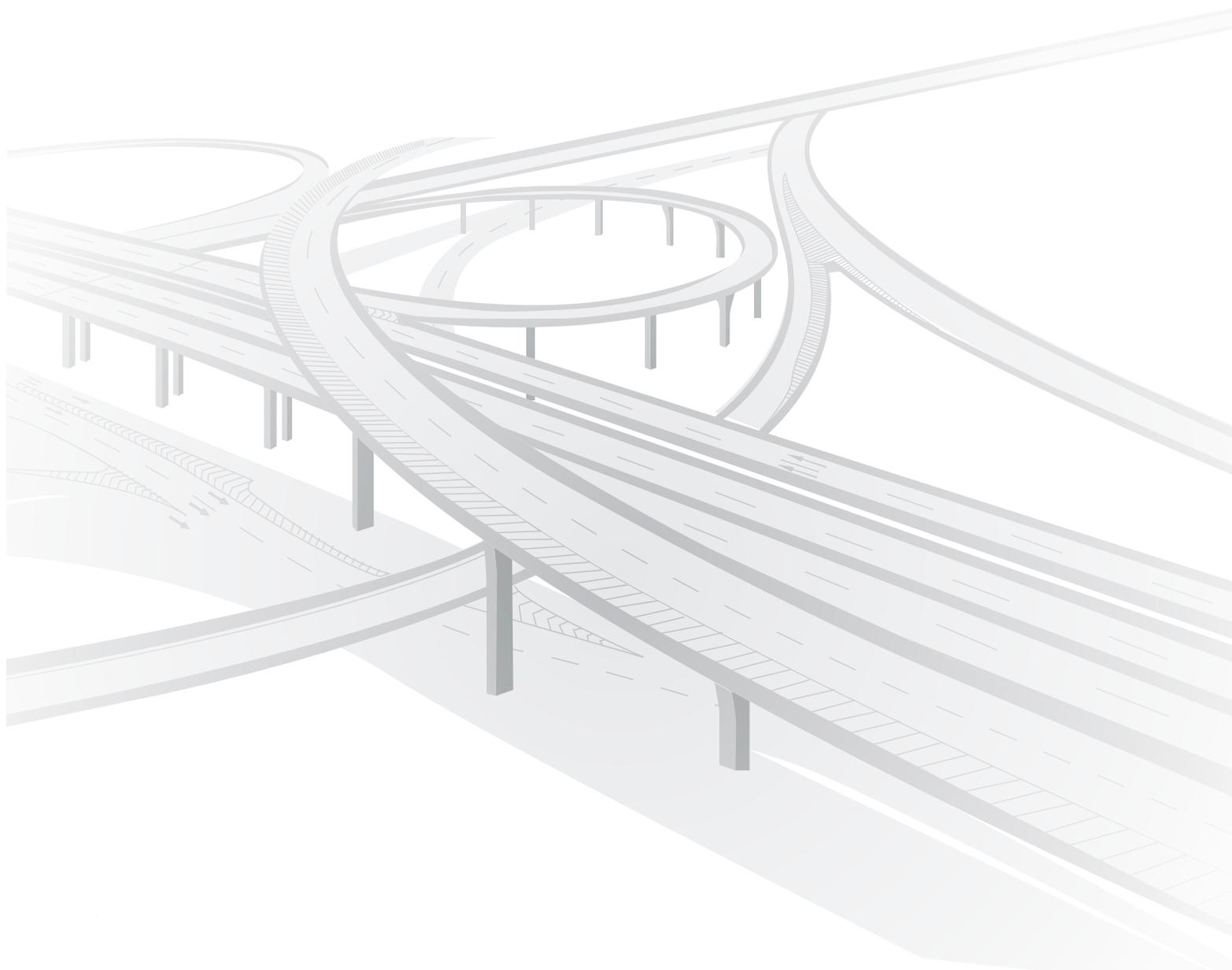


“一带一路”国家 基础设施发展指数报告 2021

The Belt and Road Infrastructure Development Index Report 2021



> CONTENTS



FOREWORD	III
GLOSSARY	VII
2021 Belt and Road Infrastructure Development Index.....	X
 Chapter One Infrastructure Development Characteristics in BRI Countries	 01
Section One: Belt and Road Infrastructure Development Index Analysis	02
Section Two: New Characteristics of Belt and Road Infrastructure Development.....	07
Section Three: International Contractor Business Development Analysis	13
 Chapter Two BRIDI Sub-indices	 22
Section One: Development Environment Sub-index	23
Section Two: Development Demands Sub-index.....	30
Section Three: Development Passions Sub-index	36
Section IV: Development Costs Sub-index	43
 Chapter Three Analysis of Infrastructure Development in Portuguese-speaking Countries	 49
Section One: BRIDI in Portuguese-speaking Countries	50

Section Two: Latest Achievements of Macao SAR in Belt and Road Construction	58
Section Three: Outlook on China–PSCs Infrastructure Cooperation	70
Chapter Four	
Analysis of the Infrastructure Development Index for Major BRI countries	74
The People’ s Republic of Bangladesh	75
The Republic of Mozambique	84
Kingdom of Saudi Arabia	93
Chapter Five	
Infrastructure Development Trends in BRI Countries	101
Section One: Opportunities of Infrastructure Industry in BRI Countries	102
Section Two: Overall Risks Facing BRI Infrastructure	104
Section Three: Risks in Key Areas of Infrastructure Development and in Hot Industries Around the World	106
Section Four: Policy Advice for Infrastructure Development in BRI Countries	109
References	112
List of Figures and Tables	119

➤ FOREWORD



In 2021, the coronavirus is still spreading around the world. As President Xi Jinping noted, the COVID-19 pandemic is accelerating the profound changes in the economic, technology, cultural, security, and political landscape around the world. A wave of turbulence and reform is coming. Amid the changes, people from all over the world are forming a community of shared destiny, only by working together can we finally overcome the pandemic. In the new situation, joint construction of a high-quality Belt and Road has become the consensus of all parties. The fruitful results of infrastructure interconnection have brought new opportunities for the development of countries around the world.

Under the ever-changing 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) 2021” , and issued the fifth 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 2021 BRIDI report adopts the framework of previous reports. Altogether 71 countries, including 63 Belt & Road countries and 8 Portuguese-speaking countries, are chosen to envisage the near-term prospects of the infrastructure industry from the perspectives of the environment, demands, costs and passions for infrastructure facilities. This year, considering the impacts of COVID-19 on the infrastructure

industry, we have optimized the BRIDI model and report structure. The new features are as follows. (1) Establishing three scenarios: Given the great uncertainty in the pandemic situation, we have drawn on the IMF' s research methods to define the baseline scenario, optimistic scenario and pessimistic scenario, and carried out index calculations. Under the baseline scenario, developed economies and some emerging markets will have abundant COVID–19 vaccine supplies in the summer (Q2) of 2021, and most countries/regions will have abundant COVID–19 vaccine supplies by the second half of 2022. Under the optimistic scenario, the effectiveness and penetration rate of the vaccine will further increase, the world economy will recover faster than expected, and the infrastructure development momentum will be strong. Under the pessimistic scenario, the effectiveness and penetration rate of the vaccine will be less than satisfactory, the epidemic situation will fluctuate, the number of infections worldwide will increase rapidly, the world economy will see a sluggish growth, and infrastructure development will face more severe challenges. Unless otherwise specified, the baseline scenario shall apply in this report. (2) Highlighting Macao SAR: As an important research released in the Macao SAR, this report contains a special study on the infrastructure development of PSCs. Also, it systematically reviews the fruitful achievements of Macao' s active participation in Belt and Road construction, and offers advice on how Macao can stay in line with the 14th Five–Year Plan and seize the opportunities of the Guangdong–Hong Kong–Macao Greater Bay Area. (3) Improving the indicator system: The report has used SINOSURE' s Country Risk Database to track and detect global risk events, and included indicators such as confirmed cases of COVID–19, the number of people vaccinated, war and conflict risk events, sovereign credit risk events, and infrastructure industry policy changes to describe the development and changes of the infrastructure industry more objectively

and accurately.

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 elaborates on infrastructure development in PSCs; the fourth section conducts a detailed analysis on the infrastructure industry of three major countries; the fifth section elaborates on the opportunities and challenges facing the Belt and Road infrastructure industry 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 Solutions. 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

July 2021

> GLOSSARY



Infrastructure
<p>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.</p>
Infrastructure Development
<p>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.</p>
Belt and Road Initiative (BRI)
<p>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).</p>
BRI countries
<p>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.</p>
Southeast Asia
<p>According to the UN Geoscheme, Southeast Asia includes the Philippines, Cambodia, Laos, Malaysia, Myanmar, Thailand, Brunei, Singapore, Indonesia and Vietnam.</p>

CIS and Mongolia
CIS 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 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 Tom é and Príncipe, and Timor-Leste.
West Asia and North Africa
According to the UN Geoscheme, West 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)
<p>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.</p>
The Sub-index of Belt and Road Infrastructure Development Costs (Development Costs Sub-index)
<p>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.</p>
Overall BRIDI and Regional BRIDI
<p>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.</p>
Baseline Scenario, Optimistic Scenario and Pessimistic Scenario
<p>Under the baseline scenario, most countries/regions will have abundant COVID-19 vaccine supplies by the second half of 2022. Under the optimistic scenario, the effectiveness and penetration rate of the vaccine will further increase, and the economic recovery will be faster than expected. Under the pessimistic scenario, the effectiveness and penetration rate of the vaccine will be less than satisfactory, the epidemic situation will fluctuate, and the number of infections worldwide will increase rapidly. Unless otherwise specified, the baseline scenario shall apply.</p>

2021 Belt and Road Infrastructure Development Index

Ranking	2021		Changes		Ranking	2021		Changes	
	Country	Score	Score	Ranking		Country	Score	Score	Ranking
1	Indonesia	131	+ 5	--	37	Turkey	108	+ 2	↓ 10
2	Malaysia	125	+ 5	--	38	Nepal	108	+ 4	↑ 1
3	Philippines	125	+ 8	--	39	Bulgaria	108	+ 5	↑ 7
4	Vietnam	124	+ 8	↑ 1	40	Latvia	108	+ 5	↑ 8
5	Pakistan	121	+ 6	↑ 1	41	Tajikistan	107	+ 1	↓ 16
6	Thailand	120	+ 11	↑ 9	42	Belarus	107	+ 2	↓ 12
7	Arab Republic of Egypt	118	+ 5	↑ 1	43	Islamic Republic of Iran	107	+ 3	↓ 2
8	United Arab Emirates	118	+ 4	↓ 1	44	Poland	107	+ 3	↓ 4
9	Bangladesh	117	+ 6	↑ 1	45	Moldova	107	+ 3	↓ 7
10	The Russian Federation	117	--	↓ 6	46	Oman	107	+ 5	↑ 5
11	Saudi Arabia	117	+ 7	↑ 2	47	Turkmenistan	107	+ 3	↓ 5
12	Singapore	117	+ 8	↑ 5	48	Iraq	106	+ 3	↓ 3
13	Cambodia	116	+ 7	↑ 3	49	Slovenia	106	+ 3	--
14	Mongolia	113	+ 3	--	50	Lithuania	105	+ 6	↑ 12
15	Brazil	112	+ 3	↑ 3	51	Jordan	105	+ 2	↓ 4
16	Uzbekistan	112	+ 4	↑ 5	52	Bhutan	105	+ 3	--
17	Laos	112	+ 3	↑ 2	53	Cape Verde	105	+ 5	↑ 2
18	Kazakhstan	112	--	↓ 9	54	Mozambique	104	+ 5	↑ 7
19	Qatar	111	+ 1	↓ 7	55	Greece	104	+ 5	↑ 4
20	Hungary	111	+ 4	↑ 3	56	Estonia	104	+ 3	↓ 2
21	Brunei Darussalam	110	+ 4	↑ 5	57	Kyrgyzstan	104	+ 1	↓ 7
22	Croatia	110	+ 4	↑ 7	58	Azerbaijan	104	+ 3	↓ 5
23	Sri Lanka	110	+ 5	↑ 12	59	Maldives	104	+ 5	↓ 1
24	Bosnia and Herzegovina	110	+ 5	↑ 9	60	Romania	102	+ 3	--
25	Kuwait	110	+ 4	↑ 3	61	Cyprus	102	+ 4	↑ 3
26	Slovak Republic	110	+ 5	↑ 6	62	Montenegro	102	+ 3	↑ 1
27	Macedonia	110	+ 5	↑ 4	63	East Timor	102	+ 4	↑ 2
28	Portugal	109	+ 6	↑ 16	64	Israel	101	+ 1	↓ 8
29	Albania	109	+ 4	↑ 5	65	Lebanon	100	--	↓ 8
30	Serbia	109	+ 5	↑ 6	66	Afghanistan	100	+ 5	--
31	Georgia	109	+ 1	↓ 11	67	Bahrain	99	+ 4	--
32	Myanmar	109	+ 2	↓ 10	68	Ukraine	98	+ 4	↑ 1
33	Angola	109	+ 5	↑ 4	69	São Tomé and Príncipe	98	+ 3	↓ 1
34	Czech Republic	109	+ 5	↑ 9	70	Guinea-Bissau	97	+ 3	--
35	Armenia	109	+ 2	↓ 11	71	Republic of Yemen	95	+ 3	--
36	India	108	- 3	↓ 25					

Southeast Asia

Central Asia

South Asia

PCCs

CIS-7 Countries and Mongolia

CEE

Western Asia and North Africa

Chapter One

Infrastructure Development Characteristics in BRI Countries

The BRIDI bottoms out in 2021 thanks to the economic stimulus policies enacted worldwide and the growing expectation for economic recovery, giving new momentum to the Belt and Road infrastructure development after a decade of stagnation. However, uncertainty still exists due to the risk of persistent spread and recurring waves of COVID-19, which is impossible to be contained in the short term. Facing both opportunities and challenges, parties concerned share a common goal to drive high-quality and sustainable infrastructure development in BRI countries.

Section One: Belt and Road Infrastructure Development Index Analysis

1 BRIDI Bottoms Out

The BRIDI bottoms out in 2021, up to 113¹ compared with 110 in 2020. Due to loose fiscal and monetary policies in major economies and accelerated vaccination against COVID-19, BRI countries show strong signs of recovery, and the infrastructure industry marks an increasingly clear upward trend in 2021. But a return to the pre-pandemic level is still distant due to the persistent pandemic, inflationary pressure, rising cost, and other headwinds.

Since the future regarding COVID-19 remains unclear, this Report adopts the research method of the International Monetary Fund (IMF) and estimates the BRIDI under the baseline scenario, the optimistic scenario, and the pessimistic scenario². The BRIDI will bounce back to 116 under the optimistic scenario if vaccination speeds up while falling to 111 under the pessimistic scenario when vaccination is too slow to curb the spread of coronavirus.

1 This is the score under the baseline scenario.

2 Under the baseline scenario, COVID-19 vaccines will be widely accessible in developed economies and some emerging economies in the summer of 2021 (Q2), and achieve widespread availability in most countries/regions in the second half of 2022. Under the optimistic scenario, vaccine effectiveness and production will increase, which will enhance the expectation of a quicker containment of COVID-19, boost the confidence of enterprises and consumers, and hence revive the investment, consumption, and employment. The global economy will grow faster than that under the baseline scenario. Under the pessimistic scenario, the situation concerning vaccine effectiveness, production or vaccination speed is worse than that under the baseline scenario. The numbers of infections and deaths will increase rapidly. The raging pandemic will erode people's confidence and lead to widespread bankruptcies, putting investment and consumption at a low ebb. The global economy will grow slower than that under the baseline scenario.

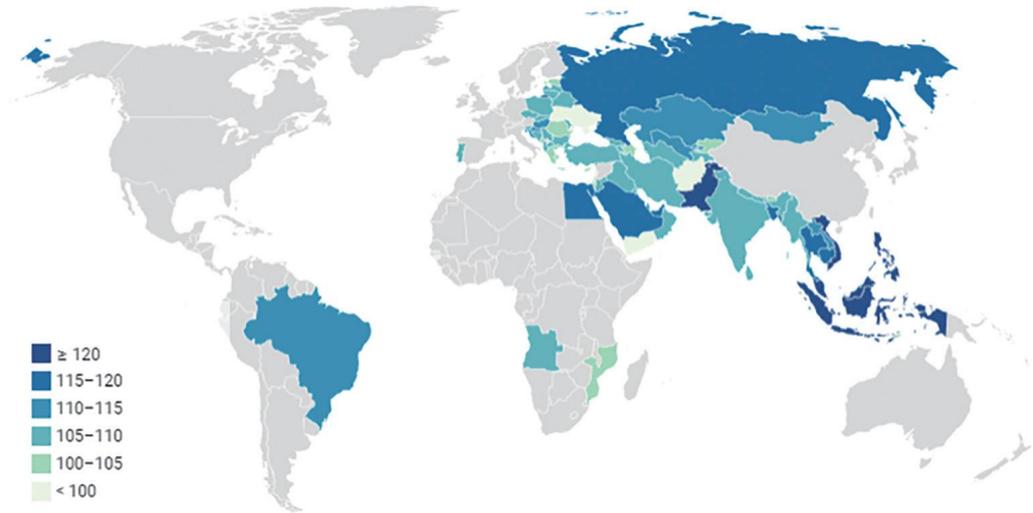


Figure 1 Belt and Road Infrastructure Development Index (2021)

Source: CHINCA, SINOSURE's Country Risk Database

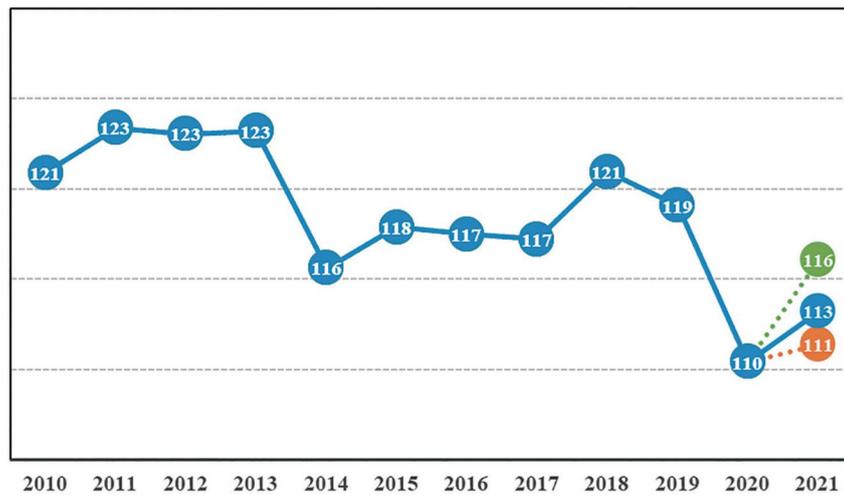


Figure 2 Belt and Road Infrastructure Development Index (2010-2021)

Source: CHINCA, SINOSURE's Country Risk Database.

Note: The blue line represents the score under the baseline scenario, the green line represents the score under the optimistic scenario, and the orange line represents the score under the pessimistic scenario.

Table 1 BRIDI Changes by Sub-index

Sub-index	2019	2020	2021
Overall BRIDI	119	110	113
Development Environment Sub-index	115	102	107
Development Demands Sub-index	130	121	125
Development Passions Sub-index	119	110	112
Development Costs Sub-index	107	106	105

Source: CHINCA, SINOSURE’s Country Risk Database.

2 Southeast Asia Comes out Top while South Asia Falls Slightly

The BRIDI increases worldwide except for South Asia in 2021. Southeast Asia and CIS and Mongolia sit in the first and second places respectively, the same as it was in 2020. PSCs rise to the third place, owing to the robust growth of the Brazilian and Portuguese markets. South Asia falls from the third to the sixth place due to recurrent outbreaks of COVID-19 in some countries. Central and Eastern Europe is at the bottom in terms of development demand and passions.

Southeast Asia comes out top. Thanks to brisk demand, favorable environment, investment attractiveness and low cost, Southeast Asia outperforms the other six regions with a score of 125. This region boasts obvious advantages in overall infrastructure development, with eight of the ten countries including Indonesia, Malaysia, the Philippines, Vietnam, and Thailand sitting in the top 20 of the BRIDI ranking this year.

Central and Eastern Europe remains at the bottom. Infrastructure development environment and cost vary greatly across the large number of CEE countries. This region scores 107 in 2021, the lowest among the seven regions. The BRIDI is low in Lithuania, Greece, Estonia, Romania, Cyprus, and Montenegro, which drags down the overall score of the region. However, business operating cost is low in countries such as North Macedonia and Bulgaria where the infrastructure industry is still promising.

South Asia is the sole region where the BRIDI falls in 2021. It scores 110 this

year, falling from the third place in 2020 to the sixth place in 2021, largely due to the widespread outbreak of COVID–19 in India.

Table 2 BRIDI Changes by Region

Region	2021		2020	
	Score	Ranking	Score	Ranking
Southeast Asia	125	1	119	1
CIS and Mongolia	115	2	114	2
PSCs	112	3	108	5
Western Asia & North Africa	110 ³	4	107	6
Central Asia	110 ⁴	5	110	4
South Asia	110 ⁵	6	111	3
CEE	107	7	103	7

Source: CHINCA, SINOSURE's Country Risk Database.

3 BRIDI Goes Up Worldwide with Different Performances among Countries

Sixty–nine BRI countries see a year–over–year increase of the BRIDI in 2021. The index increases by 4.0% on average in upper–middle–income countries⁶ as economies there recover relatively fast, while low–income countries only see a slight uptick, where the infrastructure industry faces headwinds.

In particular, Thailand scores 120 in 2021, up 9.4%⁷ from last year's 109, representing the biggest increase worldwide. Behind such a remarkable pick–up are better infrastructure development environment, recovery of investment demand in transportation, greater development passions, and lower financing cost. Portugal sees the largest jump up in the rankings, from the 44th place in 2020 to the 28th place in 2021. The key reasons lie in active investment in transportation, communications, and public health, and lower financing cost for infrastructure

3 Western Asia and North Africa score 110.4.

4 Central Asia scored 109.5 under the baseline scenario in 2020, and sees a slight increase to 110.1 in 2021.

5 South Asia scores 110.0.

6 Countries are classified by income level according to the World Bank's standard.

7 The growth rate is not calculated with the scores given in this report which are the rounded values of the actual non–integer scores.

projects resulting from interest rate cuts in money markets.

In 2021, the BRIDI falls in only two countries: Kazakhstan and India. The latter also sees the largest fall in the rankings worldwide. Despite a development environment better than that in 2020, Kazakhstan experiences a slight drop in the score this year due to lower development passions and higher costs resulting from growing inflation. Amid raging COVID-19, India faces great economic uncertainty which has severely dented infrastructure development passions and pushed up business operating and financing costs. The pandemic has struck a heavy blow to the upstream and downstream industries, which, combined with a regional economic downturn and declining investor enthusiasm, has led to a sharp fall of India from the 11th place in 2020 to the 36th place this year.

Section Two: New Characteristics of Belt and Road Infrastructure Development

1 Infrastructure Development Shows Great Resilience Amid COVID–19

The raging COVID–19 has posed a terrible threat never seen before to Belt and Road infrastructure development in all countries. As a result, the BRIDI took a dive in 2020 to the lowest ebb in a decade. As the pandemic eases in 2021, countries see improvements in development environment, demands, and passions, and hence a rebound of the BRIDI. There is a growing expectation of a recovery of the infrastructure sector in BRI countries.

To juicy the economy, attract international investment, and boost jobs and consumption, many BRI countries have rolled out stimulus packages of infrastructure investment since 2020. For example, Indonesia increased infrastructure budget, Bangladesh allocated more funds to railway projects, and Egypt sped up the construction of its new capital city, moving toward urbanization at a fast clip. In 2021, transportation, electricity, housing, and healthcare projects concerning people’ s livelihoods become top priorities of governments around the world in implementing the aforesaid stimulus packages. Belt and Road infrastructure development shows strong resilience.

2 Carbon Neutrality Is A Priority for Infrastructure Development

Huge efforts have been made around the world toward carbon neutrality since 2020. As of April 2021, 130 countries and regions had set carbon neutral goals. China has pledged to hit peak emissions before 2030 and for carbon neutrality by 2060. The US, EU and Japan have also announced their emissions reduction plans.

Governments, especially those of developed countries, are actively adjusting the

energy mix by speeding up the phase-out of fossil fuels, and stepping up support for renewable energy sources such as wind and solar energy. Financial institutions are also formulating financing standards and principles that highlight green, environment-friendly and sustainable development. So far, a great many of them have announced termination of financing support for fossil fuel projects, and pledged to increase investment in renewable energy projects, which, represented by wind and solar PV projects, are becoming the highlight of electricity cooperation. According to Fitch Solutions’ database, the number of solar PV and hydroelectric projects worldwide increased by more than 100% in 2020, way higher than other types of power generation projects. Carbon neutrality has become a systematic reform which will exert a pervasive and profound influence on Belt and Road infrastructure development.

It must also be noted that BRI countries vary greatly in development levels and resources. Each of them provides a unique development environment and has distinctive infrastructure needs. Most countries have yet to peak carbon emissions. To achieve economic growth with reduced carbon emissions requires joint efforts of governments, financial institutions, international organizations, and other parties concerned.

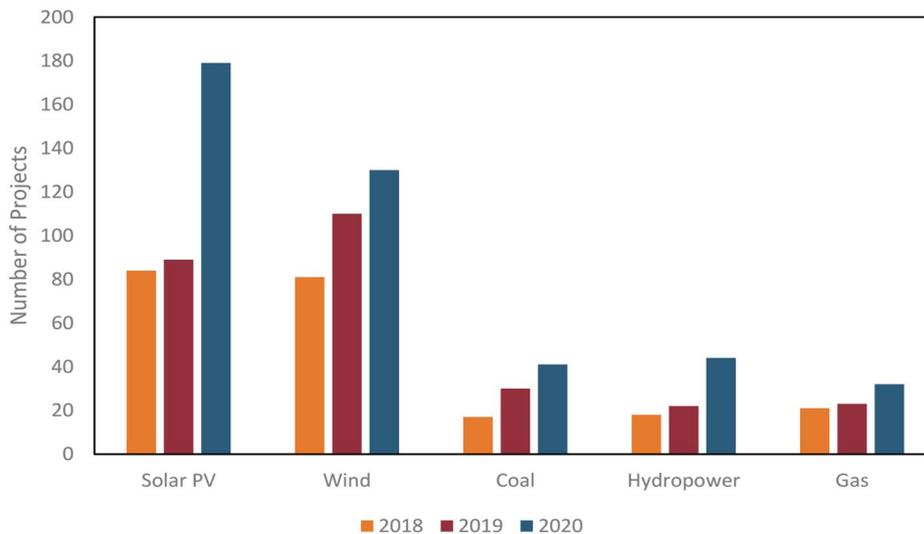


Figure 3 The Number of Annual New Projects of Energy Infrastructure by Energy Source (2018–2020)

Source: Fitch Solutions. The data are compiled by the research team.

Table 3 Restrictions of Typical Financial Institutions on Coal-fired Power

Institution	Type	Restriction
Bpifrance	Export credit agency	Only support coal-fired power plants which use ultra-supercritical technology and generate less than 750g CO ₂ /kWh.
Korea Eximbank	Export credit agency	Only support coal-fired power plants which use ultra-supercritical technology and generate less than 750g CO ₂ /kWh.
Bladex	Export credit agency	Only support coal-fired power plants which use ultra-supercritical technology and generate less than 750g CO ₂ /kWh.
Achmea	Insurance/ Reinsurance	Shun coal energy projects and spin off coal assets.
Allianz	Insurance/ Reinsurance	Shun coal energy projects and spin off coal assets. Stop providing property insurance and accident insurance for more than 25% of coal companies by 2030.
Swiss Re	Insurance/ Reinsurance	Completely phase out thermal coal from its reinsurance treaty by 2040.
CommBank	Bank	Achieve zero thermal coal exposure by 2030.
Amalgamated Banks of South Africa	Bank	No longer fund new coal-fired power projects unless under extenuating circumstances.
DBS	Bank	Stop providing loans for coal-fired power plants and thermal coal mining projects.

Source: Institute for Energy Economics and Financial Analysis (IEEFA). The data are compiled by the research team.

3 Regional Trading Agreements Promote Infrastructure Cooperation Upgrade

As the world trade pattern and global governance system are undergoing profound changes, regional trading agreements, as a supplement to the multilateral trading system, enter the fast lane. The Regional Comprehensive Economic Partnership Agreement (RCEP) was officially signed in November 2020, and the African Continental Free Trade Area (AfCFTA) enters into force in 2021. Compared with multilateral trading systems represented by WTO, regional trading agreements impose more specific rules on industry coverage and investment access, and thereby bring new opportunities for Belt and Road infrastructure development.

Specifically, regional trading agreements play a big part in creating a high-quality industry network for and improving the level of Belt and Road infrastructure cooperation. For one, backed by a superior business environment and favorable policies, international contractors are vigorously expanding their cooperation with host country companies in various fields from planning and design to consulting and operations, involved into all stages of infrastructure development in BRI countries. While improving local services, they have also boosted cooperation in capital, technology, and talent fostering. For another, regional trading agreements give new momentum to integration and development of economies in a region. Urbanization, industrial transformation, transportation and logistics development in relevant countries will bolster the infrastructure demands. A growing number of opportunities will emerge in a range of fields including housing, industrial construction, industrial parks, electricity and energy, roads, railways, airports, and ports.

Table 4 Comparison of Major Global and Regional Trading and Investment Agreements

	General Agreement on Tariffs and Trade (GATT), WTO	Regional Comprehensive Economic Partnership Agreement (RCEP)	EU–China Comprehensive Agreement on Investment (CAI) ⁸	Comprehensive and Progressive Agreement for Trans–Pacific Partnership (CPTPP)
Member countries	162 member states worldwide	15 member states, namely, the ten ASEAN members, China, Japan, South Korea, Australia, and New Zealand	China and the 27 EU countries	11 countries including Japan, Australia, Canada, and New Zealand
Fields	The agreement covers around 100 sectors primarily in the real economy.	RCEP has added 22 new sectors, such as R&D and management consulting, to those covered by the WTO, and raised the commitment level for 37 sectors including finance and maritime shipping.	China makes greater commitments to open markets in terms of corporate subsidies, transparency, technology transfer, standard setting, administrative enforcement, and financial regulation.	CPTPP enforces higher standards in the service industry, IPR protection, and environment protection than RCEP.

8 The European Parliament passed a resolution to freeze ratification of the EU–China CAI on May 20, 2021. The investment pact has not come into force so far.

	General Agreement on Tariffs and Trade (GATT), WTO	Regional Comprehensive Economic Partnership Agreement (RCEP)	EU–China Comprehensive Agreement on Investment (CAI) ⁸	Comprehensive and Progressive Agreement for Trans–Pacific Partnership (CPTPP)
Market access	Member states can flexibly determine the size, degree and timing of market access according to their national realities.	Members use a mix of positive and negative lists for services. The latter is opted in five non–service sectors, namely, manufacturing, agriculture, forestry, fishery, and mining.	Foreign investment is subject to pre–established national treatment on top of a negative list management system.	Members use the negative list system, and are required to fully open markets, except for those restricted or prohibited from being opened, with general liberalization measures.
Applicability of trade rules	Members adhere to the principles of non–discrimination, procedural fairness, and transparency, and developing countries enjoy special and differential treatment.	RCEP contains a transitional safeguard mechanism, accords the least developed countries the special and differential treatment, and supports the underdeveloped countries by stipulation of stronger economic and technological cooperation.	—	CPTPP has stricter standards in labor and environmental rules, competition policy, state–owned enterprises supervision, IPR regulation, Internet rules, and digital economy.
Tariffs	Tariffs vary considerably across countries, but WTO members must not exceed the tariff rates they have committed themselves to.	Over 90% of goods trading in the bloc will ultimately enjoy zero tariff. For some, the zero–tariff period will be ten years. Member states will maintain a certain quota for agricultural products.	—	CPTPP boasts the largest tariff reduction which takes effect relatively fast. Tariff cuts for a member will automatically apply to other members.

Source: data compiled by the research team.

4 ESG Criteria Become the New Standards of International Infrastructure Cooperation

To prevent investment and financing risks and combat climate change for sustainable growth of the world economy, more and more financial institutions use the Environment, Social Responsibility, and Corporate Governance (ESG) criteria for evaluating international infrastructure projects. The ESG rating and ESG management level of a company become key factors that will influence the decision-making process of international financial institutions or investors. In view of this, governments around the world have rolled out ESG-related regulations, imposing higher social and environmental sustainability requirements on infrastructure investment, construction, and operation. To meet the internationally accepted ESG requirements, project contractors and operators must protect the legitimate rights of all stakeholders including employees and communities while satisfying the needs of the project owner. They must do utmost to maintain a harmony among all stakeholders and avoid negative impact on natural and ecological environment. Currently, the global community still lacks an unified standard in ESG management, different institutions impose different requirements on ESG information disclosure, and the global dialog and mechanism on ESG management of infrastructure projects need to be improved. However, to enhance ESG management for sustainable development has become a general consensus in the field of infrastructure investment and construction.

Section Three: International Contractor Business Development Analysis

International contractors play an important role in global infrastructure development. Based on open data of listed international contractors, this section combs through the operating conditions and key indicator changes of ENR-listed companies over the past decade (since 2010), analyzes the impact of COVID-19 on their business, and explores the prospects, opportunities and challenges in the post-pandemic era based on the measures of some international contractors against the pandemic's impact.

1 International Contractor Business Development 2010–2021

According to the Top 250 International Contractors list published by Engineering News-Record (ENR), an American weekly magazine, in 2020, these companies have covered more than 140 countries and regions, and saw a total overseas revenue of more than USD 473 billion in 2019. Among them, the top 20 contributed more than USD 261 billion, accounting for 55% of the total revenue generated by the 250 international contractors. This section analyzes the overseas business of 72⁹ public companies on the List, including their revenue, asset scale, profitability, and number of employees.

Chinese contractors are in the lead by assets, but at the bottom by the ratio of overseas to total revenues. Among the listed companies, 21, 19, 11, and 6 are from China, the EU, Japan, and South Korea, with an asset value of USD 1.15 trillion, USD 369 billion, USD 108 billion, and USD 79 billion respectively. It is worth noting that Chinese contractors, occupying more than 60% of the total assets of the sample,

9 The sample includes 72 listed companies, with 21 from China. In 2020, the sample companies generated 73% of the total revenue of all ENR-listed companies.

generated an overseas revenue accounting for only 13% to 15% of their total revenue given the large size of their domestic business. In the past decade, Chinese contractors have seen a steady growth of their share in the global market from 13.8% in 2010 to 25.4% in 2019, playing a much larger role in the world.

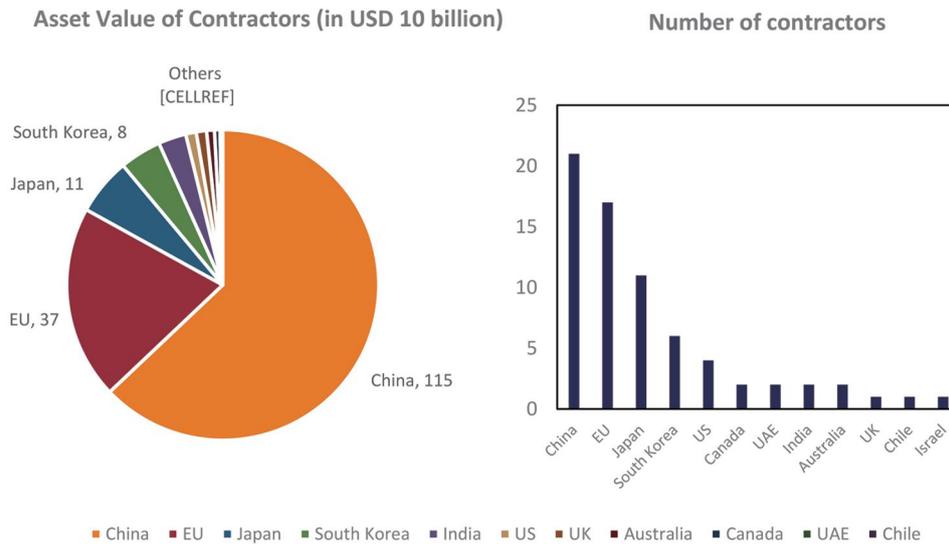


Figure 4 Assets of Listed International Contractors by Country in 2020

Source: Osiris, ENR 2020.

Note: The data are compiled by the research team. Countries in the figure refer to the countries of incorporation of these companies.

BRI countries are very attractive to international contractors. In 2019, ENR-listed companies had set up 979 branches in BRI countries, more than half of the total number of their branches worldwide. Southeast Asia is home to the largest number of branches of the 72 sample companies, followed by South Asia and the Middle East and Northeast Africa. Least branches are located in Central and Eastern Europe. Specifically, many of these branches are located in India, Indonesia and Malaysia. Countries such as Saudi Arabia, Poland, Brazil and Uzbekistan are also attractive to international contractors.

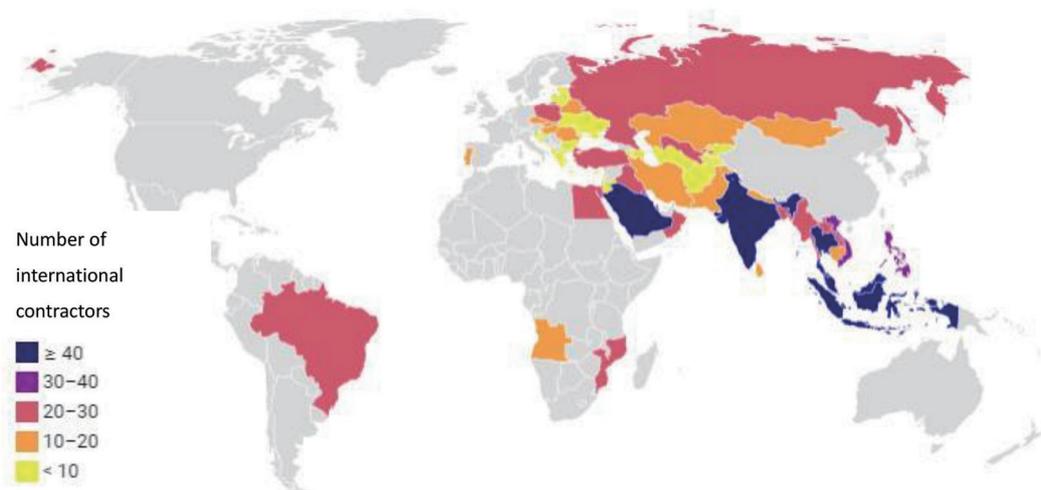


Figure 5 Participation of International Contractors in Belt and Road Infrastructure Development

Source: ENR 2020. The data are compiled by the research team.

Table 5 Numbers of Branches Set by International Contractors in BRI Countries (TOP 20)

Country	Number of Branches	Ranking	Country	Number of Branches	Ranking
India	46	1	Myanmar	28	10
Indonesia	45	2	Bangladesh	27	12
Malaysia	43	3	Qatar	25	13
Saudi Arabia	42	4	Oman	23	14
Thailand	40	5	Poland	23	14
Vietnam	37	6	Iraq	23	14
Singapore	34	7	Egypt	22	17
The Philippines	33	8	Turkey	22	17
Kuwait	33	8	Brazil	21	19
Russia	28	10	Uzbekistan	21	19

Source: ENR 2020. The data are compiled by the research team.

International contractors see a pickup in domestic business. Non-Chinese companies¹⁰ in the sample have maintained a ratio of overseas-to-total revenues of more than 55% for the past decade, with cross-border infrastructure cooperation as a pillar of their business development. However, in 2019, the ratio fell sharply to 46%, which, to some extent, may reflect the business development trend of international contractors.

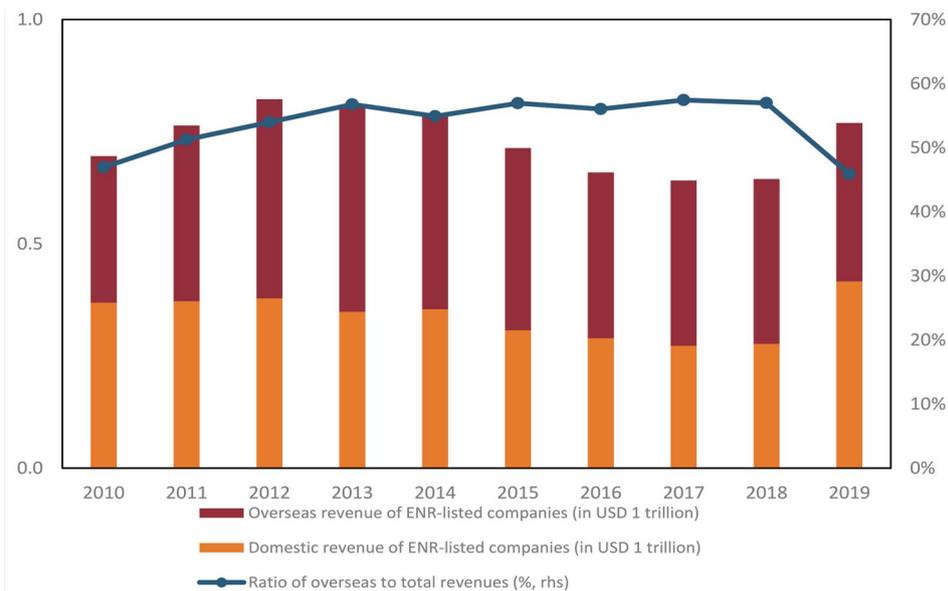


Figure 6 Changes in the Percentage of Overseas Business of International Contractors

Source: ENR 2020.

Note: The data are compiled by the research team. Chinese companies are excluded.

International contractors generally witness an increase in assets and business scale. Since 2010, non-Chinese companies in the sample have gradually recovered from the aftermath of the global financial crisis, on a volatile upswing in assets and business scale. Relevant companies¹¹ have seen their assets rising from USD

10 To accurately show the changes in operations of international contractors, this section excludes Chinese contractors whose domestic business accounts for a relatively high proportion. The 51 non-Chinese contractors are studied to analyze the changes in open data of listed companies.

11 The median is used to avoid extreme values.

5.5 billion in 2010 to USD 12.8 billion in 2020, and annual revenue from USD 4.6 billion to USD 8.4 billion. Most companies have experienced significant increases in assets and business scale. The study also found that the number of employees of international contractors has fluctuated on a five-year cycle with an overall upward trend. However, due to COVID-19, the number of employees of sample companies fell by nearly 30% year-on-year in 2020.

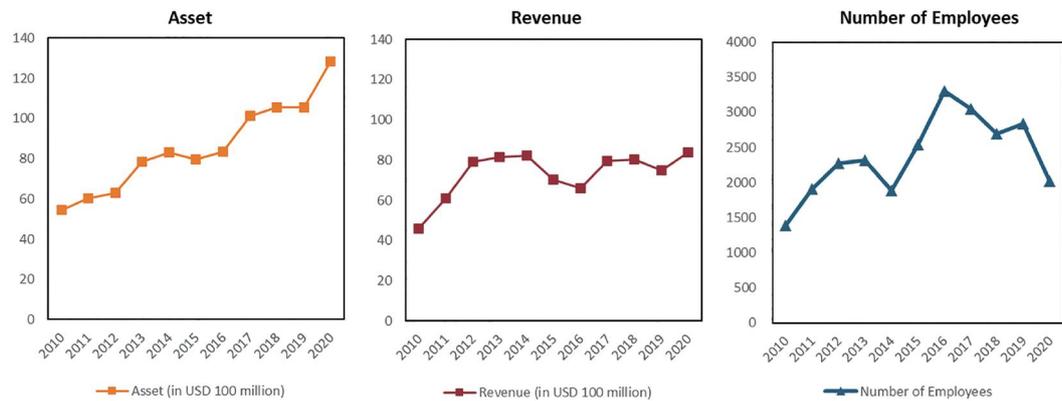


Figure 7 Changes in Basic Information of Major International Contractors (2010–2020)

Source: Osiris.

Note: The data are compiled by the research team. Numbers in the figure are all median values. Chinese companies are excluded.

The profitability of international contractors has weakened. Since 2010, non-Chinese companies in the sample have maintained an average margin within the range of 3%–5%, but their assets have grown faster than profits. As a result, the return on net assets was on a downward trend. International contractors need to improve the fund's efficiency. Due to the intensified international trade frictions and the outbreak of COVID-19, the net margin and return on net assets of international contractors have declined from 4.4% and 13.7% in 2018 to 3.6% and 10.0% in 2020, respectively. Among them, the top 5 companies by market value saw a higher-than-average decrease of 5.0% in net margin in 2020. VINCI, the top one by market value, saw its net margin plummeting from 10.3% to 4.1%, a decrease of 6.2 percentage points. On the whole, contractors who have larger international business scale and

are more involved in the global market suffered greater impact in 2020.

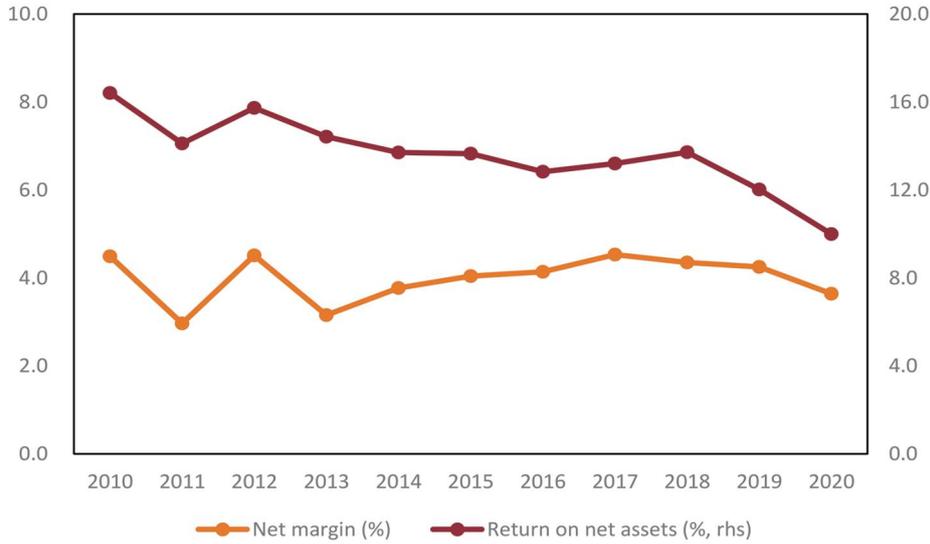


Figure 8 Changes in Profitability of Major International Contractors

Source: Osiris.

Note: The data are compiled by the research team. Numbers in the figure are all median values. Chinese companies are excluded.

Table 6 Development of Major International Contractors in 2020

International Contractor	Country	Market Value (in USD 100 million)	Gross Revenue (in USD 100 million)	Number of Employees (in 10,000 persons)
VINCI	France	613	544	21.8
BOUYGUES	France	157	449	12.9
ACS	Spain	104	433	18.2
EIFFAGE	France	95	206	7.3
SKANSKA	Sweden	103	196	3.2
STRABAG	Austria	38	183	7.4
AECOM	US	67	132	5.4
WORLEY LIMITED	Australia	31	90	5.2
ACCIONA	Spain	79	89	2.3
CIMIC GROUP	Australia	58	88	3.2

Source: Data from Osiris as of the end of 2020, and compiled by the research team.

Note: The gross revenue includes domestic and overseas revenues.

2 Comparative Analysis of the Performances of International Contractors

Considering that contractors in different regions vary in the business scope and corporate culture, this section divides the 51 non-Chinese sample companies into four groups by the registered place of listing: the EU, Japan and South Korea, the US, and Australia, and analyzes the key financial indicators of companies in the four groups.

Japanese and Korean companies perform well across the board with stable business growth. First of all, Japanese and South Korean companies have achieved an improved and less volatile margin in recent years with a higher overall profitability than those in the other three groups. However, the profit indicators of EU, US, and Australian companies have been extremely volatile over the past decade. Second, the US and Australian companies saw a significant drop of the proportion of accounts receivable, reflecting an improvement of their supply chain management abilities. European and Japanese companies have maintained a basically stable proportion of accounts receivable. Last, due to greater uncertainty in global trade, all companies have seen higher depreciation and amortization (D&A) of assets. EU and US companies suffer the highest D&A while Japanese and Korean companies see the lowest D&A with a relatively stable performance across the board.

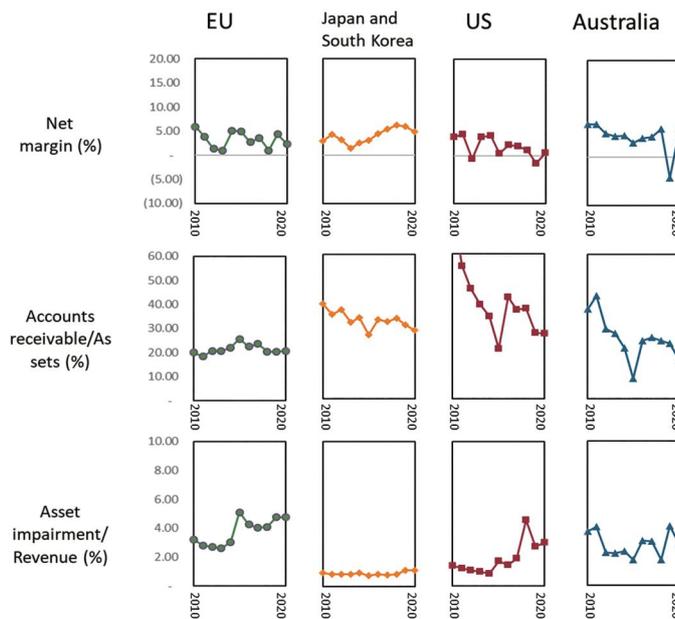


Figure 9 Changes in Key Indicators of International Contractors (2010–2020)

Source: Osiris. The data are compiled by the research team.

International contractors are hit by COVID-19 to different degrees. The pandemic intensified the competition and crippled the profitability of the international contracting industry in 2020. In terms of the changes in key balance sheet indicators¹² contractors in the EU and Japan and South Korea saw their profits falling by 2.0% and 4.2% respectively from 2018, for different reasons. For EU contractors, the main reason lies in increased D&A; whereas, for Japanese and South Korean contractors, the decline is resulted from increased management costs. Some US and Australian contractors had already suffered losses in 2019. With a relatively low baseline, US and Canadian contractors managed to turn losses into profits in 2020, and the impact of COVID-19 has not been fully reflected.

3 New Business Development Characteristics of International Contractors

Looking ahead, many BRI countries will confront huge challenges in infrastructure development due to unfavorable factors including financial constraints, exchange rate fluctuations, and rising prices. However, it should be noted that the international infrastructure market will continuously pick up and international contractors will be increasingly involved in Belt and Road infrastructure development as vaccination against COVID-19 ramps up and the global economy slowly recovers. In general, international contractors will see the following new business characteristics in BRI countries:

Greater business diversity. In recent years, international contractors have actively created new competitive edges and growth points by expanding their business scope through M&As and cross-border operations. In 2020, WEBUILD successfully completed acquisition of ASTALDI via capital increase, which has increased its ability to lead or participate in large-scale infrastructure projects. In 2021, VINCI acquired

¹² Net Profit Margin reflects a company's profitability; CAPEX to Revenue Ratio refers to the ratio of the money a company spends on fixed assets to its revenue, reflecting the company's intention of maintaining or expanding its assets; Depreciation & Amortization to Sales is the ratio of depreciation expense to sales revenue, reflecting the impact of D&A on the profit; Accounts Receivable to Total Asset reflects the supply chain stability and the contract amount of a contractor.

ACS' s energy business with USD 5.7 billion to bolster its energy contracting business. STRABAG emphasized in its 2021 strategy the expansion of market layout and new growth space.

More attention to sustainable development. ESG will become mainstream for the development of high-quality infrastructure that meets the economic and social development needs of host countries. VINCI launched the Environmental Transition Plan in 2021, with an aim to reform its business and reduce the environmental impact throughout the project life cycle. SKANSKA pledged to achieve net-zero carbon emissions by 2045. Focused on renewable energy, ACCIONA plans to improve its performance in social and environmental sustainability by adopting ESG evaluation for all projects.

Business model transformation powered by new technology. As digital, information, and intelligent technologies make their way to infrastructure projects, international contractors will increase the application of new technology. In 2021, BOYGUES put forward the concept of “smart city” , committed to building safer, smarter, and more energy-efficient buildings. AECOM proposed a “smart construction” solution based on cloud computing and data management technology, which integrates multiple data sources and external variables into the information cloud to maximize the energy efficiency and reduce the operating costs of buildings.

Chapter Two

BRIDI Sub-indices

The Belt and Road Infrastructure Development Index (BRIDI) is expressed in four dimensions – development environment, development demands, development costs, and development passions. This chapter investigates the infrastructure sector of the BRI countries from the four aspects. Generally, as the world is witnessing stronger economic activity and renewing passions for infrastructure facilities, the sub-indices on development environment, development demands and development passions rebound, though not back to their pre-COVID-19 levels. The Development Costs Sub-index is scored lower than it was last year in response to fluctuations in raw material prices and exchange rates.

Section One: Development Environment Sub-index

The Sub-index explains the environment for companies 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.

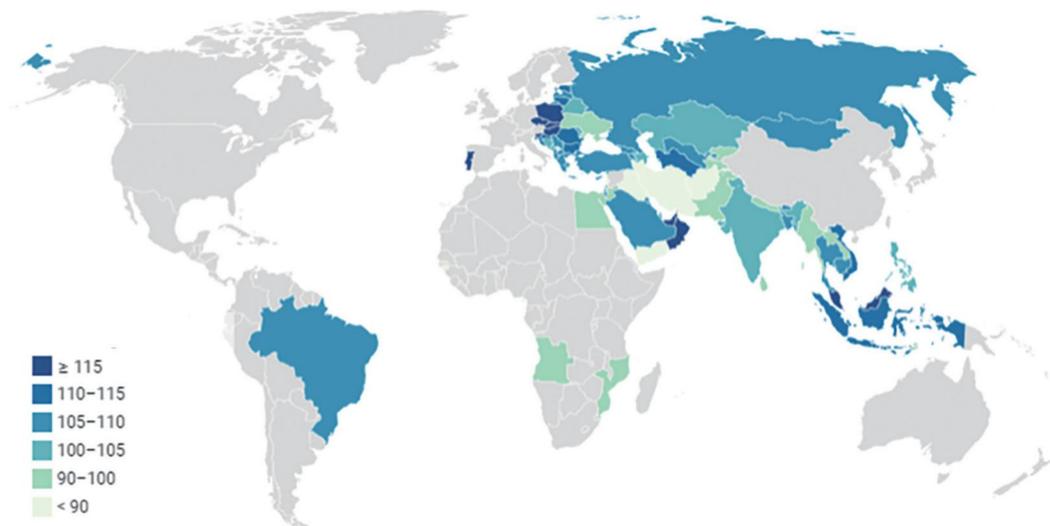


Figure 10 Development Environment Sub-index Heat Map

Source: CHINCA, SINOSURE's Country Risk Database.

1 Overall Changes in the Development Environment Sub-index

The Sub-index rises to 107 in 2021, the fastest among all four sub-indices, playing a prominent role in driving up the BRIDI. But the Sub-index is not yet out of its worst trough in a decade and expects a further recovery from the pandemic. It will firm up to 110 under the optimistic scenario or decline slightly over the baseline to 106 if the pessimistic scenario takes place.

Most BRI countries where the pandemic is effectively contained have brought their economic figures into something of a V-shaped curve since the third quarter

of 2020. The improving signs of economic and social orders, as well as national economic recovery, underlie much of the Sub-index’ s rebound this year. But such improvement is uneven – much more significant in developed countries of which the economic climate and sovereign solvency is comfortably assured by their strong economic foundation than in developing countries where the recovery is slower due to, among other factors, social security concerns, vaccine shortage and debt burdens.

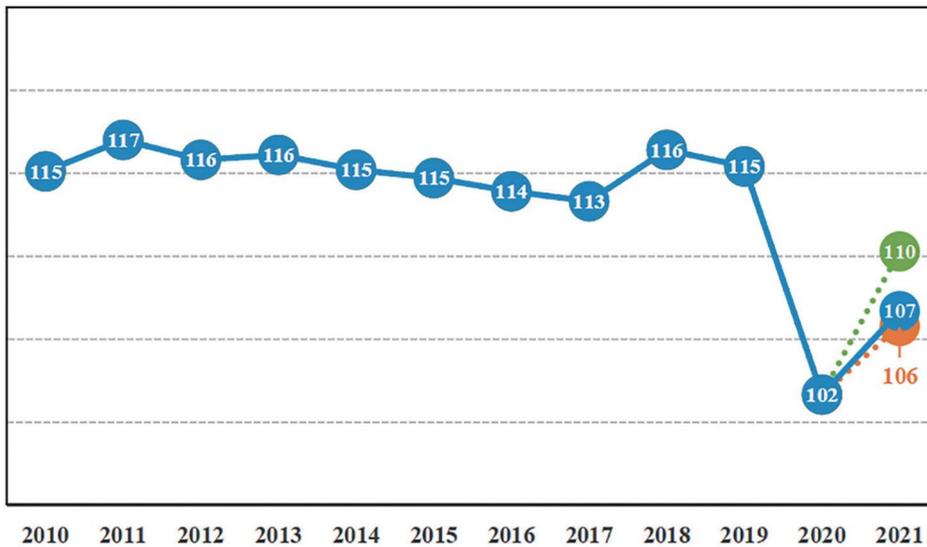


Figure 11 Development Environment Sub-index (2010–2021)

Source: CHINCA, SINOSURE’ s Country Risk Database.

2 Development Environment Sub-index by Region and Country

The Development Environment Sub-index is on the rise across all BRI regions but South Asia in 2021. By country, 94% of the BRI countries post an increase, of which nearly one-third score over 10% higher than they did last year. Only four countries¹³ remain unchanged or drop slightly. To be specific:

Southeast Asia comes out top again, but only by a hair this year, while Singapore stays ahead for the 10th year in a row. Southeast Asia moves up to 114 points in 2021, ranking first among the seven regions, but its lead shrinks over the previous year. What’ s worth noting, in face of another surge in India’ s coronavirus cases,

13 Qatar, United Arab Emirates, Singapore, India

Southeast Asian countries find their fight against the pandemic far from over. The second wave of pandemic in Indonesia, Vietnam and some other countries is challenging the infrastructure development environment. Despite project limitations amid the pandemic, Singapore still stays ahead as a prize for its stable politics and sound business environment.

Development environment improves in CEE and in Bosnia and Herzegovina in particular. CEE scores 114 points in 2021 after a remarkable 8-point rise over 2020, jumping back to the second place among all regions. CEE, as a whole, has enjoyed political stability and effective governance for a long time. The economic outlook brightens, and industry environment improves, as the pandemic loses its grip on the region. An over 9% improvement in the Development Environment Sub-index is observed across more than half of the CEE countries in 2021. To be specific, Bosnia and Herzegovina embraces the greatest rise in the Sub-index, from 89 to 101 over the past year. The country's unemployment rate has returned to its pre-pandemic level in the first quarter of 2021. The prospects for economic recovery are looking up, as evidenced by a 25.5% year-on-year GDP growth. The government attaches much importance to growing the infrastructure sector. A handful of development plans for traffic networks, smart cities, and telecommunication systems are opening the country to more opportunities.

South Asia's development environment worsens, while India experiences the sharpest decline in the Sub-index. South Asia slips for the third consecutive year to 102 points as weighted down by the pandemic, making it the only region that gets a lower point for the Sub-index in 2021. To be specific, India has descended into a COVID-19 chaos, with new cases breaking global records. The diluted containment efforts, medical infrastructure vulnerability, and poor community awareness are what is to blame. Medical supplies and vaccines have been in severe shortage, which undermines the country's economic dynamism. In addition, Nepal, Sri Lanka and other South Asian countries are seeing a pandemic resurgence, leaving the region with a gloomy future.

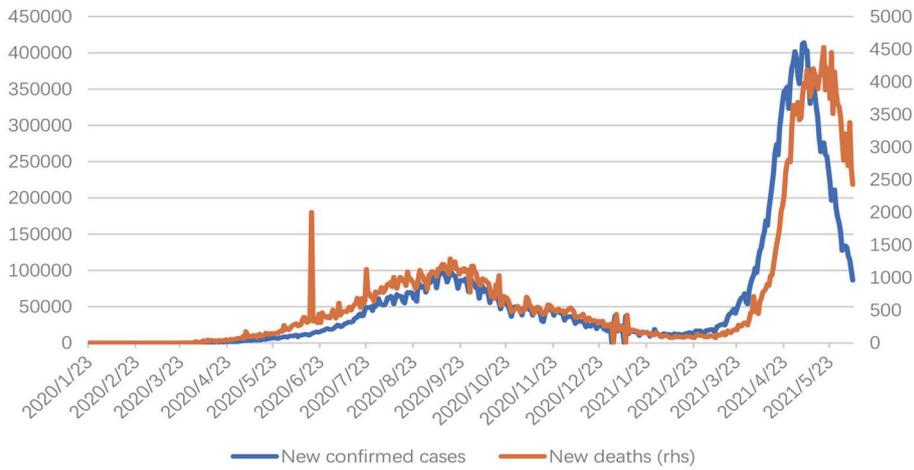


Figure 12 India’s Massive COVID Surge

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

Table 7 Changes in the Development Environment Sub-index by Region

Region	2021		2020	
	Score	Ranking	Score	Ranking
Southeast Asia	114 ¹⁴	1	108	1
CEE	114 ¹⁵	2	106	2
PSCs	108	3	101	4
Central Asia	107	4	97	6
CIS and Mongolia	105	5	98	5
South Asia	102	6	103	3
Western Asia & North Africa	101	7	96	7

Source: CHINCA, SINOSURE’s Country Risk Database

14 Southeast Asia scores 114.4.

15 CEE scores 114.1.

Table 8 Top 15 List of Infrastructure Development Sub-index

Country	2021		2020	
	Score	Ranking	Score	Ranking
Singapore	144	1	147	1
Czech Republic	123	2	113	4
UAE	120 ¹⁶	3	121	2
Portugal	120 ¹⁷	4	115	3
Hungary	119	5	108	8
Malaysia	116	6	107	9
Oman	115 ¹⁸	7	107	11
Poland	115	8	110	5
Slovakia	115	9	105	15
Slovenia	115	10	110	6
Indonesia	114 ¹⁹	11	107	10
Vietnam	114	12	109	7
Croatia	113	13	102	18
Bulgaria	112 ²⁰	14	103	17
Turkmenistan	112	15	96	42

Source: CHINCA, SINOSURE¹ s Country Risk Database

3 Factors Concerning the Development Environment Sub-index

(1) The political environment is relatively stable, despite emerging geopolitical risks in some of the countries.

The political environment stabilizes in most of the BRI countries in 2021. But there still emerge new geopolitical risks that compound the political climate for infrastructure development. The wide array of sanctions between the U.S. and Russia are challenging their bilateral relations. Myanmar¹ s armed forces overthrew the civilian government, leading to heightened domestic tensions and sporadic

16 The UAE scores 120.4.

17 Portugal scores 120.1.

18 Oman scores 115.4, Poland 115.3, Slovakia 115.2 and Slovenia 115.1.

19 Indonesia scores 114.4, and Vietnam 114.2.

20 Bulgaria scores 112.3 and Turkmenistan 112.1.

outbreaks of violence. The conflict between Israel and Palestine also kept escalating and triggered regional turbulence. As the ongoing pandemic has uncovered serious gaps in governance capacities and systems between countries, such geopolitical risks are adding uncertainties to the political environment in the BRI countries.

(2) The economic environment is brightening, but uncertainties rise.

The pandemic has ebbed in most of the BRI countries which have fought vigorously against COVID-19 and rolled out vaccines. Normal social and economic orders are restored; global economic recovery can benefit from the improved external environment. The real GDP growth of the BRI countries rebounds sharply in 2021, by 7.9% on average; Portugal and other 17 countries even exceed 10%. But one should not misinterpret this as suggesting that the economic environment along the Belt and Road is certain and stable, given the rising inflation risks and uneven economic recovery globally, as well as notable financial pressures on developing and less-developed countries amid the not-yet-over pandemic.

(3) The risk of sovereign insolvency picks up.

While the world has injected over USD 14 trillion to fight COVID-19 in 2020, debts and budget pressures mount along the Belt and Road. Though the BRI countries have not suffered any massive debt defaults, under the framework the G20 Debt Service Suspension Initiative (DSSI) and with financial supports from multilateral agencies, the time bomb of debt insolvency is ticking. According to SINOSURE' s ratings, the sovereign credit risk has gone up in 26.8% of the BRI countries. If the current policy support is withdrawn after the coronavirus fades, some countries might be in crisis again.

(4) Business environment is on the mend to attract foreign investment.

The BRI countries have been improving their business environment for years to attract foreign investments to grow the economy. The COVID-19 outbreak has urged most of the BRI countries to launch new policies which aim to relieve companies of the burdens that pandemic containment measures might impose. In Southeast Asia, for example, Myanmar has launched an online registration platform to streamline construction permit application; the Philippines makes starting a business easier

by abolishing the minimum capital requirement for domestic companies; Vietnam provides convenient tax payment services through IT-based transformation of the national tax system; Laos allows companies an easy access to electricity through automated supervisory control and data acquisition systems. The improved business environment will become a strong magnet to foreign investment. The BRI countries are expected to see a 22.8% year-on-year increase in foreign capital inflow in 2021.

(5) Though industry environment is improving, market confidence needs to be strengthened.

The continuity, openness and strategic clarity of infrastructure policies are improving in the BRI countries as they fight their way out of the pandemic. According to the questionnaire, 56% of the respondents perceive difficulties in market development amid the pandemic in 2021; only 33% expect an increased value of new contracts over 2020. Clearly, the negative impact of the pandemic will remain a drag on industry activities for quite a time, and the implied uncertainties will undermine market confidence.

Section Two: Development Demands Sub-index

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.

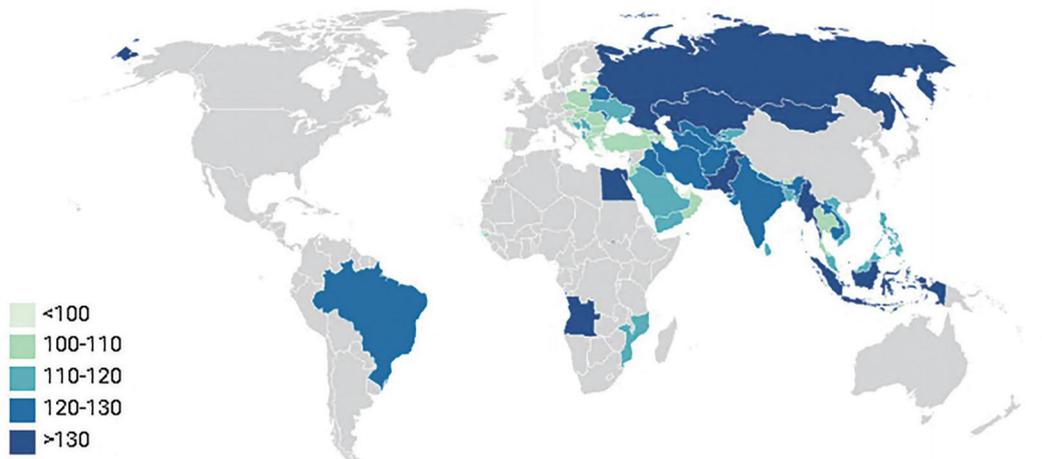


Figure 13 Development Demands Sub-index Heat Map

Source: CHINCA, SINOSURE's Country Risk Database.

1 Overall Changes in the Development Demands Sub-index

The Development Demands Sub-index scores 125 points in 2021. As our fight against the pandemic begins to succeed and the global economic recovery gathers pace, the infrastructure development demands rebound across the BRI countries. The Sub-index moves up slightly over the previous year but is still five points below the 2019 level (130). Generally, the Sub-index is higher than last year in most of

the BRI countries. When it comes to the rankings, 91.5% of the countries move up or down only by no more than five spots. The Sub-index will fall to 123 under the pessimistic scenario or bounce back to 127 under the optimistic scenario.

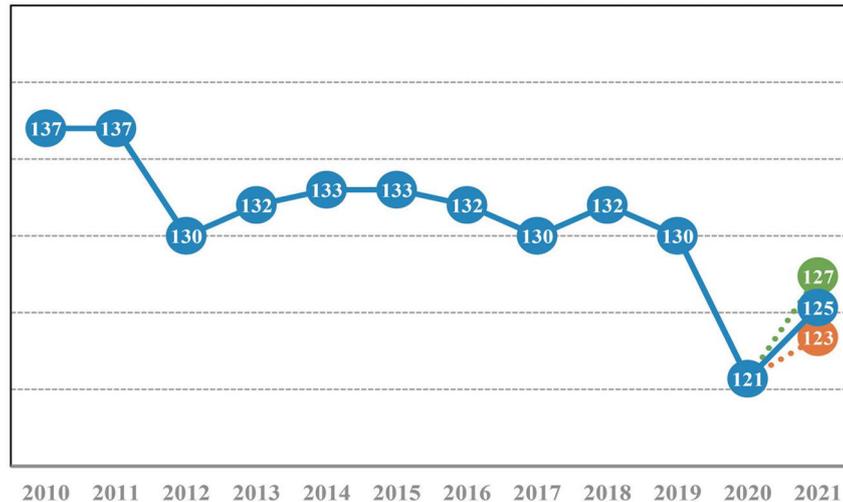


Figure 14 Development Demands Sub-index (2010–2021)

Source: CHINCA, SINOSURE's Country Risk Database.

2 Development Demands Sub-index by Region and Country

In 2021, the Development Demands Sub-index climbs back across all regions but Central Asia. The CIS countries and the Mongolian region tops the ranking while CEE continues to stay at the bottom. Southeast Asia and Portuguese-speaking countries rise to the second and third places respectively. Weighted down by the worsening COVID-19 outbreak in the region, South Asia slips one spot to the fifth over the past year. Western Asia & North Africa comes at the 6th, the same as last year, though the Sub-index scores 5.5% higher over 2020. The demands remain robust in transportation (which scores 142) and energy (which scores 138) sectors, and rise by varying degrees in communications, water, and public health sectors. Specifically:

The CIS countries and Mongolia claim a consecutive victory, indicating a demand pick-up for infrastructure development in Russia and Mongolia. The Sub-index for CIS countries and Mongolia stands at 143 after a 4.4% year-over-year

increase, ranking first among seven regions. The demands are centered particularly around transportation and energy sectors which score 187 and 164 respectively. Meanwhile, the communications, water and public health sectors score 145, 126 and 130 respectively, all higher than last year. Generally, the regional infrastructure needs are driven largely by the tremendous demands of Russia (of which the Sub-index is 147), Mongolia (of which the Sub-index is 138) and other major regional powers for transportation and energy facilities. To be specific, Russia released the outline of national plans for “transportation development” (2018–2024) and “energy development” (2013–2024). As the nation keeps unlocking its demands for transportation and energy, the score stands at 183 and 170 respectively for the two sectors.

Southeast Asia posts another rise in the rankings, with Indonesia topping the country category. Southeast Asia scores 134 points for the Sub-index in 2021, moving up the rankings for the third year in a row. This is largely attributed to the stable economic progress, lower unemployment rates, improved business environment and favorable externalities in Indonesia, Malaysia and Thailand. To be specific, Indonesia, which scores 167 points in 2021, envisions massive investments in the “new capital” and several other major cities in its “2020–2024 National Mid-term Development Plan (Draft)”, unleashing huge demands for transportation, energy, communications and other sectors.

South Asia goes down to the fifth, with dampened demands observed in India. The region moves up slightly to 126 points in the Development Demands Sub-index, slipping one spot to the fifth over 2020. The gloomy picture of India, which drops by 5 ranks in the Sub-index amid the worsening pandemic, is the main reason for the region’s sliding fortunes. The energy and transportation sectors remain a priority of regional infrastructure development, reaching 156 and 142 points respectively. However, demands soar for public health services in the region amid the pandemic, with the sector scoring 143 points after a 3.6% rise over 2020.

Table 9 Changes in the Development Demands Sub-index by Region

Region	2021		2020	
	Score	Ranking	Score	Ranking
CIS and Mongolia	143	1	137	1
Southeast Asia	134	2	127	3
PSCs	129	3	124	5
Central Asia	128	4	130	2
South Asia	126	5	125	4
Western Asia & North Africa	115	6	109	6
CEE	109	7	104	7

Source: CHINCA, SINOSURE's Country Risk Database.

Table 10 Top 15 List of Development Demands Sub-index

Country	2021		2020	
	Score	Ranking	Score	Ranking
Indonesia	167	1	160	1
Russia	147	2	141	2
Egypt	145	3	136	4
Pakistan	141	4	133	7
Angola	140	5	134	6
Myanmar	139	6	140	3
Mongolia	138	7	132	8
Kazakhstan	136	8	135	5
Cambodia	133	9	126	9
Brazil	132	10	126	10
Iraq	131	11	125	12
Nepal	130 ²¹	12	124	13
Laos	130	13	123	14
Belarus	127	14	121	18
Afghanistan	126	15	120	19

Source: CHINCA, SINOSURE's Country Risk Database.

21 Nepal scores 130.4, and Laos 130.2.

3 Factors Concerning the Development Demands Sub-index

(1) Demands of specific sectors differ among regions

By sector, demands vary significantly with regions. In the transportation sector, the CIS and Mongolia receives a score of 187 points for the Development Demands Sub-index, beating the average figure (131 points) of the BRI countries. The robust demands for new rail links in Mongolia and for electrified rail systems in Russia and Belarus are the main drivers. In the **energy sector**, Southeast Asia attaches much importance to improving power supply; South Asia looks forward to narrowing the power gap and improving power grid efficiency; Portuguese-speaking countries such as Portugal and Brazil show a strong appetite for clean energy development. In the **communications sector**, a grave shortage of constructions is observed in Western Asia & North Africa where the penetration rates of mobile phones, fixed lines, and the Internet are generally low; South Asian countries, including Pakistan, need to improve their communications network and close the huge gap in rural communications infrastructure constructions. In the **water sector**, Western Asia & North Africa represented by the UAE and Saudi Arabia aims to increase drinking water supply; Estonia and some other CEE countries see a need to improve sewage treatment facilities. As for the **public health sector**, the demands for healthcare services are robust across all regions. In particular, Portuguese-speaking countries (144 points) and South Asia (143 points) receive a significantly higher score than the BRI average (128 points) for the Sub-index, indicating an urgent need to develop hospitals, medical facilities and health care professionals in the two regions.

(2) Infrastructure connectivity and clean energy become new drivers of demands.

Infrastructure connectivity is one of the fundamentals and priorities of the BRI. The Lamu Port-South Sudan-Ethiopia-Transport (LAPSSET) Corridor, China-Laos Railway Bridge, and other major infrastructure projects have achieved initial success this year. The Mombasa-Nairobi-Kampala-Kigali standard gauge railway (SGR), Nimule One-stop Border Post (at the border of Uganda with South Sudan), and

Kitale–Nadapal–Juba Road (Kenya/ South Sudan), among others, are making steady headway. In the future, the implementation of RCEP and African Union’ s Agenda 2063 will help unleash further demands for transportation connectivity in related countries.

As major countries make commitments to achieve carbon neutrality, green infrastructure that captures clean energy is getting attention. According to Fitch Solutions, in 2020, the non–hydro renewables sector realized a net installed capacity addition of over 135GW globally. The year 2021 will see the sector add 174GW of net capacity. The EUR 750bn “Next Generation EU” recovery funding stands as the most prominent example of governments focusing their investment on green infrastructure, especially wind and solar projects. Portugal and Russia also position renewables as a core component of energy development. The Russia’ s Energy Strategy 2030 sets the target of increasing the share of non–conventional energy sources in energy consumption to 38% by the year 2030. This might involve an investment of about 60 trillion rubles.

(3) Demands for public health infrastructure remain robust.

Public health services are less present in the BRI countries than in the developed ones. For most BRI countries, including Bangladesh, Afghanistan and Yemen in particular, the public health infrastructure is weak. In 2021, the Development Demands Sub–index rises slightly to 128 points for the public health sector, as driven mostly by Portuguese–speaking countries and South Asia. From a long–term perspective, the BRI countries have huge potentials for public health infrastructure development. The demands will focus on medical facility renovation, IT–based medical services, smart hospitals, as well as the construction of biological laboratories, pharmaceuticals and medical equipment factories that serve public health functions.

Section Three: Development Passions Sub-index

The Sub-index is calculated based on the value of new contracts for BRI infrastructure development, the size of private investment in infrastructure projects, international contractors’ investment and returns²², 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.

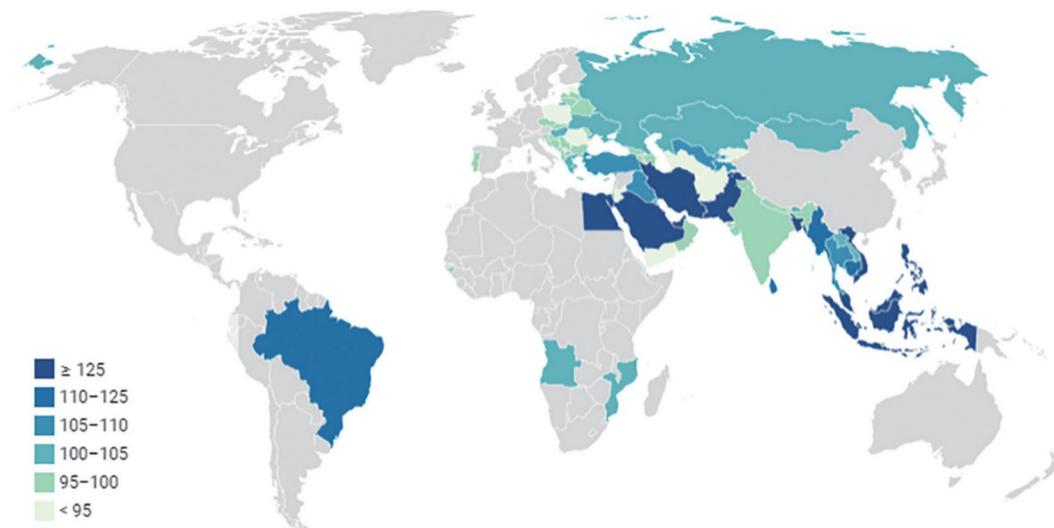


Figure 15 Development Passions Sub-index Heat Map

Source: CHINCA, SINOSURE’ s Country Risk Database.

1 Overall Changes in the Development Passions Sub-index

In 2021, the Development Passions Sub-index for BRI countries is 112, representing only a mild rebound from the 2020 level of 110. The resumption of

22 Source: Data on the value of new contracts for BRI infrastructure development comes from BMI and MOFCOM, that on the amount of private investment in infrastructure projects from the World Bank’ s PPI Database, and that of contractors from Osiris Database.

infrastructure projects after COVID-19 shutdowns has rekindled passions for BRI infrastructure investment and development, but not yet back to the pre-pandemic levels. The parties involved have reframed their expectations for infrastructure investment and construction. Concerted efforts shall be made to strengthen collaboration and set passions aflame again for BRI infrastructure development. The Development Passions Sub-index will fall to 111 under the pessimistic scenario or bounce back to 115 under the optimistic scenario.

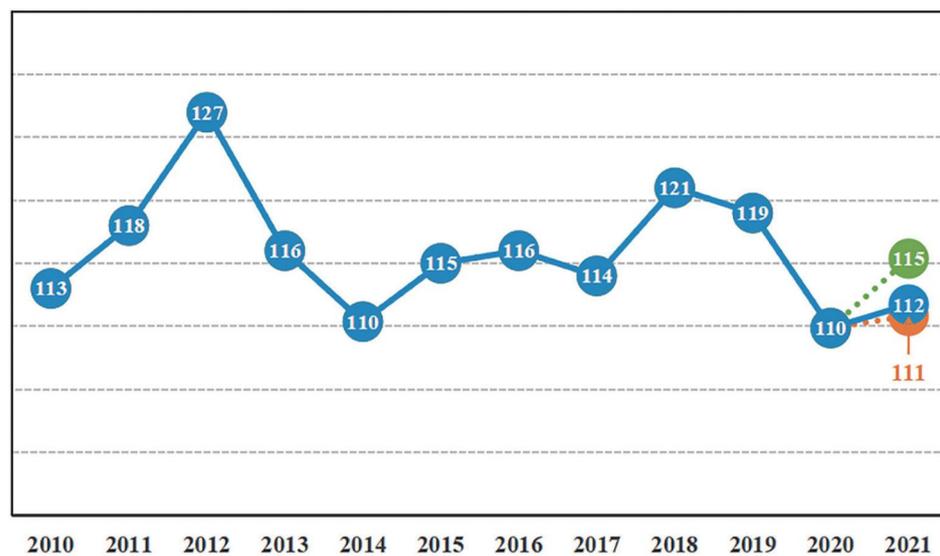


Figure 16 The Development Passions Sub-index (2010–2021)

Source: CHINCA, SINOSURE's Country Risk Database.

2 Development Passions Sub-index by Region and Country

In 2021, the Sub-index exhibits an upward trend in over 80% of the countries. By region, South Asia descends steeply down the Sub-index rankings, while Portuguese-speaking countries and Central Asia register a rise. Other regions hold the same rankings as a year ago. As for scores, Southeast Asia picks up quite a lot over last year, but South Asia experiences a decline. To be specific:

Passions continue to converge in Southeast Asia, with the Philippines scoring much higher than last year. Southeast Asia is ranked first among the seven regions after a significant increase to 127 points in 2021, higher than the 2019

level. This is mainly attributed to the vigorous supports from regional governments for infrastructure investment, and the abated COVID-19 influences on project progress. By country, Vietnam, the Philippines and Malaysia seem the most favored destinations for infrastructure investors in 2021, as evidenced by a good volume of newly signed contracts. To address the projected growth in domestic electricity demands for production and household consumption, the government of the Philippines formulated its “Power Development Plan (2017-2040)”, with an aim to increase power generation through such measures as the privatization of state-owned power agencies and the promotion of renewables. The government signed a number of large-scale power projects in 2020, including LIMAY 1100MW LNG combined-cycle power station (USD 870 million) and Sanchez Mira wind farm (USD 200 million). There are also power projects led by private investment, including Siguil Hydro Power Project (USD 90 million), Sta. Rosa Solar Plant (USD 30 million), etc.

Increased passions are found in Western Asia and North Africa; Turkey continues to gain more favors from the investors. Western Asia and North Africa scores 119 in 2021, representing a slight increase from the previous year, ranking second among all regions. Despite international oil price fluctuations, infrastructure investment remains robust for the region. Countries like Turkey and Egypt play a prominent role in driving up the Development Passions Sub-index of the region. By country, Turkey has signed significantly more contracts with China in 2020. A number of contracted projects have been implemented, including Konya Light Rail System (USD 1.59 billion), Egridir Pumped Storage Power Plant (USD 1.5 billion) and Hunutlu Coal-fired Power Plant (USD 810 million). According to Fitch Solutions, the Istanbul Canal Project in Turkey will cost USD 12.95 billion, making it one of the largest BOT projects in this country in recent years.

Passions subside a bit in the CIS countries and Mongolia, while investment fluctuates a lot for projects in Russia. The CIS and Mongolia drops to 102 points in 2021 and moves two notches down the rankings to the fifth. The COVID-19 pandemic, sporadic local conflicts, declining international oil prices and shrinking fiscal revenues in related countries have dampened investors’ appetite for the

region. By country, Russia has made steady headway in, for example, Volga River Bridge III (USD 90 million) and Devyatkino Station (USD 70 million) projects, despite significant changes to the investment scale. Russia has issued several development plans, including the “Far East Development Strategy” , “Comprehensive Plan for Modernization and Expansion of Trunk Transport Infrastructure” and “National Economic Recovery Plan” . But the lack of integrity and continuity makes it a challenge to implement these plans.

Table 11 Changes in the Development Passions Sub-index by Region

Region	2021		Baseline scenario in 2020	
	Score	Ranking	Score	Ranking
Southeast Asia	127	1	116	1
Western Asia & North Africa	119	2	116	2
PSCs	109	3	107	4
Central Asia	106	4	106	5
South Asia	102 ²³	5	114	3
CIS and Mongolia	102	6	104	6
CEE	97	7	93	7

Source: CHINCA, SINOSURE’ s Country Risk Database.

Table 12 Top 15 List of Development Passions Sub-index

Country	2021		Baseline scenario in 2020	
	Score	Ranking	Score	Ranking
Vietnam	150	1	126	7
Pakistan	147	2	136	1
The Philippines	140	3	120	9
Saudi Arabia	139 ²⁴	4	131	3
Bangladesh	139	5	130	4
Malaysia	135	6	129	5
UAE	134	7	132	2
Indonesia	130	8	119	10

23 South Asia scores 102.3, and CIS and Mongolia 102.1.

24 Saudi Arabia scores 139.4, and Bangladesh 139.2.

Country	2021		Baseline scenario in 2020	
	Score	Ranking	Score	Ranking
Egypt	129	9	126	6
Iran	125	10	122	8
Sri Lanka	115	11	112	12
Myanmar	111 ²⁵	12	106	15
Brazil	111	13	109	13
Singapore	110 ²⁶	14	106	16
Cambodia	110	15	104	19

Source: CHINCA, SINOSURE’ s Country Risk Database.

3 Factors Concerning the Development Passions Sub-index

(1) The consequences of the pandemic are not yet over; uncertainties exist for project implementation.

Currently, though COVID-19 has been partially contained, its consequences are far from over. An uncertain economic recovery and anticipated inflation risks are putting infrastructure investors in a predicament. For one thing, the BRI governments have cut infrastructure investments in pandemic, shifting focus to coronavirus fight and economic stimulus. Some of the business talks and construction works were impeded, and infrastructure projects put on ice or cancelled. For example, Kuwait put off construction of Mubarak Al Kabeer Port and temporarily suspended the USD 100 billion “Silk City” project. For another, cross-border infrastructure projects are generally capital intensive and take a long time to finish. Also, there is only a single exit channel for investment capital. Some host countries are facing fiscal tensions and devaluation risks that cannot be immediately removed. Therefore, the mounting sovereign debt risks and frequent occurrence of delayed payments have translated into financial and operational pressures on contractors. Generally, the present difficulties of delivering infrastructure projects will remain a drag on infrastructure development passions for quite a time.

25 Myanmar scores 111.3, and Brazil scores 111.2.

26 Singapore scores 110.2, and Cambodia scores 110.1.

(2) Private investors scaled back investments and exhibited a renewed preference

According to the latest data of the World Bank, there were 142 private-funded infrastructure projects along the Belt and Road in 2020, with a total investment of USD 25.97 billion, accounting for 56.8% of all private investments in infrastructure globally. However, the pandemic has dampened the enthusiasm of private investors in this segment, as can be seen from a 74.1% cut in private investments in BRI countries in 2020. By industry, the transportation sector attracts more private investments than other infrastructure sectors and is therefore the most vulnerable to the withdrawal of private capital. In 2020, it received only USD 5.22 billion from private investors, down 89.1% year-on-year. In addition, private investors have shown a renewed preference: (1) The energy industry constitutes 69.9% of the total private investments, making it the No.1 investment target; (2) The water industry is the only sector that saw an increase in private investments in 2020, as a prize for its lower investment thresholds, controllable risks, and short-term returns.

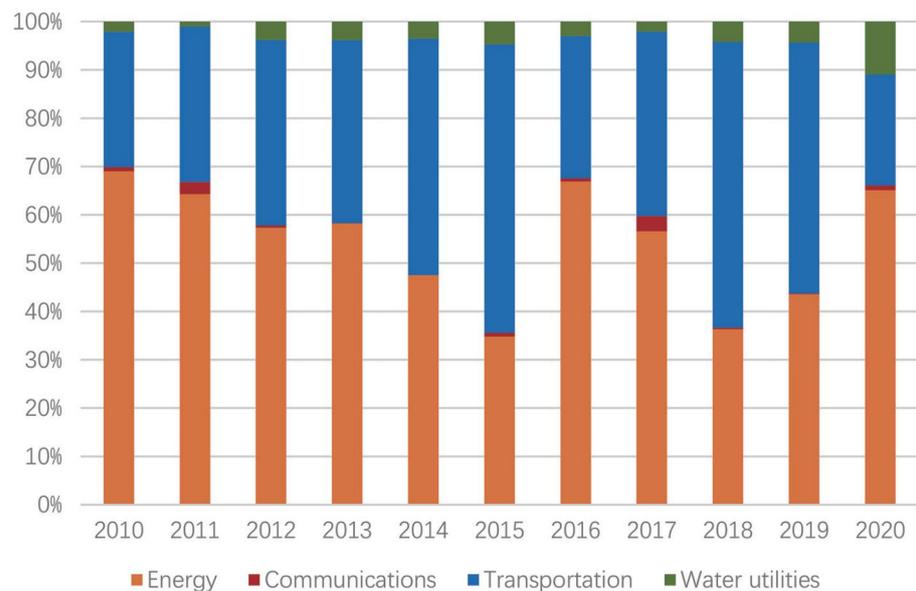


Figure 17 Private Infrastructure Investments by Sector (2010–2020)

Source: World Bank's PPI Database

(3) Progress towards carbon neutrality has a positive impact on global renewable energy development.

As countries work together to improve the global carbon-emission governance system while progressing towards carbon neutrality, new-energy infrastructure is given higher priority in the BRI countries. In 2020, green power generated from renewable sources increased by 7% year-on-year; 91% of the newly installed capacity was comprised of wind and solar. According to the World Bank’s PPI Database, private investments in renewables increased by 5 percentage points globally in 2020, accounting for 67% of private investments in all power projects. In BRI countries, except for Bangladesh, Pakistan and Thailand, most of the private funds for the energy sector goes to renewables. Vietnam has brought in solar and wind projects and lowered tax rates for renewable energy. With a further decline in investment costs of renewable energy and higher priority for sustainable development, BRI countries will surely embrace a new wave of investment in renewable energy infrastructure.

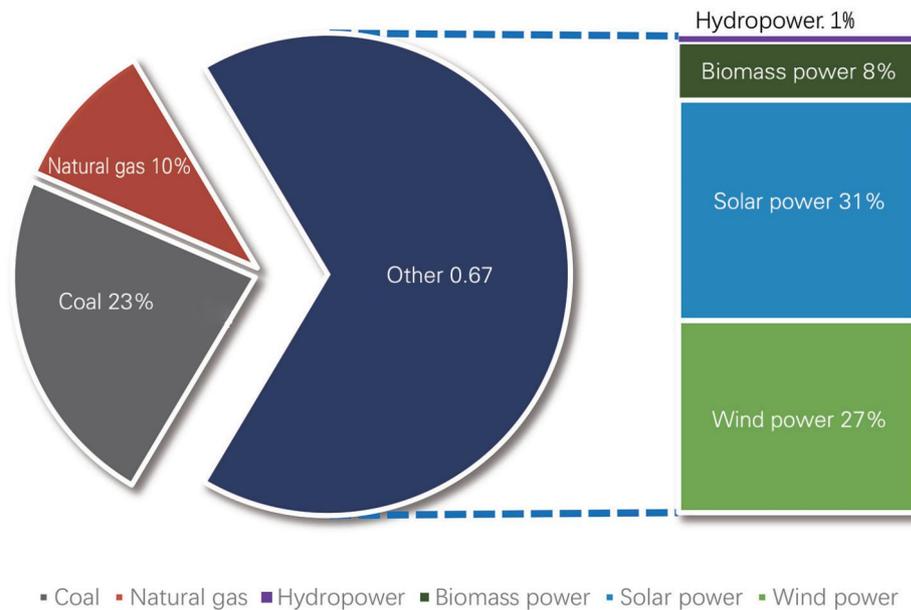


Figure 18 Private Investment in the Energy Sector in 2020

Source: World Bank’s PPI Database

Section IV: Development Costs Sub-index

The Development Costs Sub-index²⁷ examines two factors, i.e. operating costs and financing costs. To be specific, the operating 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 operating costs are a reverse indicator. The higher the value, the lower the operating 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.

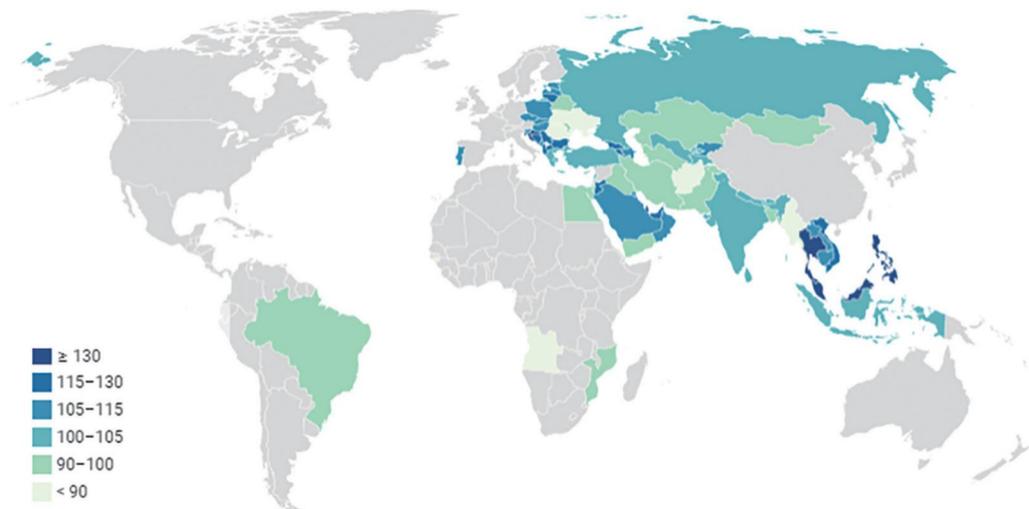


Figure 19 Development Costs Sub-index Heat Map

Source: CHINCA, SINOSURE's Country Risk Database.

1 Overall Changes in the Development Costs Sub-index

In 2021, the Development Costs Sub-index for BRI countries stands at 105, showing a slight increase in cost pressure compared to 2020. The price hikes in

²⁷ Unlike the three aforementioned sub-indices, the Development Costs Sub-index is a reverse indicator, suggesting that the higher the sub-index, the lower the costs.

bulk commodities such as steel and oil have pushed up raw material costs for infrastructure companies. The US Federal Reserve’s continued loose monetary policy has triggered fluctuations in global exchange rates and a new round of inflation fears. The rise of development costs is mainly attributed to an upsurge in operating costs across the board caused by soaring raw material prices and exchange rate depreciation. The Sub-index is anticipated to fall to 101 under the pessimistic scenario or rally to 107 under the optimistic scenario.



Figure 20 The Development Costs Sub-index (2010–2021)

Source: CHINCA, SINOSURE’s Country Risk Database.

2 Changes in the Development Costs Sub-index by Region and Country

In 2021, the Development Costs Sub-index goes south across all regions, except for Southeast Asia, the CIS and Mongolia, and Portuguese-speaking countries of which the Sub-index remains generally unchanged. Specifically, the Sub-index drops to a varying degree in more than 80% of BRI countries, 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 2021, Southeast Asia gains a score of 121 in the Development Costs Sub-

index category, saving companies more money in building infrastructure in this region than in its other six major counterparts. This is made possible by lower raw material costs and market interest rates, as well as stable financial markets. With the Sub-index standing at 151, 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 stable market interest rates.

The development costs stabilize in the CIS and Mongolia, with a slight fall observed in Russia. The CIS and Mongolia scores 101 in 2021, the same as last year, though up by 2 ranks. Russia is the most important infrastructure market in the region. As a result of limited exchange rate fluctuations, stable financial market, and declined domestic market interest rates, Russia sees a decline in development costs. Its Sub-index scores 103 in 2021, moving up 15 notches in the rankings.

South Asia sees an uptick in development costs, with the fastest growth in India. In 2021, the Development Costs Sub-index for South Asia rises to 100, yet dropping from third place to fifth among seven major regions. Compared to other countries in the region, India turns out the fastest growing country in infrastructure development costs. It scores 102 points in 2021 after a year-on-year decline of 4.8%. Higher raw materials (up over 5%) and labor costs (up around 10%) are the main reasons behind the surging business operating costs and thus infrastructure development costs in the country.

Table 13 Changes in the Development Costs Sub-index by Region

Region	2021		2020	
	Score	Ranking	Score	Ranking
Southeast Asia	121	1	121	1
CEE	108	2	110	2
Western Asia & North Africa	103	3	106	4
CIS and Mongolia	101	4	101	6
South Asia	100	5	106	3
Central Asia	97	6	101	5
PSCs	94	7	94	7

Source: CHINCA, SINOSURE's Country Risk Database.

Table 14 TOP 15 List of Development Costs Sub-index

Country	2021		2020	
	Score	Ranking	Score	Ranking
Qatar	152	1	154	1
Thailand	151	2	145	2
The Philippines	141	3	143	3
Malaysia	134	4	133	4
Croatia	131	5	132	6
North Macedonia	128	6	131	7
Jordan	127	7	133	5
Georgia	126	8	129	8
Albania	123	9	121	11
Lithuania	121 ²⁸	10	124	10
Armenia	121	11	126	9
Bosnia and Herzegovina	120	12	121	12
UAE	118	13	117	15
Bulgaria	117	14	118	13
Vietnam	115	15	117	14

Source: CHINCA, SINOSURE’ s Country Risk Database.

3 Factors Concerning the Development Costs Sub-index

(1) Operating costs are driven up by rising raw material prices and exchange rate depreciation

The rising raw material prices and exchange rate fluctuations are key factors influencing the operating costs of infrastructure projects. In 2021, bulk commodities such as steel and oil have a 40% rise in price, driving up raw material costs for infrastructure development. Brazil, Ukraine, Turkey and some other countries have experienced an over 10% price increase in raw materials; The US unconventional economic stimuli have contributed to the prevailing depreciation of currencies of BRI countries and the rising settlement cost of international infrastructure projects. Forty percent of the countries find operating costs of domestic companies rising.

28 Lithuania scores 121.3, and Armenia 121.2.

In addition, as some countries are still subject to COVID-19 human movement restrictions, many companies suffer skilled workforce shortages and rising labor costs. More than 30% of the countries have seen an over 5% increase in labor costs.

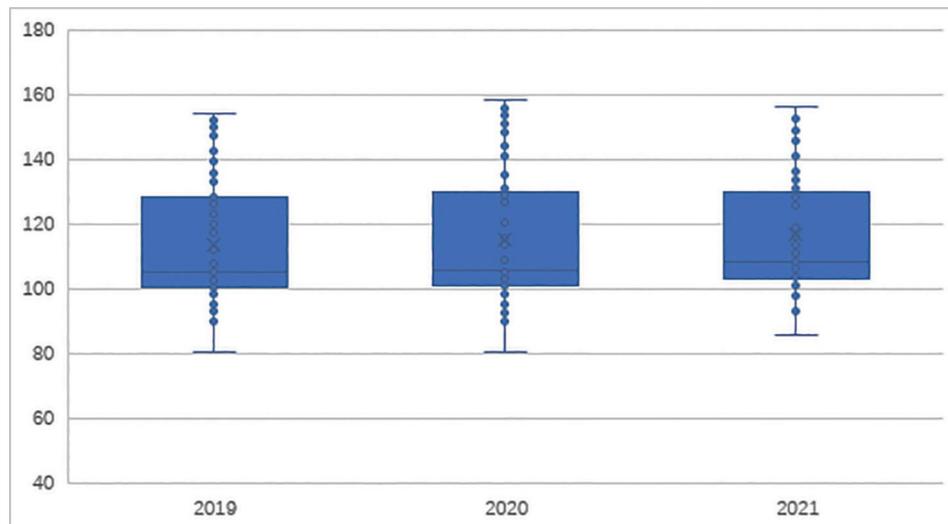


Figure 21 Infrastructure Development Operating Costs Sub-index for BRI Countries

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) Monetary policy changes directly affect companies' financing costs.

Since most countries continue to pursue a relatively loose monetary policy, companies observe only limited changes to their financing costs. That explains why the development costs in BRI countries rise only slightly in 2021. However, if the U.S. withdraws from the QE program after economic recovery in the post-pandemic era, there will be extensive spillover effects that impose greater financial pressure on most of the BRI countries and cause capital outflow. The BRI countries will have to adjust their monetary and fiscal policies then. As a result, the financing costs will possibly increase, and the countries will take a more cautious attitude towards

infrastructure projects.

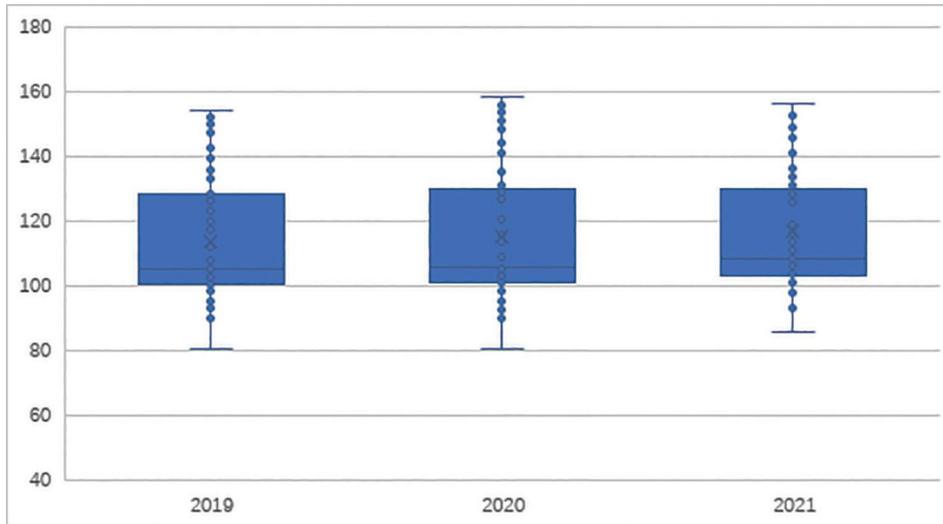


Figure 22 Infrastructure Development Financing Costs Sub-index for BRI Countries

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 Infrastructure Development in Portuguese-speaking Countries

PSCs are located in Europe, South America and Africa, covering a vast area. Despite different levels of infrastructure development, the eight PSCs are all important parties to the international infrastructure cooperation under the Belt and Road Initiative. In 2021, the BRIDI in PSCs marked a significant rebound as infrastructure investment and construction were showing strong signs of recovery. Macao SAR (hereinafter referred to as “the MSAR”) has taken an active part in the BRI in recent years. Its increasingly close economic and trade ties with the BRI countries have yielded fruitful results. Geographically endowed, Macao is presented with great opportunities as China kicks off the 14th Five-Year Plan and the construction of the Guangdong-Hong Kong-Macao Greater Bay Area (GBA). It is positioned to be “one center, one platform and one base,” namely a world center of tourism and leisure, an economic and trade cooperation platform for China and Portuguese-speaking countries as well as a cultural exchange and cooperation base, so as to play a more prominent role in China-PSCs cooperation in the area of infrastructure connectivity.

Section One: BRIDI in Portuguese-speaking Countries

As the pandemic situation improves and economy recovers, the BRIDI in PSCs shows a clear pickup in 2021, with the sharpest jump of the Development Environment Sub-index, a slight increase of the Development Demands Sub-index and the Development Passions Sub-index, and a basically unchanged Development Costs Sub-index. With more and more people vaccinated in PSCs, economic recovery will further revive the infrastructure market which, therefore, shows bright prospects.

1 Overall BRIDI in PSCs

The BRIDI in PSCs has staged a remarkable recovery. In 2021, PSCs saw an above-average increase of BRIDI to 112 points from 108 in 2020, rising to the third place from the fifth in the previous year. Behind the recovery are improved pandemic control and economic development. It is worth mentioning that PSCs generally attach great importance to infrastructure development. Despite the pandemic, their infrastructure projects have only slowed down slightly. They are expected to usher in a new wave of infrastructure investment and development in the post-pandemic era. Surely, we should also see the diverse development levels of PSCs. It still remains to be seen whether they can further contain the spread of the coronavirus. Moreover, PSCs are facing challenges such as increasing raw material prices and currency depreciation, which may curb infrastructure development in these countries to some extent.

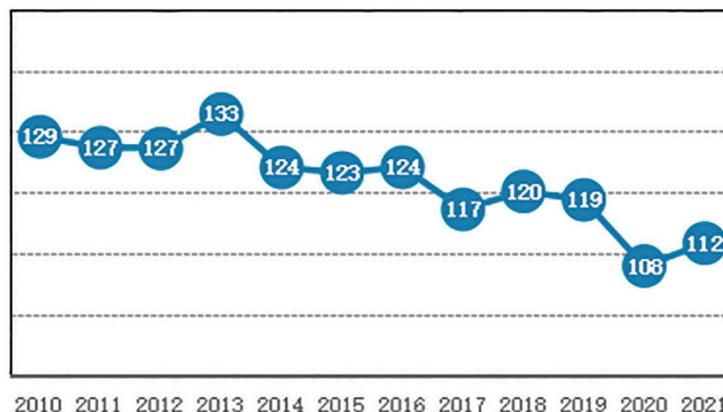


Figure 23 Changes in overall BRIDI for PSCs

Source: CHINCA, SINOSURE' s Country Risk Database.

PSCs have all seen an increase of BRIDI, and Brazil comes out on top. The BRIDI in the eight PSCs picked up to different degrees in 2021 from 2020. Portugal, Cape Verde, and Mozambique all increased by more than 5%, and Brazil scored 111 compared with last year' s 109, once again in the first place among PSCs, and rising to the 15th place from the previous 18th place among the 71 BRI countries. The great passion for developing infrastructure, supported by a stable flow of investment and an increasing number of new projects, has been an important reason for Brazil' s score rise. Portugal also made a jump in the ranking from last year' s 44th place to the 28th place this year, thanks to an improved development environment supported by rapidly increasing vaccination coverage and stable national economy recovery.

Table 15 Scores and rankings of PSCs by infrastructure development index

Country	2021		Baseline scenario in 2020	
	Score	Ranking	Score	Ranking
Brazil	112	15	109	18
Portugal	109 ²⁹	28	103	44
Angola	109	33	104	37
Cape Verde	105	53	100	55
Mozambique	104	54	99	61
East Timor	102	63	98	65
Sao Tome and Principe	98	69	95	68
Guinea-Bissau	97	70	94	70

Source: CHINCA, SINOSURE' s Country Risk Database.

29 Portugal scores 109.3, and Angola 109.2.

Table 16 Scores of PSCs by infrastructure development sub-indices

Country	Development Environment	Development Demands	Development Passion	Development Costs	Overall BRIDI
Brazil	106	132	111	92	112
Portugal	120	112	97	109	109
Angola	99	140	101	84	109
Cape Verde	104	107	103	104	105
Mozambique	98	118	101	95	104
East Timor	99	111	99	96	102
Sao Tome and Principe	99	101	95	96	98
Guinea-Bissau	88	112	95	88	97

Source: CHINCA, SINOSURE’ s Country Risk Database.

2 Scores of PSCs in Infrastructure Development Sub-indices

Table 17 Changes in sub-indices for PSCs

Index	2021		2020	
	Score	Change	Score	Change
Overall BRIDI	112	↑ 4	108	↓ 11
Development Environment Sub-index	108	↑ 7	101	↓ 16
Development Demands Sub-index	129	↑ 6	124	↓ 24
Development Passion Sub-index	109	↑ 2	107	↑ 2
Development Costs Sub-index	94	–	94	↓ 1

Source: CHINCA, SINOSURE’ s Country Risk Database.

The development environment gradually improves, especially in Portugal, Brazil, and Cape Verde. PSCs score 108 in the Development Environment Sub-index, rising to the third place among BRI regions. In the post-pandemic era, PSCs have seen sound economic recovery, stable political, industrial, and business environments, and gradually increasing sovereign solvency, which have combined to pull back the score. Countries hard hit by COVID-19 in 2020 such as Brazil and Cape Verde have hastened economic recovery and achieved an annual GDP growth rate of more than 10%, creating a favorable macro environment for post-pandemic infrastructure

development. Portugal, boasting political stability and solid economic foundation, comes out on top with a score of 120. With more and more people vaccinated, the economic environment improves obviously and the infrastructure development shows bright prospects in the country.

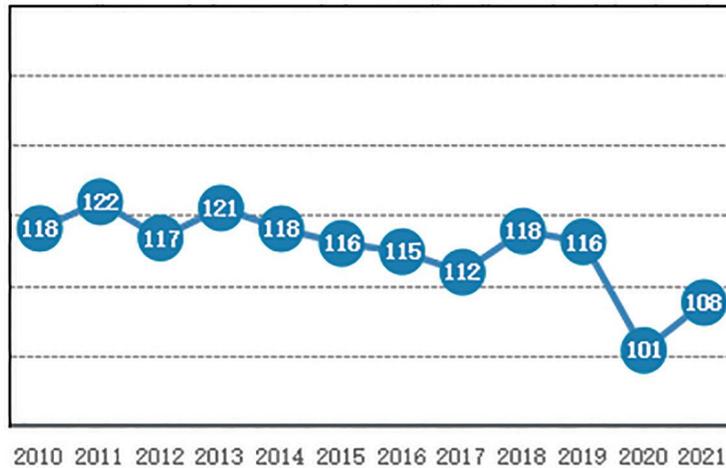


Figure 24 Scores of PSCs in Development Environment Sub-index

Source: CHINCA, SINOSURE’s Country Risk Database.

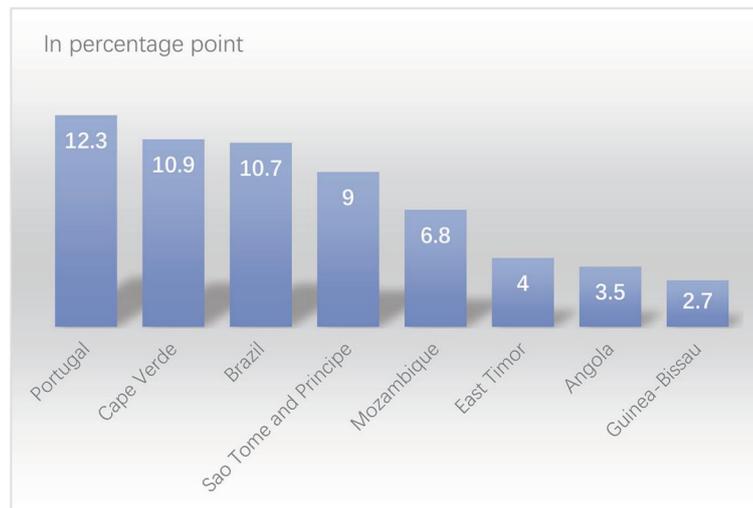


Figure 25 Changes in GDP growth rates of PSCs

Source: CHINCA, SINOSURE’s Country Risk Database.

Note: The figure shows the GDP growth rate changes of PSCs over the past year. For example, Portugal marked a 12.3% increase in 2021.

Development demands pick up, especially in transportation, energy, and public health sectors. In 2021, PSCs score 129 in the Infrastructure Development Demands Sub-index, rising from the fifth to the third place among BRI regions. Specifically, transportation development demands score 184, way higher than that for other industries. Connectivity of roads, railways, airports, ports and other infrastructure networks is becoming a key engine for infrastructure development in PSCs. The six PSCs other than Portugal and Brazil suffer from a large gap in electricity supplies. In some countries, less than 50% of the population have access to electricity. Therefore, these PSCs have a high demand for energy infrastructure development. The Angolan government has vigorously promoted the “Water for All” program which has effectively stimulate the development of the country’s water industry. As a result, Angola ranks first among PSCs in the Development Demands Sub-index in 2021, and is expected to advance a series of water infrastructure projects and the supporting electricity and building projects. It is worth mentioning that, according to WHO data, PSCs except Portugal have poor public health infrastructure, with fewer than 10 medical doctors per 10,000 people and a health spending-to-GDP ratio below 7%. These countries are in urgent need of a more developed public health infrastructure.

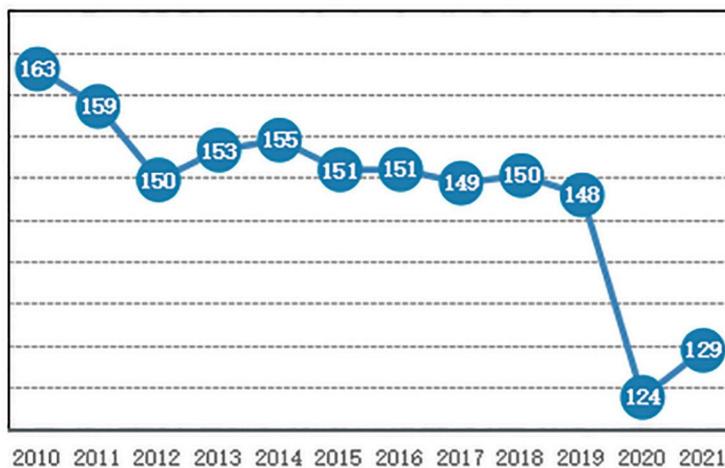


Figure 26 Scores of PSCs in Development Demands Sub-index

Source: CHINCA, SINOSURE’s Country Risk Database.

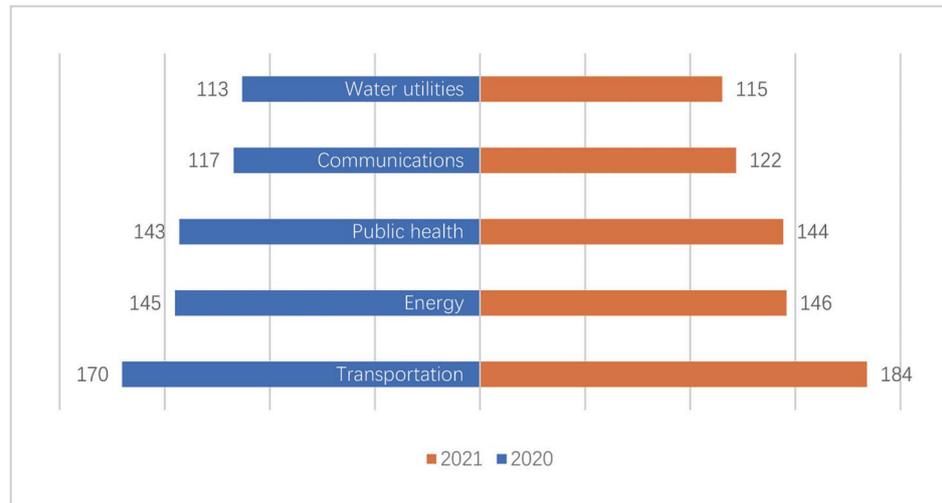


Figure 27 Scores of PSCs in Development Demands Sub-index by industry

Source: CHINCA, SINOSURE’s Country Risk Database.

PSCs have been increasingly passionate in infrastructure development for the past three years, which has drawn wide attention. In 2021, PSCs score 109 in Development Passions Sub-index, slightly above the previous year’s 107. Brazil ranks top with a score of 111. Infrastructure investment has been on an upward trajectory particularly in the fields of transportation and electricity in PSCs since 2019, despite the COVID-19 outbreak in 2020. The value of newly signed contracts between PSCs and China has increased by 54.7% year on year from USD 4.73 billion in 2019 to USD 7.32 billion in 2020. According to statistics from the Fitch Solutions Projects Database, the value of large infrastructure projects launched in PSCs exceeded USD 36 billion in 2020, up 164.3% year on year. In Brazil, the infrastructure development passion has continued to heat up due to high development demand and large project investment. A range of projects have started, including Bahia SkyRail (USD 1.18 billion), Photovoltaic Power Generation Project in Painted Hills in Rio Grande do Norte (USD 380 million), hydropower project on Kunar River (USD 320 million), and São Paulo Metro Line 2 (USD 240 million). The year of 2021 has also seen a number of large projects starting in other PSCs, including the Sonangol Cabinda oil refinery project in Angola (USD 920 million) and the Moamba Hydropower

Project in Mozambique (USD 830 million). Generally, the development passions in PSCs are on the upswing.

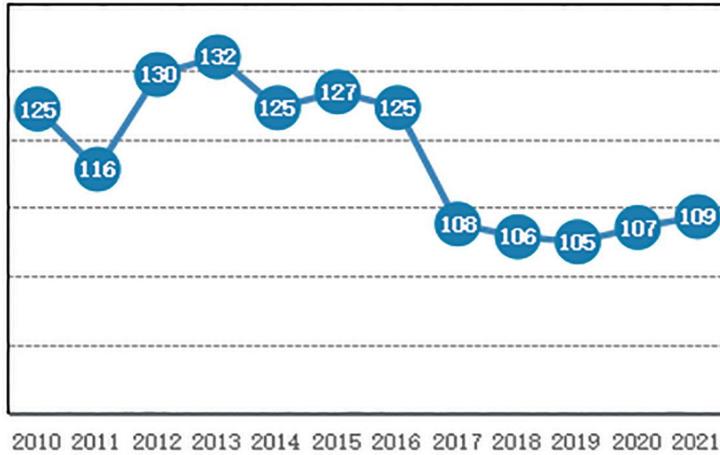


Figure 28 Scores of PSCs in Development Passions Sub-index

Source: CHINCA, SINOSURE’ s Country Risk Database.

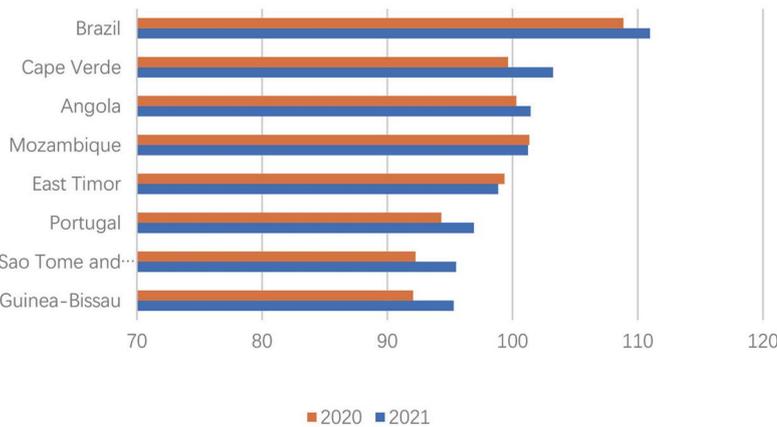


Figure 29 Scores of PSCs in Development Passions Sub-index

Source: CHINCA, SINOSURE’ s Country Risk Database.

Infrastructure development costs have remained stable, and Portugal boasts the lowest cost. In 2021, PSCs score 94 in Development Costs Sub-index, same as the previous year. Each country has further enhanced its cost advantage. To be specific, Portugal posts a score of 109, boasting the lowest development cost among

PSCs thanks to a sound financing environment. Cape Verde and Mozambique score 104 and 95 respectively. Lower interest rates in the currency markets of the two countries have effectively diluted the financing costs of enterprises, thus maintaining the development costs within a reasonable range. It is worth noting that, compared with the other 63 BRI countries, most PSCs are smaller economies with limited ability to withstand fluctuations in international exchange rates and commodity prices. These countries should optimize their policies as soon as possible in favor of lower infrastructure development costs.



Figure 30 Scores of PSCs in Development Costs Sub-index

Source: CHINCA, SINOSURE’s Country Risk Database.

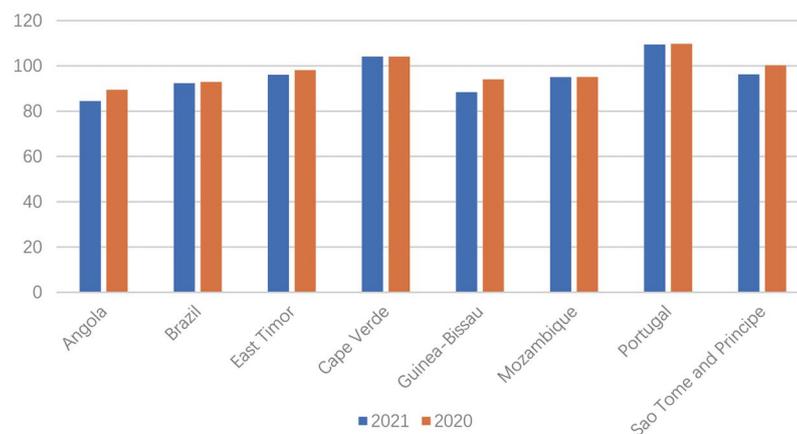


Figure 31 Development Costs Sub-index for PSCs

Source: CHINCA, SINOSURE’s Country Risk Database.

Section Two: Latest Achievements of Macao SAR in Belt and Road Construction

For years, the MSAR has taken an active part in the BRI, focused on promoting the five BRI projects, namely, policy coordination, facilities connectivity, unimpeded trade, financial integration, and strengthening people-to-people bonds. It has expanded the cooperation with BRI countries in multiple fields including trade, investment, tourism, convention and exhibition, characteristic finance, and cultural creativity, and has blazed a high-quality cooperation trail with distinctive Macao's characteristics. As it enters the 14th five-year period, China has proposed a dual-growth pattern relying on both domestic and international economic cycles and initiated the construction of the Guangdong-Hong Kong-Macao Great Bay Area. Against this background, the MSAR has earnestly implemented the “Arrangement between the National Development and Reform Commission and the Government of Macao Special Administrative Region (SAR) for Advancing Macao's Full Participation in and Contribution to the Belt and Road Initiative”. It has built key platforms such as the International Infrastructure Investment and Construction Forum to bridge China and PSCs in the BRI, and actively integrate itself into national development.

1 Policy Framework for Macao's Full Participation in the BRI

(1) Macao SAR plays a well-defined role in China's development.

The MSAR has concentrated on building various specialized platforms based on its economic characteristics and industrial structure to facilitate the overall development of China. Now, the MSAR has plotted a clear strategy for participating in the BRI, and mapped out a complete policy framework for serving the overall development of China while highlighting the elements of Macao. Early in the 13th five-year period, Macao made it clear that it would take the opportunity of the BRI

to play its role as a SAR in boosting China's economic development and opening-up. Later, it established a special working committee as a mechanism guarantee for its participation in the BRI. It further specified its role in facilitating unimpeded trade, financial integration, and people-to-people bonds, and underscored its position as "One Center and One Platform". In recent years, Macao has been dedicated to improving the service platform by making full of its cultural advantages. It has also set a new goal to create "One Base" of exchanges and cooperation of diverse cultures dominated by Chinese culture, further enriching its function as a SAR. In 2021, the MSAR aligned its strategy with the 14th Five-Year Plan, further highlighting its role of bridging China and PSCs and clarifying its path for participating in the BRI. The MSAR is expected to play a bigger role in pooling resources from the overseas Chinese community and promoting cooperation at multiple levels in multiple fields.

Table 18 Policy Priorities of Macao for Participating in the BRI (2016–2021)

Year	Content
2016	The MSAR government will seize the opportunities presented by the 13th Five-Year Plan, the BRI, and Pilot FTZ construction in Mainland China to improve the MSAR's position and function in boosting China's economic development and opening-up and provide more favorable conditions and new engines for Macao's economic development.
2017	The MSAR government has established a special working committee, led by the Office of the Chief Executive, to coordinate Macao's contribution to the BRI. With the support from the central government, it will make every effort to open up new areas of cooperation centered around financial services, give full play to professional advantages to export high-end services, take regional advantages to promote economic and trade exchanges, strengthen people-to-people bonds and deepen regional cooperation by cultural exchanges, and bring synergies into play.
2018	The MSAR government will align its efforts for building "One Center and One Platform" with the BRI and the GBA plan, and set up a dedicated department to coordinate and improve regional cooperation. It will focus on boosting unimpeded trade, financial integration, and people-to-people bonds. It will mobilize all sectors of society to participate in regional cooperation and encourage large enterprises to help small ones.
2019	Macao will take an active part in the BRI and give full play to its position as One Platform. It will make continuous efforts to facilitate unimpeded trade, financial integration, and people-to-people bonds. It will roll out coordinated policies and measures to pool resources from all parties for common development.

Year	Content
2020	Macao will play its advantages to meet national development needs. It will make practical efforts to strengthen its position as “ One Center, One Platform, and One Base ” . It will align its development strategies with the BRI and the GBA plan, and develop new industries and business formats that can easily integrate into the national industrial chain. It will combine its advantages as a separate customs territory from China and a service platform for China–PSCs business cooperation with the space and resources of Hengqin to build a channel for exchanges and cooperation between Mainland China and BRI countries and promote the country’ s all–round opening–up.
2021	Macao will earnestly implement the 14th Five–Year Plan of China , take an active part in the GBA construction and the BRI, and accelerate the development of the Guangdong–Macao in–depth cooperation zone in Hengqin to integrate into China’ s overall development . It will build key platforms such as the International Infrastructure Investment and Construction Forum and give full play to its role as a bridge between China and PSCs to forge sister–city ties with cities in BRI countries. It will strive to sign tax treaties with more PSCs and run the BRI Tax Academy of Macao (BRITA • Macao).

Source: Fiscal year policy addresses published by Macao SAR.

(2) Macao drives mechanism innovation to accelerate policy implementation.

While improving the policy framework for participating in the BRI, the MSAR has also established and innovated relevant mechanisms to accelerate policy implementation and promote cooperative efforts. Since 2016, Macao has set up a range of institutions to facilitate its participation in the BRI, including the Committee for Development of the Commercial and Trade Cooperation Service Platform between China and Portuguese–speaking Countries, the China–PSCs Entrepreneurs Association, the Working Committee for the Development of “Belt and Road” Initiative, the Youth Innovation and Entrepreneurship Exchange Center of China and PSCs, and the Mainland China–Macao Belt and Road Business and Professional Services Council. In particular, the Working Committee for the Development of “Belt and Road” Initiative, established in 2017, is chaired by the Chief Executive. In 2018, Macao signed the “Arrangement between the National Development and Reform Commission and the Government of the Macao Special Administrative Region (SAR) for Advancing Macao’ s Full Participation in and Contribution to the Belt and Road Initiative” , which further improved its framework for participating in the BRI. These

institutions have accelerated Macao's pace toward its position as "One Center, One Platform, and One Base", and provided strong support for Macao to improve its competitiveness by participating in the BRI. In 2021, Macao set up the Committee for Integrating into National Development to replace the Committee for Development of the Commercial and Trade Cooperation Service Platform between China and Portuguese-speaking Countries and the Working Committee for the Development of "Belt and Road" Initiative, which will make coordinated efforts to deepen Macao's participation in the BRI.

Table 19 Main Mechanisms Established by Macao SAR during 2016–2021

Time	Content
February 2016	The Committee for Development of the Commercial and Trade Cooperation Service Platform between China and Portuguese-speaking Countries was established.
March 2016	The PSCs Food Products Exhibition Center officially went into operation.
October 2016	The China–PSCs Entrepreneurs Association was established.
March 2017	The Working Committee for the Development of "Belt and Road" Initiative was established.
June 2017	The headquarters of the China–PSCs Cooperation and Development Fund moved to Macao.
October 2017	The Youth Innovation and Entrepreneurship Exchange Center of China and PSCs was inaugurated.
December 2018	Macao signed the "Arrangement between the National Development and Reform Commission and the Government of the Macao Special Administrative Region (SAR) for Advancing Macao's Full Participation in and Contribution to the Belt and Road Initiative".
May 2019	The Mainland China–Macao Belt and Road Business and Professional Services Council was established.
May 2021	The Official Gazette of the Macao SAR announced that Macao decided to set up the Committee for Integrating into National Development to coordinate the planning and deployment related to Macao's contribution to the BRI and the GBA construction.

Source: Public data.

(3) The GBA plan presents new opportunities for Macao.

On February 18, 2019, the Central Committee of the Communist Party of China

and the State Council released the Outline Development Plan for the Guangdong–Hong Kong–Macao Greater Bay Area, proposing to build the GBA into a vibrant world–class city cluster, an international innovation and technology hub, and an important support for the BRI, a showcase for in–depth cooperation between the Mainland and Hong Kong and Macao, and a quality living circle for living, working and travelling. Guangdong, Hong Kong, and Macao have their own distinctive characteristics. The combo of the three boasts unique geographic, institutional and environmental advantages, which will open up new space for high–level international cooperation.

Macao has advanced a number of large–scale public infrastructure projects in recent years. These projects have effectively promoted the GBA development, and provided strong support for China–PSCs cooperation. According to Macao SAR’ s Policy Address for the Fiscal Year 2021, as of the end of September 2020, Macao had smoothly launched about 410 public infrastructure projects, each valued at MOP 100,000 or above, with a total project cost of about MOP 14.2 billion. Among them were the LRT Taipa Line, the Macau International Airport’ s Extension Project of Passenger Terminal Building, the Barra transport hub, and the cross–sea bridge linking Taipa with Macao Peninsula, which have further opened up Macao and deepened its integration into the BRI.

The infrastructure industries of China and PSCs are complementary with each other, and Macao is playing an increasingly important bridging role in China–PSCs cooperation. Against the backdrop of China’ s GBA development strategy, Macao provides a whole gamut of financial, legal, and information services for BRI participants, relying on platforms such as the Forum for Economic and Trade Cooperation between China and PSCs (Macao) (Forum Macao in short), the International Infrastructure Investment and Construction Forum, and the China–PSCs Cooperation and Development Fund, becoming the main driving force behind China–PSCs infrastructure cooperation.

The development of the GBA will help Macao remove the constraints imposed by a single economic structure and limited resources, and give the MSAR new

opportunities by technological innovation, characteristic financial development, new infrastructure development, and high-caliber talent fostering, hence pushing the MSAR towards moderately diversified development and the position as “One Center, One Platform, and One Base” .

2 Fruitful Cooperation with BRI Countries in Multiple Areas

(1) Macao SAR stays in close cooperation with BRI countries and sees rapid growth of trade with PSCs.

Macao has seen steady growth of trade with BRI countries³⁰, which therefore have played an increasingly prominent role in the MSAR’ s foreign trade, since the BRI was put forward. The overall imports and exports of Macao in 2019 hit MOP 103.37 billion (some USD 12.81 billion³¹), among which, MOP 16.32 billion or 15.9% (some USD 2.02 billion) were attributed to BRI countries, nearly 2.4 times the level in 2017 (up 10.4%). The trade declined in 2020 due to COVID-19, but rapidly rebounded in the first quarter of 2021. This year, the overall imports and exports reached MOP 5.86 billion (about USD 730 million), 67.0% higher than the level in the same period of last year.

Table 20 Trade between Macao and BRI Countries during 2017–2020

	2017 (in MOP 100 million)	2018 (in MOP 100 million)	2018 growth rate (%)	2019 (in MOP 100 million)	2019 growth rate (%)	2020 (in MOP 100 million)	2020 growth rate(%)
Import ³²	46.1	71.8	55.8	159.7	122.2	150.1	-6.0
Export	1.8	2.7	50.2	3.5	33.3	3.0	-14.5
Total	47.9	74.5	55.5	163.2	119.1	153.2	-6.2

Source: Government of Macao SAR Statistics and Census Service.

30 BRI countries here include countries reported by the Government of Macao SAR Statistics and Census Service other than the 71 BRI countries specified in this Report.

31 This report uses the MOP to USD exchange rate released by IMF in 2019.

32 Imports refer to products or services that are made in BRI countries and sold in Macao; exports refer to products or services that are made in Macao and sold in BRI countries.

Trade between Macao and PSCs goes steadily. As an important window for trade cooperation between China and PSCs, Macao has seen a steady upswing in trade with PSCs. In 2019, the overall imports and exports between Macao and PSCs reached MOP 850 million (about USD 110 million), up 30.7% from the level in 2017. To Macao, PSCs are close and stable partners who have maintained a share of around 7% in the MSAR’s total foreign trade from 2017 to 2019. To PSCs, Macao is not only an important window to the Chinese market, but also a fast-growing export market. In 2019, Macao’s imports from PSCs hit MOP 840 million (about USD 10 million), up about 30.3% over 2017. The trade declined in 2020 due to COVID-19, but Macao still maintained a high level of imports from PSCs, amounting to about MOP 700 million (about USD 90 million). Its exports to PSCs also performed well in the first quarter of 2021, with a significant increase of 112.6% over the same period of the previous year.

Table 21 Trade between Macao and PSCs during 2017–2020

Category	2017 (in MOP 100 million)	2018 (in MOP 100 million)	2018 growth rate (%)	2019 (in MOP 100 million)	2019 growth rate (%)	2020 (in MOP 100 million)	2020 growth rate (%)
Import	6.5	7.9	21.9	8.4	6.9	7.0	-17.3
Export	0.008	0.2	2900	0.01	-94.8	0.1	867.4
Total	6.5	8.1	25.5	8.5	3.9	7.1	-16.0

Source: Government of Macao SAR Statistics and Census Service.

Note: Growth rates are calculated based on import and export data disclosed by the Government of Macao SAR Statistics and Census Service

(2) The China–PSCs Cooperation and Development Fund has greatly promoted the BRI development.

Macao has partnered with a number of institutions to offer special financial services including wealth management and RMB clearing in key BRI markets. Among these services were BRI bonds and lotus bonds. It has joined hands with the Bank of China to establish a special financing platform. It has also worked with the Industrial and Commercial Bank of China to launch diverse cross-border financial services

such as Cross-border Business Registry, Cross-border E-commerce Platform, and GBA Account Service to provide one-stop investment and financing support for businesses. A full-fledged China-PSCs financial service platform has come into place rapidly, providing strong support for the BRI.

The China-PSCs Cooperation and Development Fund was established in June 2013, with a scale of USD 1 billion. It is China's first equity fund dedicated for investment in PSCs, which has provided great instructions and support Chinese enterprises to invest in PSCs. After years of development, the Fund has expanded its service scope to cover agriculture, manufacturing, infrastructure, finance and a great many other fields. As of the end of 2020, the Fund had supported a total of 6 projects, directing about USD 4 billion of Chinese investment to PSCs. Since the outbreak of COVID-19, the Fund has stepped up its efforts in promoting infrastructure, clean energy, and healthcare development in PSCs. Now, it has more than 20 reserve projects, covering almost all PSCs. Projects supported by the Fund include the Brazil Photovoltaic Power Plant, the Sao Simao Hydroelectric Power Plant, and the Paranagua Container Terminal. The Brazil Photovoltaic Power Plant can generate more than 390 GWh of power every year for 200,000 households and eliminate 230,000 tons of CO₂ emissions, making a huge contribution to the development of renewable energy (non-hydro) in Brazil. Going forward, the Fund will continue to optimize investment strategies and innovate investment products based on strategic significance, policy orientation, project risks, and corporate needs, according to the MSAR government's policy for Macao companies investing in PSCs. It will strive to contribute more to PSCs' development, help Macao achieve its role as "One Center and One Platform", and facilitate modern finance and green finance.

Table 22 Achievements of the China–PSCs Cooperation and Development Fund

	Content
Background	The China–PSCs Cooperation and Development Fund was one of the six measures announced by the Chinese government at the 3rd ministerial meeting of Forum Macao to promote the cooperation between China and PSCs. It is China’ s first equity fund dedicated to investment in PSCs. In June 2013, the Fund was formally established, with a scale of USD 1 billion.
Service scope	The Fund covers investment in agriculture, manufacturing, infrastructure, finance and other fields in almost all PSCs.
Achievements	By the end of 2020, the Fund had supported a total of six projects in four Portuguese–speaking countries and regions, i.e., Brazil, Mozambique, Angola, and Macao (China), directing more than USD 4 billion of Chinese investment to PSCs. The Fund, together with Luso International Banking, established a special financing loan to support food, alcohol and beverage companies in Macao doing business in PSCs. As of the end of 2020, it had granted about MOP 340 million to more than ten SMEs trading with PSCs.
Key projects	The Brazil Photovoltaic Power Plant consists of a 191 MW solar power station and its auxiliary facilities in Minas Gerais, Brazil, which can provide local residents with clean and reliable energy. The power plant can generate more than 390 GWh of electricity for 200,000 households and eliminate 230,000 tons of CO2 emissions every year, which can help Brazil increase the share of renewables (non–hydro) in the power supply to 23% by 2030. The Sao Simao Hydroelectric Power Plant is the ninth largest hydropower plant in Brazil built by the State Power Investment Corporation (SPIC), with a total installed capacity of 1,710 MW, which can meet the electricity demand of six million people. The project company has also participated in water resources planning, water rates setting and environmental protection projects to fulfill its social responsibilities. The Paranagua Container Terminal , co–operated by the Fund and China Merchants Port Holdings Company Limited, is the largest Chinese investment in the Latin American container port industry. After expanded in 2019, the terminal reached an annual capacity of 2.5 million TEUs, becoming the largest container terminal in South America, which has effectively boosted Brazil’ s infrastructure development and China–Brazil economic and trade cooperation.

Source: Public data.

(3) Diverse cultural exchanges enhance people-to-people bonds.

One of Macao's important tasks in the BRI is to promote cultural exchanges and strengthen people-to-people bonds. To this end, the MSAR has given full play to its cultural advantages to create a "base of exchanges and cooperation of diverse cultures dominated by Chinese culture", and promote the establishment of a cultural exchange center between China and PSCs. It has set up a Committee for the Construction of Cultural Exchange and Cooperation Base, and organized various cultural and entertainment performances, art festivals, exhibitions, and academic forums, which has not only enhanced the cultural and emotional bonds between peoples in BRI countries, but also cemented the public opinion foundation for infrastructure cooperation between BRI countries.

The MSAR strives to deepen tourism and exhibition industry, cross-border integration of cultural and creative industries and moderate economic diversification. It is worth mentioning that, in line with these policies, the BRI infrastructure development indexes and reports released at the International Infrastructure Investment and Construction Forum have become an important window for people worldwide to understand the infrastructure development in BRI countries. They are hailed by the media as a "barometer" for the infrastructure development in BRI countries, and are one of Macao's important results of cultural and academic exchanges, representing the high quality of Macao's research on international infrastructure cooperation.

3 Mutual Promotion of the BRI and Macao SAR's Development

(1) Macao becomes a critical meeting point of domestic and international economic cycles during the 14th five-year period.

As it enters the 14th five-year period, China is actively building a "dual cycle" development pattern, with the domestic cycles as the main body and mutual promotion of domestic and international cycles. As a critical meeting point of the two cycles, Macao will enter a fast lane amidst the BRI, and spot new opportunities from a new wave of opening-up. Boasting unique geographical, institutional, and

cultural advantages, Macao will further underscore its role as the China–PSCs economic and trade cooperation platform with greater functions in boosting facility connectivity, unimpeded trade, financing integration, and people–to–people bonds. The GBA enters a fast lane of development as the Zhuhai–Hong Kong–Macao Bridge is put into use. Backed by the huge market in Mainland China, Macao will be more deeply and broadly integrated into the country’ s overall development. The MSAR is expected to enter a new stage of high–quality development during the 14th five–year period.

(2) Macao underscores its role as a financial, economic and trade cooperation platform, showing great potential for moderately diversified development.

Macao is also charged with the mission to deepen China’ s trade cooperation with BRI countries and PSCs by financial means, as an important part of its contribution to the BRI. This mission goes hand in hand with the MSAR’ s goals of boosting moderately diversified development, developing modern finance, accelerating the bond market construction, integrating into the overall development of China, and contributing to the BRI. With distinctive geographical, institutional and cultural advantages, Macao has great potential in facilitating the circulation of personnel, goods, and capital, and the communication between Mainland China and the outer world. Relying on the China–PSCs financial service platform, the International Infrastructure Investment and Construction Forum, and the Forum Macao, it can rapidly pool resources in and out of China to promote the fast growth of modern finance, international exhibitions, cross–border e–commerce, culture and sports and other industries.

(3) Integration of diverse cultures breathe new life into Macao as a cultural exchange and cooperation base.

A place where Asian cultures converge and coexist, Macao is well positioned to be the “One Base” . Tolerant for diverse cultures, the MSAR is home to numerous think tanks, business communities, clan associations, hometown societies, and overseas Chinese associations with close connections to the outer world, as well

as a large number of overseas Chinese back to home, which is not only foundation for its position as “One Base” , but also brings a steady flow of new blood to the “One Base” . In turn, the high-quality development of the “One Base” will boost in-depth cultural integration and exchanges, further increasing Macao’ s cultural diversity, cementing its role in cultural integration between China and foreign countries, and making Macao a new window of people-to-people bonds in BRI countries.

Section Three: Outlook on China–PSCs Infrastructure Cooperation

1 Industry-wide Cooperation Targeting the Distinctive Needs of Each PSC

Infrastructure has always been a key area of cooperation between China and PSCs. In recent years, PSCs have generally experienced slow economic growth and social stability. The governments are committed to developing infrastructure and creating a good business environment to improve their national economy. Openness and reciprocity embodied in the BRI are in line with PSCs' policy orientation and development needs, and have opened up important channels for China–PSCs cooperation in infrastructure development.

With different levels of infrastructure development, PSCs vary greatly in infrastructure needs. To deepen China–PSCs cooperation in infrastructure development, the BRI should adhere to the principle of extensive consultation, joint contribution and shared benefits, and fully consider the economy, resources, foundation, and development plans of each country across the board. Measures should be tailored to the country's actual needs, and cooperation should be expanded from infrastructure to various socioeconomic fields, in a bid to build high-quality infrastructure that will facilitate economic, social, and environmental sustainability.

Specifically, **Brazil** has a large demand for housing, sewage treatment, and urban transportation. The Brazilian government is also stepping up efforts to develop clean energy such as wind and solar energy; **Sao Tome and Principe** plans to upgrade its power system to use clean energy, and transform its roads and sanitation systems to improve people's livelihood; **Mozambique** plans to improve and expand roads, bridges and railway networks, and promote modern infrastructure construction

in ports, fisheries, and communications; **Guinea-Bissau** is focusing on boosting agriculture, fishery, tourism, and mining by strengthening relevant infrastructure; **East Timor** has activated the post-pandemic economic recovery plan to revive the construction, new energy, and communications industries. The country is also installing submarine optical cables to connect itself with other countries; With abundant oil resources, **Angola** is an important trade partner of China in Africa. The two countries have highly complementary production capacities, and still have more room for cooperation in infrastructure development; **Portugal** has charted clear plans centered on the development of energy, communications, and transportation. Enterprises should take targeted measures to advance infrastructure projects in PSCs according to their needs, and try to deepen the cooperation with them in fields like planning, consulting, project operation, and talent training. They should vigorously promote all-round cooperation between China and PSCs and tap into the potential of China-PSCs cooperation in the BRI by every possible means.

2

More Financing Channels for China-PSCs Cooperation Thanks to Modern Finance

Macao features a highly outward-looking economy and a stable financial system. It has a free port and operates as a separate customs territory to mainland China, where funds can enter and exit freely. Its legal system and business operation model are in line with those in PSCs, which gives it significant institutional advantages in economic and trade exchanges with these countries. With the development of the GBA, Macao's modern financial system will demonstrate more prominent advantages. Moreover, the China-PSCs Cooperation and Development Fund has also moved its headquarters to Macao. The MSAR should fully leverage these advantages to provide financial services and expand funding channels for China-PSCs cooperation in traditional infrastructure, new infrastructure, renewable energy and a great many other fields.

To meet the expectations of Chinese contractors in overseas markets and based on the operating achievements of China-PSCs Cooperation and Development Fund,

Macao may improve its financial service platform by: (1) innovating the guarantee mechanism of the China–PSCs Cooperation and Development Fund and prioritizing projects that integrate investment, construction and operation. While improving the Fund’ s operation mechanism and streamlining its approval process to increase capital efficiency, Macao should also step up its efforts to optimize the Fund’ s investment strategy, accelerate the innovation of derivative products, and expand the Fund’ s coverage. In addition, it should promote industry–wide cooperation that integrates investment, construction and operation; (2) building a BRI financial service port which provides prioritized support for enterprises seeking to raise money by issuing bonds. Macao should optimize the bond issuance mechanism and approval procedures, strengthen the cooperation between Mainland China and overseas financial institutions, and better satisfy the financing needs of enterprises; (3) benchmarking its green financial system against internationally recognized standards and promoting sustainable infrastructure development. Macao should encourage the industry to introduce national and international standards on green finance, develop green financial services, and establish green finance standards and statistical systems. It should start with green bonds for funding long–term projects, and improve the infrastructure for bond issuance. **Moreover**, it may offer a broader range of tax benefits, and expand the exemption of stamp duties and complementary taxes to include the government and public utilities in Macao, and qualified bond issuers in Mainland China and foreign countries, such as governments, international organizations, financial institutions or enterprises.

3 Inclusive China–PSCs Cooperation Framework Embracing Exchanges of Diverse Cultures

With close historical and cultural ties with PSCs, Macao is inherently advantaged in boosting cultural exchanges between China and PSCs. As cooperation under the BRI framework deepens, Macao will play an even more important role in cultural exchanges and infrastructure cooperation between China and PSCs.

With deeper cooperation, BRI countries will also usher in a new stage of cultural

exchanges. Therefore, joint efforts are required to: (1) expand the depth and breadth of cultural exchanges and create a good external environment for China–PSCs infrastructure cooperation. Cultural activities, including exhibitions, art exchanges, and academic seminars, should be carried out to promote cultural exchanges and lay a solid foundation for Macao to raise its position in cooperation under the BRI framework; (2) make the most of Macao’ s advantages to open a gate for China–PSCs cultural cooperation. Macao should focus on the construction of “One Base” to become an icon for China–PSCs cultural cooperation and promote research, academic exchanges, and experience sharing related to China–PSCs infrastructure cooperation. It should make ongoing efforts to enhance the cultural bonds between China and PSCs and consolidate the foundation of China–PSCs cooperation in infrastructure development; (3) connect with all sectors in PSCs by holding forums, seminars, and training courses on BRI projects such as the infrastructure development indexes. In this way, infrastructure cooperation and cultural exchanges can reinforce each other, and the signature BRI projects will catalyze the high-quality and sustainable cooperation between China and PSCs in infrastructure development.

Chapter Four

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 along with the attractiveness of markets and feedback from businesses, presents three major countries, namely Bangladesh, Mozambique, and Saudi Arabia, by detailing their performance in development index and the characteristics of their infrastructure industries, and looks into the prospects for infrastructure in these three countries.

In November, CHINCA will issue the *Belt and Road Infrastructure Development Index Report 2021 (Country-specific)* for 30 major BRI countries. Stay tuned.

The People's Republic of Bangladesh

2021 Country Overview

Political situation			
Major political parties	Bangladesh Awami League, Bangladesh Nationalist Party, Bangladesh Jatiya Party		
Head of state and tenure	Abdul Hamid (2018/02–2023/02)		
Head of government and tenure	Sheikh Hasina (2019/01–2024/01)		
Natural resources			
Bangladesh has limited mineral resources. Its natural gas reserves were announced to be 311.39 billion cubic meters, and its coal reserves amounted to 750 million tons.			
Macro economy in 2021			
GDP per capita (USD)	2,214.2	Real GDP growth rate (%)	6.2
Inflation rate (%)	5.7	Public debt/GDP (%)	32.7
Budget balance/GDP (%)	–6.7	Current account balance/GDP (%)	–1.1
Gross external debt (USD 100 million)	711	Unemployment rate (%)	5.2
FDI flows (USD 100 million, 2019)	15.9	FDI stock (USD 100 million, 2019)	163.8
Social development in 2021			
Population	163,046,000	Electrification rate (%)	85.2
Health spending/GDP (%)	2.3	Educational spending/GDP (%)	1.3
Human Development Index	0.6	Gini coefficient (%)	32.4
Electricity output (TWh, 2020)	80.4	Internet penetration rate (% , 2019)	12.9
Railway (km)	2,460	Highway (km)	369,105
Commercial airport (count)	8	Port (count)	2
Risk ratings by SINOSURE			
Country risk rating	Medium	Country risk outlook	Stable
Sovereign credit risk rating	Medium	Sovereign credit risk outlook	Stable

Infrastructure Industry Overview

Belt and Road Infrastructure Development Index				
	Score of 2020	Ranking of 2020	Score of 2021	Ranking of 2021
BRIDI	111	10	117	9
Development Environment Sub-index	98	32	109	22
Development Demands Sub-index	116	23	124	19
Development Costs Sub-index	95	62	91	64
Development Passion Sub-index	130	3	139	5

Insights

- In 2021, Bangladesh scores 117 in the infrastructure development index, ranking No.9 among BRI countries and up one place from the previous year.
- Bangladesh has bought 30 million COVID-19 vaccine doses from India, and approved to import the Sinopharm vaccine. On May 12, 2021, China's vaccine doses arrived in Bangladesh. Currently, however, the epidemic situation in Bangladesh is quite alarming. An efficient vaccination program will play a greater role in containing the spread of the coronavirus, easing economic pressures, and promoting socioeconomic recovery.
- As a small open economy, Bangladesh is vulnerable to external shocks. The COVID-19 pandemic has dented Bangladesh's economic growth and solvency ratio. Its high nonperforming loans ratio and low capital adequacy ratio have posed a great challenge to the financial sector and created a high level of systemic risk.
- The Bangladeshi government is keen on energy infrastructure construction and diversification. The country is trying to reduce its reliance on natural gas power, although fossil-based fuels remain dominant. Bangladesh's energy sector is expected to grow with great opportunities.
- Transportation infrastructure development is positioned as a main driver of Bangladesh's economy. Although its fiscal revenues have fallen because of the pandemic, the country has maintained its earmarked grants for railway projects. The local transportation infrastructure market has a great potential.

The People’s Republic of Bangladesh (“Bangladesh” for short) is located in the northeast of the Indian subcontinent. According to World Bank standards, Bangladesh is a low– and middle–income country. According to SINOSURE, Bangladesh’ s country risk and sovereign credit risk are both rated “medium” with a stable outlook.

1 Infrastructure Development Index

In 2021, the infrastructure development index for Bangladesh stands at 117, ranking No.9 among BRI countries and up one place from the previous year. The country sees a rise in the sub–indices of development environment, demands, and passion, with the sharpest increase in the environment category. Its Development Costs Sub–index slightly drops.

Table 23 Changes in the Infrastructure Development Index for Bangladesh

Bangladesh	2020		2021	
	Score	Ranking	Score	Ranking
BRIDI	111	10	117	9
Development Environment Sub–index	98	32	109	22
Development Demands Sub–index	116	23	124	19
Development Passion Sub–index	130	3	139	5
Development Costs Sub–index	95	62	91	64

Source: CHINCA, SINOSURE’ s Country Risk Database.

The substantial improvement in the economic and business environment pushes up the Development Environment Sub–index. In terms of sub–indices, Bangladesh’ s economic and business environment has significantly improved from the 2020 level, and its economic environment score is significantly better than that of most South Asian countries and the average level of BRI countries. In response to the COVID–19 pandemic, the Bangladeshi government and the central bank have proactively adopted fiscal and monetary policies to stimulate economic growth. The fiscal policies include increasing the level of transfer payments and appropriating funds to specific industries. The monetary policies include purchasing national

bonds, lowering interest rates and reserve ratios. With the support of these policies, Bangladesh’ s economy maintained positive growth during the pandemic, creating more favorable conditions for infrastructure construction. To attract more foreign capital to participate in the country’ s infrastructure construction, the Bangladeshi government attaches great importance to improving the business environment in all aspects. Although Bangladesh still falls behind some countries in the ease of doing business, it has done better than the previous year and grown more attractive to foreign investors.

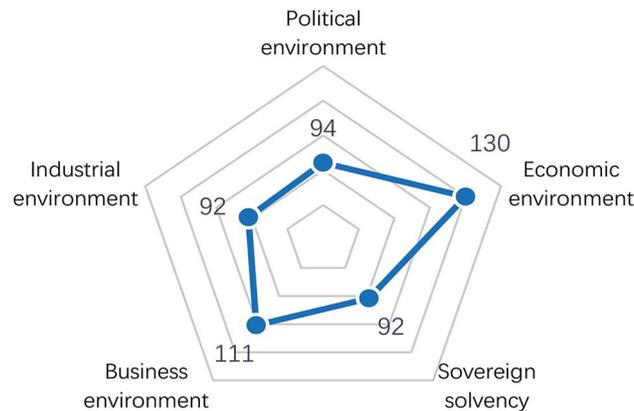


Figure 32 Development Environment Sub-indices for Bangladesh

Source: CHINCA, SINOSURE’ s Country Risk Database.

The increase in financing costs drags down the Development Costs Sub-index. Although foreign companies enjoy the same financing treatment as local ones, Bangladesh’ s loan interest rate is relatively high, and the loan process is quite cumbersome. As a result, foreign companies have less access to credit facilities, and are facing higher financing costs in this country. During the pandemic, the central bank lowered interest rates to help reduce financing costs, but the government borrowed heavily from banks, which greatly limited the private sector’ s access to loans. Given the economic and financial impact of COVID-19, the local financial market has become less stable.

2 Characteristics of Infrastructure Industry

In recent years, Bangladesh's power and transportation industries have developed rapidly. To reduce its reliance on gas-fired generation and cut costs, Bangladesh has focused on coal power and solar power. A large number of coal-fired power projects have been successfully launched. In terms of transportation, Bangladesh's road network is developing rapidly, with a series of highway, railway and bridge projects under construction. With the government's blessing, both traditional (e.g. coal power) and renewable (e.g. solar power) energy sectors will make further headway. Meanwhile, the transportation industry will maintain a good momentum.

Table 24 Changes in the Development Demands Sub-index for Bangladesh

Development Demands Sub-index by Industry	Score of 2020	Score of 2021
Energy	135	135
Transportation	123	137
Communications	115	116
Water utilities	100	102
Public health	80	100

(1) Given the huge electricity demand, coal power has a rosy future.

Bangladesh has a great demand for electricity. The Bangladesh Power Development Board estimated that electricity demand in this country would increase to 27,000 MW and 51,000 MW respectively in 2030 and 2041, as a result of economic development and urbanization. Considering the gap between power supply and demand, the Bangladeshi government is promoting the development of the power industry through PPP, RPP, IPP, etc. It aims to achieve a total installed capacity of 24,000 MW by 2021, 40,000 MW by 2030, and 60,000 MW by 2041.

Private investments increase rapidly, and multilateral financial institutions are highly supportive. According to the World Bank's PPI database, Bangladesh's infrastructure investments from 2019 to 2020 mainly focused on transportation and power industries. Seven power projects broke ground, with a total investment of

USD 2.12 billion and a total expected capacity of 1,840 MW. These projects mainly use natural gas, solar energy, and diesel fuel. Some new power projects have received financial support from multilateral financial institutions such as the Asian Development Bank (ADB) and the International Finance Corporation (IFC). Among them, Reliance Meghnaghat Combined Cycle Power Plant has the largest amount of investment (USD 1.183 billion). It plans to generate 718 MW of electricity annually.

Table 25 Private Investments in Bangladesh’ s Power Projects (2019–2020)

Year	Project	Investment (USD 1 million)
2019	Teknaf Solar PV Plant	35.71
2020	Nilphamari solar plant	78
2020	Feni Oil–Fired Power Plant	64
2020	Spectra Solar Power Project	55
2020	Summit Meghnaghat II CCGT Power Plant	500
2020	Summit Gazipur II power plant	207
2020	Reliance Meghnaghat Combined Cycle Power Plant	1,183

Source: World Bank’ s PPI Database

The government expects a diverse energy mix, yet fossil fuels still take hold. At present, natural gas power accounts for about 53.9% of Bangladesh’ s total. Other fossil energy for power generation includes furnace oil, diesel, and coal, which account for 27.2%, 6.3% and 5.6% respectively. Renewable energy takes a smaller share, with hydropower and solar power representing 1.1% and 0.2% of the market. Due to the insufficient supply of natural gas, some natural gas power plants cannot function normally. The Bangladeshi government plans to diversify the energy structure by cutting down on imported natural gas and increasing the proportions of coal, domestic natural gas, nuclear energy, diesel and renewable energy. It is expected that the proportion of natural gas power will decline in the future, and that of coal and other types of energy will increase, but fossil fuels will stay dominant. In terms of coal power, projects such as Maheshkhali TNB Power Station (1,300 MW), Matarbari Coal–Fired Power Project (1,200 MW) and Maitree Super Thermal Power Project (660 MW * 2) have broken ground. The Bangladeshi government also

plans to generate 7,000 MW of nuclear power by 2041. The Rooppur Nuclear Power Plant Project includes two nuclear reactors with a total capacity of 2,400 MW. It is expected that the two reactors will be put into use in 2024 and 2025 respectively.

(2) The government is committed to transportation infrastructure development; Bangladesh' s road and railway markets have great potential.

The government attaches great importance to transportation infrastructure development. Bangladesh' s transportation infrastructure is backward. Passenger and freight transportation mainly rely on roads. Railways only account for about 4% of the transportation volume, and there is no urban rail transit system. The main roads are crowded, while railway and rail transit systems remain to be developed. The Bangladeshi government has increased its investment in transportation infrastructure in recent years, and a series of road, railway and bridge projects have been under way. In terms of railway, although Bangladesh' s government revenues have fallen because of the pandemic, grants for railway projects amount to an amazing BDT 124.91 billion in the 2020–2021 fiscal budget. According to its Eighth Five–Year Plan (July 2020–June 2025), the Bangladeshi government plans to build 798 km of railways and 150 km of roads, and to maintain and upgrade the existing transportation system during this period. In 2020, Bangladesh approved the 2021–2041 Perspective Plan. The country intends to upgrade its national highways to four–lane roads. In FY22/23, the Bangladeshi Ministry of Road Transport and Bridges will increase its budget to BDT 773.65 billion. Furthermore, the budget will see an average annual growth of 14.7% in the years to come. The ministry aims to modernize the country' s railways and turn them into a main mass transit system. Bangladesh' s Railway Master Plan 2016–2045 involves 230 railway projects in six stages, with an estimated cost of BDT 5.54 trillion.

Private investments span multiple sectors and a wide range of funding sources. According to the World Bank' s PPI database, from 2019 to 2020, private investments covered three transportation projects with a total amount of USD 1.77 billion. The projects are: the USD 647 million Payra Sea Port Dredging Concession project, the USD 262 million Dhaka Bypass Expansion project (48 km) and the USD

861 million Dhaka Elevated Expressway project (46.73 km). Investors in the new transportation projects include financial institutions such as ADB and the Export–Import Bank of China. A number of transportation facilities are in the planning or initial construction stages, including the Dhaka Northwest International Trade Corridor (Phase II) (with a USD 1.2 billion loan from ADB), and Dhaka Metro Lines 1–5 (funded by ADB, Japan International Cooperation Agency (JICA), etc., with a total cost of USD 5.3 billion).

Table 26 Private Investments in Bangladesh’ s Transportation Projects (2018–2019)

Year	Project	Investment (USD 1 million)
2019	Payra Sea Port Dredging Concession	647.3
2019	Dhaka Bypass Expansion	262.0
2020	Dhaka Elevated Expressway	861.0

Source: World Bank’ s PPI Database

3 Outlook of Infrastructure Development

Despite the pandemic’ s impact, the government still attaches great importance to infrastructure projects, and the local market is increasingly attractive to foreign investors. Because of the pandemic, grants for some projects have been suspended. However, according to Bangladesh’ s fiscal plan, transportation infrastructure represented by railways has received considerable support. The Bangladeshi government has few restrictions on foreign investment. It plans to improve the business environment in all aspects to attract foreign investment, including simplifying regulatory procedures, strengthening contract enforcement, increasing legal efficiency, and improving foreign exchange and taxation systems. The Bangladeshi government also plans to promote market–oriented reforms and increase the degree of openness to foreign investment in energy and other fields. If the Bangladeshi government can bring COVID–19 under control, and if the business environment keeps improving and the favorable policies kick in, the local infrastructure market will have a rosy future.

Financial risks and social insecurity have a somewhat negative impact on

infrastructure development. IMF data shows that the proportion of nonperforming loans in Bangladesh has increased with each passing year, indicating stability risks of State-owned bank assets. Under the impact of COVID-19, Bangladesh's banking industry is facing systemic risks, which not only affects the healthy and stable development of domestic economy, but may also threaten the financial security of foreign companies and the smooth implementation of infrastructure projects. Bangladesh has a high crime rate. It is home to seven major terrorist groups. Because of the pandemic, unemployment has worsened, and some young people are joining the terrorist groups. Demonstrations and violent incidents are on the rise, making it more difficult to operate infrastructure projects in Bangladesh.

Companies should pay close attention to the epidemic situation in Bangladesh. The spread of COVID-19 in India has made epidemic control in South Asia even more challenging. It has also exerted greater external pressure on Bangladesh's economic and social order. Moreover, the complex situation in Myanmar has pushed a larger number of Rohingya refugees into Bangladesh, which may further intensify ethnic conflicts and worsen domestic security situation. So far, Bangladesh has not acceded to the Debt Service Suspension Initiative (DSSI). If Bangladesh's economic and security situation deteriorates, its solvency ratio will decline and the overall risk level will rise significantly.

The Republic of Mozambique

2021 Country Overview

Political situation			
Major political parties	Liberation Front, RENAMO, Democratic Movement		
Head of state and tenure	Filipe Jacinto Nyusi (2019/10–2024/10)		
Head of government and tenure	Filipe Jacinto Nyusi (2019/10–2024/10)		
Natural resources			
Mozambique has rich mineral resources. Its natural gas proved reserves exceed 1 million cubic feet, tantalum reserves approximate 7.5 million tons, titanium reserves exceed 6 million tons, and coal reserves exceed 32 billion tons. The country also has abundant reserves of graphite, placer, bauxite, marble, limestone, and gold. Most of its mineral resources are untapped.			
Macro economy in 2021			
GDP per capita (USD)	455.3	Real GDP growth rate (%)	2.4
Inflation rate (%)	5.6	Public debt/GDP (%)	99.0
Budget balance/GDP (%)	-11.5	Current account balance/GDP (%)	-27.9
Gross external debt (USD 100 million)	211.3	Unemployment rate (%)	—
FDI flows (USD 100 million, 2019)	22.1	FDI stock (USD 100 million, 2019)	428.9
Social development in 2021			
Population	30,366,000	Electrification rate (%)	31.1
Health spending/GDP (%)	8.2	Educational spending/GDP (%)	5.5
Human Development Index	0.5	Gini coefficient (%)	—
Electricity output (TWh, 2019)	15.3	Internet penetration rate (% , 2019)	—
Railway (km)	4,787	Highway (km)	31,083
Commercial airport (count)	3	Port (count)	11
Risk ratings by SINOSURE			
Country risk rating	Medium	Country risk outlook	Stable
Sovereign credit risk rating	Medium	Sovereign credit risk outlook	Stable

Infrastructure Industry Overview

Belt and Road Infrastructure Development Index				
	Score of 2020	Ranking of 2020	Score of 2021	Ranking of 2021
BRIDI	99	61	104	54
Development Environment Sub-index	85	63	98	58
Development Demands Sub-index	111	33	118	28
Development Costs Sub-index	95	61	95	57
Development Passion Sub-index	101	25	101	28

Insights

- In 2021, Mozambique scores 104 in the infrastructure development index, ranking No.54 among BRI countries and up seven places from the previous year.
- To fight against COVID-19, the Mozambican government launched vaccination on March 8, 2021. The Sinopharm vaccine played a significant role. As vaccination becomes more efficient, the epidemic situation will turn for the better.
- Because of the pandemic, Mozambique's economy slowed down while its fiscal deficit and public debt went up. However, as the world economy gradually picks up, Mozambique's debt repayment pressure will be eased, and its financing environment for infrastructure project further improved.
- Mozambique's electricity is largely utilized for exports to neighbouring countries. The domestic power grid has an extremely low coverage, and the country's power supply capabilities remain to be improved. Currently, multilateral organizations are actively helping Mozambique with renewable energy projects. Given the smooth implementation of national plans concerned and the development of natural gas resources, the proportion of natural gas power is expected to rise further, and the domestic gas market has great potential.
- Mozambique's transportation infrastructure market has high potential. There is much room for improvement in the country's transportation capabilities, and the needs for infrastructure investment and construction will be constantly stimulated. The Mozambican government plans to ramp up the construction of transportation infrastructure in rural areas. It is mulling over new construction standards so that the new infrastructure can be more resilient to natural disasters. In part of the country, transportation infrastructure is likely to develop rapidly.

The Republic of Mozambique (“Mozambique” for short) is located in southeastern Africa. According to World Bank standards, Saudi Arabia is a low-income country. According to SINOSURE, Saudi Arabia’ s country risk and sovereign credit risk are both rated “medium” with a stable outlook.

1 Infrastructure Development Index

In 2021, the infrastructure development index for Mozambique stands at 104, ranking No.54 among BRI countries and up seven places from the previous year. The country sees a rise in the sub-indices of development environment and demands, with the sharper increase in the environment category. Its sub-indices of development costs and passion stay at the same levels.

Table 27 Changes in the Infrastructure Development Index for Mozambique

Mozambique	2021		2020	
	Score	Ranking	Score	Ranking
BRIDI	104	54	99	61
Development Environment Sub-index	98	58	85	63
Development Demands Sub-index	118	28	111	33
Development Passion Sub-index	101	28	101	25
Development Costs Sub-index	95	57	95	61

Source: CHINCA, SINOSURE’ s Country Risk Database.

The development environment has improved significantly, but much still remains to be done. In terms of sub-indices, Mozambique’ s scores are lower than the average of PSCs and BRI countries, despite some improvement from the 2020 level, especially in business and economic environment. In 2020, COVID-19 had a considerable negative impact on the development environment of Mozambique. Luckily, the national government has responded effectively. For example, it gradually relaxed the lockdown and launched vaccination in 2021. Also, the Mozambican government has adopted loose fiscal policies such as tax reductions and exemptions, transfer payments, and subsidies. And the central bank has adopted loose monetary policies such as lowering the reserve ratio and interest rate, and providing foreign

currency credit lines for relevant institutions. All these policies have achieved some success. In January 2021, the central bank raised interest rates by 3 percentage points to 13.25%. As COVID-19 is gradually brought under control and the world economy recovers, Mozambique's economy will also pick up further. However, it should be noted that the development environment of Mozambique still lags behind that of other countries, and there is much room for improvement.

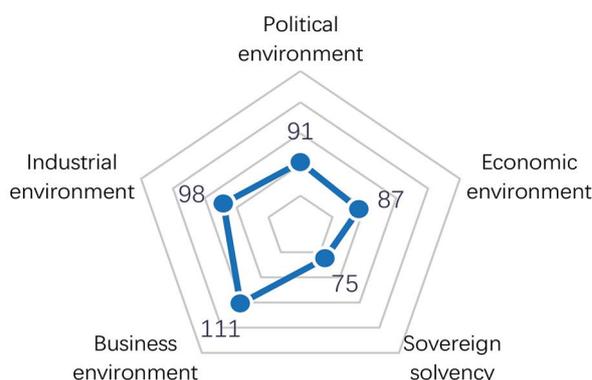


Figure 33 Development Environment Sub-indices for Mozambique

Source: CHINCA, SINOSURE's Country Risk Database.

Development demands have increased significantly, and those of the energy industry remained high. Given the improvement in internal and external environment, the demands for infrastructure development have picked up in Mozambique, with the sub-index score rising from 111 to 118. As COVID-19 is effectively brought under control in this country, the development demands of domestic transportation, communications, water utilities and public health industries have increased significantly. The Mozambican government attaches great importance to the development of the energy industry. It strives to improve domestic power supply conditions. Another reason for the robust demands for energy development is the great potential of Mozambique's hydropower and natural gas power markets.

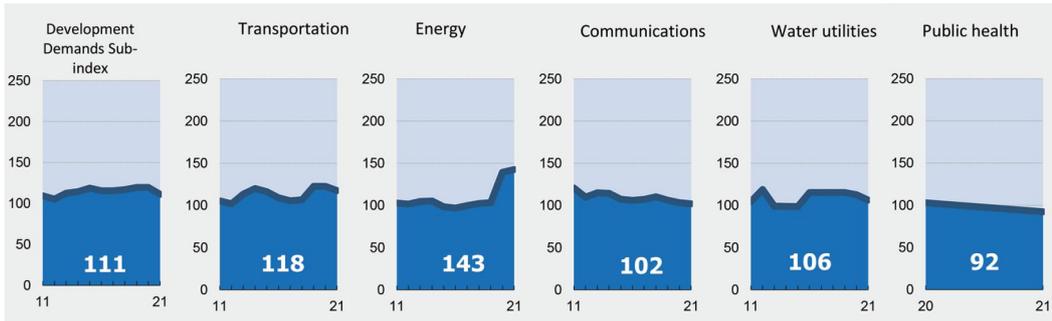


Figure 34 Changes in the Development Demands Sub-indices for Mozambique

Source: CHINCA, SINOSURE’s Country Risk Database.

2 Characteristics of Infrastructure Industry

In recent years, the Mozambican government has increased investment in infrastructure. The power and transportation sectors turn out to be the greatest beneficiaries. Mozambique relies on hydropower stations for power supply, while coal power and natural gas power are in short supply. As the government moves forward with energy restructuring, natural gas power is showing its huge potential. In terms of transportation, with the exception of a few national highways and municipal roads in major cities, most roads in the country need to be renovated. As transportation projects carry on, Mozambique’s transportation capabilities are expected to be improved.

Table 28 Changes in the Development Demands Sub-index for Mozambique

Development Demands Sub-index by Industry	Score of 2020	Score of 2021
Energy	143	143
Transportation	118	126
Communications	102	106
Water utilities	106	112
Public health	92	94

(1) With electricity in short supply, natural gas power will be the wave of the future.

Domestic power supply is insufficient. According to statistics from the

International Renewable Energy Agency, in 2020, Mozambique's total installed capacity was 2,748 MW, of which renewable energy accounted for 81.4%. It is noteworthy that hydropower accounted for 80.2% of the total installed capacity. The rest of the electricity supply depends on small-scale coal and natural gas power generation. The Cahora Bassa Hydropower Station in central Mozambique, the country's largest hydropower station, has an installed capacity of 2,075 MW, and more than 70% of its power generation is for export. Mozambique's power grid has a low coverage. IEA statistics show that in 2019, the country's urban and rural electricity coverage rates were 57% and 22%, respectively, and the overall coverage rate was only 35%. According to JICA's estimates, Mozambique's power demand will reach 4,849 MW to 7,353 MW in 2042. Domestic power supply capabilities need to be further strengthened.

Multilateral institutions are proactively supporting Mozambique's renewable energy projects. Mozambique is under great financial pressure. Domestic financing cannot meet the needs of infrastructure construction, and the country is highly dependent on loans and assistance provided by international institutions. In August 2019, with the support of the World Bank, the African Development Bank, the Organization of Petroleum Exporting Countries Fund, the Development Bank of Southern Africa, the Norwegian government and other institutions, Mozambique built a 563km transmission line. The project is scheduled to be completed in 2023. In October 2020, with the support of the French Development Agency and the EU, Mozambique launched a tender for three solar power plants and one wind power plant, each with an installed capacity of 40 MW. German's KfW Development Bank has in Mozambique a GET FiT project, which will focus on projects such as renewable energy power generation, and is currently in the evaluation and start-up phase. Private investments also figure prominently in this field. Neoen, a French renewable energy company, is cooperating with EDM, a Mozambican power company, on two solar power projects, namely Central Solar Metoro and Metoro solar power plant, each with an installed capacity of 41 MW; EleQtra, an American energy company, has invested in Namaacha wind farm with an installed capacity of 120 MW.

Table 29 Private Investments in Mozambique’s Power Projects (2019–2020)

Year	Project	Investment (USD 1 million)
2019	Central Solar Metoro	56
2020	Metoro solar power plant	40
2020	Namaacha wind farm	280

Source: World Bank’s PPI Database

As Mozambique optimizes its energy structure, natural gas power shows great potential. In 2018, the Mozambican government approved the Integrated Master Plan 2018–2043. According to the plan, Mozambique will invest a total of USD 39.42 billion in 25 years to develop its power industry and ensure its status as a power supply center in southern Africa. In line with the national strategy, EDM has formulated the Development Strategy (2018–2028), which stipulated that the installed capacity of hydropower, coal power, solar power, wind power and natural gas power would be increased by 4,300 MW, 1,350 MW, 530 MW, 150 MW and 8,500 MW, respectively. In recent years, Mozambique’s natural gas power has developed rapidly thanks to its abundant natural gas reserves. It is expected that the proportion of natural gas power will increase significantly in the future.

(2) Transportation infrastructure remains to be improved, and the government is mulling over climate adaptive infrastructure standards.

There is a great demand for the development of transportation infrastructure. Except for a few national highways and municipal roads in major cities, most of the roads in Mozambique are of low standards. Not even the major cities have metro or intercity rail transit systems, and most of the existing railways are narrow-gauge ones. The outdated infrastructure is unable to meet the needs of the rapidly increasing urban population and the economic development goals. Considering that the Mozambican government is vigorously promoting LNG export and that the UN forecasted a 57.7% increase in Mozambique’s urban population by 2035, the expansion and upgrading of existing roads, railways, ports and other transportation facilities will become the main future trend of transportation infrastructure

construction in Mozambique.

Large transportation projects advanced steadily during COVID–19. In April 2020, the African Development Bank and the Mozambican government agreed to support the construction of the 35km Nambungali–Roma road which costs approx. USD 34 million. As part of the Mueda–Negomano road (Phase II), the project aims to promote traffic between Mozambique and Tanzania. In October 2020, Mozambique and the EU signed a USD 29.2 million financing agreement to support the final phase of the Nampula–Cuamba highway, including paving 111km of roads and building a bridge.

The government pays attention to building transportation facilities in rural areas and protecting such facilities from extreme weather. Rural development is a priority in Mozambique’s Five–Year Development Plan (2020–2024). The national government plans to strengthen the construction of transportation infrastructure in rural areas. It will repair 4,000km of rural roads across the country, reduce the gap between rural and urban areas, and promote domestic agricultural trade. Mozambique is susceptible to hurricanes, floods and droughts. Such extreme weather conditions have caused great damage to transportation infrastructure. To reduce the losses from extreme weather, Mozambique is committed to making its infrastructure more resilient. It is considering the adoption of climate adaptive infrastructure standards.

3 Outlook of Infrastructure Development

Resource trade will further promote infrastructure construction. Mozambique is rich in natural resources, and has large reserves of coal and natural gas. Mozambique has attracted a large number of foreign mining, oil and gas companies. The exploration, production and export of natural resources will accelerate infrastructure construction, especially the development of ports, pipelines, railways and other transportation infrastructure. At the same time, given the favorable policies and environment for natural gas development in Mozambique, natural gas power is showing great potential. It is likely to be the wave of the future.

Infrastructure projects are affected by security risks. The security situation in northern Mozambique has attracted attention. In December 2020 and March 2021,

two security risk incidents occurred near the Afungi natural gas project in the town of Palma, Cabo Delgado Province. Total, the French company running the project, had to suspend operations due to “force majeure” factors. The occurrence of related security risk events not only exerted a serious impact on specific infrastructure projects, but also disrupted the country’s infrastructure development environment to a certain extent. Fortunately, as the Mozambican government continues to strengthen its clean-up efforts, and with the support and participation of international forces, the security situation in relevant key areas has been effectively improved, and the security risks faced by infrastructure projects will be further reduced.

Companies should keep an eye on the solvency of owners. Because of the pandemic, Mozambique’s economy declined along with its solvency ratio in 2020. Driven by the debt reduction and exemption policies of IMF and other international organizations, the country’s debt repayment pressure has eased in the short term. As the world economy recovers, Mozambique’s economy will also pick up. However, investors in Mozambique still need to keep an eye on its financial indicators and sovereign solvency ratio, and take relevant measures to prevent economic and commercial risks.

Kingdom of Saudi Arabia

2021 Country Overview

Political situation			
Major political party	None		
Head of state and tenure	Mohammed bin Salman (2015/01–)		
Head of government and tenure	Mohammed bin Salman (2015/01–)		
Natural resources			
Saudi Arabia has rich mineral resources. It has 267 billion barrels of remaining recoverable reserves of oil and 9 trillion cubic meters of remaining recoverable reserves of natural gas. The country also has gold, copper, iron, tin, aluminum, zinc and other ore deposits.			
Macro economy in 2021			
GDP per capita (USD)	21,440.3	Real GDP growth rate (%)	2.9
Inflation rate (%)	2.4	Public debt/GDP (%)	38.6
Budget balance/GDP (%)	–3.2	Current account balance/GDP (%)	2.8
Gross external debt (USD 100 million)	2,610.3	Unemployment rate (%)	12.3
FDI flows (USD 100 million, 2019)	45.6	FDI stock (USD 100 million, 2019)	2,361.7
Social development in 2021			
Population	34,269,000	Electrification rate (%)	100.0
Health spending/GDP (%)	6.4	Educational spending/GDP (%)	—
Human Development Index	0.9	Gini coefficient (%)	—
Electricity output (TWh, 2019)	361.5	Internet penetration rate (% , 2019)	95.7
Railway (km)	5,410	Highway (km)	221,372
Commercial airport (count)	25	Port (count)	18
Risk ratings by SINOSURE			
Country risk rating	Medium	Country risk outlook	Stable
Sovereign credit risk rating	Medium	Sovereign credit risk outlook	Stable

Infrastructure Industry Overview

Belt and Road Infrastructure Development Index				
	Score of 2020	Ranking of 2020	Score of 2021	Ranking of 2021
BRIDI	110	13	117	11
Development Environment Sub-index	98	34	105	38
Development Demands Sub-index	110	36	115	36
Development Costs Sub-index	107	34	107	32
Development Passion Sub-index	126	5	139	4

Insights

- In 2021, Saudi Arabia scores 117 in the infrastructure development index, ranking No.11 among BRI countries and up two places from the previous year.
- In December 2020, Saudi Arabia launched COVID-19 vaccination. So far, the country has approved several types of vaccines, and it plans to vaccinate the entire population by June 2021. In May 2021, the Saudi Arabian government announced that fully vaccinated people entering the country were no longer subject to quarantine.
- Saudi Arabia is reliant on crude oil export, yet economic restructuring is under way. In 2021, the prices of bulk commodities represented by petroleum have been picking up, easing financial pressures on the Saudi Arabian government. Domestic economy, and the infrastructure development environment in particular, are steadily on the mend.
- According to Vision 2030: National Transformation Program, Saudi Arabia plans to reduce its reliance on oil export by developing infrastructure, tourism and logistics.
- The Saudi Arabian government is vigorously diversifying the energy mix. Renewable power, especially wind power and solar power, has a promising future. Saudi Arabia is trying to build a global logistics platform with a focus on low carbon, smart transportation. The country is expected to have greater demands for infrastructure construction.

The Kingdom of Saudi Arabia (“Saudi Arabia” for short) is located in the Arabian Peninsula. According to World Bank standards, Saudi Arabia is a high-income country. According to SINOSURE, Saudi Arabia’ s country risk and sovereign credit risk are both rated “medium” with a stable outlook.

1 Infrastructure Development Index

In 2021, the infrastructure development index for Saudi Arabia stands at 117, ranking No.11 among BRI countries and up two places from the previous year. The country sees a rise in the sub-indices of development environment, demands, and passion, with the sharpest increase in the passion category. Its Development Costs Sub-index stays at the same level.

Table 30 Changes in the Infrastructure Development Index for Saudi Arabia

Saudi Arabia	2021		2020	
	Score	Ranking	Score	Ranking
BRIDI	117	11	110	13
Development Environment Sub-index	105	38	98	34
Development Demands Sub-index	115	36	110	36
Development Passion Sub-index	139	4	126	5
Development Costs Sub-index	107	32	107	34

Source: CHINCA, SINOSURE’ s Country Risk Database.

The development environment is at a high level, but there is room for improvement in the economic and industrial environment. In terms of sub-indices, Saudi Arabia’ s scores in political environment, sovereign debt repayment environment and business environment are higher than the average of West Asia and North Africa and BRI countries; its economic environment score is higher than the regional average, but lower than the average of BRI countries; its industrial environment score is lower than both regional average and the average of BRI countries. As a high-income country, Saudi Arabia’ s overall development environment is good. As the international oil market bounces back in 2021, Saudi Arabia’ s economic environment has improved from the 2020 level. However, the

high dependence on the oil industry makes Saudi Arabia’s economy vulnerable to external disturbances. Due to lack of openness, companies find it hard to enter the local infrastructure market. What is more, Saudi Arabia’s infrastructure policies are less clear and consistent. Taken all in all, there is still room for improvement in the industrial environment.

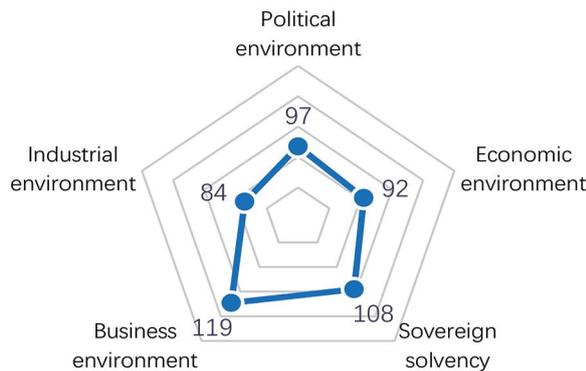


Figure 35 Development Environment Sub-indices for Saudi Arabia

Source: CHINCA, SINOSURE’s Country Risk Database.

Enthusiasm for Saudi Arabia’s infrastructure market remains high. According to statistics from Fitch Solutions, from 2020 to 2021, about 37 infrastructure projects in Saudi Arabia are in the construction or start-up phase, involving more than USD 8.8 billion. Most of them are energy and transportation projects. The launch of power projects like Jubail Phase 3 IWPP and Egypt-Saudi Arabia Interconnection Link ensures sustained popularity of the local infrastructure market. There are also many projects in the research or bidding stage, involving more than USD 10.6 billion. For example, the South Medinah Combined Cycle Plant has a planned investment of USD 3 billion, and the Jeddah South Power Plant Expansion project of USD 1 billion. If these projects go smoothly, the local infrastructure market will continue to be much sought-after.

2 Characteristics of Infrastructure Industry

Saudi Arabia has a solid foundation for infrastructure development. Its sound

investment environment and huge market demand have attracted companies from many countries. As a result, enthusiasm is high within the local infrastructure market. In recent years, with the development of economy and society, Saudi Arabia's demands for electricity remain strong. With the steady implementation of the energy restructuring plan, wind and solar power has shown great potential in this country. In terms of transportation, Saudi Arabia is trying to build a global logistics platform, involving roads, railways, bridges, ports, airports and other facilities. There is still a lot of room for growth.

Table 31 Changes in the Development Demands Sub-index for Saudi Arabia

Development Demands Sub-index by Industry	Score of 2020	Score of 2021
Energy	137	137
Transportation	108	123
Communications	108	110
Water utilities	98	104
Public health	107	111

(1) Given the great electricity demand, renewable power has a broad future.

Power demand will be strong in the future. The Central Bank's data shows that in 2019, Saudi Arabia's total installed capacity was 53,000 MW, and the peak load was about 62,000 MW. The total power consumption was 279.7 GWh. Power consumption increased by 4.1% annually from 2009 to 2019. Saudi Arabia's advanced power infrastructure can meet domestic production and living needs, and its capacity exceeds peak demand. However, with urbanization and population growth, it is expected that local electricity demand will continue to grow in the future. The Saudi Arabian government estimates that power supply will fall short of demand by 60,000 MW in 2032. Therefore, the government is expecting a total installed capacity of 160,000 MW by 2040, and planning to update the old power grid. It will invest USD 5 billion in power generation and USD 4 billion in the establishment of power grid each year.

Most power projects are government-funded or in PPP mode. According to statistics from Fitch Solutions, from 2020 to 2021, about five power projects in

Saudi Arabia break ground, with a total investment of more than USD 6 billion and a planned capacity of more than 3,300 MW. These projects mainly involve natural gas power, solar power and biomass power, along with a 500 KV power network. Saudi Arabia's power projects are mostly government-funded or in public-private partnerships (PPP) mode, and the social capital involved mostly comes from local private institutions. The Saudi Arabian government plans to complete the privatization reform of the power industry in 2025, which may attract more participation from the private sector.

As the government diversifies the energy mix, renewable energy has a promising future. Fuel accounts for more than 90% of Saudi Arabia's power generation. To reduce its dependence on fuel-fired power generation and fulfill its commitment to reducing greenhouse gas emission, Saudi Arabia plans to vigorously develop renewable power in the future. According to Vision 2030, the country will develop 30 solar and wind energy projects in the next nine years. The Saudi Arabia Ministry of Energy has formulated the national renewable energy plan and dedicated an office to Vision 2030: National Transformation Program. In recent years, Saudi Arabia has made progress in solar and wind power. Projects such as Sakaka Solar Plant (300 MW) have been completed, projects such as Jeddah Solar Power Plant (300 MW) are under construction, and renewable power projects such as Ar Raas Solar Project (700 MW) are in the bidding stage.

(2) There is great demand for smart transportation infrastructure.

Saudi Arabia's transportation infrastructure is relatively advanced, yet future demands remain robust. Located at the intersection of Asia, Europe and Africa, Saudi Arabia has since ancient times been a transportation hub between the East and the West with obvious location advantages. Road traffic is the main mode of transportation in Saudi Arabia. It has 220,000 km of roads, including 5,000 km of expressways. However, the total length of two-lane roads is only 12,000 km. Saudi Arabia currently has 4,130 km of railways in operation. The main railway lines include Dammam-Riyadh Railway (449 km), Mecca-Medina High Speed Railway (453 km), and North-South Railway (2,750 km). Saudi Arabia's transportation infrastructure

is relatively advanced. Its efficiency and quality are at the upper–middle level in the world. However, with urbanization and population growth, demand for transportation infrastructure will stay high. Saudi Arabia will continue to upgrade and expand the existing facilities to maintain a high level of transportation efficiency and quality.

Most of the transportation projects are government–funded or in PPP mode.

According to statistics from Fitch Solutions, from 2020 to 2021, about five transportation projects in Saudi Arabia are in the construction stage and three projects are in the planning stage. These projects include three airport projects, three railway projects, one highway project and one port project. Saudi Arabia’s transportation projects are mostly government–funded or in PPP mode, with less foreign capital participation. To be specific, Virgin Hyperloop One, an American high–speed railway company, invested in the King Abdullah Economic City Hyperloop Test Track (35 km). Hong Kong’s Hutchison Ports plans to invest in Jazan City for Primary and Downstream Industries Multipurpose Port, and Singapore’s PSA International plans to invest in King Abdulaziz Port Container Terminal Project.

Saudi Arabia is trying to build a low carbon, smart global logistics platform.

To reduce its dependence on the oil economy, Saudi Arabia has highlighted transportation infrastructure in the National Transport and Logistics Strategy for Vision 2030 and other plans. The country plans to establish itself as a global logistics platform by building and upgrading infrastructure like roads, railways, airports and ports, and promoting local, regional and international connectivity. At the same time, Saudi Arabia takes pains to formulate strict rules and regulations, set up an environmentally friendly system, promote sustainable development, and use intelligent facilities and technology to improve the efficiency and customer experience of railways and other infrastructure.

3 Outlook of Infrastructure Development

Saudi Arabia encourages private sector investment through the National Transformation Program. As part of the Vision 2030, the Saudi government promotes the National Transformation Program to restructure the economy and reduce the

dependence on the oil industry. With the steady implementation of the program, the demand for energy and transportation infrastructure will continue to pop up. In the previous infrastructure projects, the Saudi Arabian government played the leading role. To promote the efficiency and quality of infrastructure, the government has carried out privatization reforms or encouraged private sector investment, thus providing opportunities for global capital to participate.

The pandemic situation is uncertain, and the threat of terrorism looms over infrastructure projects. COVID-19 has a certain negative impact on the smooth implementation of local infrastructure projects. Take the Red Sea Project as an example. The project aims to build the Red Sea into a global luxury travel center. It was originally planned to be completed in 2022, but the pandemic has delayed the project and might cut it down to size. Although vaccination is going on smoothly in Saudi Arabia, the spillover effects of the global spread of coronavirus will shroud the projects' future in uncertainty. Furthermore, there are certain sect conflicts in Saudi Arabia, and the resistance and grievances of the marginalized Shia against the government have deepened. At present, terrorism and violent criminal activities are at a relatively high level in Saudi Arabia, which will also threaten the smooth implementation of infrastructure projects.

Companies should thoroughly study the regional situation and pay attention to changes in the political climate. The situation in the Middle East is complex and changeable. Tension has been building for a long time. The continuing violent conflicts between Iraq and Yemen, the tense relations between Qatar and Iran, and the long-term conflicts between Palestine and Israel have all brought greater uncertainty to the regional situation. As a regional power, Saudi Arabia's diplomatic policies used to revolve around maintaining and enhancing regional influence. But things are changing in recent years. Companies investing in Saudi Arabia should take into account the changes in overall regional risk. They should always pay attention to political changes, and formulate emergency measures in advance to avoid unnecessary losses.

Chapter Five

Infrastructure Development Trends in BRI Countries

In 2021, the economic recovery of various countries is notably unstable and imbalanced. The various derivative risks caused by COVID-19 recurrence cannot be underestimated. In BRI countries, infrastructure development still faces considerable challenges. However, considering the successive implementation of regional economic and trade cooperation arrangements, the driving force of economic stimuli, and the innovative development of international infrastructure cooperation, there are exciting opportunities for the recovery of infrastructure industries in BRI countries. In the post-epidemic era, all parties should build a multi-level and all-round development support system for the international infrastructure community. In keeping with industry trends, companies need to accelerate business transformation and upgrading, and promote high-quality, sustainable development of BRI infrastructure with new models and types of business and new technologies.

Section One: Opportunities of Infrastructure Industry in BRI Countries

1 Regional Economic and Trade Cooperation Arrangements Will Add Vigor to Infrastructure Development

In 2020, 15 countries including China, Japan, South Korea, ASEAN member states, Australia and New Zealand signed the Regional Comprehensive Economic Partnership (RCEP), which not only reflected the determination of the governments to adhere to multilateralism and promote free trade, but also created a favorable policy environment for regional infrastructure investment and construction in the post-pandemic era. With the advancement of a series of multilateral cooperation mechanisms such as the African Continental Free Trade Area (AfCFTA) and the China-Japan-South Korea Free Trade Area, international infrastructure cooperation will open up new room for development. Recently, at the G7 Summit, the US proposed an infrastructure initiative named “Build Back Better World” (B3W). Developed countries represented by the US are generally expected to introduce detailed project plans, financing arrangements, environmental protection standards, etc. as soon as possible to jointly promote the high-quality development of infrastructure across the globe. Since 2020, in order to stimulate economic recovery, key markets such as Malaysia, Indonesia, Uzbekistan, Nigeria, and Kenya have successively introduced economic stimulus plans focusing on the promotion of infrastructure construction and upgrading. With the implementation of these plans in the next 1-2 years, infrastructure construction in the above-mentioned countries is likely to make great headway.

2 New Energy Prepares the Ground for a “Green” Belt and Road

As carbon neutrality and emission peak become a global consensus, the global energy structure is undergoing profound adjustments. Although the overall demand for electricity shrank in various countries following the pandemic in 2020, the demand for renewable power (e.g., wind, solar, and biomass power) rose against the trend, leading to a 7% increase YoY in renewable power production. According to the International Renewable Energy Agency, to achieve the global temperature goal, the proportion of installed renewable energy capacity needs to increase from 25% in 2017 to 86% in 2050; by mid-century, installed renewable energy capacity will exceed 16 GW and installed PV capacity will reach 8.5 GW. With the increasing demands for new energy and the decreasing costs of power generation components, new energy infrastructure in BRI countries shows great potential. Relevant financial institutions and companies should seize the opportunities and strengthen international cooperation in renewable energy, thus promoting the construction of “green” Belt and Road and facilitating high-quality transformation of power infrastructure.

3 New Technology Will Deepen the Development of New Infrastructure

In recent years, a new round of technological revolution characterized by big data, cloud computing, and artificial intelligence has been gaining speed, and the infrastructure industries of BRI countries will witness all-round changes. In the short term, the blue ocean markets represented by charging piles and green buildings are expected to rapidly integrate with smart grids, IoT, 5G communications and other advanced technologies, thus opening up a new era in which new technologies and infrastructure develop in a synergetic way. In the long run, as construction needs keep popping up, an increasing number of new technologies are expected to be widely used in infrastructure projects of BRI countries, and new infrastructure projects such as smart cities, smart transportation, and green buildings will have a brighter future.

Section Two: Overall Risks Facing BRI Infrastructure

1 COVID-19 Remains the Top Risk of the Infrastructure Industry

Although most countries have started vaccination since 2021, vaccination on a global scale remains challenging due to limited vaccine production capacity, transportation difficulties, and tension in international relations. On one hand, the unbalanced distribution of vaccines has slowed the economic recovery of developing countries and directly affected the infrastructure investment of the countries concerned. On the other hand, recurrent outbreaks caused by COVID-19 variants may hinder the economic recovery of various countries and have a major impact on infrastructure development. On the whole, the progress of vaccination and the future trend of the pandemic will still be the primary risk factors concerning global infrastructure industries in the next 1–2 years.

2 Geopolitical and Other Risks Directly Threaten the Future of Infrastructure Industries

Since the second half of 2020, geopolitical risk events have occurred frequently in some regions, and the political game among major powers has become more complicated. In some BRI countries, political struggles, sectarian disputes, and power games were intertwined into wars (Nagorno–Karabakh conflict), coups (Myanmar), social unrest and frequent violent incidents (India). In the short term, aside from the continued fermentation of social conflicts in the pandemic era, the great uncertainties caused by the Russian parliamentary elections, the new round of elections in Latin America and the humanitarian crisis in Africa may spark large-scale riots and thus affect infrastructure projects in relevant countries.

3 Financial Pressures and Debt Problems Limit Infrastructure Investment

According to IMF reports, global fiscal expenditures approximated USD 14 trillion in response to COVID-19 in 2020. Large-scale fiscal expenditures have led to higher inflationary pressures, debt levels, and sovereign credit risks, which directly affect the government's financing capacity and the financing costs of infrastructure projects. Moreover, in the face of inflationary pressures and debt problems, some countries, especially developing countries, have decided to reduce new public investments, and infrastructure projects may suffer from it.

4 Frequent Occurrence of Extreme Weather Put a Damper on Infrastructure Projects

In recent years, the frequent occurrence of extreme weather has seriously threatened people's lives and caused huge economic losses around the world. For example, in 2021, a dam break cost Nepal's Melamchi Drinking Water Project billions of rupees; a snowstorm in southern America severely damaged the Texas grid system, shutting down wind power and natural gas generators and plunging more than 4 million households into blackout. Risk events such as floods, landslides and avalanches caused by extreme weather may affect the safe operation of infrastructure projects, not to mention project delays as a result of traffic jams and shortages of raw materials.

Section Three: Risks in Key Areas of Infrastructure Development and in Hot Industries Around the World

1 Asia: Regional Complexities Cast a Cloud over Infrastructure Development

In Asia, the overall situation is complex. Factors such as COVID-19, economic downturn, geopolitical conflicts and power games are intertwined with one another. As to West Asia and Central Asia, the Iran nuclear crisis and the Syrian crisis are still taking hold; Lebanon and Kyrgyzstan are beset by political turmoil. After the pandemic strikes, all bets are off on infrastructure development in this region. As for South Asia, infrastructure investment and construction are losing steam in India, a country embroiled in outbreaks, ethnic conflict, howls of protests, and downward pressure on the economy. Southeast Asia has always been a hotspot for BRI infrastructure cooperation. Infrastructure projects in regional countries will benefit from the closer economic and trade ties following the implementation of RCEP. However, the epidemic situation is still uncertain for the moment. Among other factors, a peaceful settlement of the political crisis in Myanmar will have a great influence on the region.

2 Africa: Debt Problems and a High Level of Overall Risks Drag down Infrastructure Market

In Africa, the overall risk level is relatively high. Affected by the pandemic and bulk commodity market gyrations, the regional economy is under great downward pressure. Algeria's economy has fallen into a deep recession. Namibia's debt service ratio has risen sharply. Tunisia's economic growth has stalled and its fiscal pressure increased significantly. The sovereign credit risks of three countries have surged. Chad and Malawi have even experienced sovereign debt defaults. As a result, it is harder to implement infrastructure investment plans and repay the loans.

Africa's debt problem looms large for the time being. Although the large-scale funding through the G20 Debt Service Suspension Initiative (DSSI) and multilateral institutions like the World Bank has eased the debt repayment pressure to a certain extent, it has also increased debt restrictions for regional countries. How to balance infrastructure and economic needs with debt sustainability is a common problem facing African countries and multilateral institutions. With the gradual withdrawal of external support measures in the future, greater uncertainties will arise about project repayment and the operation of new projects.

3 Europe: Infrastructure Market Is Less Open than Before Despite a Low Level of Overall Risks

In Europe, the overall risk level is relatively low, but the trend of political fragmentation is difficult to reverse. Affected by power games, the situation in some CEE and Transcaucasian countries is unstable. The economic and political situation of EU countries is relatively stable, and the EU's infrastructure financing channels are more diverse than those of other regions. However, due to the localization advantages of local infrastructure companies, it is difficult for foreign companies to stand out in EU markets. In addition, the tightening policy controls make it harder for foreign infrastructure companies to get contracts in EU countries. In October 2020, the EU began to fully implement its framework for screening of foreign direct investment. According to the framework, when a foreign investment poses a threat to the security and public order of one or more member states or damages a certain project or plan, the European Commission has the right to express opinions. Such mechanism will significantly increase the uncertainties in communications and other infrastructure sectors. As power games become increasingly complicated in the post-epidemic era, the temporary freezing of the EU-China Comprehensive Agreement on Investment and the prohibition of some companies from participating in 5G construction have shown that the current EU policies are subject to external factors. With protectionism rearing its head, it is more difficult for foreign companies to carry out infrastructure projects.

4 Higher Uncertainties in Industrial Policies Pose a Challenge to Business Transformation

With more and more major countries committed to carbon neutrality and net zero emissions, the global carbon neutral governance system with the Paris Agreement as the core has achieved remarkable results. In addition, the fossil energy industry represented by coal is facing greater uncertainties. As some countries have issued policies restricting coal power, new projects concerned are facing greater obstacles. Moreover, the lack of exit and subsidy mechanisms for existing coal power projects is quite a headache for coal power companies. In early 2021, RWE AG, Germany's largest power producer, filed a lawsuit against the Dutch government, demanding a EUR 1.4 billion compensation for possible losses due to the policy of “phasing out coal power by 2030”. With the gradual improvement of national climate goals, how to transition from traditional fossil energy to renewable energy is the core issue facing energy companies.

On the other hand, the current international situation is more complex and changeable, and the power games have a greater spillover effect on the infrastructure industry. Policy barriers in some countries have increased significantly, and the consistency of industrial policies and the degree of openness have declined, which has had a considerable negative impact on the healthy and sustainable development of infrastructure. In March 2021, the Indian government passed an amendment to the Licensing Framework for Telecom, requiring that from June 15 on, all telecommunications companies can purchase equipment only from “trusted” suppliers approved by designated agencies. In May, India officially announced a list of global suppliers that are allowed to participate in the country's 5G test, and notably absent in this list are China's Huawei and ZTE. Against the backdrop of COVID-19 and de-globalization, infrastructure stakeholders are expected to adopt suitable cooperation models to improve the operational level of international BOT, PPP and franchise projects, helping financial institutions to form alliances and infrastructure partners to find the greatest common divisor.

Section Four: Policy Advice for Infrastructure Development in BRI Countries

1 Enhance Intergovernmental Cooperation to Create a Favorable Environment for International Contractors

All parties concerned should work more closely to develop the dialogue and coordination mechanisms, boost bilateral investment, manage public opinions, reimagine the infrastructure cooperation system, and in turn create a sound atmosphere for international contracting. Specifically, they need to further improve the cross-border dialogue and coordination mechanisms; coordinate the laws, regulations, accounting standards and trade rules of different countries; facilitate visa application, certification of standards and equipment materials, and issuing of tax incentives and professional credentials; and address problems and obstacles in cooperation. National governments should jointly promote the signing and renewal of bilateral investment protection agreements and double taxation avoidance agreements, facilitate the fulfillment of signed agreements, and establish bilateral/multilateral mechanisms for investment safety. In addition, it is worth noting that given the uncertainties in the pandemic situation, governments should continue to develop joint pandemic prevention and control mechanisms, promote the fair distribution of vaccines around the world, and effectively protect the personal health and safety of citizens and foreigners alike.

2 Combine the Strengths of Financial Institutions to Better Fulfil the Corporate Financing Needs

To ease the difficulty of financing infrastructure projects, different types of financial institutions, including policy banks, commercial banks, and international development agencies, should work more closely to establish a cooperation

platform for financial institutions. Such a platform will unleash the respective advantages of these institutions and rally them around the BRI. Because financial institutions in different countries vary in financing models, quotations and scales, it is recommended to strengthen mutual recognition of financing standards and rules, and provide cash-hungry companies with integrated financial solutions. Specifically, financial institutions in Europe, the US and the Middle East have a higher level of marketization and diversified business models. They are offering products like pure project financing, short-term revolving credit facilities, and receivables securitization for the construction period, yet such forms of financing are often small-scale and risk-averse. If financial institutions can jointly tap into third-party markets through syndicates or other means of cooperation, they can not only meet the corporate financing needs, but also improve risk management and effectively promote infrastructure development.

3 Ramp Up Risk Evaluation and Cautiously Adjust the Overseas Portfolio

The current international situation is complex and changeable. Pandemic prevention and control is still an uphill battle, and challenges to the international infrastructure community abound. In this context, companies are recommended to focus on the following aspects to effectively manage overseas risks: First, enhance research on overseas risks, pay close attention to the epidemic trend, political changes, sovereign debt repayment and social security concerns in relevant countries, establish an overseas risk alert mechanism, highlight the role of export credit insurance, and make contingency plans. Second, conduct a comprehensive assessment of overseas market risks, cautiously adjust the portfolio by properly increasing the proportion of business in countries and regions with lower risk levels, and reasonably control the risk management costs. Third, strengthen infrastructure construction in such fields as livelihood, healthcare, agriculture, and water utilities in the destination country. In so doing, the companies concerned can not only meet the huge development needs in the pandemic era, but also integrate into local communities, build a positive brand image, and lay a solid foundation for long-term

infrastructure cooperation. Fourth, establish corporate ESG management systems in line with international standards and regulations to ensure adequate protection of the legitimate rights and interests of employees during the projects, while taking into account the reasonable demands of local residents as much as possible, and building a harmonious relationship with the local communities to minimize the environmental impact of the projects.

4 Seize the Opportunities of Green Infrastructure and Promote Industrial Transformation and Upgrading Through Business Innovation

With the deepening of global energy restructuring, clean fossil energy, large-scale clean energy, and electrification of terminal energy consumption turn out to be the main industry trends. Great opportunities lie in the green transformation of infrastructure. Companies are recommended to keep an eye on the policy adjustments in the destination countries, and make arrangements in advance. They should pay particular attention to investment opportunities in the field of renewable energy, including hydropower, solar power and wind power. It is worth noting that developed and developing countries have different carbon emission reduction requirements. The companies concerned should strive to fulfil their green obligations in line with their business and technical realities, and reasonably manage their carbon costs. Companies are also expected to enhance investment–construction–operation integration and third–party market cooperation, promoting the transformation and upgrading of the infrastructure industry with new business models. For example, they can try to improve their project investment and financing capabilities and operational management skills, increase their involvement in the industry chain, and thereby enhance their position in international cooperation. When it comes to third–party market cooperation, companies need to team up in such areas as contracting and design consulting, cost consulting, standardization of investment and financing projects, construction, and operational management. Such partnerships will help each party unleash its potential and learn from others.

References

- [1] Abiad, A., D. Furceri, and P. Topalova. 2016. "The macroeconomic effects of public investment: Evidence from advanced economies." *Journal of Macroeconomics* 50: 224 – 40.
- [2] Akitoby, Bernardin, Richard Hemming and Gerd Schwartz (2007). "Public Investment and Public–Private Partnerships." *Economic Issues* No. 40, International Monetary Fund.
- [3] Allen, Richard and Miguel Alves (2016). "How to improve the financial oversight of public corporations." Fiscal Affairs Department, International Monetary Fund.
- [4] Andrés, L., D. Biller, and M. Herrera Dappe, 2013, "Reducing Poverty by Closing South Asia's Infrastructure Gap" , Washington, D.C.: World Bank Group.
- [5] Andres, Luis, Dan Biller, and Matias Herrera Dappe, 2014, "Infrastructure Gap in South Asia, Infrastructure Needs, Prioritization, and Financing," (September 2014). World Bank Policy Research Working Paper No.7032.
- [6] Andrieu, Michal, Patrick Blagrove, Pedro Espallat, Keiko Honjo, Benjamin L Hunt, Mika Kortelainen, René Lalonde, and others, 2015, "The Flexible System of Global Models – FSGM." IMF Working Paper 15/64, International Monetary Fund, Washington, DC.

- [7] Irwin, Timothy C, Samah Mazraani and Sandeep Saxena, 2018, "How to Control the Fiscal Costs of Public–Private Partnerships." Fiscal Affairs Department, International Monetary Fund (IMF).
- [8] Kumar, Manmohan S., and Emanuele Baldacci, 2010, "Fiscal Deficits, Public Debt, and Sovereign Bond Yields." IMF Working Paper 10/184, International Monetary Fund, Washington, DC.
- [9] Ligthart, Jenny E., and Rosa M. Martin Su á rez. 2005. "The Productivity of Public Capital: A Meta Analysis." Working Paper, Tilburg University.
- [10] Nishimizu, Mieko, and Charles Hulten. 1978. ' 'The Sources of Japanese Economic Growth, 1955 - 71.' ' Review of Economics and Statistics 60(3):351 - 61.
- [11] OECD, 2015, Towards a Framework for the Governance of Infrastructure. Paris: OECD.
- [12] Singh, Anoop, Tooraj Jamasb, Rabindra Nepal, and Michael Toman, 2015, "Cross–border Electricity Cooperation in South Asia," (June 2015) World Bank Policy Research Working Paper No. 7328.
- [13] United Nations Economic and Social Commission for Asia and the Pacific, 2017, "Achieving the Sustainable Development Goals in South Asia: Key Policy Priorities and Implementation Challenges," United Nations
- [14] Vu, H., O. Bizimana, and M. Nozaki, 2020, "Boosting Infrastructure in Emerging Asia" in Well Spent: How Strong Infrastructure Governance Can End Waste in Public Investment, edited by G. Schwartz, M. Fouad, T. S. Hansen, and G. Verdier. Washington DC: International Monetary Fund.
- [15] HOU Zehua and LIANG Shuanglu, "Belt and Road, Industrial Transfer and Coordinated Regional Development" [J/OL], Journal of Shanxi University of Finance & Economics, 2021(07):43–57[2021–06–17].
- [16] TIE Ying, HUANG Jianzhong and XU Meina, "Third–country Effect, In–depth FTA and China Strategy: Quantitative Analysis Based on Heterogeneous Terms" [J], Economic Research Journal, 2021,56(01):155–171.

- [17] SHI Jingxia, “The Belt and Road Initiative and International Law: An Analysis from the Perspective of the Supply of International Public Goods” [J], *Social Sciences in China*, 2021(01):156–179+207–208.
- [18] LUO Changyuan and ZENG Shuai, “ ‘Going Global’ and Financial Constraints of Enterprises: The ‘Belt & Road’ Initiative as a Quasi–natural Experiment” [J], *Journal of Financial Research*, 2020(10):92–112.
- [19] LI Xiaofan and JIANG Lingduo, “Belt and Road Initiative, Central and Western Regions Opening and Economic Development” [J], *The Journal of World Economy*, 2020,43(10):3–27.
- [20] LI Shijie, LIU Wenge and GUO Qingbin, “Geopolitical Economy with Chinese Characteristics: Theory and System – The Summary of the 5th Geopolitical Economy Forum” [J], *Economic Research Journal*, 2020,55(05):199–203.
- [21] PEI Changhong and LIU Hongkui, “The High–quality Development of Chinese Foreign Trade Enlightened by Xi Jinping’ s Important Judgment on the Profound Changes Unseen in a Century” [J], *Economic Research Journal*, 2020,55(05):4–20.
- [22] WANG Guijun and ZHANG Hui, “The Belt and Road Initiative and the TFP of China’ s OFDI Enterprises: A Perspective on Investing in Developed Countries” [J], *The Journal of World Economy*, 2020,43(05):49–72.
- [23] LI Juanjun and LI Juncheng, “The Belt and Road Initiative, Corporate Credit Finance Enhancement Effects and Heterogeneities” [J], *The Journal of World Economy*, 2020,43(02):3–24.
- [24] MA Yan, LI Jun and WANG Lin, “On the Reverse Inequality Effect of the Belt and Road Initiative: Refuting China’ s ‘Neo–colonialist’ Questioning” [J], *The Journal of World Economy*, 2020,43(01):3–22.
- [25] YAO Xing, PU Yue, WU Gang, WANG Bo and WANG Lei, “China’ s Integration into and Standing among BRI Countries: Industry Comparison, Regional Differences, and Relevant Factors” [J], *Economic Research Journal*, 2019,54(09):172–186.

- [26] LV Yue, LU Yi, WU Songbo and WANG Yong, “The Effect of the Belt and Road Initiative on Firms’ OFDI: Evidence from China’s Greenfield Investment” [J], *Economic Research Journal*, 2019,54(09):187–202.
- [27] XU Helian, ZHU Shujin and XU Hangtian, “Stepping Up Efforts to Develop the New Pattern of Comprehensive Opening–up, and Jointly Building an Innovative and Inclusive World Economy – The Summary of the 5th Frontier Forum for International Economics” [J], *Economic Research Journal*, 2019,54(06):199–203.
- [28] CAO Wei, WAN Die, QIAN Shuitu and JIN Zhaohui, “RMB Exchange Rate Pass through to Import Prices Against the Backdrop of Belt and Road Initiative” [J], *Economic Research Journal*, 2019,54(06):136–150.
- [29] LI Bing and YAN Xiaochen, “China’s New Comparative Advantage of Trading with Belt and Road Countries: Public Security Perspectives” [J], *Economic Research Journal*, 2018,53(01):183–197.
- [30] LUO Yu, WANG Fang and CHEN Xi, “How Quality of Institution and Multilateral Financial Institutions Influence the Success of PPP Projects: an Empirical Study Based on 46 Countries along ‘the Belt and Road’ ” [J], *Journal of Financial Research*, 2017(04):61–77.
- [31] LV Yanfang and WANG Dong, “Effective Implementation of the Belt and Road Initiative: Economic Scale and Geographic and Cultural Distances” [J], *Economic Perspectives*, 2017(04):30–40.
- [32] YANG Yaping and GAO Yue, “Investing in BRI Countries: From the Perspective of Institutional Distance and Ethnic Chinese Networks” [J], *Economic Perspectives*, 2017(04):41–52.
- [33] ZHANG Yabin, “The Investment Facilitation of ‘One Belt One Road’ and Choices of China’s Foreign Direct Investment–Empirical Analysis Based on Cross–Panel Data and Investment Gravity Model” [J], *Journal of International Trade*, 2016(09):165–176.

- [34] QIU Bin, ZHOU Qin and LIU Xiuyan, “The Summary of the Seminar, ‘International Capacity Cooperation Under the Belt and Road Initiative: Theoretical Innovation and Policy Research’ ” [J], Economic Research Journal, 2016,51(05):188–192.
- [35] LIU Xiaokai and ZHANG Ming, “PPP in the Global Perspective: Implications, Models, Practice and Problems” [J], International Economic Review, 2015(04):53–67+5.
- [36] LIU Wei, “Theoretical Explanation of PPP Mode and Its Practical Examples” [J], Reform, 2015(01):78–89.
- [37] SHEN Xianjie and XIAO Jincheng, “New Situation of International Regional Economic Cooperation and China’ s ‘One Belt and One Road’ Cooperative Strategy” [J], Macroeconomics, 2014(11):30–38.
- [38] HE Xingqiang, OU Yan, SHI Wei and LIU Yang, “Research on the Technical Spillover Effect of FDI and the Threshold Effect of China’ s Absorptive Capacity” [J], The Journal of World Economy, 2014,37(10):52–76.
- [39] YE Xiaosu and XU Chunmei, “Review and Research on PPP Pattern in China” [J], Soft Science, 2013,27(06):6–9.
- [40] YUAN Jingfeng, JI Chuang and LI Qiming, “The Key Performance Indicators in International PPP Projects” [J], Journal of Industrial Technological Economics, 2012,31(06):109–120.
- [41] ZHANG Xueliang, “Has Transport Infrastructure Promoted Regional Economic Growth? With an Analysis of the Spatial Spillover Effects of Transport Infrastructure” [J], Social Sciences in China, 2012(03):60–77+206.
- [42] YUAN Jingfeng, WANG Fan, LI Qiming and DENG Xiaopeng, “VfM Assessment and Its Application to Infrastructure PPPs” [J], Modern Management Science, 2012(01):27–30.
- [43] LIU Shenglong and HU An’ gang, “Transportation Infrastructure and China’ s Regional Economic Integration” [J], Economic Research Journal, 2011,46(03):72–82.

- [44] ZHENG Bingwen, “ ‘Middle Income Trap’ and China’ s Path to Development: In Perspective of International Experiences and Lessons” [J], Chinese Journal of Population Science, 2011(01):2–15+111.
- [45] SHENG Dan, BAO Qun and WANG Yongjin, “The Effects of Infrastructure on Chinese Firms’ Export: ‘Intensive Margin’ versus ‘Extensive Margin’ ” [J], The Journal of World Economy, 2011,34(01):17–36.
- [46] WANG Guogang, “Urbanization: Core of China Economic Development Mode Transition” [J], Economic Research Journal, 2010,45(12):70–81+148.
- [47] LIU Yong, “Transport Infrastructure Investment, Regional Economic Growth and the Spatial Spillover Effects — Based on Highway and Marine’ s Panel Data Analysis” [J], China Industrial Economics, 2010(12):37–46.
- [48] WANG Yongjin, SHENG Dan, SHI Bingzhan and LI Kunwang, “How Does Infrastructure Affect Export Technological Sophistication” [J], Economic Research Journal, 2010,45(07):103–115.
- [49] LIU Shenglong and HU An’ gang, “Transport Infrastructure and Economic Growth: Perspective from China’ s Regional Disparities” [J], China Industrial Economics, 2010(04):14–23.
- [50] LIU Shenglong and HU An’ gang, “Test on the Externality of Infrastructure in China: 1988–2007” [J], Economic Research Journal, 2010,45(03):4–15.
- [51] LIU Binglian, WU Ju and LIU Yuhai, “Transportation Infrastructure and the Increase in TFP in China — Spatial Econometric Analysis on Provincial Panel Data” [J], China Industrial Economics, 2010(03):54–64.
- [52] DENG Xiaopeng, LI Qiming, XIONG Wei and YUAN Jingfeng, “Research on the Key Risks of PPPs on Urban Infrastructure” [J], Modern Management Science, 2009(12):55–56+59.
- [53] WU Wei and FU Xi’ e, “The Concept of Green Infrastructure and Review of Its Research Development” [J], Urban Planning International, 2009,24(05): 67–71.
- [54] WANG Xueqing, YU Gang and BING Xingguo, “The Analysis of Risk Allocation on the PPP Financing Model” [J], Soft Science, 2007(06):39–42.

- [55] LU Feng, “Research on China’ s Undertaking of International Service Outsourcing” [J], Economic Research Journal, 2007(09):49–61.
- [56] ZHANG Xueliang, “Regional Competitive Analysis on China’ s Transportation Infrastructure and Economic Growth” [J], Journal of Finance and Economics, 2007(08):51–63.
- [57] WANG Renfei and WANG Jinjie, “Infrastructure and Economic Growth in China: A Study Based on VAR Method” [J], The Journal of World Economy, 2007(03):13–21.
- [58] YU Yihong, “Type of Industrial Chain and the Benchmark of Industrial Chain Efficiency” [J], China Industrial Economics, 2005(11):35–42.
- [59] JIANG Xiaojuan, “The Improvement and Upgrade of Industrial Structure: New Tasks in the New Stage” [J], Finance & Trade Economics, 2005(04):3–9+71–96.
- [60] LOU Hong, “Public Investment Policy in Long–run Economic Growth — General Congestion Public Infrastructure in Long–run Growth Model” [J], Economic Research Journal, 2004(03):10–19.
- [61] LIANG Qi, “Overseas Investment of Multinational Companies and Industrial Clustering” [J], The Journal of World Economy, 2003(09):29–37.
- [62] NI Pengfei, “An Experiential Test about Contribution of Infrastructure to Urban Competitiveness” [J], China Industrial Economics, 2002(05):62–69.
- [63] HE Jie, “Accurate Quantification of the Spillover Effect of FDI on China’ s Industrial Sector” [J], The Journal of World Economy, 2000(12):29–36.
- [64] LI Qiming and SHEN Liyin, “Research on Decision Model for Concession Period of Infrastructure BOT project” [J], Journal of Industrial Engineering and Engineering Management, 2000(01):43–46+1.

List of Figures and Tables

Table 1	BRIDI Changes by Sub-index	04
Table 2	BRIDI Changes by Region	05
Table 3	Restrictions of Representative Financial Institutions on Coal-fired Power	09
Table 4	Comparison of Major Global and Regional Trading and Investment Agreements	10
Table 5	Numbers of Branches Set by International Contractors in BRI Countries (TOP 20)	15
Table 6	Development of Major International Contractors in 2020.....	18
Table 7	Changes in the Development Environment Sub-index by Region ...	26
Table 8	Top 15 List of Infrastructure Development Sub-index.....	27
Table 9	Changes in the Development Demands Sub-index by Region	33
Table 10	Top 15 List of Development Demands Sub-index	33
Table 11	Changes in the Development Passions Sub-index by Region	39
Table 12	Top 15 List of Development Passions Sub-index	39
Table 13	Changes in the Development Costs Sub-index by Region	45
Table 14	TOP 15 List of Development Costs Sub-index	46
Table 15	Scores and rankings of PSCs by infrastructure development index	51
Table 16	Scores of PSCs by infrastructure development sub-indices.....	52

Table 17	Changes in sub-indices for PSCs	52
Table 18	Policy Priorities of Macao for Participating in the BRI (2016–2021)	59
Table 19	Main Mechanisms Established by Macao SAR during 2016–2021	61
Table 20	Trade between Macao and BRI Countries during 2017–2020	63
Table 21	Trade between Macao and PSCs during 2017–2020	64
Table 22	Achievements of the China–PSCs Cooperation and Development Fund.....	66
Table 23	Changes in the Infrastructure Development Index for Bangladesh	77
Table 24	Changes in the Development Demands Sub-index for Bangladesh	79
Table 25	Private Investments in Bangladesh’ s Power Projects (2019–2020)	80
Table 26	Private Investments in Bangladesh’ s Transportation Projects (2018– 2019)	82
Table 27	Changes in the Infrastructure Development Index for Mozambique	86
Table 28	Changes in the Development Demands Sub-index for Mozambique	88
Table 29	Private Investments in Mozambique’ s Power Projects (2019–2020)	90
Table 30	Changes in the Infrastructure Development Index for Saudi Arabia	95
Table 31	Changes in the Development Demands Sub-index for Saudi Arabia	97

Figure 1	Belt and Road Infrastructure Development Index (2021)	03
Figure 2	Belt and Road Infrastructure Development Index (2010–2021).....	03
Figure 3	The Number of Annual New Projects of Energy Infrastructure by Energy Source (2018–2020)	08
Figure 4	Assets of Listed International Contractors by Country in 2020	14
Figure 5	Participation of International Contractors in Belt and Road Infrastructure Development.....	15
Figure 6	Changes in the Percentage of Overseas Business of International Contractors	16
Figure 7	Changes in Basic Information of Major International Contractors (2010–2020)	17
Figure 8	Changes in Profitability of Major International Contractors.....	18
Figure 9	Changes in Key Indicators of International Contractors (2010–2020)	19
Figure 10	Development Environment Sub–index Heat Map	23
Figure 11	Development Environment Sub–index (2010–2021)	24
Figure 12	India’ s Massive COVID Surge.....	26
Figure 13	Development Demands Sub–index Heat Map	30
Figure 14	Development Demands Sub–index (2010–2021)	31
Figure 15	Development Passions Sub–index Heat Map	36
Figure 16	The Development Passions Sub–index (2010–2021)	37
Figure 17	Private Infrastructure Investments by Sector (2010–2020)	41
Figure 18	Private Investment in the Energy Sector in 2020	42
Figure 19	Development Costs Sub–index Heat Map	43
Figure 20	The Development Costs Sub–index (2010–2021).....	44
Figure 21	Infrastructure Development Operating Costs Sub–index for BRI Countries	47
Figure 22	Infrastructure Development Financing Costs Sub–index for BRI Countries	48
Figure 23	Changes in overall BRIDI for PSCs	51

Figure 24	Scores of PSCs in Development Environment Sub-index	53
Figure 25	Changes in GDP growth rates of PSCs	53
Figure 26	Scores of PSCs in Development Demands Sub-index	54
Figure 27	Scores of PSCs in Development Demands Sub-index by industry	55
Figure 28	Scores of PSCs in Development Passions Sub-index	56
Figure 29	Scores of PSCs in Development Passions Sub-index	56
Figure 30	Scores of PSCs in Development Costs Sub-index	57
Figure 31	Development Costs Sub-index for PSCs	57
Figure 32	Development Environment Sub-indices for Bangladesh	78
Figure 33	Development Environment Sub-indices for Mozambique	87
Figure 34	Changes in the Development Demands Sub-indices for Mozambique	88
Figure 35	Development Environment Sub-indices for Saudi Arabia	96



联系方式 CONTACT

中国对外承包工程商会
电话:0086-10-81130091
网址:www.chinca.org
邮箱:zhangkai@chinca.org

China International Contractors Association (CHINCA)
Tel:0086-10-81130091
Web:www.chinca.org
E-mail:zhangkai@chinca.org

