 billion) as well as information and communication technology (ICT) ($3.1 billion) and industrial development projects ($2.1 billion).

Figures on lending for industrial development to Ethiopia are staggering compared to Chinese lending for industrial projects to other African countries, never exceeding $500 million per country over the same period. In fact, almost two-thirds of total lending commitments for industrial projects in Africa in 2000–2020 went to Ethiopia ($2.1 billion out of $3.6 billion), making Ethiopia the largest recipient of Chinese finance for industrial development in Africa. This finance supports the building and expansion of productive capacity in textile, cement and sugar processing, among others (Boston University Global Development Policy Center, 2022).

In addition to financing industrial projects directly, Chinese lending for Ethiopian infrastructure has financed projects that could, in theory, promote the country's manufacturing development. Energy and transport infrastructure, in particular, are crucial for a landlocked country that aims to develop processing manufacturing.

Goals versus results: has Chinese capital supported the development of Ethiopian manufacturing?

Between 1992 and 2017, Chinese investment in manufacturing in Ethiopia created 127,000 permanent and 54,000 temporary jobs. Chinese lending for infrastructure (transport, energy and industry) has supported the construction of the country's industrial parks which, in less than a decade, have directly created 90,000 jobs (although this was with other development partners as well) (Fanuel et al., 2022).

As regards trade, Ethiopia's exports of manufacturing products have grown considerably. From 2000 to 2020, exports of machinery increased from $19 million to $237 million, and exports of textiles and garments from $11 million to $329 million. The increase was more modest if we consider the entire export basket, where machinery went from 2% to 3% of the total, and textiles and garments from 1% to 4%. In terms of goods, Ethiopia's exports are still dominated by agricultural products, while services take the lion's share of the total export basket (in particular transport services, thanks to the success of Ethiopian Airlines) (Balchin et al., 2019).

Manufacturing as a share of GDP declined from 5.6% in 2000 to 4.2% in 2022 (World Bank Group, n.d.). Several factors contributed to this negative performance. In 2020, when the share of manufacturing to GDP was at around 5.3%, Ethiopia was struck not only by the COVID-19 pandemic, but also by conflict in the northern region of Tigray. These shocks led to the closure of some factories and reduced investor appetite. In particular, the conflict in Tigray and related human rights abuses led to the exclusion of Ethiopia from the US African Growth and Opportunity Act (AGOA), which granted Ethiopian exports duty-free and quota-free access to the United States, one of its largest markets. Ethiopia maintains preferential access to the EU market through the Everything But Arms scheme, though this is less widely known (Ethiopian News Agency, 2023). Pre-existing policy issues (for instance, difficulties accessing foreign exchange) also deterred investors.

There are other challenges in terms of Chinese engagement in Ethiopia. First, not all Chinese infrastructure projects have fulfilled their potential. For instance, the Ethiopia–Djibouti railway does not connect directly to the port in Djibouti or to industrial parks in Ethiopia, and manufacturers and exporters still need to transport goods on roads to and from the railway terminals. These 'last-mile issues' have made the railway less useful to manufacturers than originally planned (Calabrese et al., 2021). Other issues relate to debt sustainability, caused by Ethiopia's accumulation of debt primarily from China, but also from other lenders. Other challenges for the Ethiopian economy derive from being excessively tied to one partner. Finally, evidence shows that positive spillovers from investment and lending from China have been limited (ibid.).

In summary, while Chinese capital has played a key role in the development of the manufacturing sector in Ethiopia, both through direct investment and by building industrial parks and infrastructure, this has not been enough to achieve the levels of manufacturing growth sought by the Ethiopian Government.

Cambodia: successful balancing act

Cambodia faces an infrastructure gap: it needs an estimated additional $28 billion to finance its infrastructure between 2016 and 2040, with $11 billion to be allocated towards road infrastructure (Oxford Economics, 2017). The country's road network, rudimentary before the civil war, worsened as a consequence of the prolonged conflict. Economic growth in the past two decades increased the use of existing infrastructure, contributing to their decline. A focus on road infrastructure is important because roads are the main mode of transport for most Cambodians, and therefore have huge political significance. Moreover, for analytical purposes, more granular data is provided for roads, which allows for a thorough analysis.

Cambodia's development plans reflect this need to improve the country's road infrastructure. The fourth phase of the government's national strategy for growth, the Rectangular Strategy, highlights the need to improve transport infrastructure as part of its second pillar, which calls for 'improving logistics system and enhancing transport, energy and digital connectivity'. It also lists roads among the top four national priorities, the other three being 'people, energy and water'. The National Strategic Development Plan (NSDP) 2019–2023 allocates generous funding to infrastructure, with a particular focus on rehabilitating and constructing at least 3,000 km of roads, expanding national roads from two

to four lanes, linking to development zones and key municipalities, rehabilitating and constructing national and provincial roads linking the new development zones along the country's borders, and rehabilitating and constructing rural roads to reach a total of 45,000 km.

The BRI and Chinese capital in Cambodia

China has become the primary source of development finance to Cambodia, surpassing other large contributors: between 2000 and 2021, China gave Cambodia more than $4 billion for infrastructure. China has funded and implemented over 100 projects since 2004. Over a third (40 of 102) of these projects aim at expanding or upgrading Cambodia's road network, totalling $3 billion. In comparison, Japan has provided $2 billion and the Asian Development Bank (ADB) over $1.5 billion for infrastructure. Over the same period (2000–2021), the EU and its member states provided considerable amounts of aid: the EU disbursed around $1 billion and EU member states $3 billion in official development assistance (ODA), making the EU Cambodia's largest development partner in terms of grant aid covering all sectors (not only infrastructure) (OECD, n.d.).

Chinese firms are also actively involved in building infrastructure. Chinese Ministry of Commerce (MOFCOM) data shows a steady increase in Chinese contracted construction projects in Cambodia, from $1.4 billion contracted value in 2015 to $5.6 billion in 2019 (MOFCOM, 2020). Considering only transport infrastructure, 19 out of 25 projects completed or under construction between 2000 and 2023 went to Chinese companies (Stimson, n.d.). Projects funded via loans are usually undertaken by SOEs. For example, the Phnom Penh–Sihanoukville Expressway is being built by the China Road and Bridge Corporation, and the third ring road around Phnom Penh is being built by the Shanghai Construction Group.

Goals versus results: has Chinese capital delivered infrastructure development in Cambodia?

The past decade has seen a considerable improvement in Cambodia's road network. The network expanded from 44,000 km in 2009 to 62,000 km (+41%) in 2019. The primary increase was in secondary roads, from 42,000 km in 2009 to 60,000 km (+43%) in 2019. Road density (measured by metres of road per square kilometre of country area) increased from 253 in 2009 to 349 in 2019, a 38% increase in 10 years (Calabrese and Wang, 2023).

Although there is no precise data on how many kilometres of these roads were built or renovated with the aid of Chinese finance, it is certain that China is the largest financial contributor in this sector, and in recent years has completed more road infrastructure projects in Cambodia than any other country. According to the NSDP 2019–2023, since 2018, China financed more road infrastructure projects (31) than Japan (9), South Korea (7), Thailand (2), the Asian Development Bank (7) and the World Bank (3) combined.

Not all of this progress can be attributed to China; other major contributors such as the Asian Development Bank and Japan have also made substantial investments. Even so, Chinese finance and companies remain the sector's principal foreign backers. The EU has had a very different focus. Since 2007, the EU institutions have provided €806 million, mostly allocated towards education (28%), government and civil society (27%) and agriculture (13%). Over the same period, EU member states provided €1.9 billion,

allocated towards government and civil society (20%), education (12%), water and sanitation (12%) and health (10%).

The Cambodian Government has managed all of these inputs well. In particular, it has succeeded in keeping several development partners operating in this space in a coordinated manner, and has managed to borrow at zero or very concessional rates, thus avoiding debt sustainability issues (Calabrese and Cao, 2021). The growth of the Cambodian road network cannot only be attributed to foreign capital flowing in, but also to the ability of the government to manage this capital.

This is not to say that Chinese capital inflows into Cambodia have been without problems. Large volumes of Chinese investment in real estate throughout the country, but primarily in the tourism and gambling industry in the coastal city of Sihanoukville, have been accompanied by risks of organised crime and money laundering, and have provided limited benefits for the local population (Calabrese et al., 2022). Cambodians have also complained about the lack of job creation and limited business opportunities, in Sihanoukville in particular (Franceschini, 2020).

In summary, the Cambodian government has succeeded in bringing in foreign capital to expand or rebuild its road network. Much of this capital has been Chinese, though other donors have provided non-trivial contributions. This astute use of donor funding has allowed the Cambodian Government to achieve its objectives.

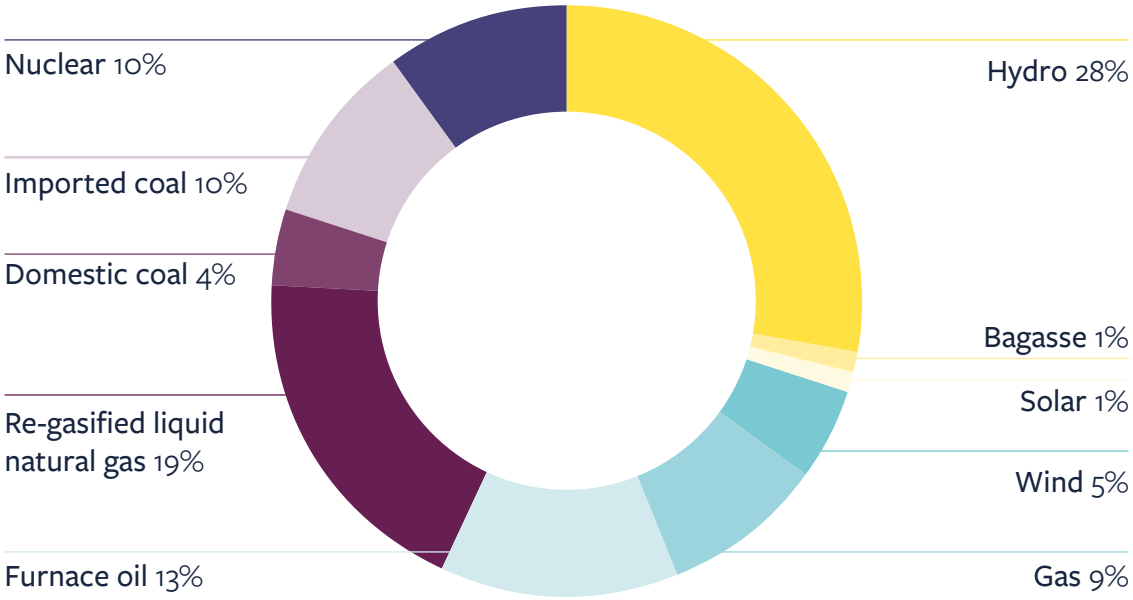
Pakistan: mixed picture

Energy insecurity has been a key challenge for Pakistan. The country has faced frequent power outages lasting an average of 12–16 hours per day (Geo News, 2020). Outages have hindered economic development – estimated to cost between 2.5% and 4% of GDP – contributing to factory closures and reducing industrial output (Shahbaz at al., 2015). Moreover, approximately 40 million people still lack access to electricity, and half of the population lacks clean cooking facilities (IEA, n.d.).

Pakistan's energy challenges are rooted in a combination of economic, governance and technical issues. The country suffers from a problem of 'circular debt', where underinvestment in the power grid leads to energy losses and curtailment, causing transmission and distribution companies to struggle to recover revenues from customers and pay power generators. As a result, power-generating companies are unable to pay their fuel suppliers in full, leading to frequent blackouts and brownouts throughout the country. This issue becomes even more pronounced when considering the country's generation overcapacity, which is not being efficiently utilised (installed electricity capacity stood at 39.4 GW while peak demand was 24.5 GW in 2022) (NEPRA, 2022).

Another contributing factor to the energy predicament is the heavy reliance on fossil fuel imports for power generation. Liquefied natural gas (LNG), furnace oil, coal and gas constitute over 45% of Pakistan's total installed capacity (see Figure 28), generating 58% of the country's electricity alongside nuclear power. However, the cost of thermal power generation is dictated by international fuel prices, which have been impacted by events including the COVID-19 pandemic and Russia's invasion of Ukraine. These developments disrupted supply chains and intensified affordability issues, exacerbating the government's already high debt burden and limiting its ability to address payment arrears for certain power projects.

Figure 28 Pakistan power generation mix, 2022



Source: NEPRA (2022).

The government has made improving household and private sector access to electricity a priority development objective, as outlined in Pakistan Vision 2025 and the National Power Policy. As part of its efforts, the government aims to achieve 96% electricity access by 2030, compared to around 93% in 2015. The government is also seeking to increase renewable energy's share of total electricity generation to 60% by 2030.

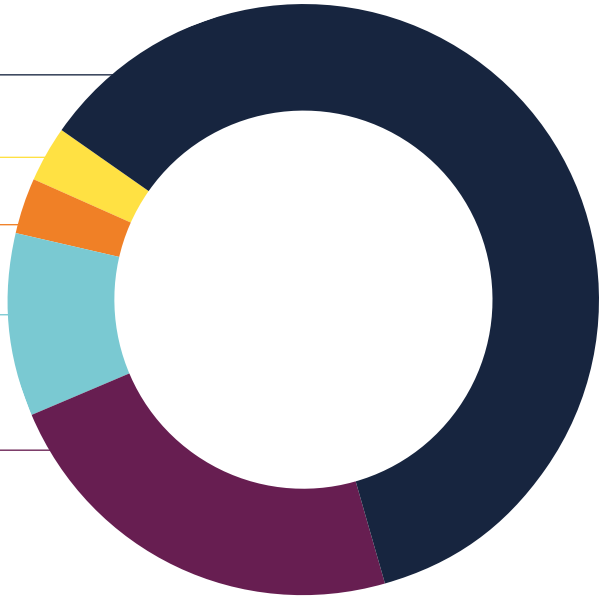
The BRI and Chinese capital in Pakistan

Pursuing these goals has been a key motivation for Pakistan to seek Chinese collaboration through the CPEC. Launched in 2015 with an initial financing of $46 billion, the CPEC has grown to $62 billion (CPEC Secretariat, n.d.). Before the pandemic, China provided more than 30% of Pakistan's total FDI inflows – around $914.8 million in 2019 – making it the top investor in the country (Keane et al., 2021). China has also financed numerous projects in Pakistan, becoming the country's primary creditor. According to data from the World Bank's International Debt Statistics, China was Pakistan's top lender, with $6.6 billion of debt to be serviced by the end of 2021 (corresponding to 34% of total external debt service). This was considerably higher than any other creditor, including the International Monetary Fund (13% of total external debt service), the Asian Development Bank (12%), the World Bank (9%) and the private sector (9%).

The majority of CPEC investments by value have targeted energy infrastructure, including hydropower, coal-fired thermal power, wind, solar and transmission lines. Transportation networks and special economic zones with trade and tax incentives have also received Chinese finance. China has so far invested more than $10 billion in coal power generation, $3.8 billion in hydropower, $0.5 billion in wind, $0.5 billion in solar and $1.6 billion in grid projects (see Figure 29).

Figure 29 Chinese energy investments in Pakistan, 2015–2023

Fuel type	USD millions	%
Coal	10,182	61
Wind	534	3
Solar	520	3
T&D	1,658	10
Hydro	3,833	23



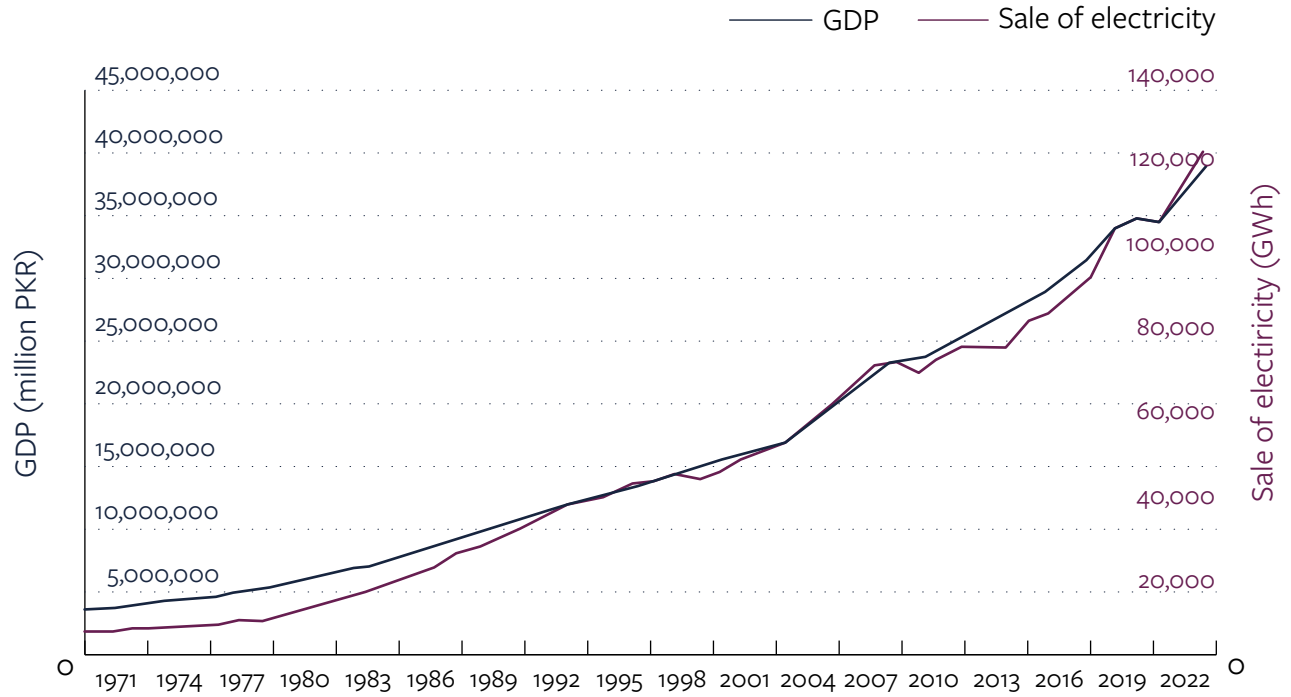
Source: https://cpec.gov.pk/progress-update.

Goals versus results: has Chinese capital improved energy security in Pakistan?

China's substantial investments in Pakistan's energy sector have been instrumental in supporting the country's increasing energy demands (see Figure 30). Between 2015 and 2021, Chinese installed power generation capacity accounted for 58% of total new installed capacity in Pakistan (9,390 MW out of 16,158 MW) (CPEC Secretariat, n.d.; PBS, 2022). However, despite this significant contribution, Pakistan continues to face major energy security challenges, and frequent blackouts and brownouts persist. The blackout in January 2023 left nearly 220 million people without power and led to $70 million in lost production in the textile industry and a 30% loss in retail sales, whilst also affecting households, schools and offices.

The same challenges with circular debt, exchange rate devaluation, high inflation, high fuel import costs, as well as limited government fiscal headroom following the devastating flood in 2022 (which led to total economic losses of about $15.2 billion), are causing these shocks (Asian Power, 2023).

Figure 30 GDP vs sale of electricity



Source: NEPRA (2022).

Progress in developing solar and wind renewable energy sources has been slow. To date, only about 0.5 GW of solar PV capacity (against a pipeline of 4.2 GW) and 1.8 GW of wind capacity (against a further pipeline of 2.1 GW) have been installed. In 2019, the government introduced a new reverse price auction system to drive down renewable energy costs for consumers while ensuring revenue certainty for the most competitive projects. Unfortunately, administrative delays and red tape have hindered implementation of these auctions (Asian Power, 2023).

China's prominent role through CPEC has influenced the development of the power sector in Pakistan, thereby impacting its energy security. Chinese coal power investments have been criticised for being located in parts of the country with limited inland transportation options, making it impossible to use domestic coal resources such as those from the Thar coal mines in Sindh province. Some plants require higher-quality coal rather than the low-quality lignite present in Thar, increasing reliance on imports and exposure to fuel market volatility. The 300 MW Gwadar power plant is a good example of China's indirect influence on Pakistan's energy security. Conceived in 2014, the project is being jointly developed by China Communication Construction Group (CCCG) and Tianjin Energy Investment Group at an estimated cost of $542.36 million, to be financed on an 80:20 debt-to-equity split. CCCG and Tianjin Energy Investment Group will finance the 20% equity, whereas the 80% debt is reportedly being provided by China's largest commercial bank, Industrial and Commercial Bank of China (ICBC).

Reports in 2022 indicated an attempt by the new Pakistani Government to renegotiate the Gwadar coal power plant into a renewable project, following the announcement of then

Prime Minister Imran Khan at COP26 in 2020 'to not have any more power based on coal' (Lo, 2020). Chinese stakeholders reportedly felt that a renewable project would not provide stable electricity baseload to the special economic zone being set up in Gwadar (Ebrahim, 2023). Reports in 2023 suggest that the Gwadar coal power plant is going ahead with Chinese debt financing as planned (Ahad, 2023). This has been criticised for not aligning with Chinese President Xi Jinping's pledge against financing new coal power plants overseas, made at the UN General Assembly in September 2021, though the Chinese embassy in Islamabad has argued that Gwadar predates the pledge and is not a 'new' project (Ebrahim, 2023). The power plant is expected to achieve financial closure by December 2023, with construction beginning shortly thereafter (Ahad, 2023).

In summary, Chinese energy investments in Pakistan have both increased and weakened Pakistan's energy security, by increasing generation capacity while at the same time locking in coal technologies that are highly exposed to market volatilities, as well as facing the risk of becoming stranded assets under international climate accords and green market forces.

Kyrgyzstan: mission unaccomplished

- **Infrastructure development in Kyrgyzstan:** infrastructure versus debt. Kyrgyzstan is located at a vital crossroads connecting China to Europe and the Middle East. The country also plays a significant role as a gateway between China and Kazakhstan and Turkmenistan, both important providers of oil and gas to China (Schroeder, 2023). The country has abundant deposits of metals and minerals, and gold: basic metals account for 72% of economic output, followed by food and beverages (13%), non-metallic mineral products (6%) and apparel (2%) (UNIDO, 2023). This is reflected in the country's export structure: main exports are gold, oil and gas and textiles. The main export partners are Russia, Kazakhstan, Uzbekistan and Turkey. China accounted for 42% of Kyrgyzstan's imports in 2022, but only 2% of exports.
- **Kyrgyzstan relies heavily on roads due to geography:** the terrain is difficult, and its northern and southern regions are separated by mountains. The rail network is limited and roads are of poor quality. The lack of connectivity between the north and south of the country is an obstacle for both the country's transit potential and the export of raw materials to Southeast Asia and the Middle East.

The need to diversify output and improve infrastructure is reflected in the country's development plans. The National Development Strategy (2018–2040) aims to deliver a 'strong, self-sufficient, developed state' with a diversified economy and above-average gross national income (GNI) (Government of the Kyrgyz Republic, n.d.). Mining remains the core sector of the development strategy and the country aims to integrate into the global economy with high value-added activities. Kyrgyzstan aims to improve connectivity and infrastructure to become a transit country for people, goods and cargo by building a transit railway network. The strategy specifies the digital sector as a priority, with the aim of building a digital hub along the Belt and Road.

Development plans acknowledge a significant lack of funding despite active financing from international donors. Only 40–45% of the road finance required was funded in 2010–2014 (Government of the Kyrgyz Republic, 2016). Most infrastructure projects are financed by international donor organisations or other countries through foreign development assistance

mechanisms, whereas the government's budget resources are mainly used for social needs (Karymshakov and Sulaimanova, 2019). According to the National Development Strategy the country aims 'to find a reasonable balance between attracting foreign borrowing and using own resources for development and will avoid excessive dependence on any country in the world'.

The BRI and Chinese capital in Kyrgyzstan

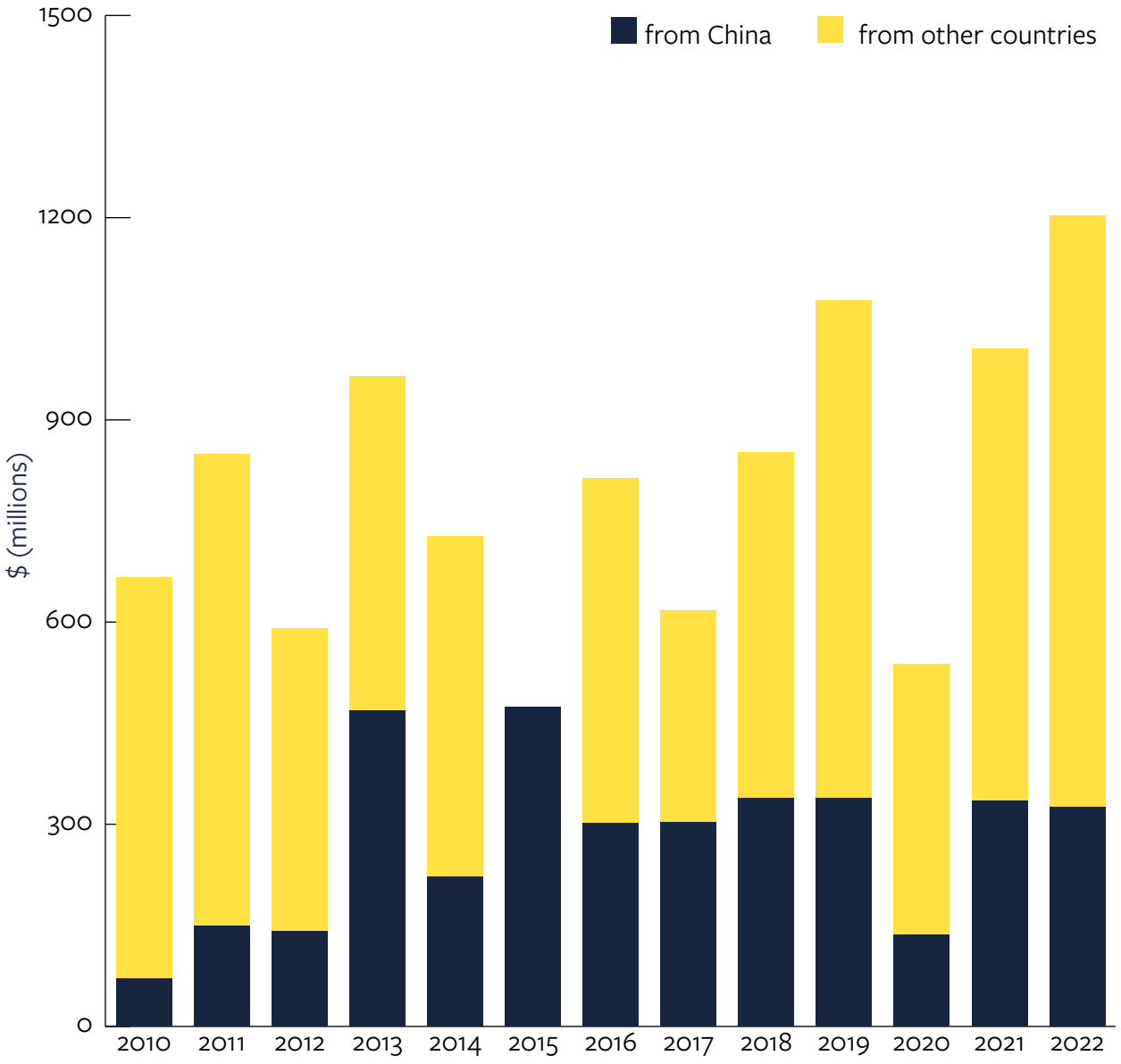
China is Kyrgyzstan's largest trading partner and has played an important role as a foreign direct investor, accounting for 27% of FDI flow in 2022 and 35% of total FDI in the period 2013–2022 (National Statistical Committee of the Kyrgyz Republic, 2023). Key Chinese FDI sectors are geological exploration, the mining industry and the production of refined petroleum products. Other top investors in 2013–2022 were Russia, Canada and Turkey, as well as multilateral institutions. EU countries accounted for 9% of all investment in 2014–2022 and 10% in 2022, with investment driven mainly by the Netherlands.

Chinese development finance by state development institutions in 2000–2017 amounted to $3.1 billion, directed to transport and storage (44%), energy (41%) and mining (5%) (Figure 32).

Kyrgyzstan lies at the centre of the 'China–Central Asia–West Asia' corridor connecting China to Iran/West Asia. In 2013–2019 there were 11 infrastructure projects with Chinese financing, with a total funding of $1.77 billion (Aminjonov et al., 2019). One notable project is the Bishkek–Osh highway, which will become the main transport artery connecting the north and south of the country and an important international transport route in Central Asia (Xinhua, 2023). It is expected that the construction of an additional motorway to connect the north and south (433 km) will create both economic and social benefits for regions along the route (ibid.). Construction of the road is divided into three phases, two of which have been completed by China Road and Bridge Corporation (CRBC), with the third underway as of March 2023. Other projects include development of the road network in Bishkek and rehabilitation of the Osh–Batken–Isfana and Bishkek–Naryn–Torugart highways (Vakulchuk et al., 2019a). On a regional level, 26 years after the announcement of the 'China–Kyrgyz Republic–Uzbekistan railway', China and Kyrgyzstan gave the go-ahead for construction to start in 2023 (Yin, 2023).

While it is clear that Chinese financing provided necessary capital for infrastructure development, the prevalence of Chinese construction companies subcontracted in projects financed by Chinese banks reduces the potential positive economic spillover effects for the local economy. In several cases where the Chinese Government provided financing (both lending and grants) for infrastructure purposes, these served to pay for the costs of Chinese constructors, including companies such as CRBC, Xinjiang-Beixin, Construction Engineering Group (both SOEs) and the Tebian Electric Apparatus Stock Co. Ltd (TBEA) (Calabrese et al., 2022).

Figure 31 FDI inflow in Kyrgyzstan in 2010–2021 (total and from China)



Source: National Statistical Committee of the Kyrgyz Republic (2023).

Energy and mining

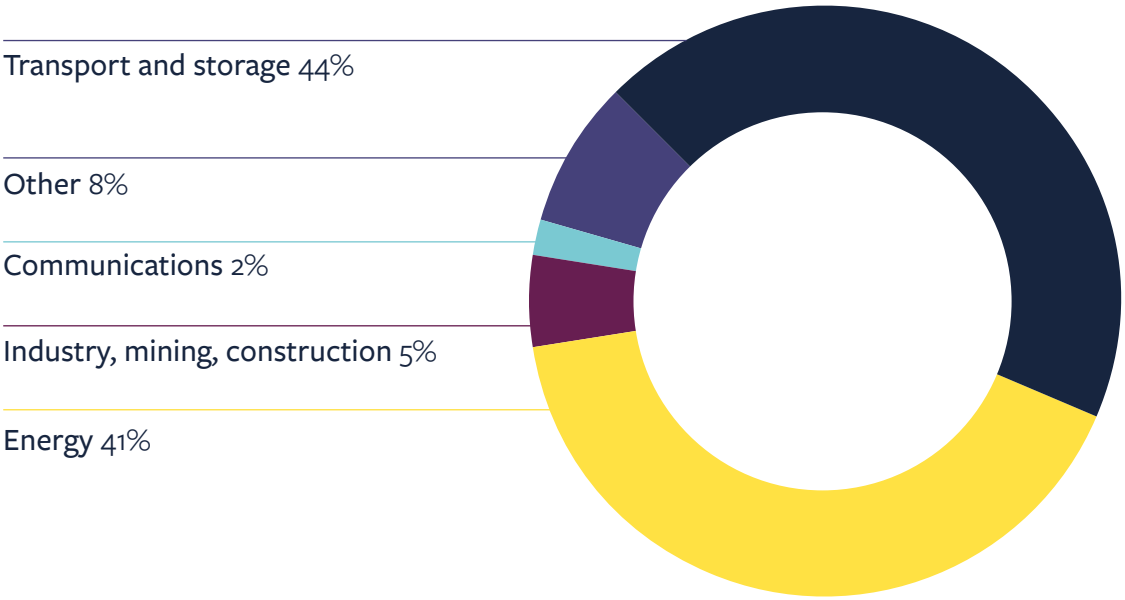
Chinese investors in the Kyrgyz gold mining sector include private companies and individual investors and SOEs. While it is difficult to map all private investments by Chinese companies in the mining sector, the list includes Zijin Mining, which is developing the Taldybulak Levoberezhny deposit, and China National Gold Corporation, which is exploring the Kuru-Tegerek deposit (Calabrese et al., 2022). Energy projects are dominated by SOEs, and include:

- the Zhongda oil refinery, one of the largest Chinese investments in Kyrgyzstan and one of two Chinese oil refineries in the country

- the gas pipeline 'Kyrgyz Republic–China (Segment D (4th) of Central Asia–China pipeline)' with the participation of CNPC, which is currently under construction. Once fully operational, Line D will allow China to receive gas from the Galkynysh field in Turkmenistan, bypassing Kazakhstan. The Kyrgyz section of the line is estimated to cost $1.2 billion, financed by the subsidiary of a Chinese company (Aminjonov and Dovgalyuk, 2023). Kyrgyzstan is expected to benefit from transit fees, though there has been a lack of transparency regarding the benefits of the project. It has been argued that the pipeline agreement will only bring $50–60 million annually, significantly lower than in other similar contracts in the region (Nyrmatov, 2019)
- the Bishkek power plant modernisation project, which has been controversial as the plant malfunctioned weeks after opening (Putz, 2018). The project was financed by a $385 million loan from China Exim Bank (Vakulchuk et al., 2019b)
- two projects for the construction and modernisation of high-voltage power lines from Datka to Kemin with a value of $389 million and $208 million, financed by China Exim Bank.

Compliance with Kyrgyz environmental, industrial safety and social protection frameworks among Chinese mining companies is often lacking (Calabrese et al., 2022). There is little evidence that Chinese companies do not hire local workers (ibid.) despite reports of breaches of labour standards (IndustriALL, 2015).

Figure 32 Chinese development finance in Kyrgyzstan (2000–2017)



Source: AidData (2022).

Goals versus results: has Chinese capital delivered infrastructure development in Kyrgyzstan?

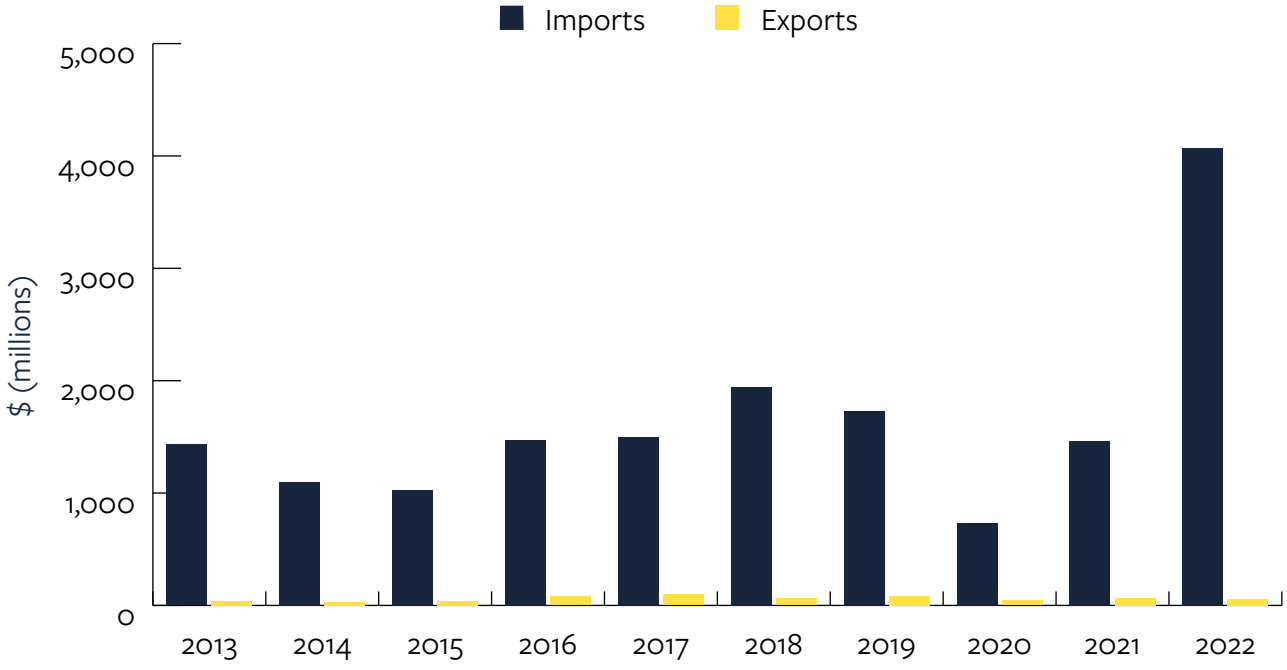
Infrastructure development

Between 1996 and 2023, Kyrgyzstan saw significant infrastructure development: 37 out of 49 road projects have been completed (total length 1,970 km) (Kaktus, 2023). As of March 2023, 12 projects (with a total cost of $1.526 billion) are under construction, with 38% of the financing provided by China Eximbank, and 25% by ADB (ibid.). Other institutions financing infrastructure in Kyrgyzstan include the World Bank, the European Bank for Reconstruction and Development (EBRD) (which financed part of the Bishkek Osh road), the Eurasian Development Bank (EDB), the Islamic Development Bank (IsDB), the Asian Infrastructure Investment Bank (AIIB) and the Japanese International Cooperation Agency (JICA) (financed the Osh–Batken–Razzakov road).

Trade and the economy

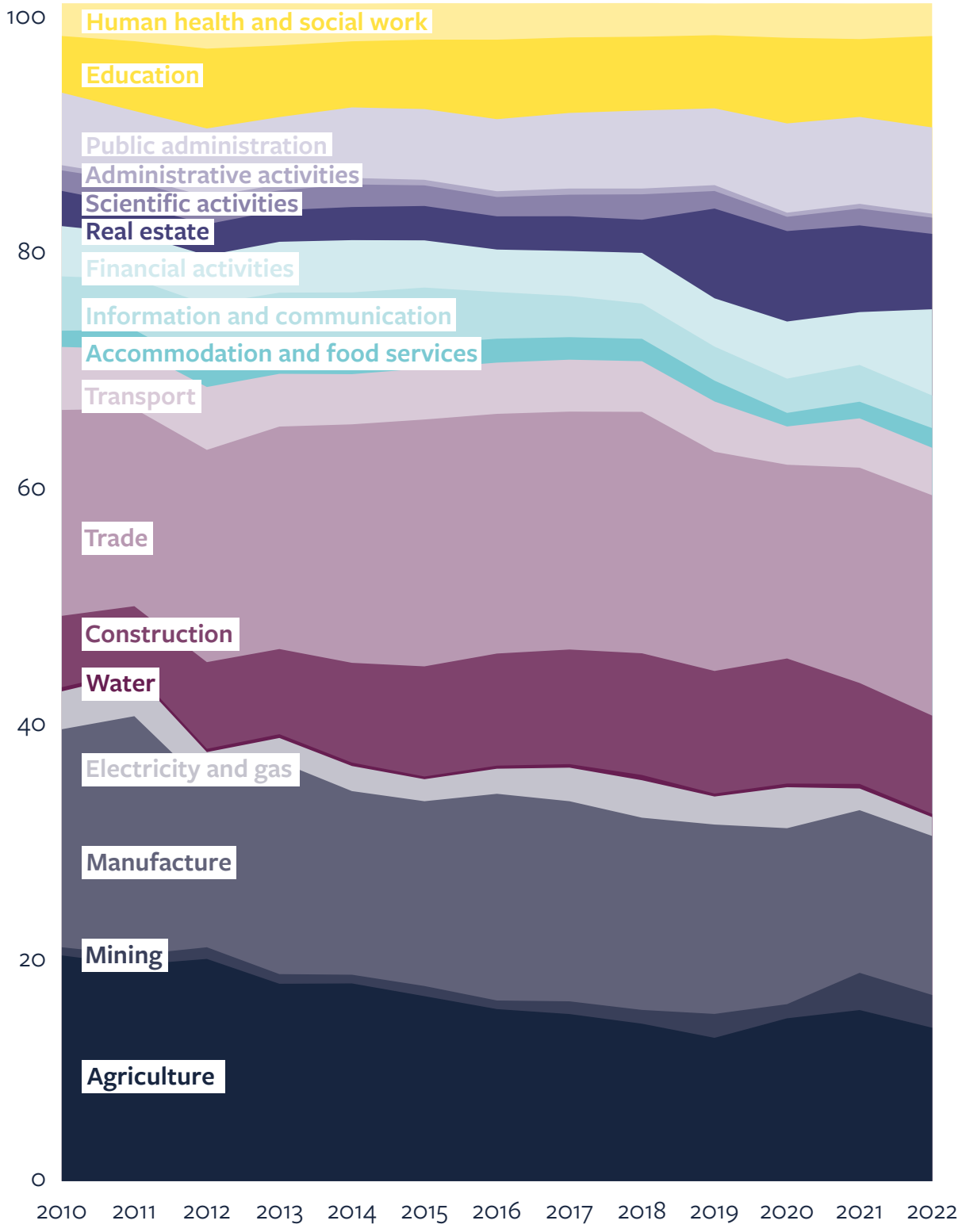
Kyrgyzstan's trade deficit grew by 76% during 2013–2022. Exports increased by 23% between 2013 and 2022, mostly due to an increase in trade with CIS (Commonwealth of Independent States) countries and EAEU accession. During the same period Kyrgyzstan increased its total imports by 60%, and imports from China increased by 185%, from $1.4 billion to $4 billion (Figure 33), making China Kyrgyzstan's largest import partner. Kyrgyz exports to China, mainly gold and copper, increased by 57%, but remain comparatively small in absolute terms. Trade between China and Kyrgyzstan stood at $4.1 billion in 2022, significantly less than China's trade with other countries in the region. However, the relationship is set to grow as China increasingly turns to Central Asia for energy security and places a strategic priority on improving connectivity and infrastructure in the region (Schroeder, 2023).

Figure 33 Kyrgyzstan trade with China 2013–2022



Source: ITC/UNCTAD.

Figure 34 Kyrgyzstan's GDP by types of economic activity (percentages)



Source: National Statistical Committee of the Kyrgyz Republic (2023).

Mining's share of the Kyrgyzstan GDP grew between 2013 and 2022, from 0.7% to 2.3% of GDP, while the share of the manufacturing sector fell from 13.7% to 11.3%. Manufacturing Value Added (MVA) declined from $1.2 billion to $1.1 billion between 2013 and 2021 (over the same period MVA increased for the Central Asian region) (UNIDO, 2023). In 2021 Kyrgyzstan's external public debt increased to $9.2 billion (National Bank of the Kyrgyz Republic, 2023) or 50.6% of GDP (IMF, 2023). 41.6% of external debt was owed to China, the country's largest lender, and over 15% to the Asian Development Bank and the World Bank. Growing debt to China is a cause for concern for the country: the peak of external debt repayments to China is expected to occur between 2025 and 2027, with subsequent reductions, and Kyrgyzstan is supposed to have fully repaid its debt to China by 2035.

Chinese financiers have supported strategic infrastructure projects through a combination of loans and grants. This has helped the country to improve infrastructure and connectivity and is in line with its ambition to become a transit country in the region, but it has also led to high levels of external debt. Kyrgyzstan plans to develop as a transit hub and provide added value services, such as product consolidation, repackaging and warehousing along the BRI routes.

Kyrgyzstan has significantly increased its imports from China in the last 10 years, to 42% of total imported goods. Increased imports of industrial goods from China potentially had adverse effects on the local market. The country has high levels of indebtedness to China, with infrastructure investments still to pay off. The country has yet to succeed in its aim of diversifying the economy: the share of the mining sector has increased, while that of manufacturing has decreased. The country's industrial growth has been influenced by various factors, including its accession to the EAEU in 2015 and the government's institutional capacity.

Key takeaways

The BRI is one of the most ambitious and far-reaching foreign and economic policy projects of our time. While originally cast as a Eurasian project connecting China to the region, as is evident from the location of the six original corridors, it has evolved to encompass the Pacific, Africa and Latin America. It seeks to facilitate infrastructure growth, bolster regional connections, promote economic collaboration and encourage cultural interactions among the nations involved. The BRI has the potential to increase trade flows among participating countries by up to 4.1% (Baniya et al., 2020). Between 2009 and 2021, China lent over $202.15 billion for transport and energy projects, accounting for 65% of total public lending in these years.

Over the decade since its inception, the initiative's impact on connectivity, trade and economic development for both China and participating countries has become a critical subject for analysis. It is vital to assess what the initiative has achieved in these areas.

Impact on connectivity and trade

The BRI has delivered remarkable increases in connectivity; for example, in the period 2016–2021 the annual number of freight trains from China to Europe has increased from 1,702 to 15,183 with an average annual growth rate of 55% (New Silkroad Discovery, 2022a). As discussed in previous sections, the time it takes to transport goods from cities in central and western China to the European market has reduced significantly, from 40 days by sea to 10 days with the introduction of CR Express trains (Belt and Road Portal, 2021).

Analysis of trade flows shows different trends across countries, but overall Chinese exports have increased proportionately more than imports. Countries such as Kyrgyzstan and Pakistan have experienced much higher increases in import flows in bilateral trade than China. This can be attributed to the higher competitiveness of Chinese goods compared to goods from its less industrialised trade partners. One of the key drivers of the boom in Eurasian rail freight in the early stages of development was the provision of subsidies from Chinese local authorities to Chinese producers for exporting and importing goods through rail container traffic. These incentives could reach up to $5,000 per container, accounting for 50% of the cost of delivery (ERAI, 2022). Reportedly these subsidies ended in 2023 (Batrak, 2022), although precisely when varied from one local government to another (RailFreight.com, 2023). In other cases, such as Ethiopia and Cambodia, countries have been able to expand their exports to China mostly in agricultural products. While many factors, including domestic economic policies and competitive advantage, shape bilateral trade, it is evident that trade patterns have become more uneven.

Contribution to economic objectives of developing countries

The infrastructure finance gap for emerging markets and developing economies is $452 billion per year (Ruiz-Nuñez and Wei, 2015). According to the World Bank, developing countries need to invest 4.5% of GDP to achieve the infrastructure-related Sustainable Development Goals (Rozenberg and Fay, 2019). Given the capital intensity of infrastructure projects, financing by

the governments of developing countries often requires external lending. BRI and Chinese finance have played an instrumental role in closing this gap in many developing countries, for example in Cambodia and Kyrgyzstan. This has also allowed countries to divert capital to industrial development programmes and social needs while reducing the costs of trade.

However, for some countries, including Kyrgyzstan, this has come at a cost of heavy debt dependence on China. In Cambodia's case, the government managed to borrow at low rates and to keep a balance between foreign lenders, so avoiding debt dependency on China.

Foreign direct investment plays an important role in the development of local economies through tax revenues, job creation and increased incomes. Evidence from countries such as Cambodia and Kyrgyzstan shows that Chinese companies have employed local labour, despite some reports of breaches of labour standards. The impact of Chinese finance on manufacturing was limited by a number of other factors such as COVID-19 and conflict in Ethiopia. Chinese energy investments in Pakistan have both bolstered and weakened Pakistan's energy security by increasing generation capacity while locking in coal technologies.

The impact of Chinese economic engagement has also been affected by the slowdown in Chinese public finance post-2016, as a result of domestic financial tightening (which included increasing interest rates to sustain credit growth, and new regulatory measures for the major policy banks in 2017, as part of an effort to reduce systemic risk in the banking sector),[4] and changing risk factors in recipient economies. Increasing debt vulnerability in many countries has made China change its financing models and geographies.

Chinese infrastructure finance has played a vital role in closing the infrastructure gap in developing countries, but has also led to high levels of debt dependence. While Chinese investment and lending have created jobs and generated tax revenues, the overall impact on the manufacturing sector and industrial development and growth was affected by a number of other factors: for example, the conflict in Tigray in Ethiopia, or Kyrgyzstan's membership of the EAEU.

Achieving China's domestic economic objectives

China has been able to achieve several of its strategic domestic objectives through the BRI. First, the country has utilised its industrial overcapacity by promoting exports and expanding markets for its companies. This often included a shift of production capacity to where there is ready demand (arising, for example, from new infrastructure finance) or where production is cheaper. Evidence from our case studies shows that Chinese engineering companies participated in a large number of infrastructure projects along the BRI, and the number of new contracts for Chinese construction companies is increasing. According to latest figures, China State Construction Engineering Corp's overseas revenues increased by 7.7% year on year in 2023 (China Daily, 2023). Analysts attribute this to the government's support for these companies and leveraging of their infrastructure advantages, sharpened through various domestic projects, in markets overseas (ibid.).

4 In 2017, the CBIRC predecessor issued the Measures for the Supervision and Administration of the CDB and Eximbank, which included provisions on credit risk management regulations. See Rudyak and Chen (2021).

Second, infrastructure projects with Chinese engineering and construction companies were often accompanied by procurement of construction materials from China, increasing the economic gains for China. Chinese companies in sectors such as digital and manufacturing have been successful in winning markets or establishing branches abroad.

Third, China has a large reserve of savings that are not being invested productively. Investing in large-scale overseas infrastructure projects enables China to export its excess savings and utilise its investment capacity as well as skills that were not getting high enough returns in China, and could therefore be redeployed towards other markets.

Finally, China depends on energy and raw materials imports, most of which are currently delivered by sea. BRI energy projects such as the China–Central Asia gas pipeline and Russian Gas Supply Pipeline Construction Project help China secure strategic energy supplies, while establishing Chinese-owned mines in countries like Kyrgyzstan ensures access to raw materials. China also depends on imports of food, and many developing countries such as Ethiopia are important suppliers.

The BRI has facilitated China's access to strategic supplies of energy, raw materials and agricultural products. Participation of Chinese companies in BRI projects has helped the country address its industrial and investment overcapacity by expanding markets for its companies and utilising its investment capabilities.

What to watch

The BRI was set up to improve infrastructure development, regional connectivity and economic cooperation, as well as to achieve geopolitical objectives. The analysis in this report shows that China has been able to achieve many of its aims through the BRI: new roads, railways and pipelines have been constructed, trade between China and other countries has increased and Chinese companies have expanded their global presence.

Developing countries benefited from access to much-needed finance to close the infrastructure gap, but this has also resulted in high levels of debt to China. China is today the largest sovereign lender to the world, with over $1.5 trillion in direct loans and credits (Horn et al., 2020). Low production costs, economies of scale and rail subsidies have all affected the competitiveness of Chinese goods on foreign markets, resulting in a higher proportionate increase in exports from China to neighbouring developing countries than exports from these countries to China. China's exports to developing countries are characterised by high valued-added manufactured goods, while most exports from developing countries to China consist of lower value-added raw materials and agricultural products. Whether developing countries can turn this trend in their favour ultimately depends on their capacity in policy-making and the use of local content strategies to encourage inward FDI and localisation by Chinese enterprises.

In terms of future trends, this report's section 3 highlighted a slowdown in public (or official) lending, with some observers calling into question the future of the BRI. However, it seems a 'recalibration' is more accurate. NDRC signalled a move towards 'small or beautiful' (xiao er mei) projects, where 'small' refers to the size of the project (in contrast to previous megaprojects) or to more limited Chinese participation, and 'beautiful' refers to projects that fulfil (host or Chinese) government objectives or support local communities (Li, 2023). Certainly, there is a continued shift away from megaprojects in

debt- and conflict-prone regions towards a focus on quality and risk control, and more projects and investments in sectors such as digital, agri-tech and health. In the digital sector investments have been made in platforms and applications, as well as smart cities and the production of electronics. Agri-tech investments in Africa include Agricultural Technology Demonstration Centres (ATDCs) in two dozen countries, usually with a particular firm and focus: for example, grain in Mozambique, or aquaculture in Uganda (Scoones et al., 2016; Jiang et al., 2016). There are also cooperation opportunities for third parties, e.g. the deal signed between China Harbour and Al Ajlan Bros during President Xi's visit to Saudi Arabia in December 2022.

Analysis of 10 years of the BRI shows that, while Chinese infrastructure finance contributed to achieving countries' economic objectives, the impact on developing countries has depended on their economic policies, including their industrial policy and policies that support the competitiveness of their producers, as well as the capacity to manage external debt. Case study analysis shows the BRI has delivered very different outcomes depending not so much on any specific choices on the Chinese side, but rather on host country characteristics, and the economic and political setup. Therefore, going forward it is expected that host countries' own domestic context will remain a crucial factor in determining the outcomes of the BRI.

However, as the BRI moves into its second decade a number of key questions remain, and areas to watch are emerging:

- What will the next decade of the BRI look like? Will the initiative continue to expand? Will it be fundamentally reshaped? Will it be complemented by, or replaced with, other initiatives such as the GDI (Global Development Initiative)?
- In the context of a potential future rebalancing of the Chinese economy away from investment-led growth, what will the future of China's engagement with low- and middle-income countries and the BRI look like?
- How will the changes in public lending trends shape the future of the BRI? Will we see more appetite for private financing of infrastructure after the decline of official policy lending? How will that play out in low- and middle-income countries, given the limited presence of frameworks to support private infrastructure investment?
- What is the long-term impact of China's domestic energy needs on BRI countries? How will this affect the growing trend in 'higher value-added goods for raw materials' trade between China and developing countries?

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Attachment: 'Top reads' on the Belt and Road Initiative

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Appendix

Top reads on the Belt and Road Initiative

1. **Gill, I., Lall, S. and Lebrand, M.** (2019) 'Winners and losers along China's Belt and Road'. Policy Commons: United States of America (https://policycommons.net/artifacts/4136300/winners-and-losers-along-chinas-belt-and-road/4944908/).
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