BRIDI
2020—REPORT

“一带一路”国家
基础设施发展指数报告2020

The Belt and Road Infrastructure Development Index Report 2020

中国对外承包工程商会
CHINA INTERNATIONAL CONTRACTORS ASSOCIATION

中国出口信用保险公司
CHINA EXPORT & CREDIT INSURANCE CORPORATION

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FOREWORD

In 2020, the unexpected outbreak of the COVID–19 has paralyzed the global economy and threatened people's health and lives. Some countries, especially those in the developing world, have been thrown into social and economic chaos. On June 18, the High–level Video Conference on Belt and Road International Cooperation was held. As President Xi Jinping pointed out in his message, we shall work together to develop the Belt and Road into a model of cooperation for meeting challenges through unity, a model of health for protecting people's safety and well–being, a model of recovery for restoring economic and social activity, and a model of growth for unlocking development potential. High–quality Belt and Road cooperation among participating countries will contribute to a community with a shared future for mankind. President Xi brought new dimensions and significance to the Belt and Road Initiative and charted the course out the darkness of the pandemic for the Belt and Road infrastructure sector.

Under new circumstances, China International Contractors Association (CHINCA), the only national industrial organization of overseas contractors, and China Export & Credit Insurance Corporation (SINOSURE), the only policy–based insurance agency in China, worked jointly on the Belt and Road Infrastructure Development Index (BRIDI) 2020, and issued the fourth BRIDI report, as sponsored by Macao Trade and Investment Promotion Institute. The aim is to offer supportive information for domestic and international infrastructure investors and contractors and open new horizons for the Belt and Road infrastructure connectivity.

The 2020 BRIDI report is conducted under the 2019 framework.

Altogether 71 countries, including 63 Belt & Road countries and 8 Portuguese–speaking countries, are chosen to envisage the near–term prospects of the infrastructure from the perspectives of the environment, demands, costs and passions for infrastructure facilities. This year, considering COVID–19's impacts on the infrastructure industry, new features are added to the 2019 BRIDI model to make the prediction sounder and more accurate. (i) It includes different scenarios. Since the outbreak of the pandemic, most governments have taken effective measures to slow the spread and reduce the number of infections and deaths. However, there is a concern that, once quelled, the pandemic will resurface with renewed strength as the restrictions are lifted. Considering the uncertainty of the pandemic and economic recovery, the report further includes a baseline scenario and a pessimistic scenario, based on the models of the World Bank, to work out BRIDIs. (ii) It optimizes the calculation methodology. The basic indicators, especially economic figures, are changing dramatically across the Belt and Road countries amid the pandemic. To maximize data collection, the entropy method is used to calculate the sub–indices of development environment, development passions and development costs, while the sub–index of development demands is measured through super–efficiency data envelopment analysis (DEA) which is also adopted by SINOSURE's country risk rating model. The 2020 and 2019 BRIDIs are calculated with the new models. Though the 2019 results are found slightly different from what were released last year, they follow the same trend. The results are robust. (iii) It investigates the public health sector. As the outbreak poses unprecedented challenges for the global public health sector, the governments are now paying more attention to the development of public health facilities. Against this background, this report includes the public health sector in its scope of research, calculates the sub–index of development demands and conducts a

special study.

This report is structured as follows: The first section introduces the status quo and characteristics of infrastructure development along the Belt and Road; the second section analyzes the infrastructure development trend of related countries in four dimensions; the third section conducts a detailed analysis on the infrastructure industry of four major countries; the fourth section includes special studies on energy, communications, and public health sectors; the fifth section elaborates on the opportunities and challenges facing the Belt and Road infrastructure and puts forward policy suggestions.

All data in this report comes from publicly accessible sources, including the International Monetary Fund (IMF), World Trade Organization (WTO), World Bank, World Economic Forum (WEF), the Ministry of Commerce of China (MOFCOM), China International Contractors Association (CHINCA), China Export & Credit Insurance Corporation (SINOSURE), and Fitch Solution. This report is presented for the purpose of analysis and information exchange only. While constituting an independent analysis and prediction of future infrastructure prospects, it does not represent any government's stance or attitude towards related issues. Considering the ongoing adjustments to the international political, economic and social landscapes and policies, this report may be slightly different from the changing picture and may include judgments based on limited evidence. Also, given the authors' subjectivity and capacity boundary, this report is unlikely to be flawless. Your comments will be very much appreciated.

China International Contractors Association

China Export & Credit Insurance Corporation

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GLOSSARY

Infrastructure
The UN and OECD definition applies herein. Infrastructure refers to the system of public works in a country or region. Infrastructure investment refers to public and private investment of fixed, immovable assets that can support sustainable economic growth in the long run. Infrastructure is a system of public products by economic attribute, and involves energy (electricity), transportation (railway, highway, airport, and port), communications, water (water supply and sewage disposal), public health and other facilities in this report.
Infrastructure Development
It serves the needs of social progress and improves a country's infrastructure performance through capital investment and project operation in various forms. Infrastructure development is capital intensive and requires a long investment cycle. Infrastructure development, once dominated by governments and other public institutions, is now engaging more and more private enterprises through DBO (design–building–operation), BOT (building–operation–transfer), PPP (public–private partnership) and other business models with an investment purpose. The infrastructure development is embracing increased diversity of its models.
Belt and Road Initiative (BRI)
During his visits to Kazakhstan and Indonesia in September and October 2013, Chinese President Xi Jinping proposed the initiative of jointly building the Silk Road Economic Belt and the 21st Century Maritime Silk Road, which is referred to as the Belt and Road Initiative (BRI).
BRI countries
Altogether 71 countries, including 63 BRI countries and 8 Portuguese–speaking countries, were chosen for this year's report. The 63 Belt & Road countries are the Philippines, Cambodia, Laos, Malaysia, Myanmar, Thailand, Brunei, Singapore, Indonesia, Vietnam, Azerbaijan, Belarus, Russia, Georgia, Moldova, Ukraine, Armenia, Mongolia, Afghanistan, Pakistan, Bhutan, Maldives, Bangladesh, Nepal, Sri Lanka, India, Egypt, UAE, Oman, Bahrain, Qatar, Kuwait, Lebanon, Saudi Arabia, Turkey, Yemen, Iraq, Iran, Israel, Jordan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Albania, Estonia, Bulgaria, Poland, Bosnia and Herzegovina, Montenegro, Czech Republic, Croatia, Latvia, Lithuania, Romania, North Macedonia, Serbia, Cyprus, Slovakia, Slovenia, Greece and Hungary.
Southeast Asia
According to the UN Geoscheme, Southeast Asia includes the Philippines, Cambodia, Laos, Malaysia, Myanmar, Thailand, Brunei, Singapore, Indonesia and Vietnam.
CIS–7 Countries and Mongolia
CIS–7 Countries and Mongolia include Azerbaijan, Belarus, Russia, Georgia, Moldova, Ukraine, Armenia and Mongolia. Although Ukraine started the procedure to withdraw from the CIS on April 12, 2018, it is still treated as one of the CIS–7 Countries in this report, for the sake of consistency in regional classification with the previous two years.

South Asia
According to the UN Geoscheme, South Asia includes Afghanistan, Pakistan, Bhutan, Maldives, Bangladesh, Nepal, Sri Lanka and India.
Portuguese–speaking Countries (PSCs)
There are eight Portuguese–speaking countries, including Angola, Brazil, Cape Verde, Guinea–Bissau, Mozambique, Portugal, São Tomé and Príncipe, and Timor–Leste.
Western Asia and North Africa
According to the UN Geoscheme, Western Asia and North Africa include Egypt, UAE, Oman, Bahrain, Qatar, Kuwait, Lebanon, Saudi Arabia, Turkey, Yemen, Iraq, Iran, Israel and Jordan.
Central Asia
According to the UN Geoscheme, Central Asia includes Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan.
Central and Eastern Europe
According to the UN Geoscheme, Central and Eastern Europe includes Albania, Estonia, Bulgaria, Poland, Bosnia and Herzegovina, Montenegro, Czech Republic, Croatia, Latvia, Lithuania, Romania, North Macedonia, Serbia, Cyprus, Slovakia, Slovenia, Greece and Hungary.
Belt and Road Infrastructure Development Index (BRIDI)
BRIDI is an index that looks into the environment, demands, passions and costs for infrastructure development in the BRI countries. The higher the BRIDI, the better the prospect of a country's infrastructure industry, and the greater the attraction for companies to engage in infrastructure investment, construction and operation in the country.
The Sub–index of Belt and Road Infrastructure Development Environment (Development Environment Sub–index)
It explains the environment for a company to participate in the Belt and Road infrastructure development in multi–dimensions, i.e. political environment, economic environment, sovereign solvency, business environment, market impact factors and industrial environment.
The Sub–index of Belt and Road Infrastructure Development Demands (Development Demands Sub–index)
It reflects the sum of relative and absolute demands for a country's infrastructure development. The higher the sub–index, the greater the demands for infrastructure investment and the market potential of the country. Relative demands refer to the demands for infrastructure investment to meet the needs of consumers and producers for work and life at the current level of per–capita income. Absolute demands are the demands for infrastructure investment to achieve optimal social services in the country.
The Sub–index of Belt and Road Infrastructure Development Passions (Development Passions Sub–index)
It is calculated based on the value of new contracts for global infrastructure development, the amount of private investment in infrastructure projects, the value of new contracts for overseas contracting projects of China, and other indicators to reflect the short–term passions for infrastructure investment in a country. The higher the sub–index, the more active the infrastructure investment in the country, and the greater the market appeal.

The Sub–index of Belt and Road Infrastructure Development Costs (Development Costs Sub–index)
It examines two factors, i.e. operational costs and financing costs. To be specific, the operational costs cover raw materials, labor force, exchange rate fluctuations, licenses and other costs incurred during the infrastructure development and operation. It should be noted that the operational costs are a reverse indicator. The higher the value, the lower the operational costs. The financing costs measure the capital borrowing costs for a company to engage in infrastructure development. They are a reverse indicator, too. The higher the value, the lower the financing costs.
Overall BRIDI and Regional BRIDI
The overall BRIDI reflects the general situation of the 71 BRI countries. The country–specific BRIDI is computed as a weighted average of the national GDP growth. The regional BRIDI, calculated in the same way as the overall BRIDI, shows the score of each region.
Baseline Scenario and Pessimistic Scenario
The baseline scenario refers to a situation where the economy experiences a brief period of contraction in the first half of 2020, followed by a gradual recovery as the lockdowns are lifted after the infection peak in the second quarter. The pessimistic scenario refers to a situation where most countries go through another round of three–month lockdowns after the arrival of a "second wave". The mounting concerns over public health jeopardize consumer confidence in consumption and business activities. The world economy plunges into further recession. Unless otherwise stated, the baseline scenario applies.

2020 Belt and Road Infrastructure Development Index

2020 Infrastructure Development Index			Changes		Pessimistic scenario		2020 Infrastructure Development Index			Changes		Pessimistic scenario	
Ranking	Country	Score	Score	Ranking	Score	Ranking	Ranking	Country	Score	Score	Ranking	Score	Ranking
1	Indonesia	126	−12	–	119	1	37	Angola	104	−4	↑ 9	98	44
2	Malaysia	120	1	↑ 8	109	3	38	Moldova	104	−6	↑ 17	97	47
3	Philippines	117	−2	↑ 8	110	2	39	Nepal	104	−2	↑ 14	99	39
4	Russia	117	−6	↑ 1	108	5	40	Poland	104	−2	↓ 17	100	32
5	Vietnam	116	−7	↓ 3	109	4	41	Iran	104	−4	↑ 2	93	63
6	Pakistan	115	−8	↓ 2	107	6	42	Turkmenistan	104	−3	↑ 2	97	46
7	UAE	114	−3	↓ 4	106	9	43	Czech Republic	104	−2	↓ 15	100	26
8	Egypt	113	−2	↑ 8	106	8	44	Portugal	103	−3	↓ 22	96	51
9	Kazakhstan	112	−11	–	104	14	45	Iraq	103	−5	↑ 4	98	42
10	Bengal	111	−4	↑ 5	104	12	46	Bulgaria	103	−4	↓ 26	100	29
11	India	111	−9	↓ 3	105	11	47	Jordan	103	−2	↑ 5	98	40
12	Qatar	110	−5	–	107	7	48	Latvia	103	−4	↓ 6	98	45
13	Saudi Arabia	110	−2	↓ 6	104	15	49	Slovenia	103	−6	↓ 19	99	38
14	Mongolia	110	−10	↑ 5	104	13	50	Kyrgyz Republic	103	−8	↓ 12	97	49
15	Thailand	109	−10	↓ 1	105	10	51	Oman	102	−9	↓ 3	97	48
16	Cambodia	109	−2	↑ 11	103	16	52	Bhutan	102	−7	↓ 23	96	50
17	Singapore	109	0	↓ 4	102	18	53	Azerbaijan	101	0	↑ 7	94	60
18	Brazil	109	−7	↓ 12	100	31	54	Estonia	101	−3	↓ 15	96	52
19	Laos	109	−5	↑ 15	103	17	55	Cape Verde	100	−5	↑ 2	94	57
20	Georgia	108	−2	↑ 1	100	30	56	Israel	100	−8	↓ 9	94	59
21	Uzbekistan	108	−4	↑ 5	101	23	57	Lebanon	100	−5	↑ 8	95	53
22	Myanmar	107	−4	↑ 13	101	25	58	Maldives	99	−4	↑ 1	93	62
23	Hungary	107	−4	↑ 9	102	20	59	Greece	99	−7	↑ 2	95	54
24	Armenia	107	−2	↑ 17	99	37	60	Romania	99	−5	↓ 15	95	56
25	Tajikistan	106	−3	↑ 6	100	34	61	Mozambique	99	−7	↓ 3	93	64
26	Brunei	106	−5	↑ 7	99	35	62	Lithuania	99	−5	↓ 11	94	61
27	Turkey	106	−8	↑ 27	98	43	63	Montenegro	99	−9	↓ 7	95	55
28	Kuwait	106	3	↓ 11	100	27	64	Cyprus	98	−7	↓ 2	94	58
29	Croatia	106	−7	↓ 11	102	19	65	Timor−Leste	98	−2	↑ 1	92	65
30	Belarus	105	−7	↑ 10	98	41	66	Afghanistan	95	1	↑ 5	91	66
31	North Macedonia	105	−15	↑ 6	101	24	67	Bahrain	95	−6	↓ 3	90	67
32	Slovakia	105	−6	↓ 8	102	21	68	São Tomé and Príncipe	95	−2	不变	89	68
33	Bosnia and Herzegovina	105	−1	↑ 17	100	33	69	Ukraine	94	−4	不变	88	71
34	Albania	105	−5	↓ 9	101	22	70	Guinea−Bissau	94	−2	↓ 3	89	69
35	Sri Lanka	105	−5	↑ 1	99	36	71	Yemen	92	−5	↓ 1	88	70
36	Serbia	104	−5	↑ 27	100	28							

Southeast Asia Central Asia South Asia PSCs CIS−7 Countries and Mongolia
CEE Western Asia and North Africa

Chapter One

Characteristics of Belt and Road Infrastructure Development

The BRIDI takes a dive in 2020 to the lowest ebb in a decade. Since the global outbreak of COVID–19, the world political and economic landscape has changed in profound ways. The worsening international environment for trade and investment, combined with rising global risks and vulnerabilities, brings unprecedented challenges to the infrastructure sector. However, as new technologies, new partnerships and new models of international infrastructure investment and construction are emerging, Belt and Road infrastructure sector, now at a low ebb, will embrace the turn of the tide.

Section One: Belt and Road Infrastructure Development Index Analysis

1 BRIDI Suffers a Sharp Decline

In 2020, the BRIDI takes a dive over the previous year, from 119 to 110, reaching the lowest level in a decade. The COVID–19 is raging around the world, pushing the global economy into the worst recession since 1929. The rise of populism as a backlash against globalization has elevated political risks. Varying declines are found in BRIDI’s four sub–indices on infrastructure development environment, demands, costs and passions. Under the pessimistic scenario[1], the pandemic has its second wave as many countries have not taken a stringent approach. It deals another terrible blow to the global economy and threatens infrastructure development. In this case, BRIDI further drops to 103.

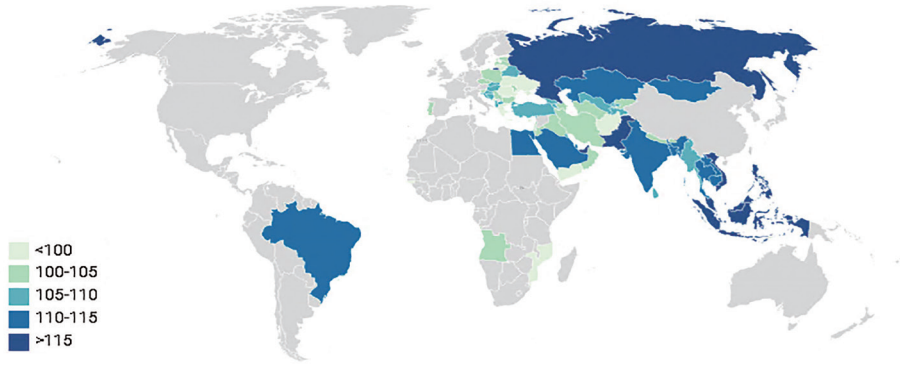

Figure 1 Belt and Road Infrastructure Development Index (2020) Heat Map

Source: CHINCA, SINOSURE’s Country Risk Database

1 A pessimistic scenario refers to a situation where most countries go through another round of three–month lockdowns after the arrival of a “second wave”. The mounting concerns over public health jeopardize consumer confidence in consumption and business activities. The world economy plunges into further recession. Please refer to Section Two of this chapter for more information of the pessimistic scenario.

2 BRIDI Falls Generally across All Regions

In 2020, in the context of a general decline in regional BRIDI, Southeast Asia comes out top. CIS–7 Countries and Mongolia, driven up by the two key markets of Russia and Ukraine, outperform South Asia and rise to the second place. PSCs slip one spot to the fifth over 2019, falling behind Central Asia. Western Asia & North Africa and CEE find themselves in the bottom two, the same as last year. The pessimistic scenario expects significant falls across all regions, where PSCs descend further down to the sixth.

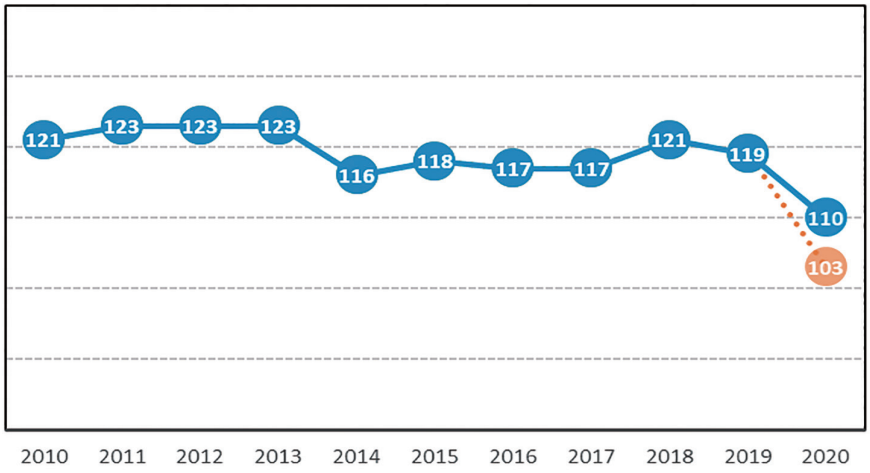

Figure 2 Belt and Road Infrastructure Development Index (2010–2020)

Source: CHINCA, SINOSURE's Country Risk Database.

Note: The blue line represents the score under the baseline scenario, while the orange line represents the score under the pessimistic scenario.

Southeast Asia comes out top again. With the booming infrastructure demands, favorable infrastructure environment, high investment passions and competitive infrastructure costs, Southeast Asia scores 119, the highest among the seven regions, in 2020. Major Southeast Asia countries, such as Indonesia, the Philippines, Malaysia, and Vietnam, stay at the head of the rankings. To be specific, 8 out of the 10 Southeast Asia countries appear on the Top–20 list, in both the baseline scenario[2]

2 The baseline scenario refers to a situation where the economy experiences a brief period of contraction in the first half of 2020, followed by a gradual recovery as the lockdowns are lifted after the infection peak in the second quarter. Please refer to Section Two of this chapter for more information of the baseline scenario.

and the pessimistic scenario.

CEE finishes the BRIDI race, once again in last place. CEE contains a large number of countries which vary widely in infrastructure development environment and infrastructure costs. It scores 103 this year, ranking last of the seven regions, mostly weighted down by Cyprus, Montenegro, Lithuania, Romania, Greece, and Estonia. Nevertheless, countries like Croatia and Hungary enjoy quite an edge in business operational costs. The potential of their infrastructure sectors should not be overlooked.

Table 1 BRIDI Changes by Region

Region	2019		2020 Baseline scenario		2020 Pessimistic scenario	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Southeast Asia	126	1	119	1	111	1
CIS–7 and Mongolia	119	3	114	2	106	2
South Asia	117	2	111	3	105	3
Central Asia	117	5	110	4	102	4
PSCs	121	4	108	5	100[3]	6
Western Asia & North Africa	110	6	107	6	100	5
CEE	110	7	103	7	99	7

Source: CHINCA, SINOSURE’s Country Risk Database.

3 Country–specific BRIDI Shows a Huge Gap Despite a General Decline

In 2020, 67 countries (94.4%) suffer a BRIDI decline. To be specific, middle– and high–income countries are affected greatly by the coronavirus outbreak and the changing external environment, and their scores fall sharply at an average rate of 6.0%. Low–income countries, on the other hand, go down mildly by 3.2% on average.

Brazil’s BRIDI score drops the most, by 9.2% from 120 to 109 over the

3 Western Asia and North Africa score 99.8, and PSCs 99.5. For the convenience of analysis, the indices in the report are rounded up to whole numbers.

previous year. The COVID–19 outbreak seems the culprit, as it jeopardizes the country's infrastructure development environment and threatens the development demands. Malaysia and Serbia are the only two countries that see a rising score, as the former unleashes its infrastructure development demands and the latter brings the cost further down to partially offset the impact of the pandemic.

Bulgaria falls the farthest down the BRIDI ranking, from the 20th spot to the 46th in 2020, due to the impacts that anti–pandemic measures have on its upstream and downstream infrastructure sectors in a time of regional economic sluggishness and waning passions for investment. Turkey and Serbia register the greatest rise in the BRIDI ranking. Turkey moves from the 54th up to the 27th, as driven by the huge influx of investment into transportation, energy, and other industries, as well as reduced financing costs after lowering the money market interest rates.

4 PSCs See a Marked Decline in the Index Score, Leading to Rising Uncertainty over Infrastructure Development

The infrastructure development index for PSCs plunges from 121 in 2019 to 108 in 2020, sending its ranking from fourth to fifth. As one of the hardest–hit countries by COVID–19, Brazil is seeing an economic slowdown, which has become a key constraint to infrastructure development. The index ranking for Portugal plummets as demands for building new infrastructure have shrunk amid the pandemic, causing a slowdown in infrastructure development. Angola is greatly affected by commodity price fluctuations, pushing up financing costs of infrastructure. Despite huge potential demand for infrastructure, Mozambique needs to further improve its investment and business environment. For East Timor, Cape Verde, Sao Tome and Principe, and Guinea–Bissau, their infrastructure development performance this year remains stable overall, but for the longer term, due to the impact of the epidemic, will probably see restrained demand for building infrastructure and an uncertain future.

Section Two: COVID–19’s Impacts on Belt and Road Infrastructure Development

As of Nov. 1, 2020, the global coronavirus cases rose to 46.5 million, with a death toll of 1.19 million. Fifty–plus countries reported more than 100,000 confirmed cases, of which 16 have surpassed 500,000 cases.

The coronavirus, which is continuing its spread across the world, has significant impacts on global infrastructure development. To improve the integrity and scientificity of the BRIDI research, the present paper reviews the research findings of the World Bank, the Organization for Economic Cooperation and Development (OECD) and the World Trade Organization (WTO) on the risk scenarios of the COVID–19, and includes the pessimistic scenario analysis for the readers’ reference.

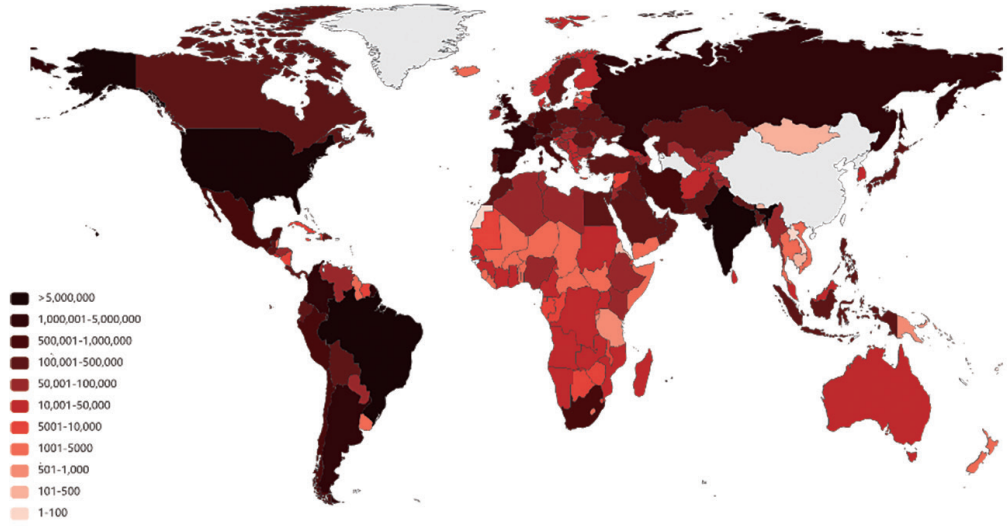

Figure 3 Global distribution of confirmed COVID–19 cases

Source: The Johns Hopkins University, SINOSURE’s Country Risk Database

1 COVID–19's Negative Impacts on Global Infrastructure Development

New restrictions on the movement of people and goods hinder cross–border project implementation. Since the outbreak in early 2020, 31 out of the 71 BRI countries, including Albania, Afghanistan, Pakistan, Brazil, and Russia, have closed their borders. In addition, Kazakhstan, Oman, Kuwait, Hungary and Latvia, among others, have implemented lockdowns. These measures to halt the spread of the virus have severely affected cross–border mobility of people and materials, which is a must for international infrastructure projects. Therefore, the projects face shutdown, construction delays and impeded supplies. Besides, local workers and migrant workers interact at the construction sites. Given the possibility of a second surge in some host countries, the operators must take preemptive actions to avoid cross–infections. This poses quite a challenge to the management over the flow of investment, people and technologies across regions.

The outbreak slows down the world economy and puts a stop to some infrastructure projects. In its latest World Economic Outlook released in October, IMF projects a global economic contraction of 4.4% in 2020. The economy suffers record slump across most of the BRI countries where infrastructure projects are severely underfunded. While the risk of sovereign insolvency is mounting in, for example, Afghanistan, East Timor, Kyrgyzstan, Laos, and Sri Lanka, some other countries, like Lebanon, Mozambique, Yemen, Sao Tome and Principe have already defaulted on their debt, putting infrastructure projects under tremendous cashflow pressure. Meanwhile, East Africa has been hit by the worst invasion of desert locusts in 25 years. Small swarms of locusts also spread into Yemen, India and Pakistan, etc., threatening the global food supply. Some countries see a growing risk of food shortage. Facing multiple risks, the governments give fiscal priority to the social and health sectors to contain the spread of the virus and ensure a proper living for low–income groups. Some infrastructure projects have to drop off the agenda.

The rising political and social risks bring growing uncertainties to the international infrastructure development. In some countries, the government's ineffective

response to the pandemic weakens people’s faith in the government’s capacity to steer the country forward and imperils political stability. At a time when the world is suffering from a sharp economic downturn, an incompetent government only fuels social confrontation, which hinders the progress of any infrastructure projects. As the protests over police violence broke out in most US cities and echoed across Europe, social conflicts are boiling over in the West amid the pandemic crisis. Overall, the pandemic has affected the political and social order of various countries. The international political and security climate allows no optimism. The international infrastructure sector will be thrown into more uncertainties.

2 Scenario Definitions

A non–pandemic scenario refers to a set of computational results based on pre–pandemic data, assuming that the COVID–19 crisis had not occurred. A baseline scenario refers to a situation where the economy experiences a brief period of contraction in the first half of 2020, followed by gradual recovery as the lockdowns are lifted after the infection peak in the second quarter. A pessimistic scenario refers to a situation where most countries go through another round of three–month lockdowns after the arrival of a “second wave”. The mounting concerns over public health jeopardize consumer confidence in consumption and business activities. The world economy plunges into further recession. At the time of reporting, the US remains the COVID–19 hell in the Americas. Some European countries have announced a second round of lockdowns. But the outbreak is slowing in India, Asia. Overall, the pandemic is not over yet, but governments are progressively restarting national economies. Though the pessimistic scenario doesn’t apply here, its values can be used for reference and comparison.

3 COVID–19's Impacts on BRIDI

If the pandemic had not struck, the BRIDI would have scored the same in 2020 as in 2019, with even lower development costs over the previous year. But the true picture is an infrastructure market falling prey to the virus. The BRIDI records as low as 110; four sub–indices, especially that on development environment, stay well below the non–pandemic expectations. The BRIDI goes further down to 103 under the pessimistic scenario.

The pessimistic scenario envisages a general decline in BRIDIs across all counties over the baseline scenario. The biggest falls are found in five countries – Iran, Turkey, Armenia, Brazil and Belarus – which move down by over 10 notches. Bulgaria, Czech Republic, Albania, Slovenia and Slovakia, on the other hand, jump up the farthest in rankings. To conclude, countries that have instituted stringent lockdowns in the initial phase of the pandemic and quickly recovered from the first wave drop less in BRIDIs under the pessimistic scenario.

Table 2 BRIDIs under Different Scenarios

BRI countries	2019	2020 Non–pandemic scenario	2020 Baseline scenario	2020 Pessimistic scenario
BRIDI	119	119	110	103
Development Environment Sub–index	115	115	102	90
Development Demands Sub–index	130	128	121	117
Development Passion Sub–index	119	114	110	100
Development Costs Sub–index	107	114	106	103

Source: CHINCA, SINOSURE's Country Risk Database.

Table 3 Country–specific BRIDI Rankings and Changes under the Pessimistic Scenario(TOP 20)

Country	BRIDI	Ranking	Ranking Change	Country	BRIDI	Ranking	Ranking Change
Indonesia	119	1	–	India	105	11	–
Philippines	110	2	↑ 1	Bengal	104	12	↓ 2
Malaysia	109[4]	3	↓ 1	Mongolia	104	13	↑ 1

Country	BRIDI	Ranking	Ranking Change	Country	BRIDI	Ranking	Ranking Change
Vietnam	109	4	↑ 1	Kazakhstan	104	14	↓ 5
Russia	108	5	↓ 1	Saudi Arabia	104	15	↓ 2
Pakistan	107	6	–	Cambodia	103	16	–
Qatar	107	7	↑ 5	Laos	103	17	↑ 2
Egypt	106	8	–	Singapore	102	18	↓ 1
UAE	106	9	↓ 2	Croatia	102	19	↑ 10
Thailand	105	10	↑ 5	Hungary	102	20	↑ 3

Source: CHINCA, SINOSURE’s Country Risk Database.

4 Malaysia scores 109.3, Vietnam 108.9, Pakistan 107.3, Qatar 106.7, Egypt 106.4, the UAE 105.9, Thailand 104.9, India 104.8, Bangladesh 104.29, Mongolia 104.26, Kazakhstan 104.0, Saudi Arabia 103.8, Cambodia 103.3, Laos 102.8, Singapore 102.4, Croatia 102.3, and Hungary 102.2.

Section Three: New Features of Belt and Road Infrastructure Development

1 BRIDI reveals multiple challenges.

The pandemic represents quite a disruption to the economy, as production and consumption are scaled back. It sends major economies into negative GDP growth, massive job losses and financial predicament. In some countries, the economic and employment outlook, which turns ugly amid the pandemic, has intensified social and political confrontation. The discords that once seemed obscure in a well-ordered society now become apparent. According to the surveys, the outbreak impedes the smooth flow of workers and materials and heightens the non-performance risk among companies. These factors together paint a challenging picture for the infrastructure industry.

Now, the BRI countries are considering a reordering of national fiscal priorities that temporarily squeezes infrastructure spending. What's more, at a time of global economic downturn, mounting geopolitical risks and tightened investment regulations, international institutions and private investors will finance international infrastructure projects with more prudence. A funding shortfall will leave some of the infrastructure development needs unanswered.

As revealed by the data, the impacts of COVID-19 on business operations are being felt. According to the Ministry of Commerce, in the first half of 2020, the turnover of China's overseas contracted projects fell by 13.8% year-on-year, while the total value of newly signed contracts increased slightly by 1.2%. Upon prudential assessment, Fitch Solutions sees a 2.5% contraction in the global construction sector amid the COVID-19 pandemic in 2020, where Latin America and Europe take the hardest hit. A short-term decline in the passions for international infrastructure cooperation seems inevitable.

2 While the transportation sector remains a priority of international infrastructure cooperation, the public health sector is expected to take off.

The transportation sector underpins the national economy and represents a critical enabler for efficient economic operations. The COVID–19 outbreak underscores the importance of sound transportation systems which have a direct bearing on the transportation and delivery of medical supplies to help the countries fight the pandemic and resume production. The transportation sector has always been a priority of international infrastructure cooperation. According to the Ministry of Commerce, of all the projects undertaken by Chinese companies in 2019, 22.2% were transportation–related, accounting for 27.1% of the total capital value. Fitch Solutions further reveals that, in 2019, 46.9% of all projects worldwide were built for transportation purposes. As a medium and long–term priority of infrastructure development, the transportation projects may be tabled for now due to the pandemic, but won’t for long. Given the tightened fiscal and financing environment in the post–pandemic world, small and medium–sized transportation projects that can effectively stimulate the economy and employment, with small investment, are the best choice.

In addition, the pandemic highlights the vulnerabilities in the current public health infrastructure system. According to Fitch Solutions, in 2019, only around 2.3% of all projects worldwide were in the public health sector, accounting for a small part of the market value. The international community is now – in the wake of the coronavirus outbreak – attaching much more significance to the public health infrastructure. Such countries as the UAE, Myanmar, South Africa, and Algeria have begun to embark on community hospitals and rural medical projects. Since the international multilateral financial institutions will allocate more funds to pandemic control, the public health infrastructure sector is expected to take off. Generally, the least developed countries and some developing countries with a weak public health system and disadvantaged development environment will be the first to get international aids.

3 All parties have strengthened innovative collaboration and well responded to the development challenges.

To soften the impacts of COVID–19, the governments have launched economic recovery stimuli and new policies, with infrastructure investment and development at the core. The Indonesian government is rolling out a USD 43 billion "national economic recovery" program and will allocate approximately USD 3.8 billion in 2021 to support infrastructure construction, tourism, and manufacturing, etc. Russia, Malaysia, Ecuador, Tanzania, Nigeria and some other countries are expanding deficits, adjusting tax policies, and intensifying infrastructure development to stimulate domestic economy. Generally speaking, as countries attach greater importance to the role of infrastructure development in driving economic growth, the economic stimulus plans will be implemented in the next one to two years. The prospects for infrastructure development in the BRI countries remain promising.

The fourth industrial revolution features an extensive application of IT–based technologies, digital technologies, and other emerging technologies in the infrastructure sector. Since this year, the Chinese government has been vigorously promoting the "new infrastructure initiative", which encompasses 5G networks, blockchain, AI and other enhancements to make infrastructure systems more digital, intelligent and innovative. A number of "new infrastructure" projects, such as smart traffic and smart cities, have been launched. Empowered by advanced technologies, the infrastructure facilities will inject new impetus into the BRI countries. International infrastructure cooperation is expected to expand in depth and breadth.

Under new circumstances, the international cooperation is taking on new forms. The integrated "investment–construction–operation" model and "third–party market cooperation", among others, become the new vogue of the international infrastructure industry. A company plays an increasingly important role in planning, financing, and operating projects which aim to benefit the host country, in both social and economic terms. As a major player in the "investment–construction–operation" process, the companies have worked out new partnership frameworks. The number

of large–scale infrastructure projects based on third–party market cooperation and multinational cooperation are increasing every year. International infrastructure cooperation has become an important platform for the companies to play comparative advantages and pursue win–win benefits. New business models and cooperation frameworks guarantee a promising future for infrastructure development in the BRI countries.

Chapter Two

BRIDI Sub–indices

The Belt and Road Infrastructure Development Index (BRIDI) has four dimensions: development environment, development demands, development costs, and development passions. This chapter will look into the infrastructure industry in the BRI countries from the four aspects. Generally, under the impact of COVID–19, the sub–indices on development environment and development demands are given much lower scores than they were last year. The sub–index on development passions drops to the 2014 level, although that on development costs doesn't change much.

Section One: The Sub–index of Belt and Road Infrastructure Development Environment

The sub–index explains the environment for a company to participate in the Belt and Road infrastructure development in six dimensions, i.e. political environment, economic environment, sovereign solvency, business environment, market impact and industrial environment.

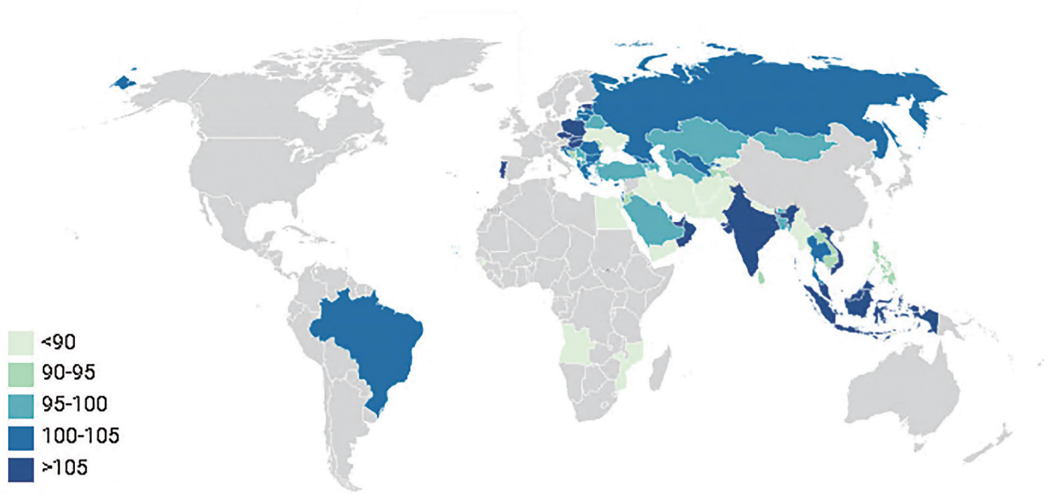

Figure 4 Development Environment Sub–index Heat Map

Source: CHINCA, SINOSURE’s Country Risk Database.

1 Overall Changes in the Development Environment Sub–index

The sub–index falls to 102 in 2020, the lowest level in a decade. It drops further to 90 under the pessimistic scenario. Of the four sub–indices, the Development Environment Sub–index suffers the sharpest decline over the previous year.

The COVID–19 pandemic is upsetting the global economic order. Economic recession, widening fiscal deficits and downgraded sovereign credit ratings are now part of the reality in the BRI countries. The economic environment and sovereign

solvency, two decisive factors in international infrastructure cooperation, have worsened significantly. The governments have announced anti–pandemic measures which however compromise the implementation of infrastructure projects. The outbreak also accelerates a backlash against economic globalization and increases the uncertainties in international infrastructure development environment.

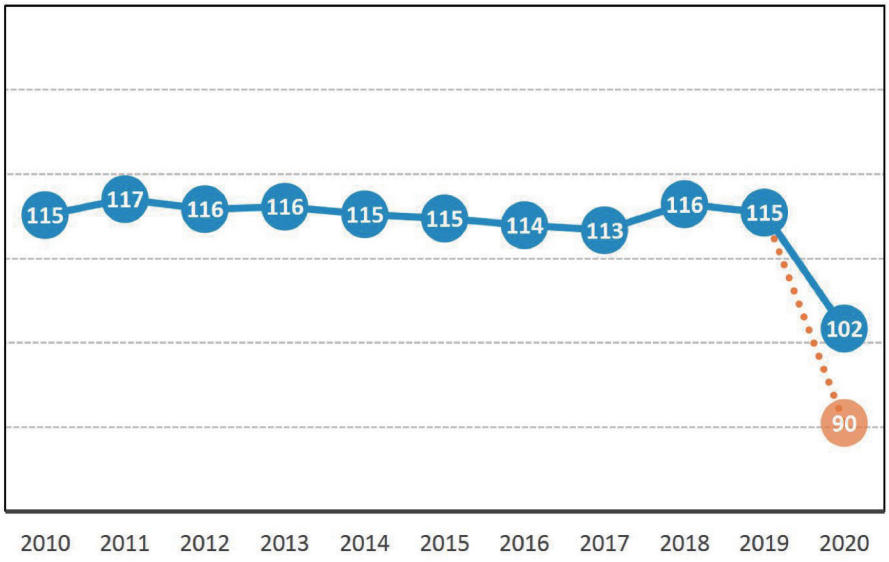

Figure 5 Sub–index of Belt and Road Infrastructure Development Environment (2010–2020)

Source: CHINCA, SINOSURE's Country Risk Database.

Note: The blue line represents the score under the baseline scenario, while the orange line represents the score under the pessimistic scenario.

2 Development Environment Sub–index by Region and Country

By region, despite a general fall in the scores of the sub–index, South Asia jumps up the farthest in the rankings in 2020. By country, 93% of the BRI countries suffer a decline in the scores of the sub–index, though to varying degrees. Only 7%[5] remain unchanged. To be specific:

Southeast Asia comes out top, and Singapore still stays ahead for the 10th year in a row. Southeast Asia is ranked first among the seven regions, though suffering a significant fall to 108 points over the previous year. Singapore gets less points in

5 Egypt, Afghanistan, East Timor, Russia, Yemen.

2020, given the very gloomy external environment, but still stays ahead as a prize for its stable politics and sound business environment. In addition to Singapore, other Southeast Asia countries like Vietnam, Malaysia, and Indonesia also show resilience to the domestic pandemic shocks, thanks to the good measures taken to contain the spread. They score high in the sub–index, playing a prominent role in driving up the placing of the Southeast Asia.

CEE registers the sharpest decline among the seven regions, from 127 to 106 points over the last year, while Serbia falls the least. CEE faces a bleak economic outlook and social security concerns, which stem from a confluence of factors like the COVID–19 outbreak, rise of populism and Brexit. Among CEE countries, Serbia attaches high importance to infrastructure investment, and promotes the development of highway system, smart cities, and other projects to improve its industrial environment.

Western Asia & North Africa ranks the lowest in development environment, while Egypt maintains a stable score. Western Asia & North Africa scores 96, coming last among the seven regions. Led by oil, the collapse in global commodity prices as the world grapples with COVID–19 has worsened the economic environment and sovereign solvency of most Western Asian & North African countries. That justifies a declining score and ranking of the region in terms of development environment. However, as a major economy in the region, Egypt stands out as an exception by maintaining a positive real GDP growth amid the pandemic. The country scores 85 in the sub–index, same as last year, due to its strong economic resilience.

Table 4 Changes in Development Environment Sub–index by Region

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Southeast Asia	129	1	108	1	96	2
CEE	127	2	106	2	99	1
South Asia	111	6	103	3	93	3
PSCs	116	3	101	4	87	4
CIS–7 and Mongolia	99	7	98	5	83	6

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub-index	Ranking	Sub-index	Ranking	Sub-index	Ranking
Central Asia	114	4	97	6	82	7
Western Asia & North Africa	112	5	96	7	86	5

Source: CHINCA, SINOSURE's Country Risk Database

Table 5 Score and Rankings of the Infrastructure Development Sub-index (Top 15)

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub-index	Ranking	Sub-index	Ranking	Sub-index	Ranking
Singapore	175	1	147	1	138	1
UAE	144	3	121	2	111	2
Portugal	148	2	115	3	97	10
Czech Republic	135	6	113	4	106	3
Poland	131	11	110[6]	5	103[7]	4
Slovenia	136	5	110	6	103	5
Vietnam	134	7	109	7	95	14
Hungary	125	16	108	8	101	6
Malaysia	109	33	107[8]	9	95	16
Indonesia	133	8	107	10	94	17
Oman	123	19	107	11	98[9]	9
Brunei	120	22	107	12	94	18
Estonia	117	25	106	13	99	7
India	113	30	106	14	96	12
Slovakia	136	4	109	15	98	8

Source: CHINCA, SINOSURE's Country Risk Database

6 Poland scores 110.3, and Slovenia 109.7.

7 Poland scores 103.1, and Slovenia 102.6.

8 Malaysia scores 107.4, Indonesia 107.0, Oman 106.9, Brunei 106.6, Estonia 105.9, and India 105.8.

9 Oman scores 97.8, and Slovakia 98.3.

3 Factors Concerning the Development Environment Sub–index

（1）The political environment is relatively stable, but the uncertainty rises.

In 2020, the political environment stabilizes in most of the BRI countries, where scores change only slightly over the previous year. However, the global spread of the coronavirus has compounded geopolitical tensions. Conflicts broke out in some countries and regions. Brexit, US elections, racial confrontation, Armenia–Azerbaijan border clash and other risk events took place. Moreover, the relationship between major powers and the balance of international power have undergone profound changes, adding uncertainties to the political environment along the Belt and Road.

（2）The economic environment worsens amid the pandemic.

The real GDP growth falls sharply across the BRI countries as an aftermath of the pandemic. Twenty countries, including Lebanon, cut their GDP growth by more than 9 percentage points in 2020. To minimize the damages of the pandemic, expansionary fiscal measures become a common choice, which would create upward pressure on fiscal deficits. To be specific, the fiscal deficits of Iraq, Kuwait and Oman account for more than 20% of their GDP. Meanwhile, some BRI countries that adopt a floating exchange rate regime are having currency depreciation problems due to capital outflows and imbalanced domestic economic structure. The foreign exchange risk is rising.

（3）Sovereign solvency is further undermined.

For some of the BRI countries, the spreading pandemic, shrinking capital flows and falling commodity prices have translated into continued declines in foreign currency reserves. The stability of sovereign solvency is looking blue for them. From January to August 2020, Standard & Poor’s, Fitch, and Moody’s, three major international rating agencies, downgraded the sovereign credit ratings of ten BRI countries. According to SINOSURE’s sovereign ratings, 45.1% of the BRI countries are at intermediate levels of sovereign solvency, and 14.1% are at high levels. Sovereign default occurred in Lebanon, Mozambique, Yemen, Sao Tome and Principe, etc.

Table 6 Countries with Downgraded Sovereign Credit Ratings

Rating Agency	Country
Standard & Poor's	Oman, Angola, Lebanon, Sri Lanka
Fitch	Oman, Angola, Bahrain, Cape Verde, Lebanon, Maldives, Sri Lanka, Slovakia
Moody's	Oman, Laos, Lebanon, Maldives, India

Source: Compiled based on public information on the official websites of Standard & Poor's, Fitch, and Moody's

(4) Business environment is on the mend.

Business environment keeps improving in 2020, thanks to a number of reforms in BRI countries. To be specific, 84.5% of the countries have made it easier to start a business, while 53.5% improved government efficiency. Saudi Arabia is particularly successful in improving its business environment. The Port of Jeddah has extended the business hours at the customs and implemented a single–window system to facilitate import and export trades. Meanwhile, the country allows the plaintiffs to submit electronic versions of a claim, strengthening the binding force of contracts.

(5) The industrial environment brings additional challenges, including increased investment barriers.

The spreading pandemic and the backlash against economic globalization undermine policy continuity and the industry's openness in BRI countries. Some are putting up foreign investment barriers which add new challenges to the industrial environment. According to the statistics of the UN Conference on Trade and Development, 22 countries have made around 30 adjustments to their foreign investment policies in the first half of 2020. Among them, India has imposed stricter restrictions on foreign business operations, and raised local procurement threshold to facilitate its "Made in India" strategy. Since the outbreak, the European Commission has issued several warnings to its member states to exercise extra caution over M&A proposals submitted by foreign investors and intensify scrutiny over investment activities to protect the independence of leading European

companies. Hungary, Poland and Romania, for example, have strengthened restrictions on business operations of non–EU companies in specific industries.

Table 7 Global Investment Policy Changes in the First Half of 2020

SN.	Country	Time	Policy Contents	Influence
1	Romania	2020–2–27	The Romanian government enacted an ordinance which amends Petroleum Law no. 238/2004. It grants the National Agency for Mineral Resources the right to refuse any concessions or operation contracts for the prospecting, exploration and production of hydrocarbons with non–EU companies on national security grounds. Any transfer of the concession rights can only be carried out upon government approval; the transfer is invalid otherwise.	The government implements stricter scrutiny over non–EU companies in the petroleum industry.
2	India	2020–2–27	The Ministry of Commerce and Industry of India revised its policy, mandating that single–brand foreign retailers, opting for more than 51% foreign investment in India, must source 30% of their products locally from units in special economic zones (SEZ).	The government highlights the importance of “Made in India” and sets local procurement threshold for foreign investors.
3	India	2020–4–17	The Indian government amended foreign direct investment rules to curb opportunistic foreign acquisitions/takeovers of Indian companies in a bid to contain the “COVID–19 pandemic”. India decides to take a “government approach” for all investments from countries that share a land border with India.	Investments from countries that share a land border with India require prior government approval.

SN.	Country	Time	Policy Contents	Influence
4	Hungary	2020–5–26	Government decree No 227/2020 entered into force in Hungary. It mandates that prior government approval is needed for non–EU investors in 21 industries, including health care, pharmaceutical, medical device manufacturing. The decree will be effective until December 31, 2020.	Hungary will strengthen scrutiny over non–EU investors.
5	Vietnam	2020–6–18	The National Assembly of Vietnam approved the Law on Public–Private Partnership (the PPP Law). The Law sets rules on investment activities and private investment attraction in some important and basic infrastructure sectors under the PPP model.	Vietnam sets new rules on the PPP model.
6	Poland	2020–6–24	A new legislation in Poland came into effect. It extends the FDI screening mechanism in Poland for 24 months. Any takeovers by non–EEA investors require prior approval from the President of the Polish Competition Authority.	Poland will strengthen scrutiny over investments from non–European regions.

Source: Based on information published by the UN Conference on Trade and Development.

Section Two: The Sub–index of Belt and Road Infrastructure Development Demands

The sub–index reflects the sum of relative and absolute demands for a country’s infrastructure development. The higher the sub–index, the greater the demands for infrastructure investment and the market potential of the country. Relative demands refer to the demands for infrastructure investment to meet the needs of consumers and producers for work and life at the current level of per–capita income. Absolute demands are the demands for infrastructure investment to achieve optimal social services in the country.

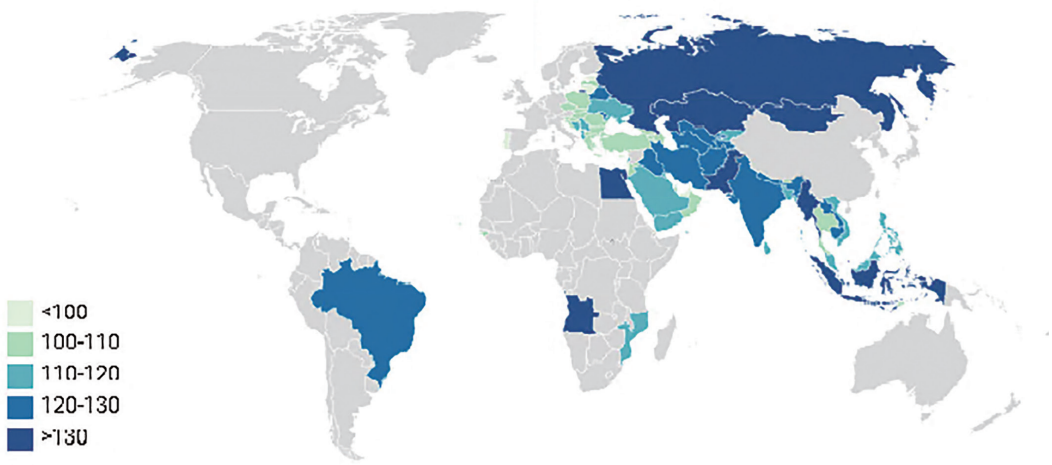

Figure 6 Development Demands Sub–index Heat Map

Source: CHINCA, SINOSURE’s Country Risk Database.

1 Overall Changes in the Development Demands Sub–index

In 2020, the Development Demands Sub–index for BRI countries falls to 121, the lowest level in nearly 10 years, and the figure is anticipated to plunge to 117, under the pessimistic scenario. Demands for BRI markets to develop their

infrastructure have been curbed due to shrinking funds caused by the world economy in deep recession, slower global investment flow and drops in fiscal revenue for countries, and due to less–than–expected progress of project construction attributed to the hampered global flow of personnel and supplies.

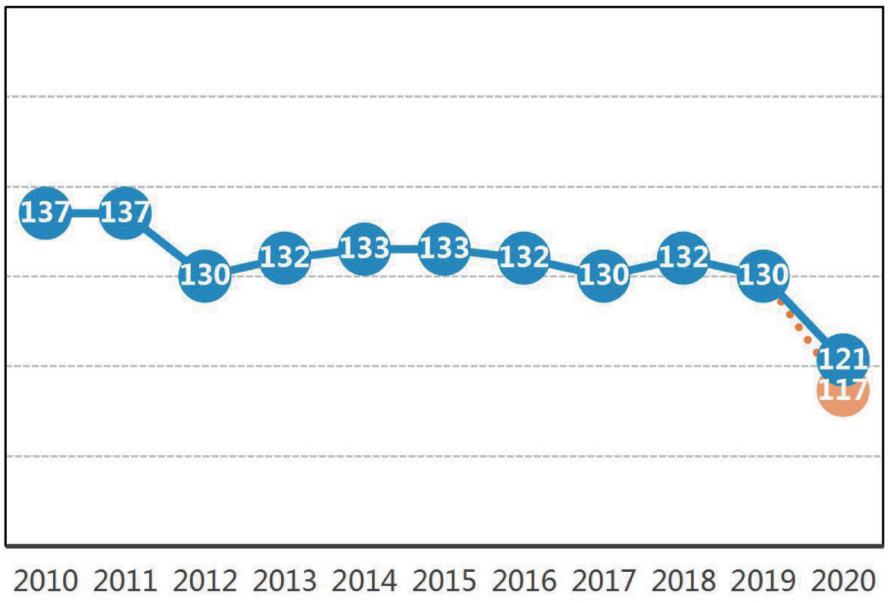

Figure 7 Sub–index of Belt and Road Infrastructure Development Demands (2010–2020)

Source: CHINCA, SINOSURE's Country Risk Database.

Note: The blue line represents the score under the baseline scenario, while the orange line represents the score under the pessimistic scenario.

2 Development Demands Sub–index by Region and Country

In 2020, the sub–index falls in all regions, with CIS–7 countries and the Mongolian region topping the ranking while the Portuguese–speaking region and Southeast Asia seeing a fall. As for nations, the sub–index for 83% of BRI countries is dropping, while few, such as Latvia, Turkey, and Afghanistan, are witnessing an uptick. The specific is as follows.

CIS–7 countries and Mongolia claim a consecutive victory, indicating strong demands for infrastructure development in Russia and Mongolia. The infrastructure

Development Demands Sub–index for CIS–7 countries and Mongolia stands at 137, ranking first among seven major regions. This is largely attributed to the tremendous demand of Russia and Mongolia for the energy and transportation infrastructure. Placed second among BRI countries with a score of 141, Russia promises to speed up the construction of its energy and transportation infrastructure having adopted a comprehensive plan for upgrading its major infrastructure by 2024. The transportation infrastructure development demand sub–index for Mongolia is 181, an increase of 13.8% from 2019, meaning the country may have an upsurge in demand for railways and power grids.

Southeast Asia posts a rise in the ranking, with Indonesia topping the country category. In 2020, the infrastructure Development Demands Sub–index for Southeast Asia is 127, ranking third among regions, while Indonesia, Malaysia, and Thailand represent the force driving the infrastructure demand growth. Among others, Indonesia returns back to first place with a score of 160 because of its rapid yet steady economic growth and the surging demand for infrastructure in such sectors as energy, transportation, and communications as a result of about IDR 5,500 trillion (USD 423 billion) planned to invest in infrastructure[10], a part of the Jokowi administration’s medium–term plan for development from 2015 to 2019.

Central Europe comes bottom, with Latvia being one of the fastest climbers. In 2020, the infrastructure Development Demands Sub–index for Central Europe is 104, ranking bottom among the seven regions. What is worth noting, however, is that Latvia has a score of 108, up 4.8% from the previous year to the 40th spot. Demand for electrifying railways and building the transnational power transmission network is key to the rise of the country’s infrastructure demand, bucking the overwhelming trend of the regional slowdown.

10 The Indonesian government’s infrastructure planning centers on projects that can enhance connectivity among cities and ensure the stronger capability of power generation and more reliable power grids. This provides a greater opportunity for developing the transport and electricity sectors.

Table 8 Changes in the Development Demands Sub–index by Region

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
CIS–7 and Mongolia	163	1	137	1	134	1
Central Asia	131	4	130	2	128	2
Southeast Asia	128	5	127	3	125	3
South Asia	137	3	125	4	122	4
PSCs	149	2	124	5	116	5
Western Asia & North Africa	110	6	109	6	106	6
CEE	104	7	104	7	102	7

Source: CHINCA, SINOSURE's Country Risk Database.

Table 9 Top 15 list of Development Demands Sub–index

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Indonesia	161	2	160	1	157	1
Russia	172	1	141	2	138[11]	3
Myanmar	141	5	140	3	138	2
Egypt	140	6	136	4	134	4
Kazakhstan	136	8	135	5	133	5
Angola	135	9	134	6	132	6
Pakistan	146	4	133	7	131	7
Mongolia	133	10	132	8	130	8
Cambodia	127	11	126[12]	9	124	9
Brazil	155	3	126	10	118	19
India	137	7	125	11	122[13]	11
Iraq	126	12	125	12	122	13
Nepal	126	13	124	13	122	12

11 Russia scores 138.1, and Myanmar 138.2.

12 Cambodia scores 126.3, Brazil 126.2, India 125.4, and Iraq 125.0.

13 India scores 122.0, Iraq 121.5, Nepal 121.8, and Laos 122.1.

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Laos	124[14]	14	123	14	122	10
Tajikistan	124	16	122	15	120	14

Source: CHINCA, SINOSURE’s Country Risk Database.

3 Factors Concerning the Development Demands Sub–index

（1）Different national realities lead to varying infrastructure–building demand.

Firstly, the demand for infrastructure among BRI countries differs as they vary in economic size and development stage. Larger economies, such as India, Indonesia, and Pakistan, are naturally in greater demand for infrastructure than East Timor, Bhutan, Cape Verde, and other economically weak countries. Secondly, BRI countries face different infrastructure realities and thus, have unique goals to pursue. For instance, Angola and Iraq develop power infrastructure to meet people’s basic needs to live and produce, whereas Russia and Portugal do so to improve the energy structure, ensuring their electricity is generated more by clean and renewable energy sources. Lastly, the BRI community sees resource imbalances, meaning the infrastructure demand of a country is structurally different from the other. For example, Albania, Cambodia and other water resource–rich countries tend to generate power through the water, while nations abundant in oil and coal, like Azerbaijan and Mongolia, would favor thermal power.

（2）Demand for energy and transportation infrastructure will prevail for long.

According to estimates based on past findings, BRI countries have, for years, maintained high demand for developing energy and transportation infrastructure. This year, the energy infrastructure development demand sub–index for these countries

14 Laos scores 124.1, and Tajikistan 123.5.

is 139. With a rising number of BRI partnerships on energy among 18 countries[15], including China, being forged, BRI countries are expected to release more potential in building energy infrastructure, and opportunities in developing conventional power generation and emerging photovoltaic and wind power generation will only increase. The transportation infrastructure development demand sub–index for BRI countries stays high at 133. Transport infrastructure has played a more crucial role in delivering supplies particularly since the outbreak of COVID–19. With that, priority will be given to bolstering transportation infrastructure investment and building more quality–oriented and information–based construction projects, as BRI countries seek to improve their transportation systems in the post–pandemic era.

（3）Digital and information–based technology boosts communications infrastructure growth.

In 2020, the communications infrastructure development demand sub–index for BRI countries reaches 118. The fourth Industrial Revolution has made possible the rapid growth of digital and information–based technologies, which enable BRI countries to build their communications facilities and upgrade telecom networks. For instance, as of the end of 2018, the penetration rate for fixed–line telephony in Albania was 8.7% and that for broadband Internet was 12.6%. The introduction of novel technologies is expected to give a push to the construction of the country's communications infrastructure and further create infrastructure–building demand. For economies with a full–fledged communications sector, such as Estonia, Saudi Arabia, and Cyprus, digital and information–based technologies will take communications infrastructure to the next level and help with the launch of new–type infrastructure projects on smart city, intelligent energy, and smart manufacturing. In its Vision 2030, Saudi Arabia looks to improve its software and hardware facilities, set up sensor networks, and building smart gateways, beyond which priority will be given to developing Yanbu as a smart city by leveraging on novel communications technology.

15 These 18 countries are China, Algeria, Azerbaijan, Afghanistan, Bolivia, Equatorial Guinea, Iraq, Kuwait, Laos, Malta, Myanmar, Nepal, Niger, Pakistan, Sudan, Tajikistan, Turkey, and Venezuela.

Section Three: The Sub–index of Belt and Road Infrastructure Development Passions

The sub–index is calculated based on the value of new contracts for global infrastructure development, the amount of private investment in infrastructure projects, the value of new contracts for overseas contracting projects of China, and other indicators to reflect the short–term passions for infrastructure investment in a country. The higher the sub–index, the more active the infrastructure investment in the country, and the greater the market appeal.

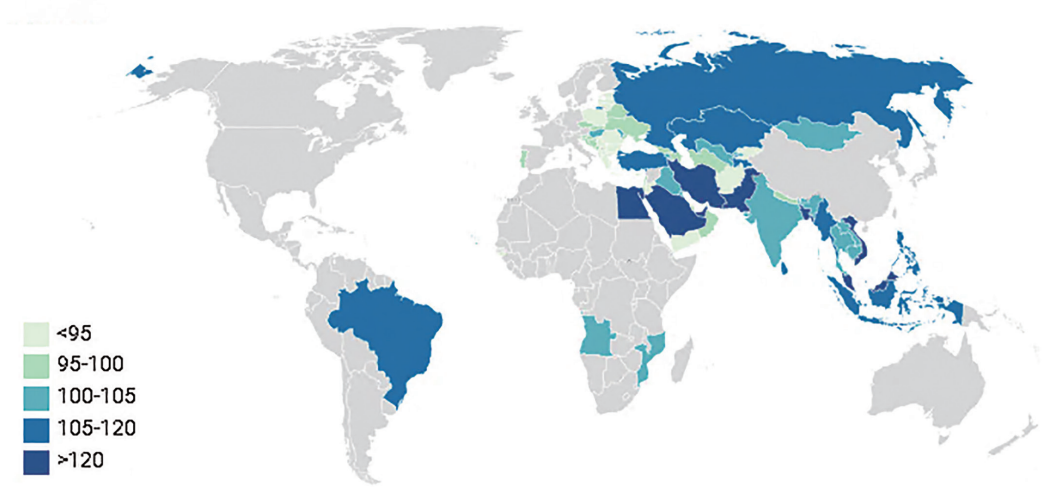

Figure 8 Development Passions Sub–index Heat Map

Source: CHINCA, SINOSURE’s Country Risk Database.

1 Overall Changes in the Development Passions Sub–index

In 2020, the Development Passions Sub–index for BRI countries is 110, a level last seen in 2014 and representing a big drop from 2019. Under the pessimistic scenario, the figure will fall to 100. This year’s performance is mainly attributed

to the global spread of COVID–19 and its aftermath, as well as the fact that all governments have adopted policies supporting livelihood and healthcare.

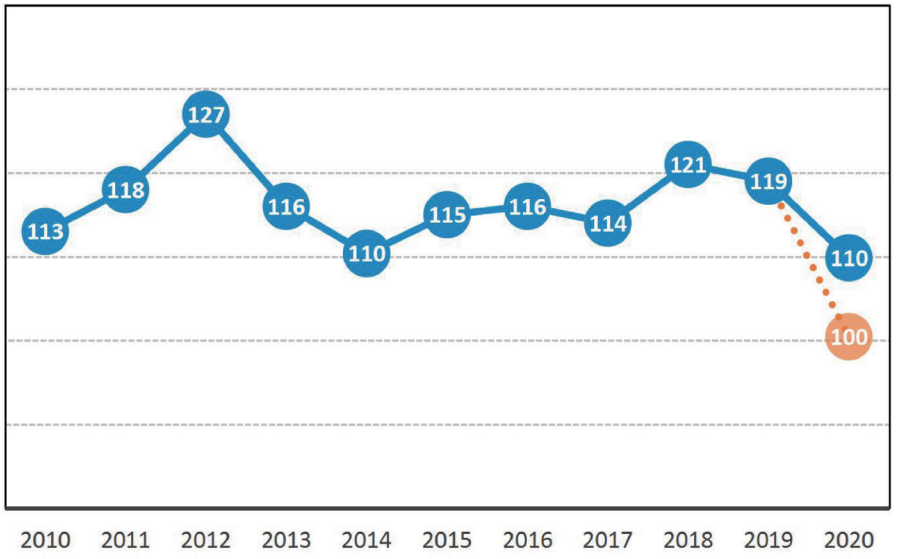

Figure 9 Sub–index of Belt and Road Infrastructure Development Passions (2010–2020)

Source: CHINCA, SINOSURE's Country Risk Database.

Note: The blue line represents the score under the baseline scenario, while the orange line represents the score under the pessimistic scenario.

2 Changes in the Development Passions Sub–index by Region

In 2020, CIS–7 countries and Mongolia see a rise in the Development Passions Sub–index, while the other six major regions either remain unchanged or register a drop. Only 25% of BRI countries demonstrate a greater passion for developing infrastructure, and the prominent concerns all BRI nations share include fewer investment projects, the scaling down of investment, and suspended construction plans. The specific is as follows.

Passion for building infrastructure in Southeast Asia is the greatest, with Vietnam being among the most favorable investment destinations. In 2020, the infrastructure Development Passions Sub–index for Southeast Asia stands at 116, a considerable drop from 2019 yet topping the seven major regions. Such performance is largely driven by the thriving infrastructure sector in Malaysia, Vietnam, and the Philippines.

The sub–index for Vietnam is 126, ranking seventh among BRI countries. In 2019, the private investment in the country’s infrastructure projects soared to a 10–year high. The 12 signed projects worth over USD 4.5 billion are involved in energy, transportation, taxation, and many other sectors. A host of preferential policies on tariff cuts and equity transfers have also been introduced by the government as a way to involve more foreign investors in its domestic wind power projects, which has made its infrastructure more appealing.

Passion for developing infrastructure in CIS–7 countries and the Mongolian region rises despite the overwhelming trend of regional slowdown, with Russia seeing greater infrastructure–building passion. In 2020, the infrastructure Development Passions Sub–index for CIS–7 countries and Mongolia is 114, moving up three places from last year’s sixth position and making them the only place, among seven major regions, to grow in both rankings. This is largely fueled by Russia as its Development Passions Sub–index rises from 106 in 2019 to 117 in 2020. With the launch of large–scale infrastructure projects led by a complex program at the Baltic Sea, Russia becomes a more appealing investment destination.

Infrastructure Development Passions Sub–index drops in PSCs, which is currently plagued by risks. In 2020, the infrastructure Development Passions Sub–index for PSCs is 107, dropping from third place to fourth. Among them, Mozambique and Angola see an economic slowdown as new projects face financial difficulties in implementation. Investors begin withdrawing funds in the infrastructure sector in Portugal and Brazil as the countries have been hit hard by the coronavirus. What is worth noting is that Brazil’s state–run oil company Petrobras signed to sell an overwhelming stake in the Transportadora Associada de Gas Divestiture (TAG), a natural gas pipeline operator for USD 8.64 billion in 2019, but the prospect of implementing infrastructure projects in relation to TAG remains uncertain given a raging COVID–19 epidemic in the country.

Table 10 Changes in the Development Passions Sub–index by Region

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Southeast Asia	122	1	116[16]	1	106	1
Western Asia & North Africa	117	2	116	2	105	2
CIS–7 and Mongolia	104	6	114	3	103	3
PSCs	114	3	107	4	98	5
South Asia	106	5	106	5	99	4
Central Asia	108	4	104	6	93	6
CEE	93	7	93	7	88	7

Source: CHINCA, SINOSURE's Country Risk Database.

Table 11 Top 15 list of Development Passions Sub–index

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Pakistan	131[17]	4	136	1	119[18]	2
UAE	132	2	132	2	117	4
Bengal	131	3	130	3	119	3
Malaysia	130	6	129	4	105	10
Saudi Arabia	128	8	126[19]	5	119	1
Egypt	130	5	126	6	114	6
Vietnam	129	7	126	7	115	5
Iran	127	9	122	8	102	13
Philippines	112	12	120	9	106	8
Indonesia	136	1	119	10	109	7
Russia	106	17	117	11	106	9

16 Indonesia scores 116.4, and Western Asia and North Africa 116.3.

17 Pakistan scores 130.6, Bangladesh 131.5, Egypt 130.1, and Malaysia 129.6.

18 Pakistan scores 119.0, Saudi Arabia 119.1, the Philippines 105.9, Russia 105.8, Turkey 103.8, and Sri Lanka 103.9.

19 Saudi Arabia scores 126.1, Egypt 126.0, and Vietnam 125.8.

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Turkey	118	10	116	12	104	12
Sri Lanka	113	11	112	13	104	11
Brazil	106	16	109	14	99	15
Kazakhstan	109	14	107	15	94	25

Source: CHINCA, SINOSURE’s Country Risk Database.

3 Factors Concerning the Development Passions Sub–index

（1）Transportation infrastructure projects continued to be favored by private investors.

Private capital used for developing transportation infrastructure in BRI countries continues to expand. In 2019, these countries received USD 47.89 billion from private investors for 123 projects, accounting for 51.9% of total private capital for BRI infrastructure. Specifically, road–building projects were most attracted to private investors, with an investment worth USD 28.4 billion, representing 59.4% of total private investment in the transportation sector. Beyond that, private investors are showing more interest in developing energy infrastructure, as evidenced by the fact that about USD 40.07 billion in private capital was channeled into the building of energy facilities in 2019, up 21.8% from the previous year. The taxation and communications sectors are anticipated to be the new fields of private investment due to lower investment thresholds, controllable risks, and short–term returns.

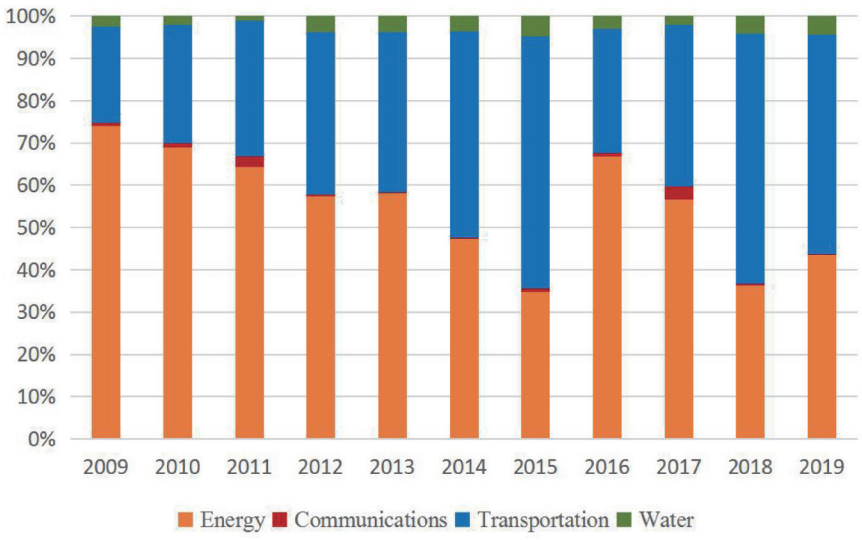

Figure 10 Private Investment in Infrastructure on a Sectoral Basis (2009–2019)

Source: World Bank's PPI Database

(2) Renewable energy sources see a rapid growth in private investment.

All BRI countries stress developing energy infrastructure, in which renewable energy projects have garnered global attention for years. According to World Bank's PPI Database, private investment in energy facilities across the globe continued to surge in 2019. Of 150 newly-launched, privately-financed power generation programs in the world, 136, or 91% were on renewable energy infrastructure, with 12.4 GW of installed capacity and total investment worth USD 26.2 billion US dollars, a year-on-year increase of 12.5%. That means the renewable energy sector received 62% of private investment in 2019, and the relevant installed capacity took up 60% of the total. Over recent years, BRI countries have released plans for supporting the introduction of renewable energy sources. As relevant technologies evolve and countries become more sustainable and aware of environmental protection, BRI nations will embrace a new wave of investment in energy infrastructure, and private investors are expected to involve in, or even ride the wave once again.

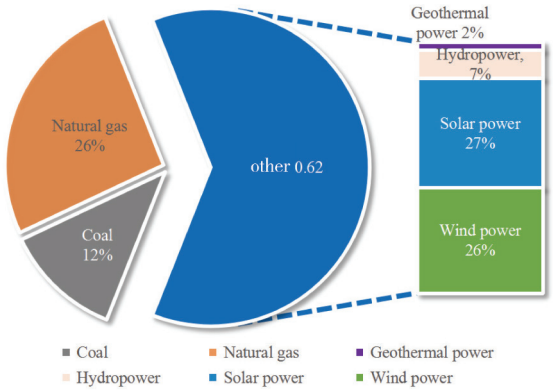

Figure 11　Private Investment in the Energy Sector in 2019

Source: World Bank’s PPI Database

（3）5G network infrastructure emerges as a new investment hotspot.

BRI countries have massive potential in investment demand for communications infrastructure, whose development will accelerate with such novel technology as 5G, IoT, and blockchain. Although the construction of the 5G commercial network in BRI nations has, to a certain extent, been affected by COVID–19, the trend for rolling out the network remains unchanged, with preferential policies consistent and the capital flow uninterrupted. In the course of the pandemic, brand new internet technology has been widely applied to such scenarios as 5G healthcare, epidemiological survey, e–commerce, videoconference, and telecommuting. Given that, a greater passion for upgrading communications infrastructure has been inspired among the BRI community.

Section Four: The Sub–index of Belt and Road Infrastructure Development Costs

The Development Costs Sub–index[20] examines two factors, i.e. operational costs and financing costs. To be specific, the operational costs cover raw materials, labor force, exchange rate fluctuations, licenses and other costs incurred during the infrastructure development and operation. It should be noted that the operational costs are a reverse indicator. The higher the value, the lower the operational costs. The financing costs measure the capital borrowing costs for a company to engage in infrastructure development. They are a reverse indicator, too. The higher the value, the lower the financing costs.

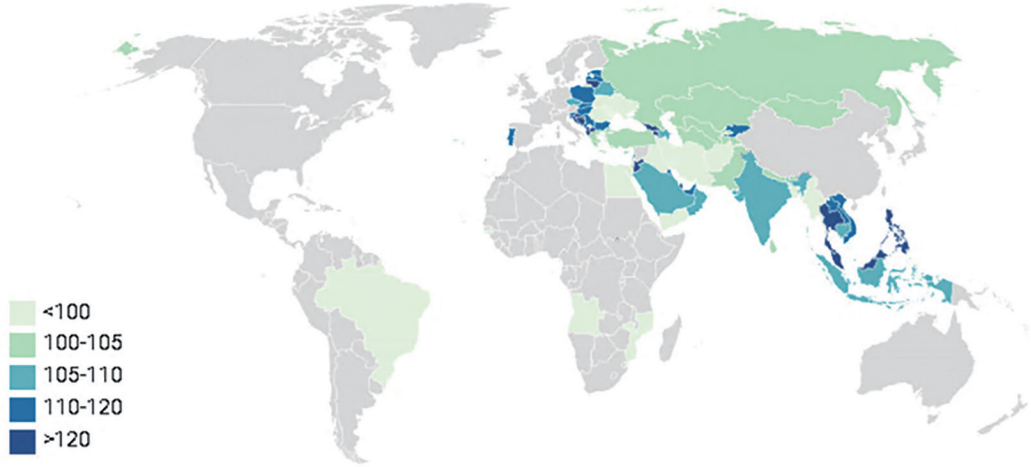

Figure 12 Development Costs Sub–index Heat Map

Source: CHINCA, SINOSURE's Country Risk Database.

20 Unlike the three aforementioned indices, the Development Costs Sub–index is a reverse indicator, suggesting that the higher the sub–index, the lower the costs.

1 Overall Changes in the Development Costs Sub–index

In 2020, the Development Costs Sub–index for BRI countries stands at 106, showing a slight increase in cost pressure compared to 2019. The figure is anticipated to fall to 103 under the pessimistic scenario. The rising costs of infrastructure development are mainly attributed to an upsurge in operating costs across the board caused by the global trade slowdown and soaring raw material prices as the pandemic has severely impacted global supply chains.

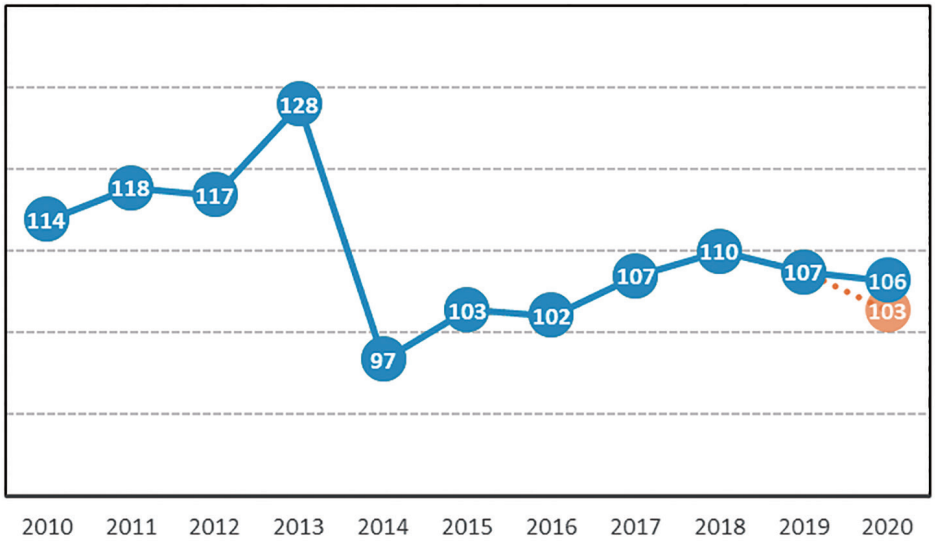

Figure 13 Sub–index of Belt and Road Infrastructure Development Costs (2010–2020)

Source: CHINCA, SINOSURE’s Country Risk Database.

2 Development Costs Sub–index by Region and Country

In 2020, the Development Costs Sub–index for regions go south, except for Western Asia, North Africa, the CIS, and Mongolia. Nationally, the indicator for more than 70% of BRI countries drops to a varying degree, a testament to increased costs of building infrastructure in most countries.

Southeast Asia maintains an edge in development costs, with Thailand taking a lead. In 2020, Southeast Asia gains a score of 121 in the Development Costs Sub–index category, saving companies more money in putting in place infrastructure in

this region than in its other six major counterparts. This is made possible by lower raw material costs and market money rates, as well as stable financial markets. With the sub–index standing at 145, Thailand, among others in the region, emerges as the economy with the lowest infrastructure development costs. To do this, the country has ensured the protection of investors' interests, lower operating costs for businesses, and the appreciation of its currency.

Infrastructure development costs in PSCs rocket up. In 2020, the Development Costs Sub–index for Portuguese–speaking nations falls to 94. In Angola, it takes companies a lot more money to carry out infrastructure projects as rocketing prices of the labor force and raw materials have driven up development costs, which is compounded by rising exchange rate risk induced by its currency depreciation. As a consequence, the country posts a score of 89 in Development Costs Sub–index. How to curb increasing costs and defuse exchange rate risk has been high on the agenda of Angola's government and local companies.

Central Asia sees an uptick in development costs, with the fastest growth in Turkmenistan. In 2020, the Development Costs Sub–index for Central Asia rises to 101, yet dropping from fourth place to fifth among seven major regions. Compared to other countries in the region, Turkmenistan emerges as the costliest place to build infrastructure with exchange rate depreciation, rising prices of goods, and higher inflation. What is worth noting, however, is that the main reason behind surging development costs in Central Asia is dramatic oil price fluctuations since the beginning of this year. The costs in the region are expected to decline as international oil prices are coming back on track.

Table 12 Changes in the Development Costs Sub–index by Region

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Southeast Asia	122	1	121	1	117	1
CEE	113	2	110	2	107	2
South Asia	109[21]	3	106[22]	3	100	4
Western Asia & North Africa	104	5	106	4	102	3
Central Asia	109	4	101	5	100	5
CIS–7 and Mongolia	99	6	101	6	96	6
PSCs	95	7	94	7	92	7

Source: CHINCA, SINOSURE’s Country Risk Database.

Table 13 Scores and Ranking by the Development Costs Sub–index (Top 15)

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Qatar	150	1	154	1	149	1
Thailand	143	2	145	2	140	2
Philippines	141	3	143	3	139	3
Malaysia	131[23]	8	13324	4	129	6
Jordan	131	7	133	5	130	5
Croatia	133	5	132	6	131	4
North Macedonia	137	4	131	7	129	7
Georgia	132	6	129	8	123	8
Armenia	126	10	126	9	120[25]	9

21 South Asia scores 109.3, and Central Asia 109.2

22 South Asia scores 106.4, Western Asia and North Africa 106.3, Central Asia 101.4, and CIS–7 and Mongolia 101.2.

23 Malaysia scores 130.8, Jordan 131.2, Bosnia and Herzegovina 122.2, and Bulgaria 122.5.

24 Malaysia scores 133.4, Jordan 133.0, Vietnam 117.4, and the UAE 117.1.

25 Armenia scores 120.4, and Lithuania 119.7.

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Lithuania	128	9	124	10	120	10
Albania	123	11	121	11	119	11
Bosnia and Herzegovina	122	13	121	12	119	12
Bulgaria	122	12	118	13	117	13
Vietnam	118	14	117	14	114	16
UAE	116	19	117	15	113	17

Source: CHINCA, SINOSURE's Country Risk Database.

3 Factors Concerning the Development Costs Sub–index

(1) Operating costs are driven up by rising prices of labor force and raw materials.

Prices of the labor force and raw materials are key factors influencing the operating costs of infrastructure. The coronavirus pandemic has, since the beginning of the year, sent the already–rising raw material prices higher. And the shortage of professional technicians caused by lockdowns in countries and restrictions on the people flow means that companies have to spend more on employment. In addition, a worsening global economic climate has contributed to the prevailing depreciation of currencies of BRI countries and the resulting rising investment risk and settlement cost of international infrastructure projects. This is how the number and proportion of countries with higher infrastructure development costs have increased.

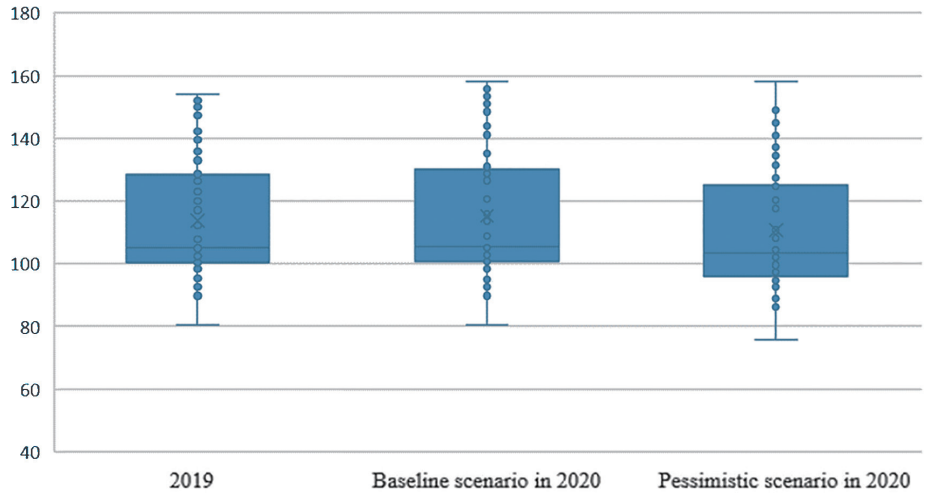

Figure 14 Infrastructure Development Operating Costs Sub–index for BRI Countries

Source: CHINCA, SINOSURE’s Country Risk Database.

Note: Dots on the boxplot indicate the infrastructure development operating costs sub–index points for BRI countries. From bottom to top – minimum: first quartile (lower edge of the box), median, third quartile (upper edge of the box), and maximum.

(2) Enterprises face great difficulty in financing even with more accommodative monetary policies.

COVID–19 has halted world economic growth, causing production and consumption in BRI countries to cool considerably. To respond to the economic blow that the pandemic has dealt and stimulate economic recovery, countries have adopted accommodative monetary policies, such as lower interest rates, and increased the access of companies to credit. All these moves help reduce the financing costs of enterprises. But what should be noted is that, as countries have been hit hard economically, it remains uncertain whether infrastructure construction can be funded in a steady, consistent way. Facing a raging pandemic, BRI countries have joined hands with financial institutions to step up investment in improving people’s livelihood and the healthcare environment, and capital for developing infrastructure in the near future has been capped as authorities concerned take a

more prudent approach to infrastructure financing.

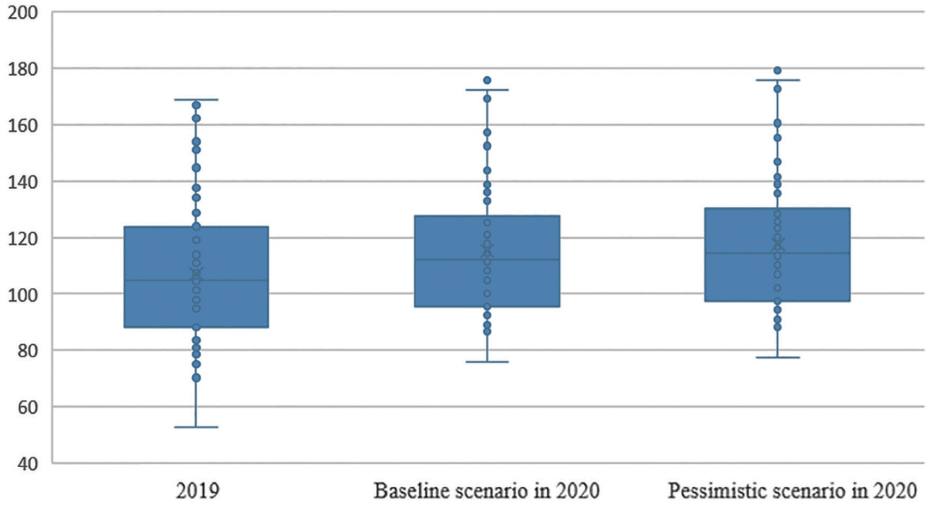

Figure 15 Infrastructure Development Financing Costs Sub–index for BRI Countries

Source: CHINCA, SINOSURE's Country Risk Database.

Note: Dots on the boxplot indicate the infrastructure development financing costs sub–index points for BRI countries. From bottom to top – minimum: first quartile (lower edge of the box), median, third quartile (upper edge of the box), and maximum.

Chapter Three

Analysis of the Infrastructure Development Index for Major BRI countries

To help companies better follow the developments of the infrastructure in major BRI countries, this Chapter, based on the estimates of the infrastructure development index for BRI countries combined with the attractiveness of markets and feedback from businesses, presents four major countries, namely Brazil, Myanmar, the Philippines, and Turkey, by detailing their performance in development index and the contributing factors, and looks into the prospect of the infrastructure in these four nations.

Section One: The Federative Republic of Brazil

Situated at the southeast of the South American Continent, the Federative Republic of Brazil (hereinafter referred to as "Brazil") was recognized as an upper-middle-income country, according to a 2019 standard of the World Bank. The 2020 "Country Risk Reference Rating" and "Sovereign Credit Risk Rating" estimates released by SINOSURE show that, the country is at medium risk with a negative outlook, while its sovereign credit risk, currently at medium levels, will remain stable.

1 Infrastructure Development Index

The infrastructure development index for Brazil in 2020 stands at 109, falling from last year's sixth place to the 18th among BRI countries. The country also sees a drop in the sub-indices of the development environment, demands, and costs, with the steepest fall in the demands category, and only the Development Passions Sub-index slightly increases. Under the pessimistic scenario, Brazil's infrastructure development index is expected to sink to 100, with the environment and demands sub-indices declining more considerably than the other two indicators.

Table 14 Changes in the Infrastructure Development Index for Brazil

Brazil	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Score	Ranking	Score	Ranking	Score	Ranking
BRIDI	120	6	109	18	100	31
Development Environment Sub-index	114	28	100	24	87	36
Development Demands Sub-index	155	3	126	10	118	19
Development Passions Sub-index	106	16	109	14	99	15
Development Costs Sub-index	94	67	93	66	90	65

Source: CHINCA, SINOSURE's Country Risk Database.

2 Factors Impacting the Infrastructure Development Index

Brazil is among the hardest–hit countries by COVID–19, with the environment to develop infrastructure destroyed in multiple dimensions. To be specific, Brazil gains higher scores in the political and business environment than most PSCs do, also beating the average figure of BRI countries. Nonetheless, its scores in the economic and industrial environment fall behind the global average. The pandemic has sharpened political division in the country, seeing more frequent governance crisis and markedly undermining political stability. Economically, a deep recession occurs, sending fiscal deficits higher and creating such pressing issues as economic inequality. On top of that, the confidence of local enterprises and foreign investors has been badly shaken over the Brazilian government’s failure to curb the spread of the virus in a timely and effective manner. Based on the feedback from companies, the policy consistency and openness of the country’s infrastructure sector are both rated even lower.

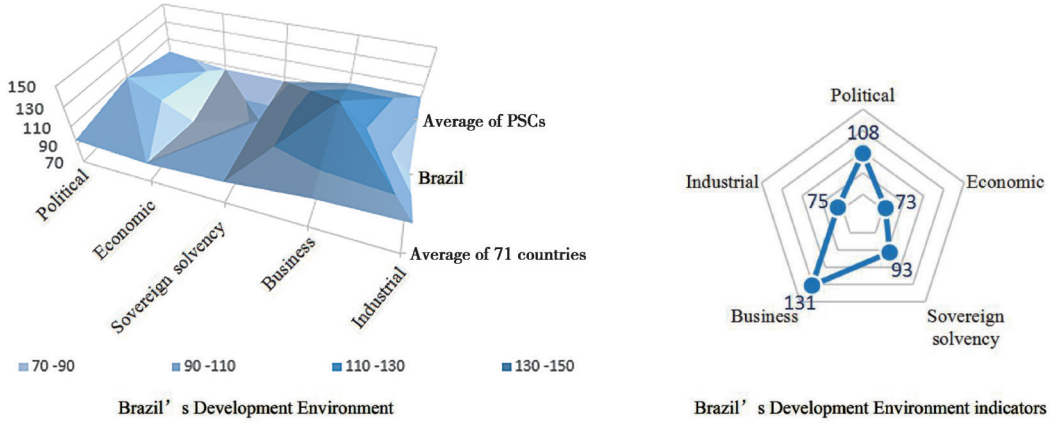

Figure 16 Infrastructure Development Environment Sub–index for Brazil

Source: CHINCA, SINOSURE’s Country Risk Database.

Note: The chart (left) is designed to compare the infrastructure development environment sub–index for Brazil to the average of PSCs and of BRI nations. The convex indicates that the sub–index is higher than the average of PSCs and of BRI nations, whereas the concave shows the opposite. The chart (right) shows the score in each infrastructure development environment sub–index for Brazil.

The transportation industry enjoys a promising prospect for development. Changes in the domestic and foreign landscape have curtailed demand for developing infrastructure in Brazil, but the transportation infrastructure development demands sub–index for the country stands at 186, maintaining a high level. The transportation sector of Brazil has been tormented by high costs in highway transportation and limited railway capacity. Its transportation infrastructure ranked 85th globally with a mere score of 45.6, according to the 2019 Global Competitiveness Report released by the World Economic Forum. The Bolsonaro's government, while vowing to improve transportation infrastructure, will give priority to enhancing railway capacity, which is expected to maintain great demand for transportation infrastructure development, among others.

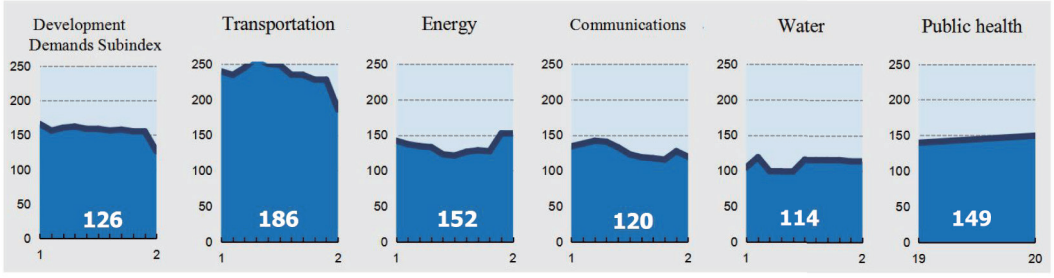

Figure 17 Changes in the Infrastructure Development Demands Sub–index for Brazil

Source: CHINCA, SINOSURE's Country Risk Database.

Multiple large–scale transportation and energy infrastructure projects are being launched, with deep passion shown for investing in infrastructure. According to the World Bank's PPI Database, from 2018 through 2019, Brazil received 76 infrastructure investments worth USD 24.79 billion combined. An overwhelming majority of these projects, with increased investment, are in the highway and electricity fields. Among them, the project of the Porto de Sergipe I CCGT Power Plant was launched with an investment worth USD 1.8 billion, while USD 1.2 billion went into the project of Viasul Brazil highway concessions. The ongoing progress of these projects is an important reason behind the better performance for Brazil in attracting infrastructure capital.

Impacts brought by rising operating costs are offset by those induced by lower

financing costs, making the Development Costs Sub–index relatively stable. Based on the World Bank’s Ease of Doing Business index map for 2020, Brazil has a staggering 64.7% of tax rates and the rates for social security contributions paid by employers (as a percentage of profit), ranking third among BRI countries behind Afghanistan and Tajikistan, and it is among the countries with a lower operating costs sub–index and ranking. To respond to the coronavirus pandemic, Brazil’s central bank has lowered for five times in 2020[26] alone the benchmark interest rate, to 2% with further possible measures to bring the figure down as a way to reduce financing costs for enterprises. Given all these factors, the country sees a slight drop in the infrastructure development costs sub–index.

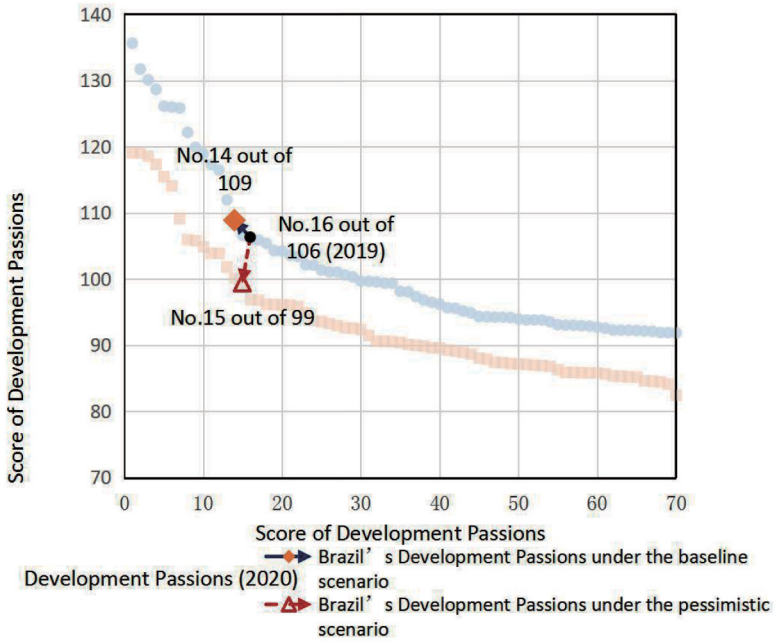

Figure 18 Changes in Infrastructure Development Passions Sub–index for Brazil

Source: CHINCA, SINOSURE’s Country Risk Database.

26 The period is between January 1 and August 5, 2020.

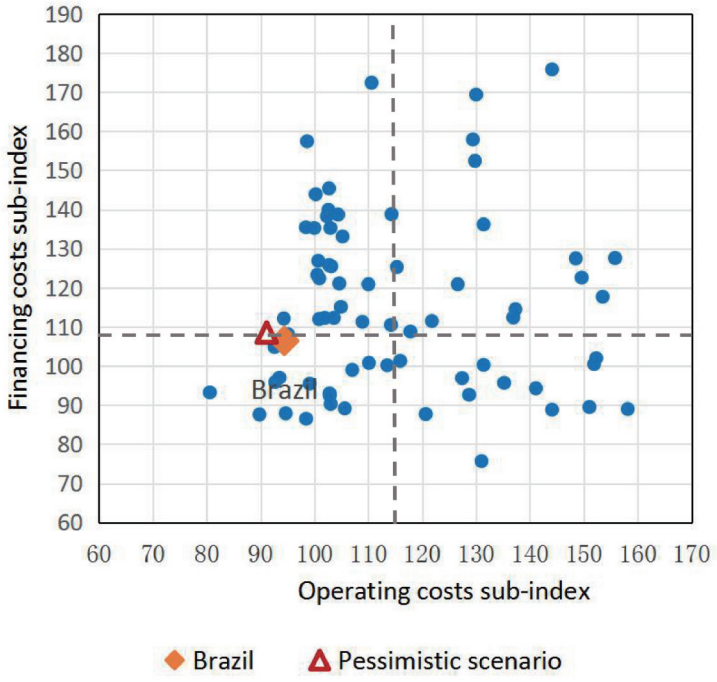

Figure 19 Infrastructure Development Costs Sub-index for Brazil

Source: CHINCA, SINOSURE's Country Risk Database.

Note: Dotted lines suggest the average infrastructure development costs sub-index for BRI countries.

3 Outlook of Infrastructure Development

With the Brazilian privatization process, transportation infrastructure remains a preferred investment target. Despite the negative impact of COVID-19 on investment in the country's infrastructure sector, the Brazilian government has been clear about introducing policies in support of the industry, allowing a brighter prospect for infrastructure development. Over recent years, the government has worked to privatize state-run enterprises and franchise infrastructure services, promising foreign firms a new channel to build infrastructure in Brazil. Although the bidding process of some franchised or privatized projects has been postponed since the outbreak of COVID-19, the government has still introduced plans for launching new projects. In June, the National Bank for Economic and Social Development

(Portuguese: Banco Nacional de Desenvolvimento Econômico e Social, abbreviated: BNDES), published a list of 73 projects to be privatized, which represents nearly BRL 190 billion worth of investment and involves in railways, ports, and urban transportation, among others. That, to a large extent, means involving foreign companies in developing infrastructure, transportation infrastructure in particular, in Brazil remains a top priority for the current administration. But what should be noted is that, Brazil is burdened by high debt, with challenging debt sustainability. The corruption issue becomes prominent as the country has not put an effective anti–corruption system in place. And a series of stringent policies on environmental protection and labor force have shut off the investment flow. All the aforementioned risks should be noted and avoided by enterprises aspiring to launch infrastructure projects in Brazil.

Section Two: The Republic of the Union of Myanmar

As part of Southeastern Asia and of the western Indo–China Peninsula, the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar") was recognized as a lower and middle–income country, according to a 2019 standard of the World Bank. The 2020 "Country Risk Reference Rating" and "Sovereign Credit Risk Rating" estimates released by SINOSURE show that, the nation is at medium risk with a negative outlook, while its sovereign credit risk, currently at medium levels, will remain stable.

1 Infrastructure Development Index

In 2020, the infrastructure development index for Myanmar reaches 107, rising by 13 spots from 2019 to 22nd place among BRI countries. COVID–19 has negatively impacted the development environment, demands and costs, with the figures hovering at lower levels. In terms of the ranking, the sub–indices of the development environment, demands, and passions register an increase, except for the costs sub–index. And a remarkable rise in the development index cannot be made possible without the fastest growing development environment number. Under the pessimistic scenario, Myanmar's infrastructure development index will fall to 101, ranking 25th among BRI countries, which is three spots lower than that under baseline scenario. But overall, the infrastructure development landscape in the country will remain stable.

Table 15 Changes in the Infrastructure Development Index for Myanmar

Myanmar	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Score	Ranking	Score	Score	Ranking	Score
BRIDI	109	35	107	22	101	25
Development Environment Sub–index	87	65	85	59	75	61
Development Demands Sub–index	141	5	140	3	138	2
Development Passions Sub–index	105	18	106	16	93	27
Development Costs Sub–index	94	66	89	70	86	70

Source: CHINCA, SINOSURE’s Country Risk Database.

2 Factors Impacting the Infrastructure Development Index

The environment is not sound enough to develop infrastructure, signaling great efforts needed to take for improvement. To be specific, the economic environment score for Myanmar is higher than the average of BRI countries, whereas indicators for the political environment, sovereign solvency, the business environment, and the industrial environment, are lower than the average of Southeast Asian nations and of BRI countries. Over the past nearly 10 years of political transition, the government has worked to promote democracy, improve the external environment, and advance social and economic development. In doing so, it has sped up the privatization process while showing enormous support in growing small and medium–sized enterprises. In addition, Myanmar has lived up to the mechanism for developing the ASEAN and the lower section of the Mekong River, and its economy is now opened wider to the rest of the world. Nonetheless, the country is faced with a string of pressing issues, such as the Rohingya conflict and the influence of ethnic armed groups. This has complicated the division between the military and these armed minorities, making national reconciliation for the country up in the air. Beyond that, sanctions imposed on Myanmar by the West have not been fully lifted, and now the coronavirus pandemic is still raging. All these factors have left Myanmar with a

gloomy future for developing its infrastructure sector.

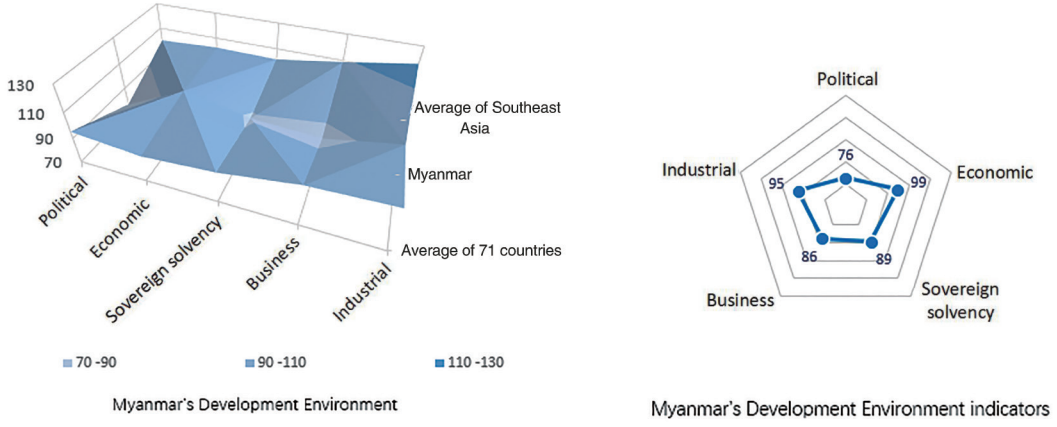

Figure 20 Infrastructure Development Environment Sub–index for Myanmar

Source: CHINCA, SINOSURE's Country Risk Database.

Note: The chart (left) is designed to compare the infrastructure development environment sub–index for Myanmar to the average of Southeast Asian countries and of BRI nations. The convex indicates that the sub–index is higher than the average of Southeast Asian countries and of BRI nations, whereas the concave shows the opposite. The chart (right) shows the score in each infrastructure development environment sub–index for Myanmar.

Demand for developing energy infrastructure and water utilities remains high. The shortage of power resources has, for years, been a drag on the economic and social development of Myanmar. According to the World Bank, only 66.3% of people in the country could access electricity in 2018, and even in the economic center of Rangoon, numerous businesses and households need to have a power generator in place as blackouts often occur. A growing economy naturally requires increased demand for electricity, which, in turn, highlights the shortage of power supply. According to Myanmar's National Electricity Master Plan, the country will reach full electricity access by 2030, and top priority will be given to developing renewable energy sources led by wind power and solar power with an aim to see renewable energy sources account for 12% of the country's total electricity generation by

2025. On water–related affairs, the relatively backward water supply facilities have forced a great number of urban industrial companies and households to access water from wells, and rural families struggle to gain access to water, particularly on summer days. A relentlessly rising population and the consequent increase in the need for freshwater suggest great demand for building water utilities in Myanmar.

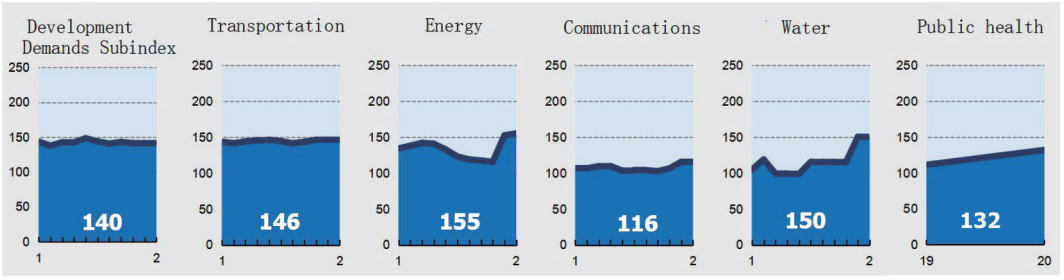

Figure 21 Changes in the Infrastructure Development Demands Sub–index for Myanmar

Source: CHINCA, SINOSURE’s Country Risk Database.

Passion for building infrastructure in Myanmar remains, with the electricity and transportation sectors greatly favored by investors. Most infrastructure projects launched between 2018 and the first half of 2020 are involved in the electricity and transportation fields. On top of conventional water power and coal power projects (such as the 3.6–billion–dollar Myitsone Dam project launched at the Irrawaddy River, Kachin State, and the 2.8–billion–dollar Kayin coal–fired power plant), there is an increase in the number of renewable power generation projects, like the 275–million–dollar Minbu solar plant in Magway Region, the Mandalay–based 115–million–dollar photovoltaic power plant designed to generate 150 megawatts of electricity, and the 14–million–dollar biomass power plant invested by Wilmar, a Singaporean food processor. On transportation infrastructure, among investor’s favorites are projects on highways, railways, bridges, ports, and airports, including the 2.2–billion–dollar Yangon–Mandalay railway upgrade project, the 107–million–dollar expansion project of the Yangon International Airport, the Yangon–Mandalay expressway upgrade project, and Phase I of the Yangon elevated expressway project. Given the high demand for the development of electricity and transportation

infrastructures, coupled with the development plan and preferential policies developed by Myanmar's government, the passion for building electricity and transportation infrastructures will persist.

The high costs of infrastructure development curbs Myanmar's infrastructure growth, which awaits improvement. The infrastructure development index for the country has been severely held back by the Development Costs Sub–index, which is ranked in the bottom two, way behind the average level of 71 BRI countries. With a weak financial institution and underdeveloped financial services, financing options available are few. Given that, foreign investors find it hard and costly to obtain financial support from local banks. Meanwhile, the operating costs of developing infrastructure in the country remain stubbornly high as it has been grappling with the difficulty in accessing power and with deficiencies of the taxation system.

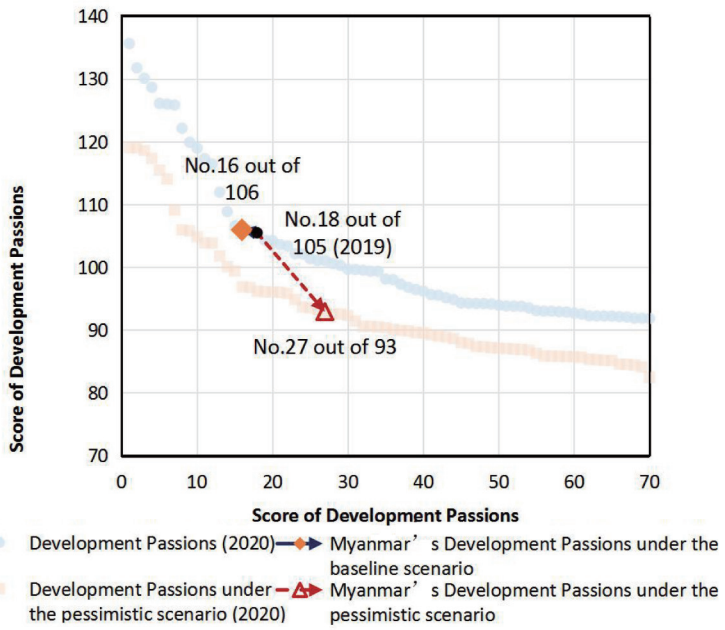

Figure 22 Changes in the Infrastructure Development Passions Sub–index for Myanmar

Source: CHINCA, SINOSURE's Country Risk Database.

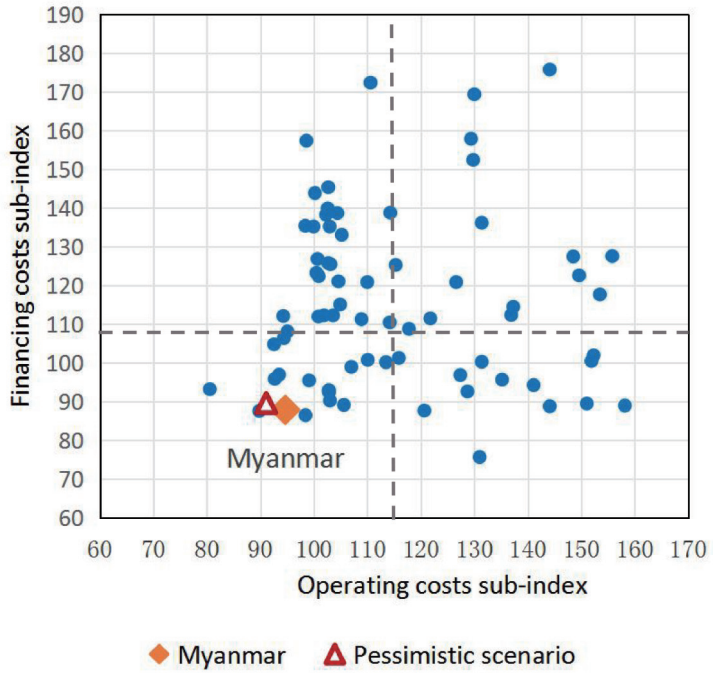

Figure 23 Infrastructure Development Costs Sub–index for Myanmar

Source: CHINCA, SINOSURE’s Country Risk Database.

Note: Dotted lines suggest the average infrastructure development costs sub–index for BRI countries.

3 Outlook of Infrastructure Development

More demand for developing infrastructure in Myanmar is set to be generated. Myanmar’s government has adopted a new Investment Law and policies on tax cuts to ease the aftermath of COVID–19. The move will put its infrastructure development environment on a sounder footing, and development costs are expected to get lower. Driven by potential market demand and the government’s ambitious development plan, electricity generation from renewable energy sources led by wind power and solar power, may embrace an important period of opportunities, and investment in highways, railways, bridges, and airports will remain strong. Inadequate in healthcare and medical treatment, though, the government has taken strict, positive steps to bring the epidemic under control, which is also

attributed to public support. Going ahead, the growth of Myanmar's infrastructure sector will still be determined by the developments of COVID–19, the decline of infrastructure development costs, and the peaceful settlement of the Rohingya conflict and the armed ethnic groups issue. Accordingly, it is suggested that companies launching infrastructure projects in the country should be continuously alert to the abovementioned risks and plan ahead.

Section Three: The Republic of the Philippines

Situated in the southeast of Asia, the Republic of the Philippines (hereinafter referred to as “the Philippines”) was recognized as a lower and middle–income country, according to a 2019 standard of the World Bank. The 2020 “Country Risk Reference Rating” and “Sovereign Credit Risk Rating” estimates released by SINOSURE show that, the nation is at medium risk with a stable outlook, while its sovereign credit risk, currently at medium levels, will remain stable.

1 Infrastructure Development Index

In 2020, the infrastructure development index for the Philippines is 117, with the ranking rising by eight places to third among BRI countries. Specifically, the Development Environment Sub–index slightly falls, whereas the rankings for the development demands, passions, and costs sub–indices either increase or stay stable. Given that, the overall development index shows a great improvement. Under the pessimistic scenario, the index will fall to 110, ranking second among BRI countries.

Table 16 Changes in the Infrastructure Development Index for the Philippines

Philippines	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Score	Ranking	Score	Score	Ranking	Score
BRIDI	119	11	117	3	110	2
Development Environment Sub–index	111	31	93	51	82	48
Development Demands Sub–index	117	25	117	22	116	22
Development Passions Sub–index	112	12	120	9	106	8
Development Costs Sub–index	141	3	143	3	139	3

Source: CHINCA, SINOSURE’s Country Risk Database.

2 Factors Impacting the Infrastructure Development Index

The COVID–19 pandemic has sent the Philippines' economy into a deep recession, deteriorating the overall environment for its development. The sub–indices indicating the country's business and economic environment are higher than the average level of Southeast Asia and of BRI countries, yet those indicators for the political environment, sovereign solvency, and industrial environment are lower. The Philippines has long been grappled with the terrorist threat and regional and ethnic conflicts, resulting in social unrest and political instability. To foster a more enabling economic and political environment, domestically and internationally, the administration under President Rodrigo Duterte stressed fighting against drugs, corruption and terrorism and rolled out a package of 10 inclusive economic initiatives in 2019. However, the sudden outbreak of COVID–19 has dealt a devastating blow to the medically–embattled country. As a consequence, the Philippines' foreign debt has surged; the tourism sector has been severely impacted; local terrorist activities have gone rampant. All these have contributed to a worsening climate for development.

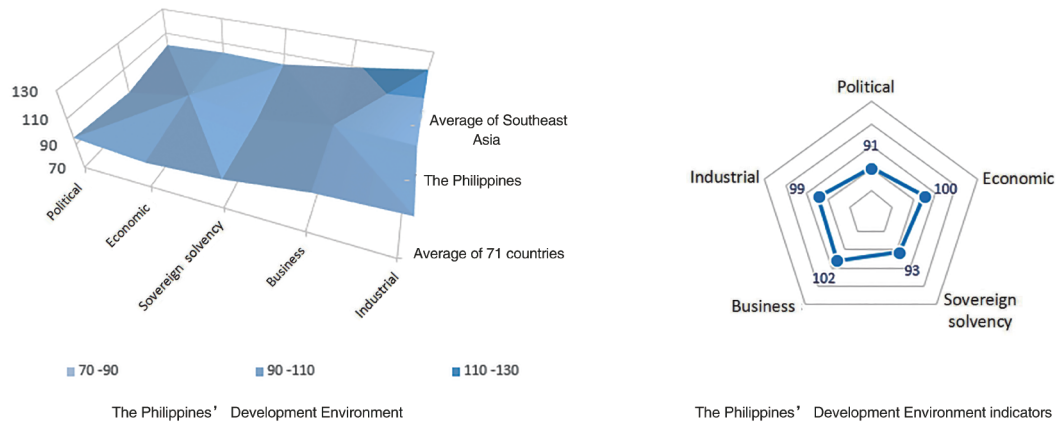

Figure 24 Infrastructure Development Environment Sub–index for the Philippines

Source: CHINCA, SINOSURE's Country Risk Database.

Note: The chart (left) is designed to compare the infrastructure development environment sub–index for the Philippines to the average of Southeast Asian countries and of BRI nations. The convex indicates that the sub–index is higher

than the average of Southeast Asian countries and of BRI nations, whereas the concave shows the opposite. The chart (right) shows the score in each infrastructure development environment sub–index for the Philippines.

Sectors in great demand for infrastructure development are transportation and public health. With a number of Belt and Road electricity infrastructure projects going into operation, the current scarcity of power supply is reversing, but there remains a grave shortage of constructions in the transportation sector. According to the World Economic Forum’s Global Competitiveness Report, the Philippines’ transportation infrastructure in 2019 received a mere score of 42, lower than the average of 71 BRI countries. With that, transportation is expected to become one of the industries with the greatest demand for infrastructure. The government has markedly increased the expenditure on public health amid the pandemic as a way of expanding the coverage of medical insurance and improving medical infrastructure. This, naturally, will drive up demand for facilities in the public health sector.

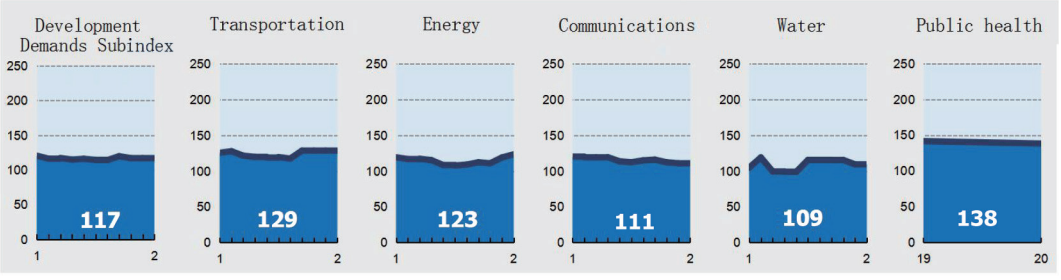

Figure 25 Changes in the Infrastructure Development Demands Sub–index for the Philippines

Source: CHINCA, SINOSURE’s Country Risk Database.

The government steps up the construction of roads, bridges, airports, and ports in an effort to make the country a more sought–after investment destination. Spending on infrastructure was capped as the passage of the 2019 budget was postponed and restrictions on expenditure were imposed in the first half of 2019, when the mid–term election took place. But thanks to the positive progress of major projects, such as the Cavite–Laguna expressway (worth USD 1.05 billion),

the Cebu–Cordova link expressway (worth USD 570 million), and the operations and maintenance concession project at the Clark International Airport (worth USD 110 million), the government's spending on infrastructure in 2019 reached PHP 881.7 billion, up 9.7% from the previous year.

The declining raw material cost and lending interest rate help with the decrease in infrastructure development costs. The Philippines, an importer of commodities and energy sources, has for a long time seen its economic growth severely undermined by energy scarcity. Despite the rising operating costs driven by the aftermath of COVID–19, the lower prices of commodities represented by crude oil have sent the cost of the raw material considerably lower. Meanwhile, the country's central bank has lowered the lending interest rate amid the pandemic, making it easier for companies to finance a project.

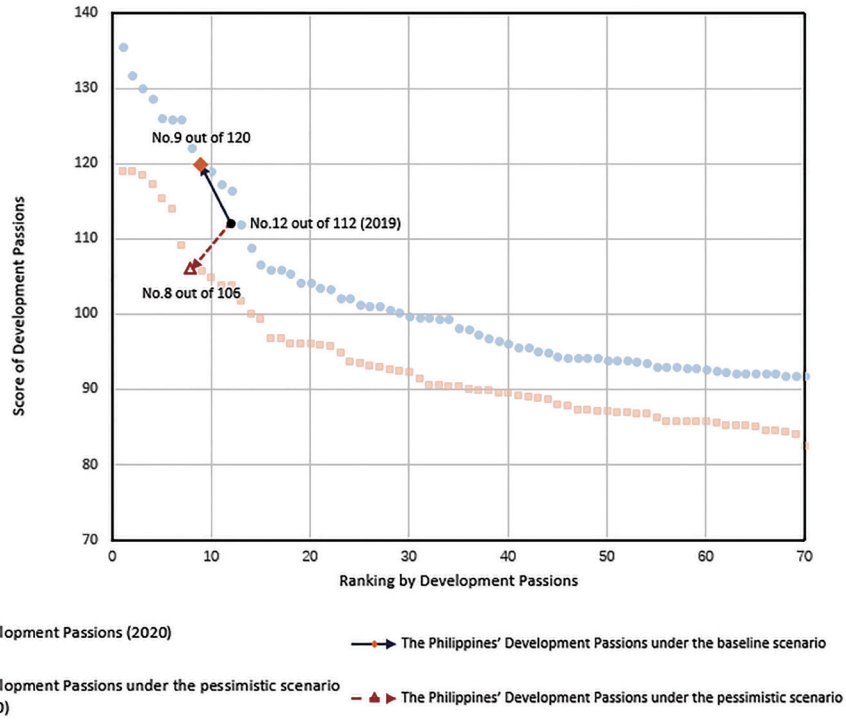

Figure 26 Changes in the Infrastructure Development Passions Sub–index for the Philippines

Source: CHINCA, SINOSURE's Country Risk Database.

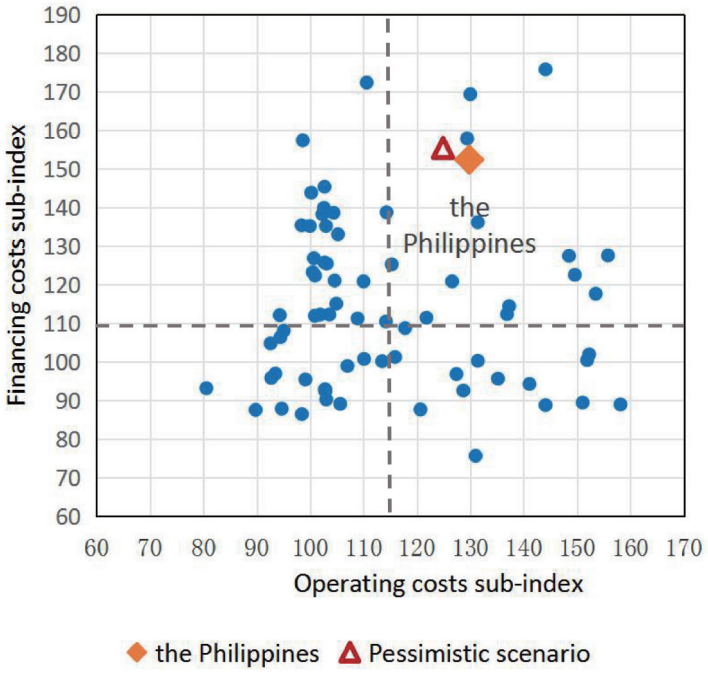

Figure 27 Infrastructure Development Costs Sub–index for the Philippines

Source: CHINCA, SINOSURE’s Country Risk Database.

Note: Dotted lines suggest the average infrastructure development costs sub–index for 71 BRI countries.

3 Outlook of Infrastructure Development

A strong passion for infrastructure development in the Philippines will continue. The Philippines represents one of the fastest–growing economies in Southeast Asia, with a strong demographic dividend and great potential for development. To respond to the coronavirus crisis, the government has prioritized the implementation measures and projects concerning the existing infrastructure development planning, but some of them may see slower progress. In the medium and long term, however, the administration remains convinced that the development of infrastructure in the country will be brought to a new level, and the unleashing of infrastructure development demand will be crucial to domestic economic recovery. The Philippines still enjoys a promising prospect for attracting infrastructure investment. In launching an infrastructure project in the country, companies should be alert to its high sovereign debt and such potential risks as terrorist attacks.

Section Four: The Republic of Turkey

Located mainly on the Anatolian Peninsula in Western Asia, Turkey was counted as an upper–middle–income country, according to a 2019 standard of the World Bank. The 2020 "Country Risk Reference Rating" and "Sovereign Credit Risk Rating" estimates released by SINOSURE show that, the nation is at medium risk with a stable outlook, while its sovereign credit risk, currently at medium levels, will remain stable.

1 Infrastructure Development Index

In 2020, the infrastructure development index for Turkey stands at 106, with the ranking soaring by 27 places to 27th among BRI countries. In detail, the rankings for the development environment, demands, and costs rise to a varying degree, except for the development passions ranking, which posts a slight drop. Overall, Turkey sees a big rise in the ranking for the development index. But under the pessimistic scenario, the index will sink to 98, with the development environment and passions sub–indices falling faster than the other indicators.

Table 17 Changes in the Infrastructure Development Index for Turkey

Turkey	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Score	Ranking	Score	Score	Ranking	Score
BRIDI	106	54	106	27	98	43
Development Environment Sub–index	103	46	96	39	81	49
Development Demands Sub–index	104	53	108	38	107	36
Development Passions Sub–index	118	10	116	12	104	12
Development Costs Sub–index	97	65	101	49	97	50

Source: CHINCA, SINOSURE's Country Risk Database.

2 Factors Impacting the Infrastructure Development Index

The ability to pay off sovereign debt is further undermined, and the industrial environment awaits improvement. Specifically, the sub–index for Turkey’s business environment is higher than the average of the Western Asian and North African regions and of BRI countries, and the indicators for the political and economic environment are higher than the average level of the regions, but lower than those of the BRI countries. However, great improvement needs to be made in terms of sovereign solvency and the industry environment as the two sub–indices are lower than the average level of its neighboring region and of BRI countries. The depreciating currency and mounting public debt have put Turkey under more pressure to pay off sovereign debt, which is compounded by the economic blow that COVID–19 has dealt. Infrastructure investors, thus, must be informed of how the country will defuse the risk of a sovereign default. Based on a corporate survey, the country’s infrastructure sector being not adequately open itself up is a reason behind the weaker industrial environment.

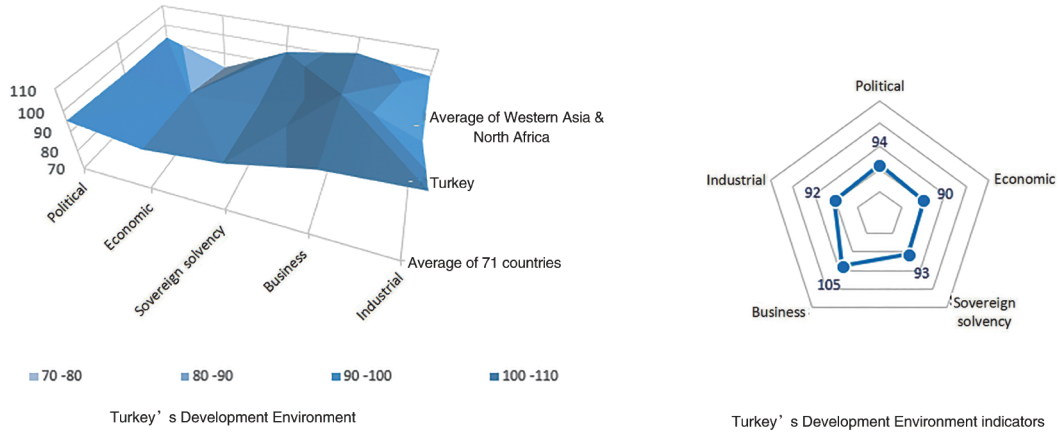

Figure 28 Infrastructure Development Environment Sub–index for Turkey

Source: CHINCA, SINOSURE’s Country Risk Database.

Note: The chart (left) is designed to compare the infrastructure development environment sub–index for Turkey to the average of Western Asian and North African countries and of BRI nations. The convex indicates that the sub–index is higher than the average of Western Asian and North African countries and

of BRI nations, whereas the concave shows the opposite. The chart (right) shows the score in each infrastructure development environment sub–index for Turkey.

Demand for building public health facilities grows strong. The market potential for infrastructure investors remains great, as evidenced by the fact that the infrastructure development demands sub–index for Turkey in 2020 rises to 108. A full–fledged infrastructure sector means that in meeting the demand for building infrastructure, Turkey will give priority to improving the existing facilities and ensuring better quality. Nonetheless, the pandemic has revealed the weakness of Turkey's public health facilities. According to the WTO, the country's expenditure on public health in 2017 accounted for 4.3% of its GDP, lower than the average of the region. Estimates show that the public health infrastructure development sub–index for Turkey this year stands at 135, ranking first on a sectoral basis and showing broad space for infrastructure development.

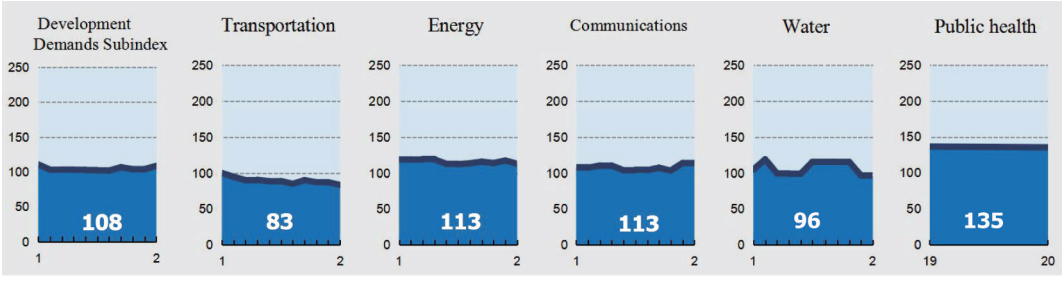

Figure 29 Changes in the Infrastructure Development Demands Sub–index for Turkey

Source: CHINCA, SINOSURE's Country Risk Database.

The launch of large–scale projects of highways, ports and electricity grids has maintained Turkey's position as one of the most favorable destinations for infrastructure investors. Compared to 2019, the Development Passions Sub–index for the country falls a bit, yet still ranking the top 12 among BRI countries. One of the most sought–after BRI countries for infrastructure investors, Turkey has seen the progress of such mega projects as the Akfen Enerji Wind Portfolio

(worth USD 370 million), Zorlu Disco (worth USD 350 million), EFELER Geothermal Power Plant Capacity Extension (worth USD 350 million), and Alpaslan II (worth USD 300 million).

The infrastructure Development Costs Sub–index for Turkey is pushed up by rising operating and financing costs. The World Bank's Ease of Doing Business index map for 2019 shows an increase on the part of Turkey in the scores of starting a business, dealing with construction permits, getting credit, and financial market stability. This has reduced the hidden cost of investing in and operating an infrastructure project, and therefore, pushed up the operating costs score. To echo the government's adoption of accommodative monetary policies, the central bank cut for five times the benchmark interest rate to 8.25% in the first half of 2020, and the money market rate for Turkey has also been lowered. These moves have made possible a higher financing costs score.

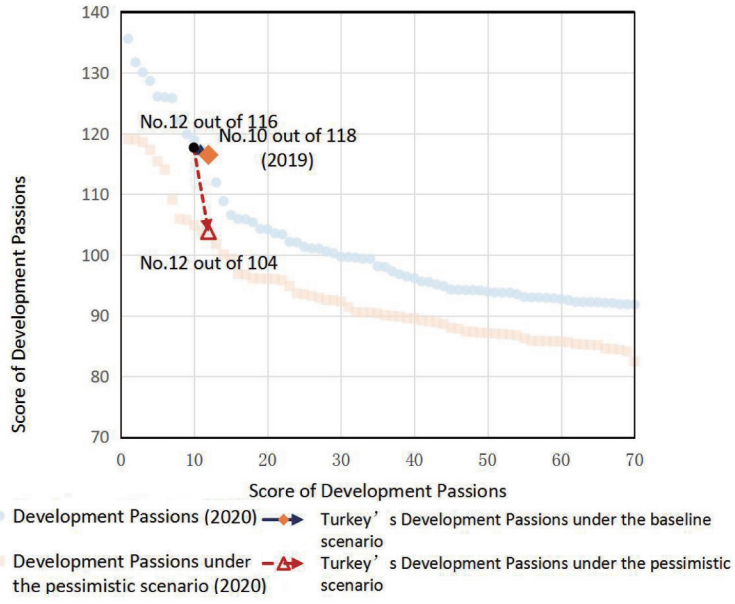

Figure 30 Changes in the Infrastructure Development Passions Sub–index for Turkey

Source: CHINCA, SINOSURE's Country Risk Database.

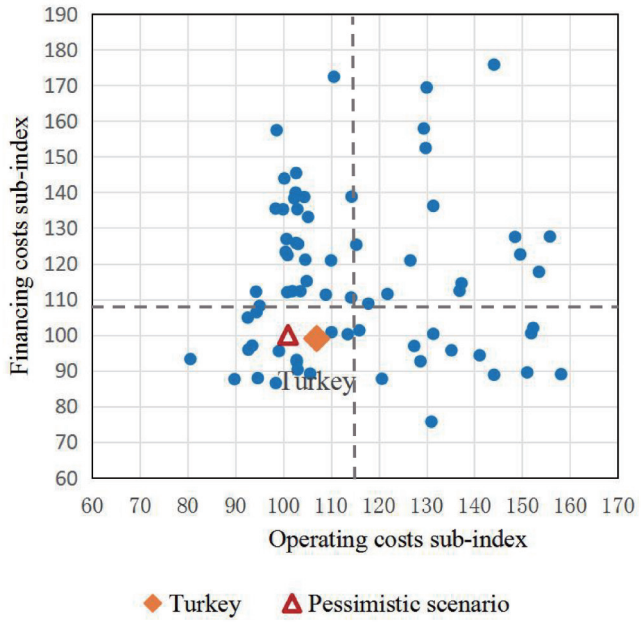

Figure 31 Infrastructure Development Costs Sub–index for Turkey

Source: CHINCA, SINOSURE's Country Risk Database.

Note: Dotted lines suggest the average infrastructure development costs sub–index for 71 BRI countries.

3 Outlook of Infrastructure Development

The building of public facilities will be in greater demand as the government values infrastructure development. Turkey's government attaches much importance to growing the infrastructure sector, with authorities concerned having made detailed planning for development. Specifically, it is planned that by 2023 the installed gross capacity nationwide will increase to 125,000 megawatts, and a total of 25,000 kilometers of railways will open to traffic, including 13,000 kilometers of the newly–built and 4,400 kilometers of the upgraded. Passion for investing in energy and transportation infrastructures is expected to remain strong. However, the global spread of COVID–19 has hit the country's recovering economy and put the government under more pressure to pay off sovereign debt and stop the exchange rate from depreciating. These factors, together with the persisting risks of terrorism and social unrest, have negatively impacted the companies that have launched infrastructure projects in the country.

Chapter Four

Trends of Key Infrastructure Industries

To give companies a better idea of the developments in BRI infrastructure markets, this chapter will look deep into three industries with high potential and rosy prospects – energy, communications, and public health. These industries are typical, as evidenced by estimated Development Demands Sub–index, heat maps, and company feedback.

Section One: Energy

Energy demands are steadily on the increase as the world economy and population expand. Although fossil fuels have long been the primary energy source across the globe, advanced technologies and new materials are working together to restructure energy supplies. This section will focus on the status quo of global energy industry and the potential energy demands of BRI countries. It will also explore the post–pandemic energy prospects.

1 Status Quo of Global Energy Industry

Fossil fuels are still the world's top energy source. As of the end of 2019, non–renewable and renewable[27] energy sources accounted for 72.7% and 27.3% of global power production respectively. More than 200 GW[28] of new renewable power generating capacity was installed in 2019, registering a significant increase from 2018 levels, and maintaining the more than 8% average growth rate over the previous five years. Specifically, new installations of wind power and biomass capacity have continued their uptrend while those of hydropower have somewhat declined, and solar PV power serves as a new driver of power production from renewable sources.

27 Renewable sources include wind power, small hydropower, modern biomass, ocean power, solar power, and geothermal power.

28 Source: REN21.

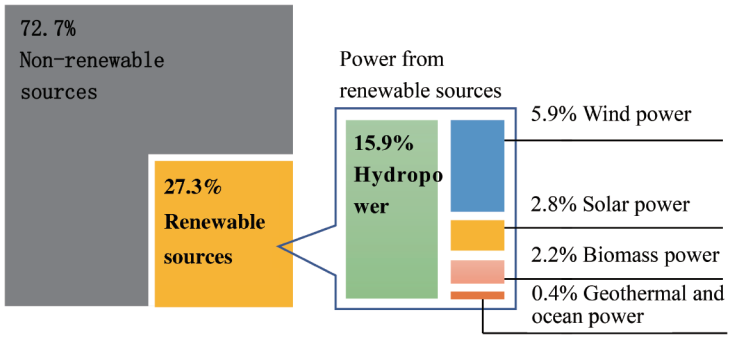

Figure 32 Proportion of Global Electricity Generated from Different Sources of Energy as of the End of 2019

Source: REN21.

Energy has always been a key infrastructure industry in BRI countries. In 2020, not a few major energy projects have made substantial progress despite COVID–19. Among them are Kazakhstan’s Zhanatas 100MW wind farm, the largest project of its kind in Central Asia. A consortium comprising the Asian Infrastructure Investment Bank, the European Bank for Reconstruction and Development and the Industrial and Commercial Bank of China (ICBC) has raised approx. USD 140 million to keep the project on track. Also, Abu Dhabi Islamic Bank, Export–Import Bank of Thailand, and ICBC (Thai) Bank have signed loan agreements for the UAE’s 900MW solar PV plant and Vietnam’s 50MV PV plant.

2 Shrinking Energy Development Demands in BRI Countries

Energy development demands are in decline. Energy is crucial to industrial development and people’s livelihood. In 2020, the Energy Development Demands Sub–index in BRI Countries drops from 142 of the previous year to 139. It would fall further to 137 under the pessimistic scenario. Such a decline is largely due to the stalled energy projects at a time when the pandemic slows down economic activities in various countries. However, as a number of BRI energy projects came into production before the outbreak, power shortages, among other problems, are being gradually mitigated.

CIS–7 Countries and Mongolia ranks top, thanks to the enormous appetite of Russia and other regional powers. CIS–7 Countries and Mongolia has huge potential demands for energy. In 2020, the region scores 165 in Energy Development Demands Sub–index, with Russia, Mongolia, Belarus and Moldova among the Top 15 of BRI countries. The voracious Russia and other regional powers become key drivers of regional energy infrastructure construction. According to the World Bank's PPI Database, Russia had 22 new infrastructure investment projects from 2018 to 2019, and 11 of them were electricity–related. The Russian government places great emphasis on energy. The implementation of its Energy Strategy 2035 is expected to further unleash the market's potential.

Bulgaria soars as Central and Eastern Europe (CEE) prizes clean energy. Although energy development demands are relatively weak in CEE, regional countries have constantly promoted new and clean energy to reduce greenhouse gas emissions. The EU's new Energy Efficiency Directive sets binding 2030 targets of improving energy efficiency by 32.5% and getting 32% of energy from renewable sources. Bulgaria sees a significant increase in Energy Development Demands. According to the World Bank's PPI Database, between 2018 and 2019, most of the country's new energy projects focused on the integrated waste management system which uses municipal solid waste to generate electricity and reduce pollution. In March 2020, the EU approved EUR 77 million to upgrade Sofia's integrated waste management system. Such projects will give Bulgaria a big boost in waste management, power supply and environmental protection.

Table 18 Changes in Energy Development Demands Sub–index in Different Regions

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
CIS–7 and Mongolia	180	1	165	1	162	1
South Asia	159	2	157	2	154	2
Central Asia	144	4	151	3	150	3
PSCs	147	3	147	4	139	4
Southeast Asia	138	5	136	5	136	5

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Western Asia & North Africa	123	6	121	6	119	6
CEE	110	7	112	7	112	7

Source: CHINCA, SINOSURE’s Country Risk Database.

Table 19 Top 15 BRI Countries by Energy Development Demands Sub–index

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Russia	190	1	170	1	168	1
Indonesia	169	2	164	2	163	2
India	164	3	161	3	157[29]	5
Guinea–Bissau	149	6	159	4	157	4
Cambodia	145	11	158	5	158	3
Pakistan	147	9	156	6	156	6
Myanmar	152	4	155	7	155	7
Mongolia	146	10	154	8	152	8
Kazakhstan	144[30]	12	153[31]	9	152	9
Belarus	148	7	153	10	151	10
Brazil	152	5	152	11	144	14
Turkmenistan	147	8	152	12	151	11
Uzbekistan	144	13	151	13	150	12
Moldova	113	51	146	14	144	13
Mozambique	139	15	143	15	141	15

Source: CHINCA, SINOSURE’s Country Risk Database.

29 India scores 157.3, Guinea–Bissau 157.5, Mongolia 152.1, and Kazakhstan 152.0.

30 Kazakhstan scores 144.4, and Uzbekistan 144.1.

31 Kazakhstan scores 153.4, Belarus 152.8, Brazil 152.5, and Turkmenistan 152.1.

3 Funding Limited for Coal–fired Power Projects in Many Countries

In 2013, the World Bank was the first to limit financing of coal–fired power projects: it would stop lending to new coal–fired plants and coal mines, unless the host countries lack access to finance and have no feasible alternatives to coal. As of February 2019, over 100 financial institutions, including the world's Top 40 multinational banks and Top 20 insurance agencies, had successively issued restrictions on funding to coal–fired power projects. In March that year, State Development & Investment Co., Ltd., the largest investment holding company among China's central enterprises, announced its complete withdrawal from the coal business and its pivot to new energy.

Table 20 Numbers of Financial Institutions by Type with Stated Financing Restrictions on Coal–fired Power Projects

Type	Number
Multilateral development bank	7
Export credit agency	35
National development bank	9
Insurance/Reinsurance company	20
Commercial bank	34
Total	105

Source: IEEFA (The Institute for Energy Economics and Financial Analysis).

4 Solar PV Burgeons due to Costs Slide

As of the end of 2019, the global on– and off–grid solar PV capacity reached 627GW, compared to 23GW 10 years earlier. Not including China, the global market for solar PV grew about 44% in 2019. China continued to dominate the market, accounting for around 26% of the year's capacity additions. The top five national markets – China, the US, India, Japan and Vietnam – were responsible for some 56% of newly installed capacity.

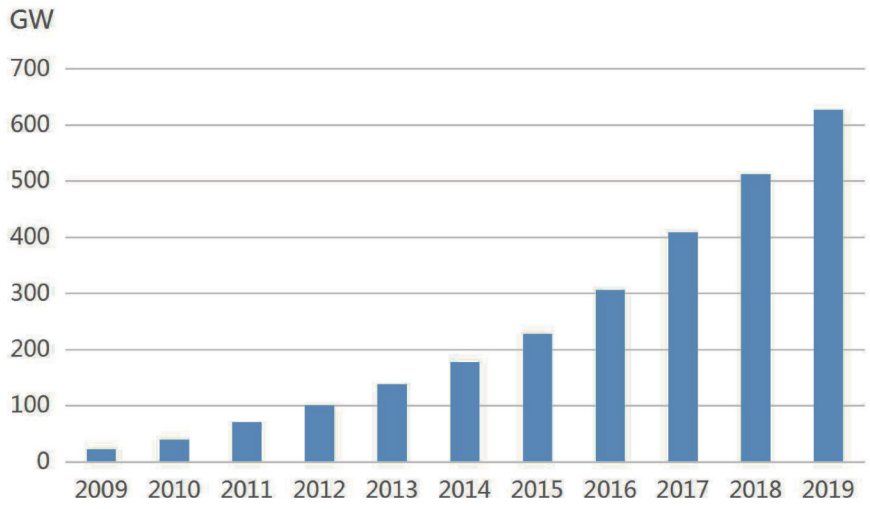

Figure 33 Global Installed Solar PV Capacity as of the End of 2019

Source: REN21.

Given the technical progress and PV module capacity expansion, solar PV power generation costs have been dipping in major countries across the globe. Between 2010 and 2017, these countries saw a 40%–75% decrease in centralized PV power generation costs. With lower costs come spiking demands. Solar PV has found wide applications for housing, commercial, and power–guzzling utility–scale projects. In 2019, 18 countries added no less than 1GW of solar PV capacity. By the end of the year, at least 39 countries generated no less than 1GW of solar PV power, and in 22 countries, solar PV could satisfy no less than 3% of national electricity demands.

5 Post–pandemic Prospects for Energy Infrastructure

The pandemic dampens short–term energy demands and increases costs of new infrastructure construction delays. The global economic slowdown triggered by COVID–19 has to some extent crimped energy demands and investments, implying fiercer competition in international energy markets. For example, the US Energy Information Administration (EIA) has cut its outlook for 2020 clean energy demand growth. To be specific, utility–scale solar capacity additions are predicted to drop

10%, and utility–scale wind power capacity additions to drop 5%. The global supply–chain system has also fallen victim to the coronavirus outbreak. The successive closure of major wind turbine manufacturers delays production of raw materials and key equipment, and the consequent supply shortages and mounting costs work together with transport difficulties to stall, or even suspend, energy infrastructure construction.

Energy production and consumption is witnessing a low–carbon shift. For a long time, the world has been over–dependent on fossil fuels. This aggravates resource shortages, climate change, and pollution, posing a severe threat to human existence and development. Compared with fossil fuels, clean and renewable sources like hydropower, wind power and solar power are in great abundance and with high potential. For all the uncertainties in the coming days, global energy producers and consumers will continue their pivot to clean, efficient, green sources.

Favorable policies for new energy will make a big difference to the market. The coronavirus outbreak once again draws global attention to climate change. As a result, many countries are issuing favorable policies for new energy. For example, the EU plans to finish amending the TEN–E Regulation before the end of 2020. Three options have been envisaged for gas infrastructure. One is an "electricity only" option, where any funding for gas would be scrapped entirely to focus instead on electricity and smart grids. Vietnam has reset its 2030 targets for new energy. With a greater focus on PV power, wind power, and energy storage, the country would remain a major force behind the rapid development of Asia Pacific's new energy sectors. Mexico's energy reform bill sets the goal to supply 35% of the electricity needed in the country through clean sources by 2024, and 50% of it by 2050. The bill also opens the door to investments in, among others, distributed wind and solar power projects. All these new policies will prepare the ground for substantial development of new energy infrastructure.

Section Two: Communications

At the core of communications lies the creation, transmission and storage of electronic information. In modern society, communications infrastructure constitutes the “neural network” for information dissemination. Given the rapid progress of communications technologies, the “new infrastructure” typified by 5G, AI, IoT, and smart city is facing a historic opportunity. Meanwhile, however, communications is suffering from the rise and rise of technical barriers. Since the key communications equipment is produced by a handful of companies, the communications equipment sector is an easy trigger for administrative intervention and trade friction. Uncertainty looms large. Starting from the construction of mobile networks, this section will analyze the priorities and drivers of, and post–pandemic prospects for, global communications infrastructure.

1 Status Quo of Global Communications Industry

Between 2005 and 2019, the annual sales of global communications services grew from USD 1.4 trillion to USD 2.1 trillion, with a CAGR of 2.4%; those of global communications equipment grew from USD 570 billion to USD 1.2 trillion, with a CAGR of 5.2%. In 2019, communications accounted for roughly 4.8% of the global GDP. It has thus become one of the largest and fastest–growing industries. The world’s Top Three communications service markets (the EU, the US and China) were valued at USD 357 billion, USD 353 billion and USD 282 billion respectively in 2019, and together they took up half of the total. BRI countries are showing great potential. Their communications markets were estimated at USD 440 billion, representing 21% of the total.

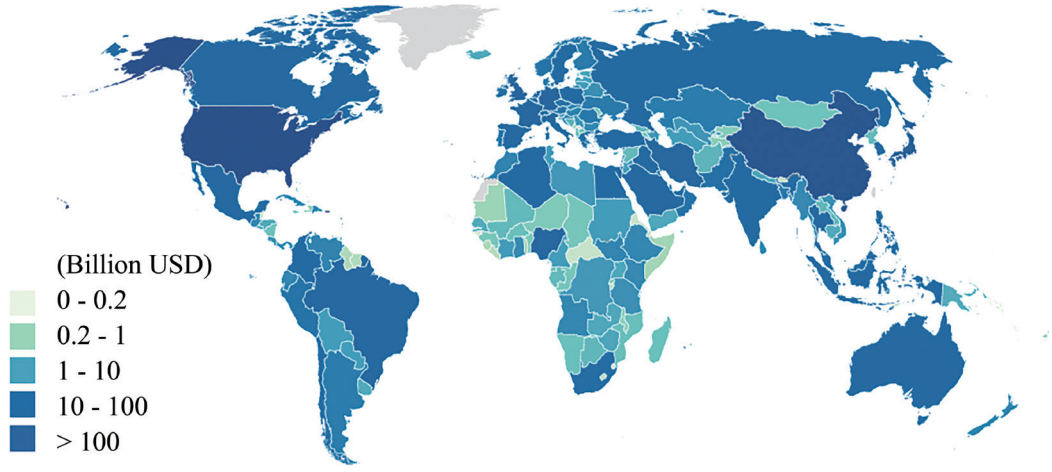

Figure 34 Estimated Sales of Global Communications Services in 2019

Source: World Bank, SINOSURE's Country Risk Database.

2 Stable Communications Development Demands in BRI Countries

Communications development demands stay at a high level. In 2020, Communications Development Demands Sub-index in BRI Countries drops slightly from the previous year to 118. It would fall further to 116 under the pessimistic scenario (where a second wave of coronavirus is taken into account). CIS-7 Countries and Mongolia, South Asia, and Southeast Asia are the Top Three regions; Indonesia, Russia, and Pakistan are the Top Three countries.

Russia's robustness secures CIS-7 Countries and Mongolia the lead. In 2020, Communications Development Demands Sub-index of CIS-7 Countries and Mongolia rises from the previous year to 139. With a score of 145, Russia is the main driver of the region's growing demands. Issued in May 2017, the 2017-2030 Strategy for the Development of an Informational Society in the Russian Federation aims to promote the digitization of administrative approval and financial services by increasing federal and local government budgets and attracting private investments, and facilitate the establishment of national technical platforms for distance online learning and telemedicine.

Indonesia ranks first as demands climb in Southeast Asia. In 2020, Southeast Asia scores 119 in Communications Development Demands Sub–index, rising to the third place. Among BRI countries, Indonesia comes top with a score of 149, surpassing Russia and Pakistan. The Indonesian communications market has great momentum and potential. To ensure successful construction of 3G networks, the country needs to shift the network frequency of fixed wireless telephones, adapting and upgrading the equipment of all fixed wireless Internet service providers. Moreover, although most places in Indonesia have access to the Internet, there is much room for improvement when it comes to Internet speed and bandwidth.

Table 21 Changes in Communications Infrastructure Development Demands Sub–index in Different Regions

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
CIS–7 and Mongolia	138	1	139	1	137	1
South Asia	131	2	120	2	118	3
Southeast Asia	116	5	119	3	119	2
PSCs	125	3	118	4	112	5
Central Asia	116	4	116	5	115	4
Western Asia & North Africa	112	6	111	6	109	6
CEE	103	7	103	7	102	7

Source: CHINCA, SINOSURE’s Country Risk Database.

Table 22 Top 15 BRI Countries by Communications Infrastructure Development Demands Sub-index

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020		Focus of Mobile Networks Construction
	Sub-index	Ranking	Sub-index	Ranking	Sub-index	Ranking	
Indonesia	141	3	149	1	149	1	4G
Russia	143	1	145	2	143	2	4G
Pakistan	142	2	127	3	127	3	3G
Egypt	135	4	126	4	125	4	4G
India	132	5	120[32]	5	118	6	4G
Brazil	127	6	120	6	113	16	5G
Laos	123	7	119	7	119	5	4G
Azerbaijan	112	21	118	8	117[33]	9	5G
Kazakhstan	119[34]	8	118	9	117	7	3G
Malaysia	119	9	117	10	117	8	4G
Uzbekistan	116	10	116	11	115	11	3G
Myanmar	116	11	116	12	115	10	3G
Moldova	115	12	115	13	113	14	4G
Bengal	115	13	115	14	113	12	3G
Bhutan	114	14	114	15	113	15	5G

Source: CHINCA, SINOSURE's Country Risk Database.

3 Structural Differences in Communications Development Models

There are differences in communications development models between technologically advanced countries (eyeing 4G and 5G networks) and less technologically advanced countries (reliant on 2G and 3G networks).

32 India scores 120.4, Brazil 119.6, Azerbaijan 118.4, Kazakhstan 118.2, Uzbekistan 116.0, Myanmar 115.7, Moldova 114.8, and Bangladesh 114.6.

33 Azerbaijan scores 116.7, Kazakhstan 117.1, Malaysia 117.0, Uzbekistan 115.2, Myanmar 115.4, Moldova 113.2, Bangladesh 113.4, and Bhutan 113.1.

34 Kazakhstan scores 119.4, Malaysia 119.2, Uzbekistan 116.1, Myanmar 115.5, Moldova 115.1, and Bangladesh 115.0

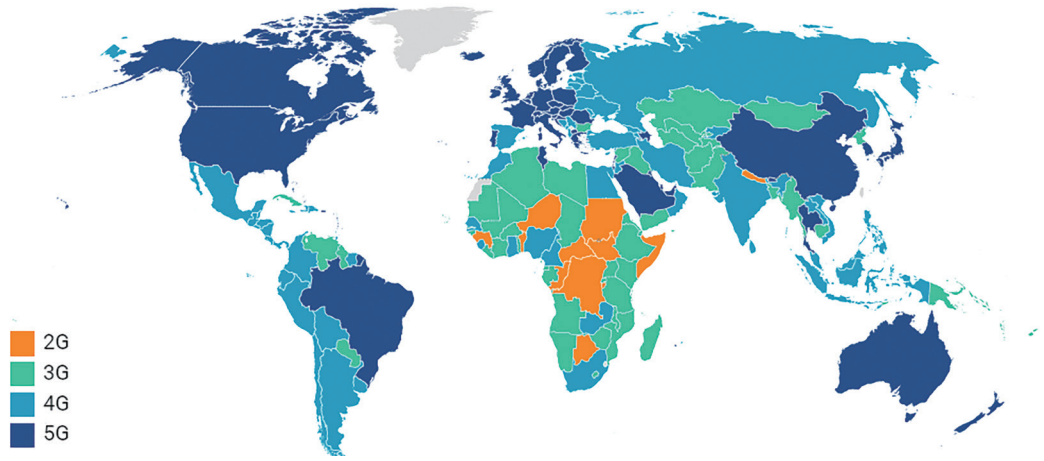

Figure 35 Communications Technology Development Priorities Across the Globe

Source: GSMA, SINOSURE’s Country Risk Database.

Technologically advanced countries are typified by mature communications infrastructure, large information flows and complex business. In these countries, new technologies are springing up alongside new business models. The twin engines of communications development are consumption and investments (both public and private). Since 2010, communications service revenue as a share of national GDP has stabilized in middle– and high–income countries with full–fledged communications networks.

Less technologically advanced countries enjoy late–mover advantage because sophisticated technologies come cheaper. These countries tend to invest in communications infrastructure compatible with proven digital business models to fill the market void and satisfy basic connectivity demands. In Nigeria and Algeria (whose communications service revenue accounted for 14% and 9% of GDP respectively in 2019), the communications service sector have ballooned since 2018, bringing short–term excess returns to service providers.

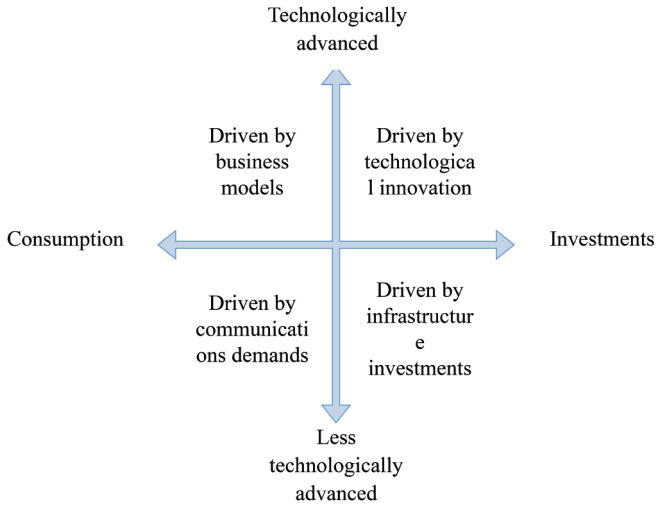

Figure 36 Driving Factors of Communications Infrastructure Development

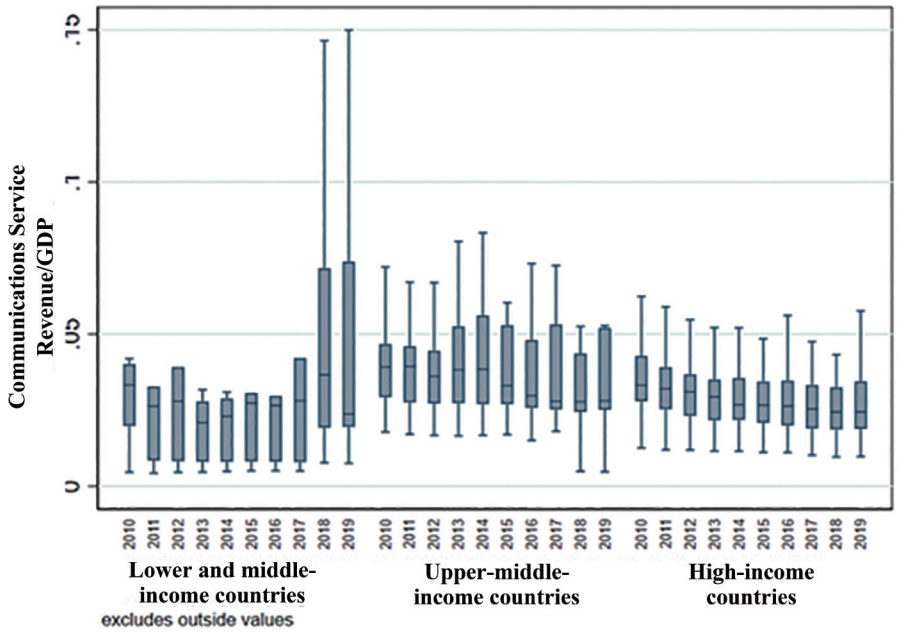

Figure 37 Global Communications Service Revenue as a Share of GDP

Source: World Bank, SINOSURE's Country Risk Database.

Note: From bottom to top – minimum, first quartile (lower edge of the box), median, third quartile (upper edge of the box), and maximum.

4 Post–pandemic Prospects for Communications Infrastructure

COVID–19 throttles back the communications industry. The global spread

of coronavirus in early 2020 posed a severe and multifaceted impact on the communications industry. Estimates suggest that the industry stands to lose some USD 149 billion from the pandemic, and that USD 29 billion is likely to evaporate from BRI markets. Countries bearing the brunt are the US, the EU, Brazil and India. Their respective loss would be USD 24 billion, USD 36 billion, USD 3 billion and USD 2.1 billion. Communications infrastructure investments in the above–mentioned countries and regions might be further delayed.

Administrative intervention in the name of data security threatens to widen the global digital divide. Trade protectionism is rearing its head in communications markets around the world. The US, the UK, Japan and Australia have banned Huawei from their communications infrastructure, and the EU has issued the General Data Protection Regulation (GDPR) to enhance data compliance oversight. Such approaches will likely hinder technological exchanges between economies, postpone the development of global communications technologies, and create a “digital iron curtain”. In the post–pandemic era, the global digital divide might even fester into digital parallel universes.

Smart city will help integrate communications and traffic infrastructure. As 5G is gradually becoming a commercial reality, and computing technologies (e.g. cloud computing and AI) are gaining accuracy, “new infrastructure” will further demonstrate its power. In the meantime, digital business models like smart city will get into their stride. Where traffic management for smart cities is concerned, data are collected from IoT sensors and cameras, transmitted by 5G networks, and processed through cloud and AI before being turned into traffic light signals. Since all these steps happen instantly, urban traffic is getting much better.

The communications industry will prosper in the long run. It is noteworthy that COVID–19 has spurred the development of telework and e–commerce in various countries. As business and technological innovations keep pace with each other, the global communications industry will remain on track. In the short term, 5G networks, as a key industry driver, will promote the implementation of new business models like smart city and industrial Internet. In the medium to long term, the rise in

population, urbanization level and Internet penetration rate of emerging economies will generate greater demands for communications infrastructure and services, and these countries will still be able to hoover up mature technologies and business models. Even better, the waterfall effect of these models will be there in the long run. Taken all in all, great opportunities are awaiting the global communications industry.

Section Three: Public Health

Public health involves disease prevention, epidemic control, environmental health, and living standards. It is vital to political stability and socioeconomic development. Under the BRI framework, the energy and transport industries are developing rapidly. Not to be outdone, communications is drawing more and more attention. Yet public health failed to catch up. The coronavirus outbreak in 2020 posed an unprecedented challenge to the global public health industry. So finally, governments of all countries are paying greater attention to public health infrastructure. In such a context, this report has dedicated a section to public health and quantified the public health development demands in BRI countries.

1 Status Quo of Global Public Health Industry

Global public health security is fundamentally weak. Of the 195 countries covered by Global Health Security, an index prepared by the Johns Hopkins Center for Health Security (the US), the Nuclear Threat Initiative (the US), and The Economist Intelligence Unit (the UK), the average score is a mere 40.2 out of 100. Among the 60 high–income countries, the average score is 51.9. In addition, 116 high– and middle–income countries do not score above 50. Overall, every country has important gaps to address, be it detecting and preventing diseases or ensuring public health, and no country is fully prepared for epidemics or pandemics.

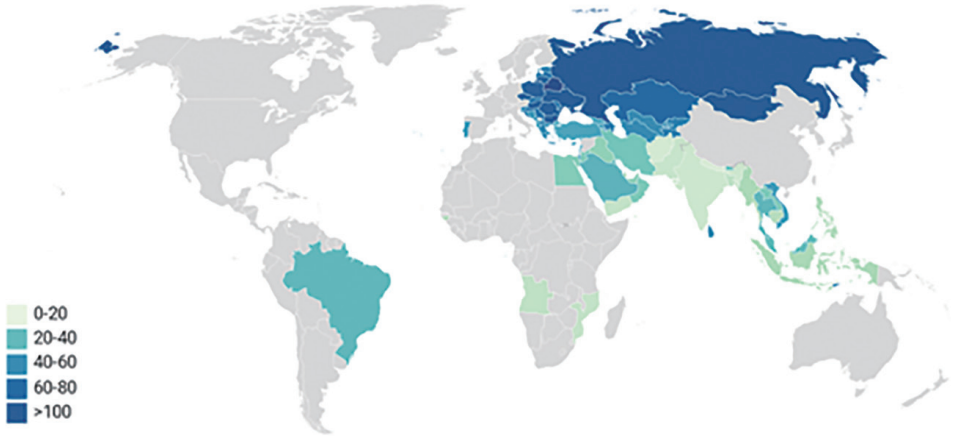

Figure 38 Hospital Beds per 10,000 Population in BRI Countries

Source: WHO.

Many countries have neglected public health infrastructure, while the UAE and Saudi Arabia are among the few countries with remarkable progress. According to Fitch Solutions, between 2018 and 2020, many countries have inked deal on or built less than three public health infrastructure projects. To be specific, the number is zero for Angola, Brunei, East Timor, Iran, Myanmar, etc.; the number is one for Bangladesh, Brazil, Cambodia, Mozambique, etc.; the number is two for Pakistan, the Philippines, Jorden, etc. Among the few exceptions are the UAE, Saudi Arabia, India, Kuwait, Oman, Vietnam and Turkey. In the UAE, ongoing projects include Fakeeh Academic Medical Centre (Dubai) and Al Noor Hospitals – Airport Road Hospital Expansion (Abu Dhabi). They can accommodate 300 and 100 beds respectively. In Vietnam, ongoing projects include three 1,000–bed hospitals (Cho Ray 2 Hospital (Vietnam–Japan Friendship Hospital), Viet Duc Hospital Second Branch Project, and Ha Nam Kien Giang General Hospital) and one 1,200–bed hospital (Kien Giang General Hospital).

2 Great Demands for Public Health Infrastructure in BRI Countries

Public health development demands remain robust at large. In 2020, Public Health Development Demands Sub–index in BRI countries rises from the previous

year to 127, which is the third highest score after those of Transport and Energy Development Demands. Under the pessimistic scenario (where a second wave of coronavirus is taken into account), the score would drop to 124, the same as the previous year. Portuguese–Speaking Countries, South Asia, and Southeast Asia are the Top Three regions while Central and Eastern Europe stays at the bottom, the ranking of which is consistent with the previous year; Indonesia, Russia, and Myanmar are the Top Three countries.

Portuguese–Speaking Countries ranks first as Brazil shows greater potential. In 2020, Public Health Development Demands Sub–index of PSCs rises from the previous year to 145. Brazil (149) and Angola (136) are the main drivers. As far as public health goes, Brazil is the region’s second most developed country after Portugal. In 2017, Brazil had 20.87 hospital beds and 21.65 doctors per 10,000 population; in 2018, the number of nursing and midwifery personnel per 10,000 population was 101.2. In view of Brazil’s large population, however, there is still room for improvement regarding universal access to basic health care. What is more, public hospitals are few and far between while private ones are expensive. In short, public health infrastructure is not yet perfect in Brazil.

Table 23 Changes in Public Health Infrastructure Development Demands Sub–index in Different Regions

Region	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
PSCs	135	1	145	1	137	1
South Asia	133	2	138	2	136	2
Southeast Asia	129	3	129	3	128	3
CIS–7 and Mongolia	126	4	126	4	125	4
Western Asia & North Africa	121	5	122	5	121	5
Central Asia	110	6	106	6	105	6
CEE	92	7	92	7	92	7

Source: CHINCA, SINOSURE’s Country Risk Database.

Demands in Southeast Asia level off as Indonesia shoots to the region's top. In 2020, Southeast Asia scores 129 in Public Health Development Demands Sub–index, flat from a year ago. Indonesia's score rises from the previous year to 140. The Indonesian government has listed public health infrastructure among the key national projects for 2015–2019, and gradually relaxed restrictions on foreign investments in health care. According to the Lists of Business Fields That Are Closed to Investment and Business fields That Are Open under Specific Conditions (amended in May 2016), the cap on foreign ownership in hospital services, specialist clinics, and clinical laboratories is raised from 65% to 67%, and the business locations are no longer limited.

Table 24 Top 15 BRI Countries by Public Health Infrastructure Development Demands Sub–index

Country	2019		Baseline scenario in 2020		Pessimistic scenario in 2020	
	Sub–index	Ranking	Sub–index	Ranking	Sub–index	Ranking
Brazil	140	3	149	1	141	4
India	138	7	145	2	142[35]	2
Egypt	142	1	143	3	143	1
Iran	139[36]	4	142	4	142	3
Iraq	138	6	141	5	139	6
Indonesia	139	5	140	6	139	5
Philippines	141	2	138	7	138	7
Cambodia	132	11	137[37]	8	137	8
Malaysia	137	8	137	9	136	9
Angola	132	12	136	10	135	11
Turkey	136	9	135	11	135	10
Pakistan	136	10	133	12	133	12
Russia	131	13	132	13	130	15
Myanmar	111	15	132	14	131	13
Kuwait	122	14	131	15	131	14

Source: CHINCA, SINOSURE's Country Risk Database.

35 India scores 142.4, Iran 141.8, Iraq 138.5, Indonesia 139.4, Angola 134.9, Turkey 135.0, Myanmar 131.4, and Kuwait 130.8.

36 Iran scores 139.3, Indonesia 138.9, Turkey 136.3, and Pakistan 136.2.

37 Cambodia scores 137.2, Malaysia 136.7, Russia 132.2, and Myanmar 131.8.

3 Constraints on Public Health Infrastructure Development

（1）Insufficient capital input is the noose around public health’s neck.

Except for a few cases, BRI countries are less economically developed and fiscally precarious. Public health infrastructure is on a shoestring budget across the board, and some countries rely on the occasional external aid to build, renovate, and fit out their hospitals. The public health industry is, therefore, under severe constraints. WHO’s statistics show that for more than 20% of countries across the globe, health spending accounts for less than 4% of GDP. For Bangladesh, Laos, Brunei, Angola and Pakistan, that share is even lower than 3%; by another measure, health spending takes up 3%–6% of government expenditures in these countries. Sao Tome and Principe, Mozambique, Yemen, East Timor, Laos, Cape Verde, Kyrgyzstan and Tajikistan are facing a heavy debt–repayment burden; the first two countries have even been hit by sovereign defaults over the past two years. As fiscal woes put a big dent in capital input, public health languishes on the back burner of national agendas.

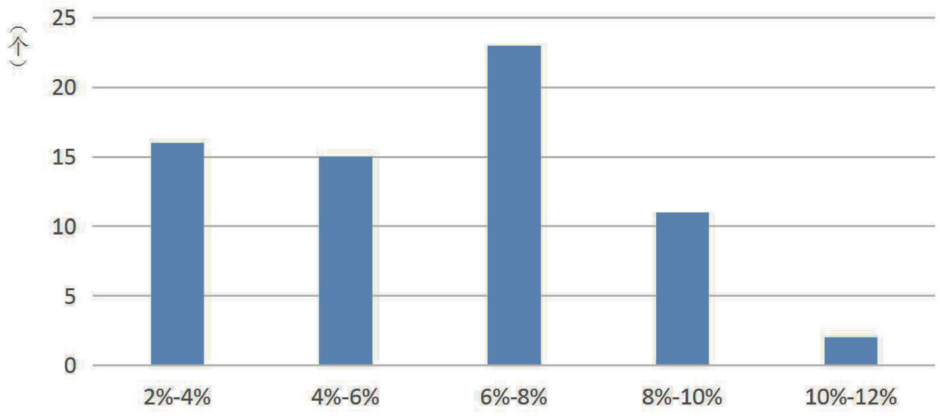

Figure 39 Distribution of BRI Countries by Health Spending as a Share of GDP

Source: WHO.

Note: We have counted the number of BRI countries whose health spending as a share of GDP falls within the range of 2%–4%, 4%–6%, 6%–8%, 8%–10%, and 10%–12% respectively. For example, 23 of the countries fall within the 6%–8% range.

(2) Lack of health care professionals leads to poor public health services.

The lack of health care professionals is a common concern of BRI countries. In Mozambique, Sao Tome and Principe, Afghanistan and Cape Verde, the already scarce senior health care workers are concentrated in big cities, widening the health care gap between urban and rural areas. Even medically advanced countries have their problems. Although Slovakia can basically meet the health care needs of its citizens, it lags behind its Eastern European neighbors like Austria and Poland, let alone the Western Europe. Another big worry is brain drain. Because doctors are poorly paid in Slovakia, the high-skilled local medical school graduates often have to look for jobs in other countries.

(3) Defective institutional framework and insufficient support infrastructure drag down the public health industry.

Another universal challenge facing BRI countries is the lack of public health institution framework. Most of the countries are beset by government red tape, policy fluctuation and serious corruption. As a result, investments in public health infrastructure are trickling down fitfully – and often used inefficiently. According to the Global Competitiveness Report 2019 published by the World Economic Forum, countries like Cambodia, Laos, Bangladesh and Azerbaijan all have high incidences of corruption, which will not be wiped out in the short term. To make matters worse, many countries are suffering from power shortages, transport and communications inconvenience, and poor drinking water, and the lack of support infrastructure is also bogging down public health services.

4 Post-pandemic Prospects for Public Health Infrastructure

COVID-19 stimulates public health demands. To stop the spread of coronavirus, countries have successively issued emergency policies and greatly increased health spending. Some have expressed their intention to vigorously develop public health infrastructure. Georgia plans to invest GEL 60 million to improve its health care facilities. Latvia has included public health infrastructure in its EUR 875 million economic stimulus package. Malaysia proposed higher health spending in its

economic stimulus programs launched in February and March 2020. On March 30, 2020, Nepal announced it would import additional medical supplies and spend money on building quarantine centers and temporary hospitals, and on May 28, it integrated more hospital construction projects in its fiscal year 2020–21 budget. And India will put in INR 150 billion to develop public health infrastructure. All these will further fuel the demands for public health infrastructure.

Medical informatization is a potential engine of public health infrastructure development. A combination of medical services and basic networks, medical informatization involves the use of computer science, modern network communications technologies and database technologies for the collection, storage, processing and extraction of patient and patient management information, and the exchanges of such information between and within hospitals. Currently, health care resources are unevenly distributed in most BRI countries, and the medical informatization level varies among these markets. Therefore, the potential of medical informatization is as great as the scope for cross–border collaboration in this field. Medical informatization will help improve the quality and efficiency of diagnosis and treatment, break down information barriers between hospitals, and promote medical cooperation of BRI countries. It will also bolster new business models like telemedicine, smart hospital and Internet hospital.

Chapter Five

Opportunities and Risks of Infrastructure Development in BRI Countries

Since the BRI was proposed, thanks to the joint efforts of all stakeholders, a connectivity framework involving six corridors, six types of routes, multiple countries, and multiple ports has essentially taken shape, and a large number of cooperation projects have taken off. Nevertheless, the sudden outbreak of COVID–19 in early 2020 plunged the world economy into deep gloom. Economic globalization has run up against headwinds; trade protectionism is on the rise; the international economic and trade landscape and the global governance system are undergoing changes and adjustments. Even the infrastructure industries are facing great challenges worldwide. In the post–pandemic era, infrastructure construction will be a key to economic recovery. Companies should raise risk awareness and improve risk management. Governments of all countries should work closer together to create a more favorable domestic environment for infrastructure development. Seizing on the high–quality development of the Belt and Road, all market players should work towards the fulfillment of the UN 2030 Sustainable Development Goals (SDGs).

Section One: Opportunities of Infrastructure development in BRI Countries

1 Infrastructure Construction amid Post–pandemic Global Economic Recovery

Despite the pandemic–induced recession in 2020, the BRI continues to serve as an important platform for promoting global economic recovery and maintaining cooperation within the international value chains. As order returns to the post–pandemic global economy, a new wave of infrastructure development will sweep across BRI countries. According to the World Economic Outlook, an IMF report released in October 2020, the world economy is estimated to grow 5.2% in 2021, which is 2.4 percentage points higher than 2019 and 9.6 percentage points higher than 2020. The World Bank forecast that the real global GDP will rebound to 4.2% in 2021. Such a robust recovery will accelerate the release of infrastructure development demands, thus further improve the environment, costs and passions of infrastructure development.

2 Infrastructure Investment as a Key Driver of Global Economic Recovery

Infrastructure construction is a key approach for national governments to boost economy, create jobs and reduce poverty. Against the coronavirus backdrop, countries have successively launched economic stimulus programs to pep up the infrastructure markets. As of August 2020, BRI countries like Malaysia, Uzbekistan and India had all resorted to pump priming. According to Global Infrastructure Hub’s estimates, in 2021, USD 1.7 trillion will be needed globally for transportation infrastructure, USD 1 trillion for energy infrastructure, USD 300 billion for communications infrastructure, and USD 200 billion for water infrastructure; the gap

between supply and demand will widen to USD 500 billion. As stimulus programs move forward, the infrastructure markets will further unleash their vitality, and infrastructure investments will become a key driver of economic recovery.

Table 25 BRI Countries with Infrastructure Stimulus Plans

Country	Declared a state of emergency or not	Ordered lockdown or not	Announced border closure or not	Scale of infrastructure stimulus
Georgia	√		√	USD 30 million
Latvia	√	√		EUR 880 million
Lithuania	√		√	EUR 2.2 billion
Malaysia		√	√	USD 7.44 billion
Nepal				USD 50 million
Uzbekistan			√	USD 280 million
Israel			√	USD 250 million
India		√	√	USD 2.05 billion

Source: SINOSURE's Country Risk Database.

3 "New Infrastructure" as a Driver of International Cooperation and Innovative Development

"New infrastructure" refers to a new infrastructure system guided by innovative ideas of development, driven by original technologies, and based on information network. It has not only provided a new impetus for infrastructure development in BRI countries, but also presented a golden opportunity for upgrading the international infrastructure cooperation models. On one hand, interdisciplinary and cross–border cooperation will go mainstream. New infrastructure projects will pool and show the strengths of all parties, create a whole host of new opportunities, and in turn promote the socioeconomic development of the host countries. On the other hand, new business models will emerge in the infrastructure markets. Such models will allow all parties to work closer with each other for the duration of infrastructure investment, construction, operations and maintenance.

4 SDG–oriented International Infrastructure Cooperation

Sustainable infrastructure is encompassed by the 17 SDGs of the 2030 Agenda for Sustainable Development. Given the rapid progress of technologies, there is an increasingly pressing need for sustainable development of economy, society and environment. The COVID–19 outbreak draws even more attention around the world to climate change. All these factors have brought about the idea of “green infrastructure”. As Environmental, Social, and Governance (ESG) has been attracting eyeballs in recent years, many companies have started publishing CSR reports and tried to enhance their ESG capabilities. With the smooth implementation of the 2030 Agenda, green infrastructure that focuses on inclusive development and environmental protection will likely become the next big thing.

Section Two: Risks of Infrastructure development in BRI Countries

1 COVID–19 Infection Prevention and Control as a "New Normal"

Currently, the COVID–19 pandemic allows no optimism. Some countries have slackened their efforts in disease prevention and control for the sake of economic stability. Consequently, the risk of a second wave pandemic is much higher. WHO's analysis suggests that coronavirus will co–exist with humans for a long time. Even if the vaccines are successful, the pandemic will not go away on its own. The infrastructure industries should pay close attention to where COVID–19 is heading and how governments of all countries are coping with it. After all, the duration and scope of anti–coronavirus measures, along with the efficacy of monetary and fiscal policies, will have a vital bearing on infrastructure development. In the foreseeable future, BRI infrastructure markets will have to live with the virus.

2 De–globalization as an Obstacle to International Infrastructure Cooperation

Over the years, the outcries for "bringing manufacturing back" have been swelling the torrent of de–globalization. The rise of protectionism is creating more technical barriers to trade – not only in traditional areas like IPR, high technology transfer, environmental standards and food safety, but in digital fields as well. The fourth Industrial Revolution is losing its dividends, and cooperation is stalled along the international value chains. However, BRI infrastructure construction would be impossible without the close cooperation of relevant countries. The infrastructure industries also bear the brunt of de–globalization, which hampers the flows of capital, technologies and personnel. Given the sluggish global economy, increasing trade

frictions and fierce industry competitions, infrastructure companies will be bracing for sagging profits and revenues.

3 Higher Financing Difficulties and Default Risks of International Infrastructure Projects

As the governments of some countries, for whatever reasons, have started adjusting their international aid policies, global infrastructure financing will be examined with a fine–toothed comb in the short term. Multilateral financial institutions tend to focus on the things that might immediately stop the spread of coronavirus and put the economy back together (e.g. public health improvement and poverty relief). Their hands are tied, and their contributions to global infrastructure financing are limited. Considering the pandemic–induced global economic slowdown, the falling prices of oil and other bulk cargoes, and the tighter control over investments in various countries, even the private sector will think twice before putting money into international infrastructure projects.

On the other hand, global debt had been at historic highs even before the outbreak. And since COVID–19, governments of all countries have released a series of stimulus measures to minimize the economic impact, causing a sharp increase in sovereign bond issuance. Statistics of the Institute of International Finance (IIF) show that between 2017 and 2019, an average USD 900 billion government bonds were issued annually. As national governments carry through with anti–coronavirus measures, global debt is predicted to hit record high in 2020. With the world economy in deep gloom, and fiscal pressure at sky–high levels, some oil–rich, cash–poor countries find it increasingly challenging to pay off their sovereign debts. And so it follows that ongoing infrastructure projects in such countries are at higher risk of insolvency.

4 Infrastructure Projects as Easy Victims of Complicated and Changeable Geopolitics

The spread of coronavirus, along with the rise of populism and protectionism, will continue in the near future. Also, some countries will suffer from poor governance,

geopolitical temperature will stay high in certain regions, and great power politics might even intensify. Although the US election is over, questions remain about whether there will be a smooth transition, how President Biden will handle COVID–19, and where the divided government will be heading. More importantly, how things turn out in the US will send new ripples through the economic and political world. Under the diplomatic intervention of Russia, the unrest in Belarus following the presidential election has gradually subsided, and a ceasefire has been agreed between Armenia and Azerbaijan. Yet the development bottleneck of Belarus is still there; so is the bad blood between the Caucasian countries. Unless these fundamental problems are solved, the region will remain a powder keg. As with other hot–button issues (e.g. the Libyan civil war, India–Pakistan border conflict and Iran nuclear crisis), major countries both inside and outside the regions might get into the act, so the global political risks will rise significantly. Since big–ticket infrastructure projects are usually led by the government or funded by the international community, they are particularly vulnerable to social or political turmoil. Going forward, the uncertainties surrounding infrastructure investment will loom much larger.

Section Three: Policy Advice for Infrastructure Development in BRI Countries

1 Enhancing International Cooperation to Create a More Favorable Environment for Infrastructure Development

A more favorable environment for infrastructure development requires the joint efforts of governments, companies and financial institutions. First, countries should continue to jointly build the intergovernmental cooperation and dialogue mechanism. They should help align the BRI with UN, ASEAN, AU, EU and EAEU rules as well as national development strategies. Second, companies should tap deeper into third–party markets to explore new ways of international infrastructure cooperation. Third–party market cooperation integrates the competitive production capacity of China, the sophisticated technologies of developed countries, and the needs of developing economies. Proven in a series of major projects, this all–win model plays well across the globe. Deepening third–party market cooperation requires a long–term mechanism and a detailed roadmap. Countries should lay down the priorities and implementation plans, promptly share information about the laws, policies and projects of local markets, and build a network connecting governments, companies, financial institutions, chambers/associations, think tanks, and embassies/consulates. Last but not least, local financial institutions and insurance agencies should work closer with multilateral financial institutions. On the basis of “risk and benefits sharing”, these stakeholders should help establish cross–border banking co–ops, develop new channels and models for international investment and financing, and in turn provide robust financial support for global infrastructure market players.

2 Expanding Financing Channels to Build a Diversified and Open Financial Service System

Following the BRI principle of "consultation, contribution and shared benefits", and adhering to the idea of "risk and benefits sharing", policy banks, commercial banks and international development agencies should team up to expand international infrastructure financing channels, improve fund use efficiency, and help create a more inclusive and open financing environment. Although each type of financial institutions has its own functional positioning, these institutions still need to unleash their comparative advantages and jointly provide long-term, market-oriented financial offerings for BRI infrastructure projects. They should also guide companies in using sovereign wealth funds, global private capital, and multilateral loans to meet financing needs.

3 Enhancing Compliance and Risk Management to Make the Most of Credit Insurance

These days, companies around the world are facing higher requirements on risk management. To effectively adapt to changes in the external environment, companies should develop a proper awareness of risks; integrate risk-based thinking into project operations; make separate contingency plans for projects with different durations, risks, and levels of investments; conduct ex-ante, ongoing and ex-post risk assessment and management; and promptly adjust investment arrangements to cut losses. It is noteworthy that multilateral financial institutions (e.g. the World Bank, Asian Development Bank, AIIB) and international organizations concerned are all streamlining administrative rules and institutional systems for integrity and compliance, aiming to punish corruption and other illegal acts more severely. Under the current international situation, compliance-based operations have become a common pursuit of the business world. Companies should further enhance compliance awareness, build a compliance management system, strengthen financial and legal affairs monitoring, improve the capabilities of identifying and preventing compliance risks, and see compliance management as the lifeline for business

sustainability. Given the complexity and severity of global risks, companies should highlight the role of credit insurance in their overseas market risk management system, so as to avoid the risks that might pop up during the implementation of BRI projects.

4 Promoting Technological Innovation and “New Infrastructure” in BRI Countries

In recent years, the new round of industrial and technological revolutions have accelerated the integration of traditional sectors and digital technologies. Smart mobility, smart city and smart energy projects will create more opportunities for infrastructure development in BRI countries. Global infrastructure market players should hop onto the bullet train of digital transformation. They need to embrace changes, work on core technologies, develop new competitive strengths, and use digital approaches to repurpose or upgrade infrastructure of the host countries. Also, they need to leverage new technologies to manage business and projects, allocate international resources more efficiently, and thus realize high–quality development.

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