



UNIVERSITY OF CENTRAL ASIA
GRADUATE SCHOOL OF DEVELOPMENT
Institute of Public Policy and Administration

Kyrgyzstan and the Belt and Road Initiative

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ABBREVIATIONS

ADB	Asian Development Bank
BCP	Border crossing point
BRI	Belt and Road Initiative
CAREC	Central Asia Regional Economic Cooperation Program
CHY	Chinese yuan
CRBC	China Road and Bridge Corporation
EAEU	Eurasian Economic Union
FDI	Foreign direct investments
GDP	Gross domestic product
HPP	Heat and Power Plant
IDA	International Development Association
IMF	International Monetary Fund
KGS	Kyrgyz som
kV	kilovolt
MoF	Ministry of Finance of the Kyrgyz Republic
NSC	National Statistical Committee of the Kyrgyz Republic
PRC	People's Republic of China
SCS	State Customs Service of the Kyrgyz Republic
SMEs	Small and medium enterprises
UN	United Nations
USD	US dollar
WDI	World Development Indicators

1. Introduction

Kyrgyzstan and the People's Republic of China (PRC) share a border on the latter's western frontier. As such, Kyrgyzstan already has strong ties with the Chinese economy and could become one of the major beneficiaries of the Chinese Belt and Road Initiative (BRI). This note provides an analysis of the current state of the economic relationships between Kyrgyzstan and China and discusses the potential of the further development of these in the BRI context. Economic relationships under consideration include trade in goods and services, foreign direct investments (FDI), major infrastructure projects implemented in Kyrgyzstan with support from China and other activities. The paper covers the period from 2006 to 2018 to allow for the evolution of Chinese-Kyrgyz economic relationships to be traced from a relatively low and fragmented level to the current situation where China is one of the key (if not the largest) economic partners of Kyrgyzstan.

In this paper, all Chinese-Kyrgyz economic relationships are considered to be a part of the BRI agenda whether or not these activities have been explicitly labeled as 'BRI' projects. Implementation of some Chinese projects in Kyrgyzstan started before the BRI had been officially announced by the leadership of China in 2013. Some other projects are implemented by the Chinese private sector and it is not known whether or not these companies receive direct support from the Government of PRC in the framework of BRI. Still, all these activities and projects are considered here as direct contributions to the BRI's goal of improving connectivity and enhancing hard and soft infrastructure to boost economic and human ties in the region of Eurasia and beyond.

The paper is structured in the following way. Section 2 discusses key forms of cooperation between China and Kyrgyzstan which are broadly attributable to the BRI agenda. These include the implementation of large infrastructure projects, Chinese FDI projects in Kyrgyzstan, and the development of trade relations between the two countries. Section 3 provides an assessment of achieved cooperation results so far including BRI-related changes in production, employment, foreign trade, government external debt, and regional cooperation. Section 4 provides an overview of potential future activities in the BRI framework and their potential impact on the social and economic development of Kyrgyzstan and the entire region of Central Asia. Section 5 formulates some recommendations to the BRI process stakeholders, and Section 6 summarizes the research questions which deserve more detailed study in the future.

2. Key BRI-Related Ongoing Activities in Kyrgyzstan

2.1. Public Infrastructure Projects

In recent years the Government of China has supported the implementation of several major infrastructure projects in Kyrgyzstan. Table 1 provides a summary of the most important infrastructure projects financed by the Government of China and implemented by Chinese companies. Almost all the projects in this list have been financed through concessional loans. The total amount of loans in the table is USD2.1 billion; if one adds to this amount the grants and costs of "resources in exchange for investments" project (see Table 1 for details), the total costs of infrastructure projects financed by China in Kyrgyzstan go as high as USD2.2 billion. Conditions of the loans have been somewhat changing with time towards an increase in the loan repayments and grace periods and some reduction in the interest rates. The two most recent (smaller) projects have been provided as grants. These concentrate on automobile road rehabilitation (Figure 1), energy system rehabilitation/development and urban development.

Figure 1. BRI-related automobile road projects in Kyrgyzstan

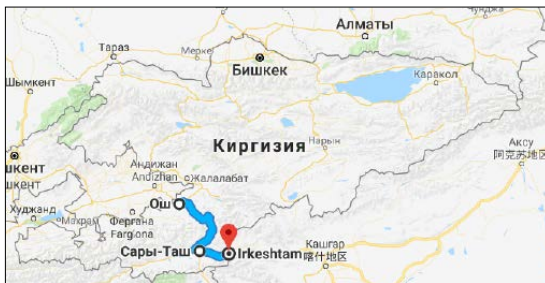
a. Bishkek-Naryn-Torugart (blue line)



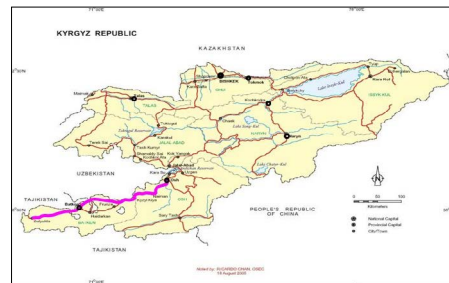
b. Alternative road North-South (red line)



c. Osh-Sarytash-Irkeshtam (blue line)



d. Osh-Batken-Isfana (pink line)



Source: <http://piumotc.kg/en/main/>, Google maps

Table 1. Key infrastructure projects in Kyrgyzstan supported by the Government of China

	Year of agreement	Amount		Terms				Notes
		Mil. USD	Mil. CNY	Repayment period, years	Grace period, years	Interest rate	Commission and management fee	
Rehabilitation of Osh-Sarytash-Irkeshtam road (section from 190 to 240 km)	2008	25.3		This project was based on the "resources in exchange for investments" scheme – Chinese side (China Development Bank and a consortium of companies from China) fully financed the road rehabilitation; in exchange, the Kyrgyz government allowed the Chinese company "Full Gold Mining" to develop the gold deposit Ishtamberdy				Other parts of this road financed by multilateral financial institutions
Rehabilitation of Osh-Sarytash-Irkeshtam road (section from 123 to 190 km)	2009	75.3		20	5	2%	0.5%	
Rehabilitation of Bishkek-Naryn-Torugart road (section from 9 to 272 km)	2009	200.0		20	5	2%	0.5%	Other parts financed by multilateral financial institutions
Modernization of electricity transmission lines in the South of Kyrgyzstan	2011	208.0		20	7	2%	0.5%	
Construction of electricity transmission line 500 kV Datka-Kemin and 500 kV Datka substation	2012	389.8		20	9	2%	0.5%	Part of regional CASA-1000 project
Modernization of Heat and Power Plant in Bishkek city	2013	386.0		20	11	2%	0.43%	
Alternative road North-South (sections Kazarman-Jalal-Abad and Balykchi-Aral)	2013	400.0		20	11	2%	0.43%	

	Year of agreement	Amount		Terms				Notes
		Mil. USD	Mil. CNY	Repayment period, years	Grace period, years	Interest rate	Commission and management fee	
Gas pipeline Kyrgyzstan-China	2013	1,000-1,200		FDI, no equity participation by the Kyrgyz government				Segment of the 4th (D>) pipeline Central Asia – China; the project's implementation has not started yet
Rehabilitation of Osh-Batken-Isfana road (sections from 220 to 232 km and from 248 to 360 km) and Bishkek-Balykchi road (section from 147 to 172 km)	2015	129.8		20	11	2%	0.5%	Other parts financed by multilateral financial institutions
Alternative road North-South (part Aral-Kazarman)	2015	185.3		20	11	2%	0.36%	Approx. 62% of total costs of the project
	2015		697.6 ¹	25	11	1.5%	0.36%	Approx. 38% of total costs of the project
Development of street network in Bishkek city (phase 1)	2015		489.5 ²	Grant				
Development of street network in Bishkek city (phase 2)	2017		286.0 ³	Grant				

Source: China-Kyrgyzstan intergovernmental agreements

¹ Equivalent to USD112.0 million at 2015 CNY/USD average exchange rate of 6.227 (WDI).

² Equivalent to USD78.6 million.

³ Equivalent to USD42.3 million at 2017 CNY/USD average exchange rate of 6.759 (WDI).

The road projects with total costs of USD1.13 billion aim to improve connectivity inside Kyrgyzstan in the directions of north-south and east-west. Simultaneously, these projects are parts of the so-called CAREC corridors which have been designed to improve the transportation links in Central Asia and connect the region with China, South and West Asia, and Europe. The road Bishkek-Naryn-Torugart is part of the CAREC Corridor 1c, the alternative road North-South is the road connecting Corridors 1 and 3, and the roads Osh-Sarytash-Irkeshtam and Osh-Batken-Isfana are parts of Corridor 2. The roads are considered to have a strategic importance for the country. Bishkek-Naryn-Torugart and Osh-Sarytash-Irkeshtam are the main roads connecting Kyrgyzstan with China; the alternative road North-South is set to become the second road connecting the northern and southern parts of Kyrgyzstan which are separated by mountain ridges; the Osh-Batken-Isfana road is built in order to bypass Uzbek and Tajik enclaves and to allow for uninterrupted traffic between the western Batken oblast (province) and other parts of Kyrgyzstan.⁴

The energy projects with total costs of USD0.98 billion include the construction of the strategic electricity transmission line Datka-Kemin and Datka substation and an associated project on the modernization of electricity transmission lines in the south of Kyrgyzstan which have to (a) ensure the energy independence of Kyrgyzstan from the single energy system of Central Asia inherited from Soviet times, and (b) become a part of mega project CASA-1000 allowing energy supplies from Kyrgyzstan and Tajikistan to the countries of South Asia. Another energy project—Bishkek Heat and Power Plant (HPP)—has been designed to improve the electricity and heat supply in Bishkek, the capital of the Kyrgyz Republic. The HPP is based on coal usage, so some other donors might hesitate to support such a “non-green” project.

In addition to these loans for energy projects, China is also going to build a gas pipeline in southern Kyrgyzstan which is a part of line D of the Central Asia-China gas pipeline network. Kyrgyzstan would play only a transit role with no technical possibility to receive gas from/supply gas to the pipeline. The Government of Kyrgyzstan will not have a stake in the equity of the pipeline, so the pipeline is considered a Chinese FDI project in Kyrgyzstan. Works on this project in Kyrgyzstan are planned to begin in 2019.

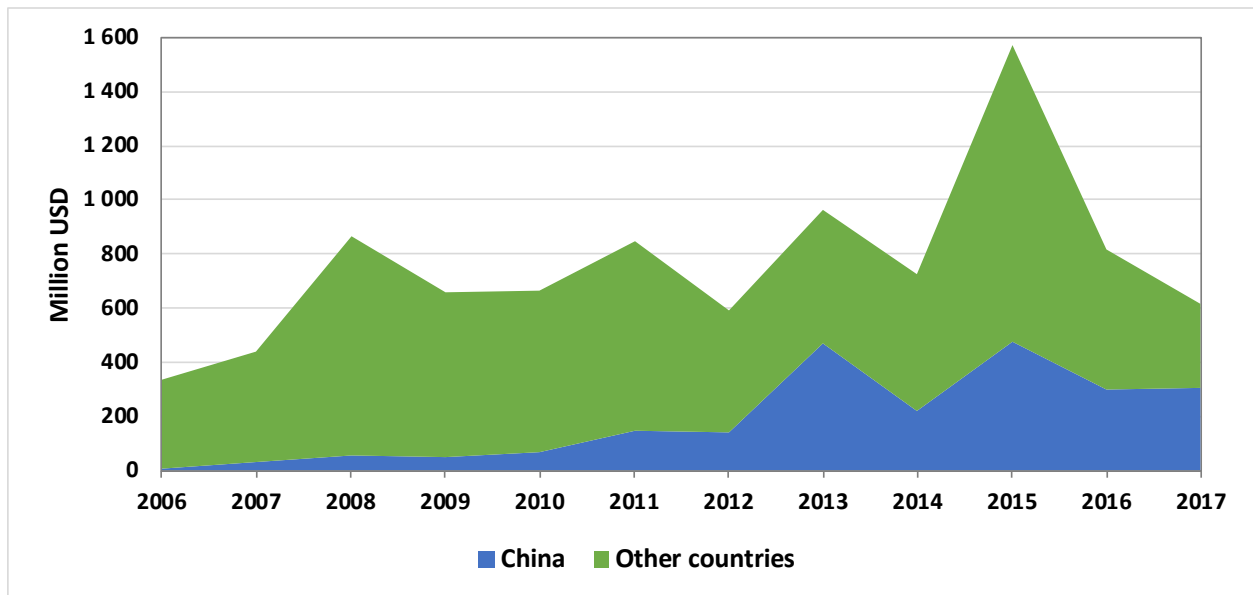
Recently, the Government of China expanded its infrastructure activities in Kyrgyzstan to urban development by providing two grants worth USD121 million in total to rehabilitate/develop the street network in Bishkek.

All these infrastructure projects have been implemented by Chinese companies (e.g. China Road and Bridge Corporation (CRBC) in the case of road projects; TBEA Co. Ltd. in the case of energy projects) which use almost exclusively Chinese labor force. Most machinery, equipment and materials have also been imported from China.

2.2. Foreign Direct Investments

Since 2012, China has become the largest source of foreign direct investments into the economy of Kyrgyzstan (Figure 2); for 2006-2017, the cumulative gross of Chinese FDI inflow was equal to USD2.3 billion. For this period, Chinese FDI constituted 25-50% of total FDI to Kyrgyzstan, which is equivalent to 2-7% of the country's GDP.

⁴ Utilization of existing roads crossing territories of these enclaves is not always possible or easy (see e.g. <https://www.economist.com/banyan/2014/04/02/the-post-imperial-chessboard>).

Figure 2. Gross inflow of FDI from China and other countries

Source: NSC

Key Chinese FDI sectors are geological explorations, the mining industry and the production of refined petroleum products (Figure 3). Mining-related FDI (geological explorations and the mining industry) concentrate on the development of gold deposits in Kyrgyzstan. Chinese companies operate some 10 medium-sized mines producing gold-copper concentrate which is exported for refining to China. According to official statistics, there are no major Chinese agricultural investment projects in Kyrgyzstan while a plan has been announced by the governments of China and Kyrgyzstan to build the agro-industrial park *Iskra Asia* near Bishkek to produce meat, fish and animal feed both for the domestic market and exports to China.

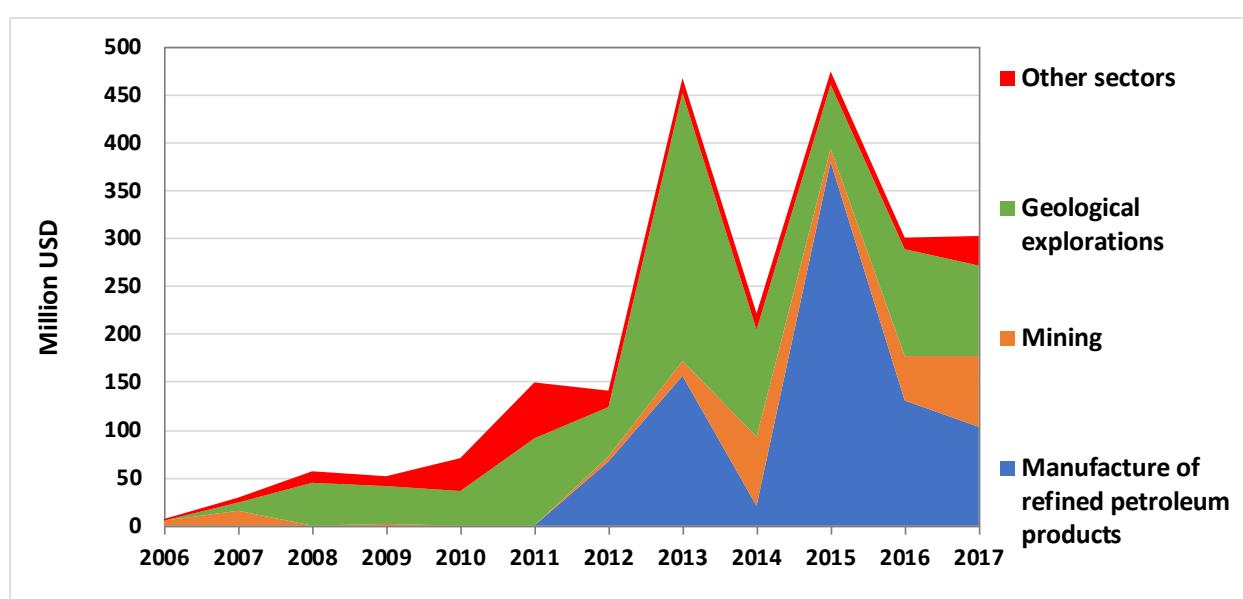
At least some of the Chinese investors are state-owned enterprises (e.g. gold producer *Full Gold Mining* was established by the state corporation *Linbao Gold*); they operate FDI projects as foreign enterprises or as joint ventures with the Kyrgyz state (e.g. state-owned gold producer *Kyrgyzaltyn*) and private companies with the majority of shares owned by the Chinese partners.

Production of refined petroleum products. Chinese companies have built two oil refineries in the northern part of Kyrgyzstan near Bishkek; *Zhongda China Petrol Company* is the largest such enterprise in this sector in Kyrgyzstan. There are no oil deposits nearby (either in Kyrgyzstan, or in neighboring countries) to supply these refineries through a pipeline. One, rather scarce, source of raw materials is domestic crude oil produced in the south of Kyrgyzstan (railroad connection to the refineries is possible only through the territories of Uzbekistan and Kazakhstan). Another, more important, source of raw materials is imports of crude oil and semi-processed oil products (black oil) from Kazakhstan. These raw materials also get to the refineries by rail. Due to the relatively high raw material and transportation costs, the refineries seem to lack competitive advantages on the domestic market in comparison to Russian oil products imported to Kyrgyzstan on beneficial terms (in accordance with the bilateral Russian-Kyrgyz intergovernmental agreement, no export duty is charged on Russian oil products exported to Kyrgyzstan). As a result, the refineries are reported to work below one-third⁵ of their capacity and mostly export their produce

⁵ 2017 estimate based on information from the State Committee on Industry, Energy and Subsoils of the Kyrgyz Republic.

to Tajikistan and Afghanistan where the prices for oil products are higher than in Kyrgyzstan. The refineries appear to need additional investments as in the near future Kyrgyzstan must enact new technical regulations for oil products adopted by the Eurasian Economic Union (EAEU). Based on environmental considerations, these regulations require the production of gasoline and diesel fuel types Euro-2, Euro-3, and Euro-4 to stop for the EAEU market by 2019; by 2021, exports of these low-quality oil products should also stop. This directly affects the Chinese refineries as they produce exactly the fuels of Euro-2, Euro-3, and Euro-4 types. So, to continue their operations, these enterprises should upgrade their produce in the next couple of years to, at least, the Euro-5 level.

Figure 3. Chinese FDI by sector



Source: NSC

Chinese FDI in other sectors of the Kyrgyz economy (e.g. retail trade, construction materials production, food processing) are relatively minor. In 2009, Chinese Eximbank financed the construction of a large cement plant in southern Kyrgyzstan. Later, however, this plant was sold to Kazakh investors.

3. Effects of BRI Projects

3.1. Output, Employment, Government Revenue, Exports, and Imports

An assessment of the contribution of BRI-related infrastructure and FDI projects to the economy of Kyrgyzstan is complicated by the fact that there are no direct disaggregated data on the economic activities of Chinese enterprises. So, only some (rather rough) estimates appear possible.

For 2011-2017—the most active implementation period of Chinese infrastructure and FDI projects in Kyrgyzstan—the total amount of money committed to these projects was equal to USD4.1 billion (USD2.2 billion in infrastructure projects and another USD1.9 billion in FDI projects, see Section 2). Some of this money may not be disbursed yet, but about 80-90% of this amount has been invested already in Kyrgyzstan. This inflow of resources is equivalent to some 7-8% GDP

per annum.⁶ This is a very significant contribution to the Kyrgyz economy. However, the contribution to aggregate demand was much smaller as most of these resources were spent on the imports of goods and services from China. So, the main impact on Kyrgyz GDP appears to be through the accumulated stock of fixed capital (improved roads, electricity transmission lines and substations, oil refineries, mines etc.). Some of these projects are still under construction; others, meanwhile, have been completed only recently, so one cannot expect any major impact on the economy's production capacity. A comparison of the average annual GDP growth rates in 2011-2017 and in 2000-2010 shows some increase from 4.2% per annum (2000-2010) to 4.8% per annum (2011-2017). Of course, there were other factors contributing to the somewhat elevated GDP growth rate in recent times including (i) historically high level of remittance inflow to Kyrgyzstan (about 30% of GDP per annum); (ii) increased confidence of domestic and foreign consumers and investors after political stabilization post-2010 revolution; and (iii) inflow of resources associated with the accession of Kyrgyzstan to the EAEU (e.g. establishing the Russian-Kyrgyz Development Fund managing USD500 million provided as FDI from Russia). In most sectors affected by Chinese investments, an increase in the share of gross value added in GDP has been observed between 2010 and 2016 (Table 2).

Table 2. Growth of key sectors receiving Chinese investments

Sector	Gross value added, % GDP		
	2010	2016	Increase between 2010 and 2016
Extraction of metal ores	0.01	0.39	0.38
Production of oil products and other chemicals	0.47	0.75	0.28
Production, transmission and distribution of electricity	1.56	1.84	0.28
Transport and logistics	4.73	3.92	-0.81

Source: NSC

The contribution of these projects to employment in Kyrgyzstan does not seem to be significant. As mentioned above, the infrastructure projects are implemented by Chinese companies using a very limited number of Kyrgyz workers. There are 10-15 enterprises with considerable Chinese FDI.⁷ Each of these enterprises employs between 100 and 500 Kyrgyz workers (and a comparable number of employees from China), so the total number of new jobs for Kyrgyz workers should amount to several thousand or 0.1-0.3% of the country's total employment (2.4 million people in 2016).

Regarding the contribution of the enterprises with Chinese participation to the government budget of Kyrgyzstan, enterprise-level data are available from the Ministry of Finance of the Kyrgyz Republic. According to these data, in 2017 these enterprises paid KGS3.66 billion in taxes (the equivalent of USD53.2 million at the 2017 average exchange rate of 68.87 KGS/USD). This

⁶ Annual GDP of Kyrgyzstan in 2011-2017 was between USD6.2 billion and USD7.5 billion (at current exchange rate).

⁷ According to NSC, 567 enterprises with full or partial participation of citizens of China in equity has been registered in 2016. However, most of these enterprises were either small, or idle.

amount made up 2.5% of the total state budget⁸ revenue in that year. Of this total, two thirds were paid by one enterprise – the oil refinery Zhongda. All mining enterprises with Chinese participation paid KGS1.18 billion (USD17.1 million). Available estimates⁹ indicate that the tax burden for gold mines in Kyrgyzstan (except Kumtor, the largest mine in Kyrgyzstan operated by a Canadian company) is much lighter than in other countries around the world.

BRI effects on the foreign trade of Kyrgyzstan seem to be two-pronged: the effects on bilateral trade between Kyrgyzstan and China and the effects on the trade of Kyrgyzstan with third countries. Due to major discrepancies in the bilateral trade statistics, it makes sense to consider data from both Kyrgyz and Chinese sources (Figure 4).

The main component of this trade—import and re-export operations¹⁰ with Chinese light industry products (textiles, footwear etc.)—started in the 1990s and achieved its peak in 2008. This component is run mostly by individuals and SMEs and does not seem to be a part of the BRI agenda. It, however, could be affected by improvements made to the country's main transport arteries – the roads Bishkek-Naryn-Torugart and Osh-Sarytash-Irkeshtam. Rehabilitation of these roads was mostly completed in the early/mid-2010s. Chinese data¹¹ on the weight of light industry products exported to Kyrgyzstan do not show an ascending trend; on the contrary, the average annual weight of light industry products in 2016-2017 was reported to be 16% lower than in 2011-2013 (source: UN Comtrade). Of course, the weight and value of this trade flow depend not only/not so much on the transportation costs on the Kyrgyz part of the route, but also on many other factors especially on the demand for Chinese textiles and footwear on the Russian and Central Asian markets. In any case, there seems to be no evidence to claim that the rehabilitation of the roads connecting China and Kyrgyzstan has positively contributed to trade in light industry products.

The components of bilateral trade which seem to be most directly associated with the BRI-related projects are exports of gold concentrate from Kyrgyzstan to China and imports of machinery and equipment for infrastructure and FDI projects from China to Kyrgyzstan. The exports of gold concentrate (Figures 4a and 4b) have just recently started; in 2016-2017, these were on the level of USD30-40 million per annum which is about 2% of the total Kyrgyz exports of goods. Imports of machinery and equipment (Figures 4c and 4d) stayed at the rather high level of USD300-500 million¹² for 2011-2017. This is equivalent to 25-50% of total imports of machinery and equipment or 6-10% of total imports of goods to Kyrgyzstan.

⁸ State budget consolidates republican (central government) and local government budgets.

⁹ (Manley, 2018) and (Mogilevskii, Abdrazakova, and Chalbasova, 2015).

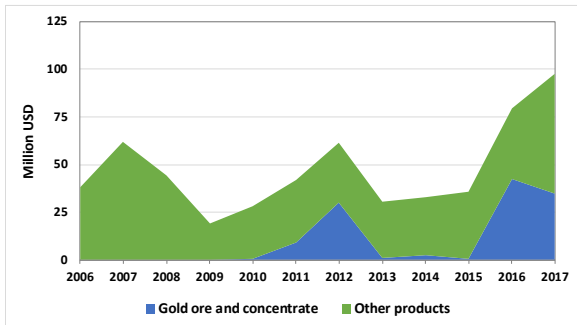
¹⁰ Since early 2000s, Kyrgyzstan is known to be a re-export hub of trade in Chinese consumer goods for a large region encompassing Central Asia and large part of Russia; see details in (Kaminski and Mitra, 2011) and (Mogilevskii, 2012).

¹¹ The Kyrgyz data on this component of bilateral trade are known to be heavily downwards biased (see the paper on re-exports mentioned in the previous footnote).

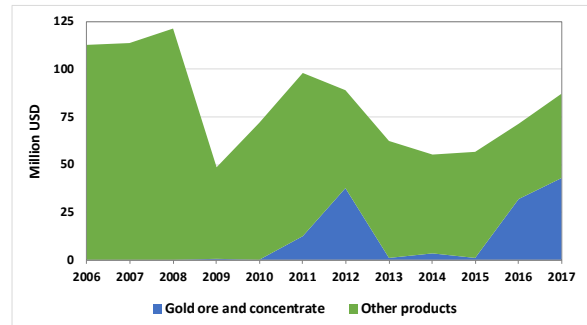
¹² Even USD650 million for some years according to the Chinese data.

Figure 4. Trade in goods between Kyrgyzstan and China

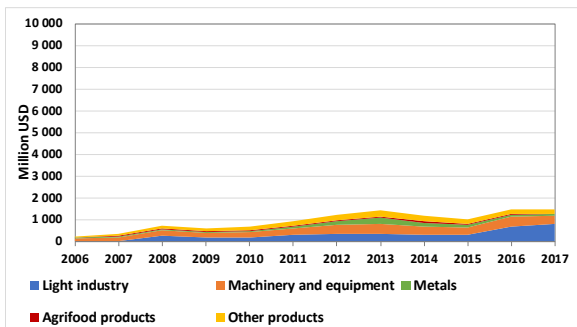
a. Exports from Kyrgyzstan to China, Kyrgyz data, fob prices



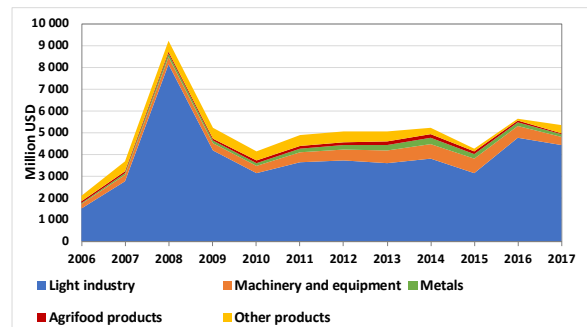
b. Imports from Kyrgyzstan to China, Chinese data, cif prices



c. Imports to Kyrgyzstan from China, Kyrgyz data, cif prices



d. Exports to Kyrgyzstan from China, Chinese data, fob prices



Source: UN Comtrade, SCS

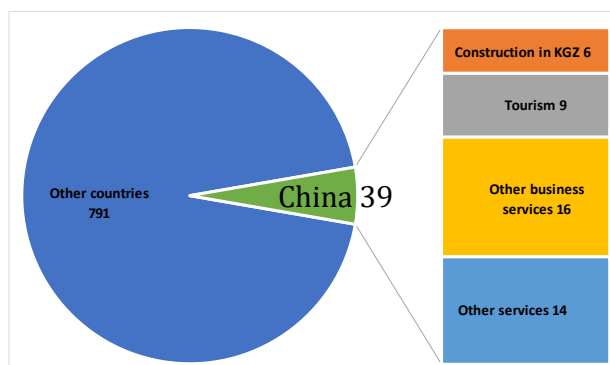
The only traceable effect of BRI projects on trade with third countries seems to be the emerging exports of oil products to Tajikistan and Afghanistan from Zhongda oil refinery (see section 2.2). In 2015-2017, these exports fluctuated in the range USD2-16 million or 0.2-1.1% of total merchandise exports from Kyrgyzstan.

The trade in services between Kyrgyzstan and China is rather small (Figure 5). Exports and imports of services to China make 4.7% of total exports and 7.9% of total imports of services of Kyrgyzstan, respectively. Key tradeable (in both directions) services include tourism and construction inside Kyrgyzstan.¹³ Kyrgyzstan also imports some automobile and air transport and logistics services from Chinese providers. The construction services and, possibly, some transport services could be directly attributed to the BRI-related projects mentioned above.

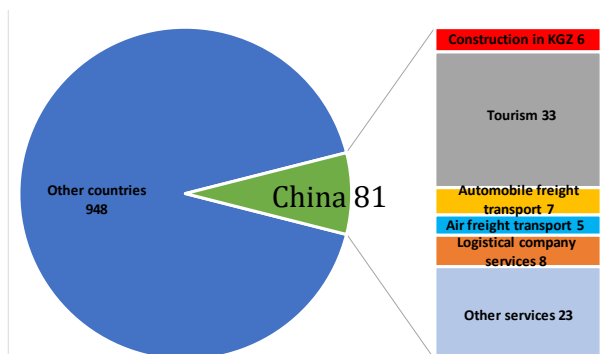
¹³ The Kyrgyz exports of this type of services covers the services of the Kyrgyz subcontractors to Chinese contractors of infrastructure and FDI projects.

Figure 5. Trade in services between Kyrgyzstan and China

a. Exports of services from Kyrgyzstan, million USD, 2016



b. Imports of services to Kyrgyzstan, million USD, 2016



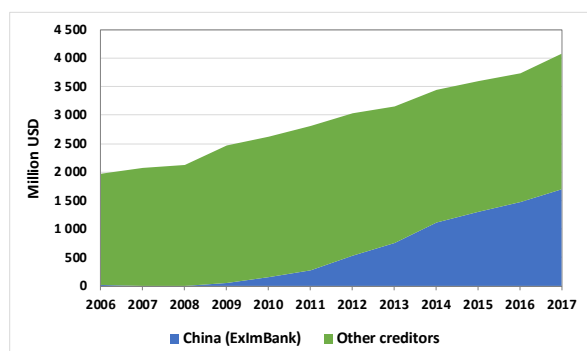
Sources: NSC, NBKR

3.2. Accumulation of Government External Debt

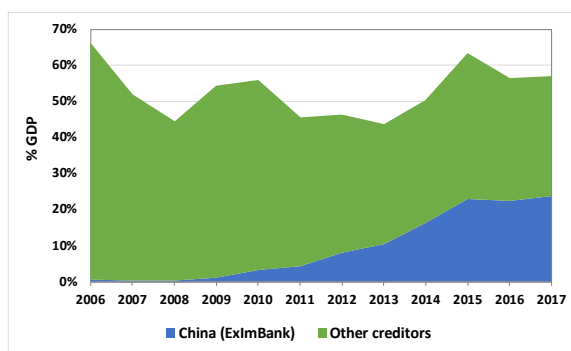
Massive inflow of resources for public infrastructure projects resulted in the fast growth of the Kyrgyz government's debt to Eximbank of China (Figure 6). In less than ten years it increased from USD9 million (2008) to USD1.7 billion (2017). As of end-2017, China was the main creditor of the Government of the Kyrgyz Republic; the debt to Eximbank made up 42% of total government external debt or 24% of GDP.

Figure 6. Evolution of the external government debt of Kyrgyzstan

a. Nominal value at the year-end



b. Relative to the size of the economy



Source: MoF

As follows from the data provided in Table 1, all infrastructure loans provided by the Government of China are concessional with effective interest rates of 1.86-2.5%, repayment periods of 20-25 years and grace periods of 5-11 years. Therefore, the debt service burden may start to be felt only after the expiration of grace periods for most loans received so far (sometime in the 2020s).

According to the joint assessment of the IMF and IDA,¹⁴ the Kyrgyz Republic remains at moderate risk of debt distress, but the debt situation is vulnerable to large external shocks.

¹⁴ (IMF, 2018).

3.3. Regional Cooperation

The implementation of BRI-related projects takes place in the background of many ongoing regional economic cooperation initiatives including the Central Asia Regional Economic Cooperation Program (CAREC) and the Eurasian Economic Union (EAEU).

Among other things, CAREC coordinates multiple transport and energy projects in Central Asia. It seems that Chinese infrastructure development projects are well integrated into the CAREC agenda. All roads rehabilitated with Chinese concessional loans are parts of CAREC corridors (see section 2.1). Typically, Chinese loans cover some parts of the rehabilitated roads while other parts are supported by other development partners (Asian Development Bank, World Bank, European Bank for Reconstruction and Development, Islamic Development Bank, European Union, Japan International Cooperation Agency, Arab Coordination Group). Similarly, the energy transmission line and substation projects of China in Kyrgyzstan are consistent with CASA-1000 design and CAREC energy sector plans. Some of the other donors' projects are implemented by Chinese companies (e.g. CRBC for ADB projects) serving as construction contractors. While the coordination of Chinese infrastructure projects with different donors does take place, many representatives of other donor organizations/governments continue to point out a lack of dialogue with Chinese representatives in Kyrgyzstan.¹⁵ Possibly, such dialogue takes place in headquarters of the international development organizations rather than in-country. Coordination could also be partially driven by the Government of Kyrgyzstan which tries to pool resources of different donors for the country's key infrastructure projects.

There are ambitious plans of the Governments of EAEU member countries and China to coordinate activities in the frameworks of the EAEU and BRI. A practical step in this direction is the signing of the Agreement on Trade and Economic Cooperation between the EAEU and PRC (17 May 2018). The agreement is reported to be non-preferential, but it includes different measures to foster mutual investments, simplify trade procedures and reduce/remove non-tariff barriers in trade between China and EAEU member countries.

Some of the BRI-related projects mentioned above are simultaneously included into the EAEU's broad infrastructure development plans. For example, the alternative road North-South is also considered to be a section in the road connecting Russia and Kazakhstan with Tajikistan and South Asia.

Some of the BRI-related projects, especially energy ones, aim to increase the independence of Kyrgyzstan from regional energy markets. For example, the transmission line Datka-Kemin is reported to reduce the dependence of the national energy system from electricity transit via the energy systems of Kazakhstan and Uzbekistan. The purpose of the Bishkek HPP rehabilitation, among other things, was to allow the utilization of locally produced coal instead of imported varieties of coal and black oil.

It is also worth mentioning that the relationships between Kyrgyzstan and its neighbors have the potential to affect the efficiency of some of the Chinese projects. For example, the profitability of the main Chinese FDI project in Kyrgyzstan, Zhongda oil refinery, suffers due to the decision of the Government of Russia to exempt the exports of oil products to Kyrgyzstan from export duties. This decision resulted in lower prices of Russian gasoline and diesel fuel on the Kyrgyz domestic

¹⁵ Wolters, A. *Hegemonic or Multilateral? Chinese Investments and the BRI Initiative in Tajikistan and Kyrgyzstan*. In: (Laruelle, 2018).

market and created an unfavorable price situation for the oil products produced at Zhongda (see section 2.2 above).

4. Potential Future BRI Activities and Impact

4.1. Investments

The ongoing automobile road projects, when completed, would create a road network suitable for transit from China via the territory of Kyrgyzstan in almost all possible directions. Of course, there are a few more road projects that the Government of Kyrgyzstan would like to implement (e.g. the Issyk-Kul ring road with connection to Kazakhstan on the east or Almaty–Issyk-Kul road), but it remains to be seen if these projects are of interest to China. In any case, these roads are not going to be transit routes.

A major project under discussion for some 20 years already is the railroad connecting China-Kyrgyzstan-Uzbekistan with the Kyrgyz segment from BCP Torugart to Jalal-Abad. This is expected to be a very expensive project costing around USD5 billion (according to the Railway Strategy for CAREC, 2017-2030). While this railway may be useful for transit purposes (see below), it is not going to immediately serve much of the current domestic flows. Regardless of which route is chosen (two options are being considered – North 472 km long and South 276 km long; as far as it is known, no decision on the exact route has been taken yet), it will go through mostly uninhabited parts of Kyrgyzstan with virtually no current economic activities. To make it useful for the domestic economy of Kyrgyzstan, another connecting railroad should be built to Balykchi (the end-point of the current railway system on the north of Kyrgyzstan). If the northern route is chosen, the railroad would come closer to some mineral deposits thus reducing their development costs. However, if the main purpose to build the road is transit, then the shorter and cheaper southern route may be preferable.

It seems important to ensure that infrastructure development is accompanied by appropriate allocations for the operations and maintenance thereof. This may be done either through direct funding from the government budget (necessary allocations to be carefully assessed before the initiation of any new infrastructure investment project), or by the introduction/proper adjustment of infrastructure user fees. This is of particular importance for the energy sector in which energy tariffs are known to be set at an unsustainably low level.¹⁶

In terms of FDI projects, their future prospects seem to depend on the sector considered. Mining projects will probably continue consuming a large part of Chinese FDI. The Government of Kyrgyzstan should just make sure that tax revenues from these projects are substantial as this is arguably the only reason to have them in this first place (employment generated by mining activities is small, and environmental damage may be an issue). Projects in tourism and agriculture aimed at the Chinese market appear promising, but the Government of Kyrgyzstan should help potential investors to build long-term mutually beneficial relationships with local communities.

The Government of Kyrgyzstan proposes to move some industrial enterprises from China to Kyrgyzstan following a pattern observed already in some countries of Southeast Asia. One could think of two possible rationales for such relocation of industries: (i) lower labor costs in Kyrgyzstan than in China, and (ii) easier, in terms of trade barriers and transportation costs, access to some third country markets (e.g. Russia and other EAEU countries) as the domestic market

¹⁶ See (World Bank, 2017).

of Kyrgyzstan is small and may not justify any investments (i.e. Zhongda oil refinery). On labor costs, it follows from the indicative calculations provided in Table 3 that while wages in Kyrgyzstan are, indeed, much lower than in China, unit labor costs are 20% lower in China than in Kyrgyzstan. This is explained by much higher labor productivity in China.

Table 3. Unit labor costs in China and Kyrgyzstan, 2017

	China	Kyrgyzstan
Average wage (PPP), international dollar/month	1,745	683 ¹⁷
GDP per employed (PPP), international dollar/year	27,153	8,565
Unit labor costs, % of GDP per employed	77.1	95.6

Sources: WDI, NSC, tradeeconomics.com, own calculations

On transportation costs, the savings from enterprise relocation to Kyrgyzstan would depend on the planned destination markets. For relatively distant markets (northern/western Kazakhstan, or Russia, or the Middle East) where transportation costs could become an issue, railroads usually provide a cheaper option than automobile roads. The railroad system in Kyrgyzstan is not well developed and transport flows are highly asymmetrical. Thus, rail transportation costs for imports to and exports from Kyrgyzstan are high and may remain high in the foreseeable future despite some infrastructure improvements. On trade barriers, Kyrgyzstan has preferential access to the EAEU market, so if an enterprise is going to export those products which are highly protected in the EAEU by tariff barriers (EAEU membership seems to make little/no difference with regards to non-tariff barriers), then Kyrgyzstan as a country of origin would be an advantage.

It seems also important for Kyrgyzstan to make sure that these enterprises, if relocated to Kyrgyzstan, are based on modern technologies rather than on outdated technologies and equipment.¹⁸ Technology transfer may be one of the key advantages of foreign (including Chinese) direct investments, and this type of consideration may need to be prioritized by the Kyrgyz government.

For Kyrgyzstan, environmental considerations seem to be of high importance, too. The country appears to have serious ambitions in the development of tourism and organic agriculture/food production. Therefore, any harmful industrial emissions will be counterproductive to this. This means that a very careful analysis of industrial investment projects is needed to decide on their feasibility for both countries.

¹⁷ This average wage is for formal urban sector which represents a smaller part of the economy of Kyrgyzstan (according to official statistics, more than 70% of all employed keep working in informal economy). If incomes of workers in informal economy are lower than in formal, then the average wage value reported in the table may be biased upwards. It might be that the respective value for China is also for formal sector. A detailed sector-specific analysis is needed in order to more accurately assess the unit labor costs ratio.

¹⁸ The oil refineries mentioned in Section 2.2 seem to rely on outdated technologies as these enterprises need a serious upgrade just two-three years after their launch.

4.2. Trade

BRI-induced trade flows in Kyrgyzstan may be grouped into two categories: (i) trade in goods and services between Kyrgyzstan and China/third countries in which Kyrgyzstan is *either the origin, or destination country*, and (ii) trade in transport services in which Kyrgyzstan would just offer its infrastructure for the transit of goods between China and other countries.

A major justification for mega transport infrastructure projects implemented in Kyrgyzstan and some other countries covered by BRI is the possibility to transit goods with greater ease between China and Europe/West Asia. There is some literature already that discusses the impressive amount of goods transported from China to the West and, to a lesser extent, back again, and the speed and timeliness gains produced by using surface (automobile road and railroad) transport in comparison to more traditional maritime routes. Fewer papers, however, provide any assessment of the volume of these flows for which this speed increase could be critically important and could justify much higher transportation costs when rail and especially automobile transport is used. A recent EDB¹⁹ study indicates that only a small fraction (still a very large number in absolute terms) of total trade flow between China and Europe could be shifted from sea to surface routes if all infrastructure and regulatory issues are addressed. Also, it seems that the rail and automobile road network developed in the BRI framework is redundant in a technical sense – there are many competing routes leading in roughly the same direction from China to the West (via Russia only; via Kazakhstan to Russia and Europe; via Kazakhstan, the Caspian Sea, the Caucasus and the Black Sea/Turkey to Europe and the Middle East; via Kyrgyzstan, Tajikistan and other Central Asian countries to Afghanistan and West Asia; via Pakistan to Indian Ocean sea ports and West Asia). It seems that this redundancy is intentionally designed as it provides a lot of flexibility and competition between different routes. This approach may be justified for PRC from a strategic point of view, but it also means that in any normal situation each of these routes would serve only a fraction of its maximum transit capacity. For Kyrgyzstan, a realistic assessment of the transit flows and associated revenue from transit service exports is needed. This, in turn, should feed into the assessment of the feasibility of borrowing for the transit railroad (China-Kyrgyzstan-Uzbekistan).

For non-transit trade in which Kyrgyzstan is one of the trading parties, transport infrastructure does not seem to be the main impediment anymore. Despite dramatic improvements in road connectivity in all possible directions (some road projects mentioned in Section 2.1 are not completed yet, but many roads have been rehabilitated already), the volumes and values of export and import flows have not grown for the past several years (see Figure 4). This may indicate that the constraints associated with supply (too few competitive goods to export from Kyrgyzstan), demand (saturation of domestic market with imports at currently achieved GDP level) and some trade costs (insufficiently developed logistical services, delays on borders, high EAEU tariffs for some goods) are more important than transportation costs. In the medium- and long-term, FDI in export-oriented enterprises and associated imports of equipment and production inputs may be the main drivers of trade associated with BRI implementation. Based on the available data on

¹⁹ (Vinokurov et al, 2018).

FDI and associated trade flows (see above), one can estimate that USD1 in additional FDI so far has generated some USD0.05-0.10 in annual export flows²⁰ and USD0.90 in import flows.²¹

So far, investments in the mining sector remain the main part of Chinese FDI in Kyrgyzstan (see Section 2.2). One can expect this situation to last and that gold/gold concentrate will remain the key export commodity of Kyrgyzstan in trade with China. For the Kyrgyz government, the main challenge seems to be to ensure the effective protection of Chinese investments in the sector and the mediation of relationships with the local population, and to establish proper taxation of the sector which would produce more revenue for the government budget (see Section 3.1).

It seems that Kyrgyzstan should eventually reorient its agrifood exports (currently up to 20% of its total exports of goods) towards China. This is a huge market for Kyrgyz fruits, vegetables, meat, and dairy products. So far there are no exports of these products to China due to several reasons: veterinary and phytosanitary issues with Kyrgyz produce and its compliance with regulations on access to the Chinese market; a lack of Chinese market knowledge (including language barriers) among Kyrgyz business people involved in the agrifood trade; the very limited access rights for Kyrgyz trucks to enter into the territory of China²² which requires any Kyrgyz produce intended for exports to China to be reloaded onto Chinese tracks – this causes delays and increases transportation costs for Kyrgyz exporters. It seems that in the medium term the only feasible option for such exports would be to have them operated by Chinese trading companies. This would, of course, reduce profit margins for Kyrgyz producers and traders. On the other hand, there is also the challenge of consolidating sufficiently large quantities of exports from mostly small Kyrgyz producers to make this import business attractive for Chinese companies. So, prospects of this type of exports to China seem to very much depend on the inflow of Chinese FDI into the agrifood sector of Kyrgyzstan; it would be easier for Chinese companies to organize the production so it complies with the technical regulations and market requirements of China. And, of course, these Chinese FDI projects may aim at exporting not only to the Chinese, but also to the EAEU and other markets outside of China. Assessing the prospects of FDI in the Kyrgyz agriculture sector should also account for the fact that Kyrgyz legislation prohibits land ownership by foreign legal entities/individuals. Managing relationships with the local population would probably be as serious an issue in agricultural investment projects as it is in mining.

One potentially prospective and currently an almost untapped export sector for Kyrgyzstan is tourism. According to the World Tourism Organization's data, in 2015 Kyrgyzstan received 49,000 tourists from East Asia and the Pacific (includes China), representing merely 1.6% of the total number of international tourists that year. The NSC data (Figure 5) provide a similar picture: in 2016, the export of tourism services to China was only USD8.6 million or 2.0% of the total exports of tourism services. It seems that with the growing middle class in China there should be considerable potential to increase the number of Chinese tourists. This may then become an attractive sector for Chinese FDI in the BRI context including investments into the environmental protection of vulnerable natural destinations (e.g. Issyk-Kul or mountainous areas). Along with

²⁰ E.g. total cumulative FDI in the mining sector (inclusive of geological explorations) for 2006-2017 was USD1.2 billion, and these investments generated exports of gold ore and concentrate of USD121 million for the same period of time. The export returns on investments in oil refineries are much smaller so far.

²¹ Almost all these investments are spent on imports of equipment, inputs, construction and engineering services from abroad (China).

²² This is related not to road infrastructure (it is already decent), but to the Chinese regulations disallowing foreign trucks go deep into the territory of China (possibly for security reasons).

commercial considerations, this would also strengthen the reputation of the Government of China as a responsible actor caring about the environment in receiving countries.

4.3. Macroeconomics and Debt

Implementation of any BRI projects in Kyrgyzstan (either infrastructure investments, or FDI in manufacturing, agriculture or services) may produce significant effects for the macroeconomic situation in Kyrgyzstan. The effects on GDP and employment from the construction associated with these projects would probably be short term and, arguably, limited (as mentioned above, these works are done by mostly Chinese companies and workers using mostly Chinese inputs). The main macroeconomic effect of these projects could and should be in increasing the Kyrgyz economy's total factor productivity (TFP) which implies increased export orientation of the economy, lower trade costs, better market linkages, introduction of modern and environment-friendly production technologies, etc. Economic growth caused by the effects of TFP may also be the most promising in terms of employment generation as such projects would create new jobs requiring higher-skilled labor. So, efficiency considerations may become a matter of primary interest when BRI projects are planned in the country. Another dimension of substantial interest could be the government revenue generated by these projects. As the evidence provided in Section 3.1 suggests, manufacturing enterprises may become major taxpayers; the transit road projects, if properly taxed, could also bring in substantial money to the government budget.

Sub-national allocation of the projects and the impact of these projects on the development of the regions across the Kyrgyz Republic may be another important dimension of these projects' evaluation. It is a clear priority of the Kyrgyz government to ensure that rural, remote and mountainous parts of the country receive a fair share of total investments and development projects. On the other hand, it may not be of great interest for investors to locate their enterprises in parts of the country that are more difficult to access and supply with labor, energy and other production resources. So, the contribution of BRI (and, in fact, any other foreign/domestically financed) projects towards the regional development of Kyrgyzstan would depend on the success in providing investors with proper incentives to operate in these less accessible and developed parts of the country. Another type of activity facilitating the inflow of FDI to the regions of Kyrgyzstan would be the development of secondary and tertiary infrastructure (e.g. roads, energy distribution networks) serving the areas hosting these FDI enterprises.

The external government debt situation should continue to be carefully monitored and analyzed. New public infrastructure projects may need to be approved only if it is very clear that they would generate enough government revenue and export receipts to ensure accurate servicing of the debt. This may require much stricter selection of the projects to be implemented than before. Different flexible forms of public-private partnerships which do not involve government borrowing (concessions, FDI into infrastructure etc.) may need to be explored and promoted.

5. Recommendations

For the government of the Kyrgyz Republic:

- Provide effective support and protection of Chinese and other foreign investors in their relationships with the local population;
- Make sure that newly-built enterprises with foreign investments in Kyrgyzstan are going to use modern and environment-friendly technologies and that technology transfer to local engineers/managers/skilled workers is being conducted as part of these enterprises' business practices;
- Continue/expand participation in regional integration initiatives (e.g. CAREC) to optimize investments and lower costs of trade, transit and participation in international value chains for Kyrgyz enterprises;
- Maintain sustainability of the external debt of the government by avoiding excessive borrowing even at concessional terms;
- Develop/strengthen appropriate legislation and practices for infrastructure investment projects which would not require sovereign borrowing by the government;
- Assure that operations and maintenance requirements of infrastructure investments are appropriately managed and that necessary resources are allocated from the government budget or mobilized as infrastructure user fees;
- Develop infrastructure which is necessary for tourism exports (airports, waste management facilities in key tourism destinations, etc.);
- Develop secondary and tertiary infrastructure in the regions hosting FDI projects;
- Provide incentives for those investors which located their enterprises in remote parts of the country;
- Modify the taxation regime for the mining sector and develop a taxation regime for railway and automobile road transit to ensure an appropriate level of government revenue from this sector.

For the Kyrgyz private sector and civil society organizations:

- Explore opportunities for exports to the Chinese market, study Chinese legislation and business practices in order to effectively utilize the increasing openness of China in the BRI context;
- Provide monitoring and early warning on implementation of BRI and similar projects to ensure explicit accounting for not only financial/commercial, but also social and environmental effects of these projects and to prevent any conflicts associated with these projects.

For the government of the People's Republic of China:

- In the framework of BRI, support projects aimed at environment protection in partner countries; integrate environmental safeguards into all BRI infrastructure and FDI projects;
- Develop project financing modalities which would be suitable for fair risk sharing in conditions where the projects cover several countries;
- Provide appropriate training to Chinese enterprise managers to prepare them to deal with the local population and to avoid/minimize any potential conflicts.

For international development partners:

- Provide technical assistance to the governments of receiving countries in developing methodologies for the economic, social and environmental assessment of large infrastructure and FDI projects whether these are part of BRI, or any other initiative;
- Continue/improve coordination of the infrastructure projects' planning and implementation between international financial institutions and the Government of China.

6. Topics for Future Research

The analysis provided above seems to indicate a few areas requiring more in-depth research:

- Many BRI projects are motivated not only/not so much by pure economic rationale, but by strategic/geopolitical considerations with gains from these projects possibly materializing only in the (very) long-term. Still, the short- and medium-term costs of these projects (e.g. the risks for external debt sustainability of participating governments) could be very significant. Very optimistic assumptions on the guaranteed net economic value of these projects may need to be carefully checked. A thorough analysis of the expected financial, economic, social, environmental benefit and cost flows of large BRI projects seems to be necessary for both Chinese investors and receiving governments.
- Some of the large BRI projects (e.g. transport corridors) might cover more than two countries. It seems that in these projects the scale and distribution of benefits, costs and associated risks are even less clear than in other long-term projects. The methods of risk management in such multi-country infrastructure projects may need to be developed and risk assessments conducted for these projects.
- It would be important to conduct an assessment of the seeming redundancy of planned trans-continental infrastructure and to get a better understanding of the scale and directions of potential trade and transport flows from China to Europe and West Asia, which will pass along the newly developed infrastructure.
- In view of the discussion on the relocation of some industries from China to Kyrgyzstan and some other countries of the region, a deeper analysis of unit labor costs may need to be conducted and the probability of receiving Chinese FDI in manufacturing assessed.

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