



ADB Project Document

TA-9124 PRC: Study of the Belt and Road Initiative

National Assessment Report: Lao PDR

July 2019

This report was prepared by Phouphet Kyophilavong, under the direction of Ying Qian and Stephanie Kamal. We gratefully acknowledge the insights and comments of David Roland-Holst, Taidong Zhou, and other expert colleagues.

ASIAN DEVELOPMENT BANK

Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
www.adb.org
© 2015 by Asian Development Bank
April 2015
ISSN 2313-6537 (Print), 2313-6545 (e-ISSN)
Publication Stock No. WPSXXXXXX-X

The views expressed in this paper are those of the consultants and do not necessarily reflect the views and policies of the Asian Development Bank (ADB) or its Board of Governors or the governments they represent.

ADB does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use.

By making any designation of or reference to a particular territory or geographic area, or by using the term “country” in this document, ADB does not intend to make any judgments as to the legal or other status of any territory or area.

Note: In this publication, the symbol “\$” refers to US dollars.



Printed on recycled paper

Contents

I.	Introduction.....	6
II.	Lao Economy, Poverty, Trade and Investment.....	8
A.	Lao economy	8
B.	Poverty and income inequality.....	10
C.	Foreign Trade	11
D.	Foreign Direct Investment (FDI)	13
III.	Regional cooperation initiative, the Leading sectors, and the key economic challenges.....	18
A.	Regional cooperation initiative	18
B.	The Leading sectors.....	19
1.	Agriculture	19
2.	Tourism and services.....	19
3.	Mining sector and Hydropower sector	20
C.	The key economic challenges.....	20
IV.	Project Section and methodology approach	24
D.	Project section.....	24
1.	The Laos-China High Speed Railway.....	24
2.	Mohan-Boten Economic Cooperation Zone.....	26
E.	Methodology	26
V.	Key Findings.....	28
A.	Impact on SDGs	28
B.	The main challenges and opportunities of BRI.....	32
C.	The Assessment of the BRI project.....	34
D.	The overall impact of BRI on the Lao economy.....	36
VI.	Recommendation for future policy dialogue.....	38
E.	How to strengthen environmental and social safeguards.....	39
F.	How to cooperate with other international partners	39
G.	How to coordinate the BRI effectively on the national level.....	40
H.	How to build capacity for the government and private sectors.....	40
I.	How to promote the RBI's spillover effects.....	40
J.	How to raise awareness for the RBI	40
VII.	References	41
	Appendix 1. SDGs and Key Targets.....	43

Appendix 2. Questionnaire.....	46
Appendix 3. Households by provinces	49

Abbreviations

ADB – Asian Development Bank
AEC - ASEAN Economic Community
AIIB - Asian Infrastructure Investment Bank
ASEAN - Association of Southeast Asian Nations
BRI - Belt & Road Initiative
DOS - Laos' Department of Statistics
FDI - Foreign direct investment
GMS - Greater Mekong Subregion
HDI - The Human Development Index
JV - Joint-Venture
LDC - Least developed country
LECS - Lao Expenditure and Consumption Census
LPI - Logistic Performance Index
LSB - Lao Statistics Bureau
MPI - Planning and Investment of Lao PDR
NEM - New Economic Mechanism
NGPES - National Growth and Poverty Eradication Strategy
NTMs - Non-tariff measures
OBOR - One Belt & One Road Initiative
SDGs - Sustainable Development Goals
SEZ - Special Economic Zone
SEZA - Special Economic Zone Authority
SOEs - State-owned enterprises
WTO - World Trade Organization

I. Introduction

1. A primary national development goal for Lao PDR is to surpass its current status as a least developed country (LDC) by 2020 (GoL, 2004). In order to overcome poor infrastructure, limited human resources, and low productivity, the Laos government has enthusiastically promoted foreign direct investment (FDI). FDI inflows in 2007 were estimated at about US\$950 million, a 60% increase from the previous year. About 90% of FDI was linked to the resource industry, which accounted for most of the increase (Kyophilavong, 2012). However, Laos is facing various challenges, of which one of the most significant is high logistics costs- high debt and large budget deficits. Moreover, the Lao economy is highly dependent on China, Vietnam and Thailand for trade and investment.
2. Laos has strong ties with China, with the latter being the most important donor to Laos as well as most significant trading partner and source of investment (FDI). High-level personal exchanges, such as visits by the highest authorities of both central governments, take place frequently between the two countries. Bilateral trade volume has increased, and China is the number one investor in Laos. Although the Laos government officially welcomes China's assistance and investment, feelings among the general public are more complex (Fujimura, 2010; Zhenming, 2015).
3. When Chinese President Xi Jinping visited Kazakhstan in 2013, he called for the establishment of a new regional cooperation model by jointly building the "Silk Road Economic Belt". One month later in Indonesia, President Xi again called for the construction of the "21st Century Maritime Silk Road" in addition to the creation of the Asian Infrastructure Development Bank (AIIB). These proposals have officially been termed the "One Belt & One Road Initiative" (OBOR) or the "Belt & Road Initiative" (BRI) (Huang, 2016.) The purpose of the BRI is to promote regional economic development through the creation of win-win cooperation and joint prosperity. It intends to increase understanding and trust, and to strengthen communication and friendship among countries in the region. It follows four principles: (1) openness and cooperation, (2) harmony and inclusiveness, (3) market-based operation, and (4) mutually beneficial and win-win for all countries (Huang, 2016).

4. Laos is one of the southeast Asian countries involved with this initiative. China's "Belt and Road" transport and energy infrastructure megaprojects (Laos-China High Speed Railway) will transform the Greater Mekong Sub-region (GMS) and southern Chinese province into integrated marketing and production areas.
5. The main objective of this study is to (i) present an analysis of stakeholder interests across the PRC–Mainland Southeast Asia Economic Corridor, (ii) advise on BRI alignment with national development strategies and to optimize its use as an investment tool to accelerate regional economic growth, and (iii) build a broader understanding of the BRI's potential, opportunities, and risks and propose recommendations for management regarding these risks in the mainland Southeast Asia region. These inputs will contribute toward the TA outcome to help place the BRI in the overall regional cooperation and integration landscape and use an improved design of the PRC–Mainland Southeast Asia economic corridor as a pilot case.

II. Lao Economy, Poverty, Trade and Investment

A. Lao economy

6. In 1986, Laos began to transition from a centrally planned economy to a more market-oriented economy. The economic reforms in Laos aim to provide better incentives for the private sector, increase productivity of various sectors, increase domestic demand, increase FDI, increase exports, improve human resources, and improve infrastructure. The reforms have successfully generated robust economic growth in Laos for the past two decades. As shown in Table 2-1, Laos had a real economic growth rate of around 8% on average from 1990–2013. In addition, the macroeconomic situation is generally stable. From 2011-2013, Laos had an average inflation rate in the single digits and a stable exchange rate during the same period. Its GDP per capita increased remarkably from US\$310 in 1980 to US\$1730 in 2017. According to the World Bank, these developments shifted Laos from a “Low Income” to a “Low-Middle Income” status category in 2012. Agriculture’s share of GDP has declined while the services (trade, finance) and manufacturing sector’s shares of GDP have increased (Table 2-2). It shows that the Lao economy is shifting from an agriculture-based economy to a services and manufacturing-based economy. In order to support these sectors, trade liberalization and investment are crucial.

7. Despite increasing revenues from resource sectors (mining and hydropower), Laos still faces large budget deficits. The budget deficit increased from 2.6% of GDP in 2007 to 3.4% of GDP in 2015 to 4.8% in 2017. Laos also faces large external debts, with an accumulated external debt of more than 76% of GDP from 2011 to 2013. The external debt stock to GDP was 113.7%, the highest in the region. The Laos-China High Speed Railway project is estimated to cost approximately \$6 billion USD. Many experts from the Asian Development Bank and the World Bank worry that this debt will be too large for the Lao government to repay. The loan for this project will be almost 90% of Lao GDP and Laos will, as a result, be one of the world’s most indebted countries (Lim, 2015).

Table 2-1: Economic Performance of Laos in 1990-2017

	2017	2016	2011-2015	2006-2010	2001-2005	1996-2000	1990-1995
GDP growth (%)	6.89	7.02	7.62	7.98	6.24	6.17	6.28
GDP per capita (US\$)	1730	1643	1452.06	841	371	302	243
GDP per capita growth (%)	5.34	5.53	6.08	5.9	4.58	4	3.44
Sources: World Bank, ADB, and IMF.							

Source: World Bank and Asian Development Bank (ADB).

Table 2-2. Share of GDP

	1985	1990	1995	2000	2005	2010	2011	2015
Agriculture	53.8	60.7	54.1	45.8	34.4	28.8	27.2	26.0
Mining	0.4	0.1	0.2	0.2	5.8	9.3	10.6	10.0
Manufacturing	9.9	9.9	13.9	8.4	8.1	9.8	9.6	10.3
Electricity, gas, and water	5.7	1.4	1.3	4.4	3.5	3.8	4.4	4.2
Construction	1.7	2.9	3.3	5.0	4.6	5.2	5.9	6.7
Trade	12.9	6.8	8.2	13.9	19.1	18.9	18.7	19.1
Transport and communications	9.1	5.2	5.2	3.9	5.0	4.6	4.5	4.4
Finance	1.5	1.1	1.4	1.4	1.5	3.3	3.5	3.6
Public administrationb	3.0	5.8	4.8	3.0	4.6	4.5	4.0	4.3
Othersc	1.8	5.1	5.6	8.4	7.1	5.8	5.8	5.8
Taxes on imports	0.1	0.9	2.0	5.6	6.3	5.9	5.8	5.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: the Asian Development Bank (ADB).

Table 2-3. Macroeconomic challenges

	2017	2016	2011-2015	2006-2010	2001-2005	1996-2000	1990-1995
Trade balance /GDP (%)	-4.82	-7.13	-0.99	-0.59	-10.43	-17.03	-13.02
External debt stock (% of GDP)	113.7	104.5	93.10	101.1	129.86	152.99	160.25
Budget deficit/GDP (%)	-4.8	-4.6	-3.38	-2.53	-4.13	-4.87	-7.95

Sources: World Bank, ADB, and IMF.

B. Poverty and income inequality

8. Poverty is a key issue in Laos. Most poverty reduction programs are supported by multinational collaborations, international organizations, and others. In order to eradicate poverty by 2020, the government has implemented the “National Growth and Poverty Eradication Strategy (NGPES)”, an overall development and poverty alleviation framework (GoL, 2004, 2006). By analyzing five Expenditure and Consumption Surveys (LECS1 to LECS5) produced by the World Bank and Laos’ Department of Statistics (DOS), we find that poverty, measured by the World Bank’s standard, fell from 64% in LECS 1 to 39% in LECS 2, and from 33.5% in LECS 3 to 28% in LECS 4 (see Table 2-2). While poverty has decreased, inequality, measured by the Gini coefficient increased, especially in Vientiane, the capital of Laos, and other urban areas. The Gini coefficient increased from 30.5 in LECS1 (1992/93) to 35.4 in LECS 4 (2007/08). In Vientiane, Gini coefficient increased from 29.7 in LECS1 (1992/93) to 38.00 in LECS 4 (2007/08) (Table 2-3). However, the reduction of poverty and income inequality remain the main challenges for Laos.

Table 2-3. Poverty in Laos

	LECS 1	LECS 2	LECS 3	LECS 4	LECS 5
	1992/93	1997/98	2002/03	2007/08	2012/13
Laos	64	39.1	33.5	28	23.2
Urban	27	22	20	17	10
Rural					
With road	43	32	31	30	28.6
Without road	61	51	46	43	
Lowland			28	20.5	
Midland			36.5	29	
Upland			34	33	

Note: LECS (Lao Expenditure and Consumption Census).

Source: World Bank and DOS (2009); LSB (Lao Statistics Bureau) (2004)

Table 2-4. Inequality trends in Laos (measured by the Gini coefficient)

	LECS 1	LECS 2	LECS 3	LECS 4	LECS 5
	1992/93	1997/98	2002/03	2007/08	2012/13
Laos	30.5	34.9	32.6	35.4	36.17
Urban	30.9	39.7	34.8	36.3	37.51
Rural					
With road	29.3	32.1	30.3	33.2	32.52
Without road	27.5	30.9	29.4	33.3	
Region					
Vientiane	29.3	36.9	36	38	
North	26.9	34.5	30.7	35.2	
Central	31.5	32.5	31	34	
South	32.3	32.4	31.4	32.2	

Note: LECS (Lao Expenditure and Consumption Census).

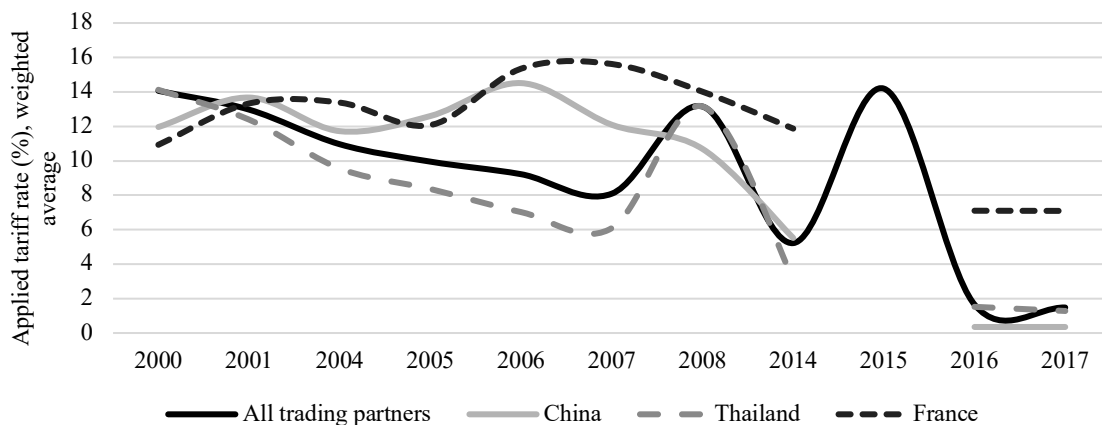
Source: World Bank and DOS (2009); LSB (Lao Statistics Bureau) (2004)

C. Foreign Trade

9. Laos has gradually integrated into the regional economy by becoming a full member of the ASEAN Economic Community and into the global economy through formal accession to the WTO in 2013. These agreements entailed profound changes to Laos' regulatory framework governing international trade, including tariff and non-tariff measures (NTMs).
10. Figure shows the evolution of the weighted average applied tariff rate in Laos for the import of goods from all trading partners- Thailand, China, and France- from 2000 to 2017. It reveals two salient features of tariff liberalization. First, Laos' applied tariff rate for all trading partners shows a downward trend, falling from 14.06% in 2000 to 5.22% in 2014 to 1.48% in 2017. Second, ASEAN members face lower tariff rates than non-ASEAN members. From 2000 to 2017, the tariff rate faced by an ASEAN member such as Thailand or a member of ASEAN-China FTA such as China decreased by more than 10 percentage points while that faced by a non-ASEAN member such as France decreased by only four percentage points.
11. Although ASEAN countries such as Thailand and Vietnam remain the key origins of Laos' imports, Laos is gradually increasing exports to the rest of the world (non-ASEAN countries). Laos' trading partners are not diversifying and its exports are highly dependent on a limited range of products to earn foreign exchange. According to World Bank (2017a, p. 28), mining, electricity, and wood accounted

for three-fourths of total exports over the period of 2012-2016. The high export concentration makes the economy vulnerable to sector-specific shocks and shifts in terms of trade. Low diversification of export products can be attributed to the low intensity of foreign trade in the private sector, inadequately educated workforce to produce new export products, and lack of incentives for firms to invest in new products.

Figure 2-1: Reduction of Laos' tariff rate, by trading partners

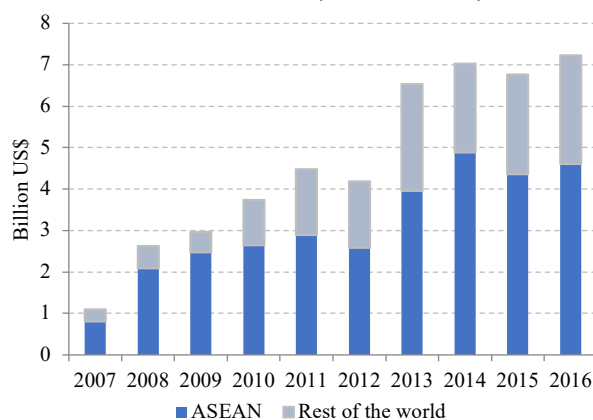


Note: Discontinuity of tariff rate faced by China, Thailand, and France is due to data unavailability.

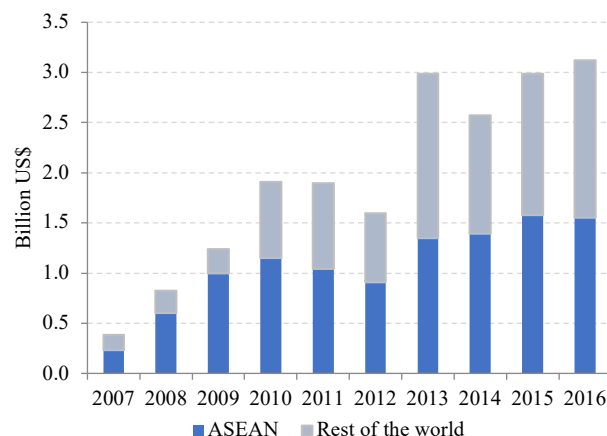
Source: Authors' calculation using data from World Bank's World Integrated Trade Solution.

Figure 2-2: Laos' merchandise trade (exports and imports) and exports by destination, 2007-2016

a. Merchandise trade (US\$ billion)



b. Exports by destination



Source: Author's calculation using data from ASEAN's online database, available at <https://data.aseanstats.org/trade.php>.

12. According to the World Bank (2016), the number of exporting firms in Laos accounted for only 6% of total firms and about 33% of large firms ranked the difficulty to recruit from an adequately educated workforce as the biggest business environment constraint. Furthermore, a study by Richard Record & Konesawang Nghardsaysone (2010) revealed that while the rate of new product discovery was high, the process had essentially been overshadowed by the natural resources export boom. The results suggest the need to introduce a regulatory environment that minimizes business transactions costs in order to attract new export-oriented firms and keep existing firms in the market, develop a sector-specific workforce in line with the high-potential export-oriented industry, and strengthen law enforcement on intellectual property rights to stimulate research and development of new products.

D. Foreign Direct Investment (FDI)

13. Laos began to move away from a centrally planned economy when it introduced the *New Economic Mechanism (NEM)* in 1986. This reform created opportunities for the private sector development and included the following key reform programs: 1) price liberalization, 2) tax reform (financial reform), 3) privatization of state owned enterprises (SOEs), including collective enterprises in the agriculture sector, 4) banking reform, and 5) an open door policy. These changes released the great potential of the private sector, especially in terms of their participation in international trade. A more detailed discussion of the reform program's key policy measures follows.

- 14.** Promoting multi-sectoral ownership entailed the encouragement of private sector ownership and privatization of SOEs, particularly regarding private land use rights and private businesses. Laos introduced the FDI Law in 1988, which was revised three times in 1994, 2004, and 2009 respectively. The amended FDI laws featured (1) consolidated regulations for both domestic and foreign investors to participate on a “level playing field”, (2) shortened procedures for opening new businesses, (3) no terms of investment for promoted activities, (4) extended investment incentives, with the top priorities being the education and healthcare sectors, (5) foreign access to local financial resources, (6) foreign-invested companies having the right to own land for building their offices/residences, (7) foreigners being allowed to invest in the real estate sector, and (8) development of Special Economic Zone (SEZ) and industrial parks (Vongsay, 2013).
- 15.** Lao government announced the decree No. 02/PM to establish the SEZ in January 2002. The Special Economic Zone Authority (SEZA) was formulated following the decree and the first SEZ, Savan-Seno Special Economic Zone, was subsequently established in 2003. According to the Lao PDR Ministry of Planning and Investment’s website (MPI), as of 2016, there were three special economic zones and seven specific economic zones as well as thirteen additional SEZs under the feasibility study (Nozaki and Kyophilavong, 2015). As a result of the reforms, investment flows increased sharply in between 1989 and 2015 in terms of number of projects and registered capital (Table 2-5). FDI flows into Laos increased significantly after the first revised FDI law in 1994 but declined during the Asian Financial Crisis (1998 to 2001). Beginning from 1993, FDI has increased significantly, especially in resource sectors (mining and hydropower).
- 16.** Table 2-5 shows Laos’ top 10 foreign investors from 1989-2015. Lao FDI is dominated by neighboring countries. For capital registration, the top three countries- China, Thailand, and Vietnam (Table 2-6)- account for more than 60% of all FDI in Laos.
- 17.** Table 3-3 shows the amount of FDI by sector in Laos from 1989-2015- the energy and hydropower sectors have the highest investment amount, together accounting for more than 50% of all sectors. The electricity generation sector, accounting for 30% of all sectors, is at the top of all sectors while the mining sector, accounting for 23% of the total, is the second-most significant sector.

- 18.** The data shows that FDI in Laos is not diversified in either investment countries or investment sectors. Lao FDI is mainly from China, Vietnam, and Thailand, and disproportionately concentrated in the mining and energy sectors. It is clear that Lao government must diversify FDI in terms of both investment countries and sectors. In order to achieve these tasks, it is crucial to promote trade liberalization and develop human resources.

Table 2-5. FDI Inflow to Laos (1989-2015)

Year	Value of Investment (million USD)	Number of Projects
1989	29	9
1990	3.9	25
1991	28	34
1992	69	54
1993	78	80
1994	1313	120
1995	53	82
1996	114	33
1997	659	45
1998	1385	56
1999	186	58
2000	513	61
2001	72	45
2002	434	66
2003	65	121
2004	217	132
2005	119	175
2006	789	260
2007	3128	347
2008	5000	531
2009	1100	616
2010	2850	442
2011	3550	471
2012	1850	442
2013	2640	96
2014	500	56
2015	100	56

Source: Investment Promotion Department, Ministry of Planning and Investment, Laos

Table 2-6. Top Ten FDI by Countries (1989 - 2015)

Country	Value of Investment (million USD)
China	5484
Thailand	4491
Vietnam	3574
Malaysia	813
South Korea	751
France	491
Japan	438
Netherland	435
Norway	436
Britain	202

Source: Investment Promotion Department, Ministry of Planning and Investment, Laos

Table 2-7. FDI by Sector (1989-2017)

No	Sector	Value of Investment (million USD)	Investment Share (%)
1	Electricity generation	7,303	30
2	Mining	5,698	23
3	Agriculture	2,946	12
4	Service	2,544	10
5	Industry and handicraft	2,111	9
6	Hotel and restaurant	1,023	4
7	Construction	827	3
8	Telecom industry	663	3
9	Wood	410	2
10	Banking	372	2
11	Trading	325	1
12	Garment	95	0
13	Consulting	67	0
14	Public health	64	0
15	Education	31	0
	Total	24,479	100

Source: Investment Promotion Department, Ministry of Planning and Investment, Laos

III. Regional cooperation initiative, the Leading sectors, and the key economic challenges

A. Regional cooperation initiative

- 19.** Laos has actively been participating in international and regional initiatives. Regarding international initiatives, Lao PDR acceded to the WTO and became the 158th member in February 2013. For regional initiatives, Laos joined ASEAN in 1997, AFTA in 1998, and the ASEAN Economic Community (AEC) in 2016. The main objective of the AEC is to make the ASEAN (1) a single market and production base, (2) a highly competitive economic region, (3) a region of equitable economic development, and (4) a region fully integrated into the global economy. As a part of the regional integration efforts, Laos actively participates in the Regional Comprehensive Economic Partnership (RCEP), which involves ASEAN partners such as the People's Republic of China (ACFTA), Republic of Korea (AKFTA), Japan (AJCEP), and India (AIFTA), as well as Australia and New Zealand (AANZFTA). Laos is also a part of the Great Mekong Sub-region (GMS), Mekong-Lancang Cooperation (MLC), and Belt and Road Initiative (BRI) (Chen and Zhu, 2016; Chen and Zhu, 2016). The international and regional cooperation initiatives have brought a number of opportunities to Laos. First, cooperation between international and regional members will strengthen. Second, competition between countries, which enhances economic development, will increase. However, in order to achieve regional cooperation goals and targets, the participating countries face some challenges.
- 20.** The first challenge is the trade in goods. Both MFN (Most Favored Nation) and regional preferential rates are low. The AEC blueprint focuses on the removal of non-tariff barriers (NTBs) but does not clearly prescribe the method or the timeline by which NTBs are to be gradually removed (Nikomborirak, 2014).
- 21.** Second, the trade in services is limited. It is difficult for foreign banks and telecom operators to provide their services across borders- investment rules are generally much more restrictive and most developing countries impose a ceiling on foreign equity participation in local businesses. The low scores for GATS commitments (Sectoral Coverage Ratio -SCR), such as scores for Thailand and Indonesia, simply show a lack of commitment to open up the service sector (Nikomborirak, 2014). The greatest challenge for the ASEAN is to push through the service and investment liberalization agenda, which will increase competition between countries. It is necessary to develop a roadmap that focuses on dealing with state monopolies in major services such as energy, telecommunications, and transportation.

22. Third, both infrastructure and trade facilitation are poor, especially in new ASEAN member countries (ESCAP, 2013). This keeps transaction costs high and productivity low in ASEAN member countries, which hinders the AEC's potential benefits. In order to increase competition between countries, it is essential that individual members of the ASEAN (CLMV) strengthen their own competitiveness by implementing deeper structural reforms. Reducing the high disparity of development gaps in ASEAN countries is key to increasing competitiveness. It is important to continue providing cooperation and support on capacity building and SMEs development in new ASEAN members while improving infrastructure, connectivity, and trade facilitation, furthering development in order to gain more benefits from the AEC, and increasing competitiveness (Itakura, 2014).

B. The Leading sectors

1. Agriculture

23. Agriculture is the leading sector in Laos. More than 60% of the Lao population belongs to this sector and it is crucial to poverty reduction in Laos. With its rich soil and main crops of rice, coffee, maize, cassava, etc, Laos has high potential in the agro-industry. Despite its high potential, the share of agriculture sector in Foreign Direct Investment (FDI) is quite small (Kyophilavong et al, 2018) as it faces low productivity and other issues.

2. Tourism and services

24. Tourism is one of the fastest growing sectors in Laos and promotion of the tourism sector is key to economic growth and poverty reduction in Laos. The Eighth Five-Year National Socioeconomic Development Plan 2016-2020 (GoL, 2015) prioritizes the development and promotion of the tourism sector. The number of tourist arrivals in Laos increased at an average growth rate of 18 per cent from 1994 to 2014 despite decreases in 2000-2001 and 2003-2004. In 2014, the number of tourist arrivals reached 4.15m and generated a total of revenue of US\$641m, accounting for 5 per cent of GDP in 2014.

25. Laos has rich natural resources, beautiful landscapes, a rich culture, and good hospitality. The tourism sector is one of the most important industries in Laos and Laos has the potential to explore and develop natural, cultural, and historical tourist

sites. Laos is expanding and improving accommodation for tourists through efforts such as increasing the number of hotels and improving the quality of tourist resorts. In addition, Laos maintains a good atmosphere in Luang Prabang, the world heritage site, and organizes an enjoyable Lao Tourism Year.

26. The tourism sector is facing three main challenges First, Laos lacks diversity in tourists, unlike those found in countries such as Thailand and Malaysia. Second, there is a low level of tourism receipts. The average expenditure per person traveling to Lao PDR in 2014 was US\$157, the lowest among all ASEAN nations in that year. Third, there are weak transportation infrastructure and human resources in place. The road networks linking tourist destinations are all relatively inadequate (Kyophilavong, 2018).

3. Mining sector and Hydropower sector

27. Laos is ranked as one of the most resource-rich countries in Asia, with more than 570 mineral deposits identified, including gold, copper, zinc, and lead (World Bank, 2004). Laos is also a high potential hydropower producer, producing about 26,000 MW (excluding mainstream Mekong) and using only 9% of its capacity in 2004 (Pholsena and Phonekeo, 2004). The resource sectors have contributed to Lao economic growth by, among others, generating employment and increasing renews and exports. However, in what is known as the “Dutch disease”, the two sectors may also impose costs on the Lao economy by adversely affecting non-resource sectors such as agriculture, manufacturing, and services and decreasing economic growth in the long run (Kyophilavong, 2016).

C. The key economic challenges.

28. Although Laos has maintained high economic growth, low inflation, and a stable exchange rate, serious economic challenges remain. First, the economic growth in Laos is resource-based. Laos’ heavy dependence on the resource sector¹ could lead to the Dutch disease permeating the overall economy. Potential consequences

¹ According to World Bank (2014), the resources sector contributed about 2.83 percentage points to the growth rate over 2008 to 2013. The resources sector accounted for about 60% of all exports in 2013, a share that is expected to increase under expected ongoing development in the hydroelectricity and mining sectors. Revenues from resource sectors as a share of total revenues rose to 2.6% of GDP in 2010, a share that is expected to rise under continued growth in the sector.

of the Dutch disease include (1) real exchange rate appreciation, (2) declining input in non-booming sectors, (3) declining exports and output in non-booming sectors, and (4) declining real GDP (see, for instance, Corden, 1984; Corden and Neary, 1982). It is clear that the highly resource-dependent and non-diversified Lao economy will face serious challenges in the medium and long-run.

29. Second, Laos suffers from weak macroeconomic management. Despite the increase in revenues from resource sectors (mining and hydropower), Laos still faces large budget deficits. The budget deficit increased from 2.6% of GDP in 2007 to 3.4% of GDP in 2015 to 4.8% in 2017. Laos also faces large external debts, with an accumulated external debt of greater than 76% of GDP from 2011 to 2013. The external debt stock to GDP was 113.7%, the highest in the region. The Laos-China High Speed Railway project is estimated to cost approximately \$7 billion USD and many experts from the Asian Development Bank and World Bank worry that this will create debt too large for the Lao government to repay. The loan for this project is almost 90% of the Lao GDP and Laos will consequently be one of the world's most indebted countries (Lim, 2015).

30. Third, human resources is lacking in Laos. Human resource development is one of the three pillars of socioeconomic development and one of the ultimate development goals. The Human Development Index (HDI) is one of the key indicators of fulfilling the MDGs and graduating from Least Developed Country (LDC) status. Although Laos' HDI increased from 0.598 in 2016 to 0.601 in 2017, it is only slightly better than that of Myanmar and Cambodia and still lags behind those of other ASEAN countries such as Singapore, Thailand, and Vietnam. Even if Laos graduates from LDC status by 2020, it will still need to strengthen its human capital in order to be competitive in the context of regional and global integration. In order to achieve its human resource development goals, Laos needs to develop its social sector, particularly regarding education and health care, through methods such as increasing the government budget and attracting more private investment.

31. Fourth, business climate is poor and logistic costs are high. As Laos becomes more integrated with regional and global economies through the ASEAN Economic Community (AEC), East Asia Free Trade Area, and World Trade Organization (WTO), competition with other member countries will increase. At this time, Lao firms are less competitive on a number of points. Although the Prime Minister issued Decree 2 on degree No. 02 in 2018 to improve regulation and coordination of the

business sector, the ease of doing business remains low. According to the most recent World Bank (2018) Doing Business Indicators, Laos ranks 154 out of 190 countries in 2019, a decrease from its 151 ranking in 2018 and the worst in the region. Specifically, Laos ranks poorly in terms of protecting investors (174th), getting credit (73th), paying taxes (155th), dealing with cross border trade (76th), starting a business (180th), enforcing contracts (162th), and resolving insolvency (168th) (World Bank, 2018). Laos faces big issues on trading across the border (Table 3-1), especially regarding time demands and export and import costs. The weak infrastructure in Laos also increases logistic costs- according to the Logistic Performance Index (LPI) ranking, Laos was ranked in 120th in the world in 2018 (Table 3-2).

Table 3-1. Macroeconomic challenge

	2017	2016	2011-2015	2006-2010	2001-2005	1996-2000	1990-1995
Trade balance /GDP (%)	-4.82	-7.13	-0.99	-0.59	-10.43	-17.03	-13.02
External debt stock (% of GDP)	113.7	104.5	93.10	101.1	129.86	152.99	160.25
Budget deficit/GDP (%)	-4.8	-4.6	-3.38	-2.53	-4.13	-4.87	-7.95

Sources: World Bank, ADB, and IMF.

Table 3-2. The ease of doing business ranking (2019)

Country	Ease of Doing Business Rank	Starting a Business	Dealing with Construction Permits	Getting Electricity	Registering Property	Getting Credit	Protecting Minority Investors	Paying Taxes	Trading Across Borders	Enforcing Contracts	Resolving Insolvency
Singapore	2	3	8	16	21	32	7	8	45	1	27
Malaysia	15	122	3	4	29	32	2	72	48	33	41
Thailand	27	39	67	6	66	44	15	59	59	35	24
Brunei	55	16	162	183	142	1	132	138	169	158	147
Viet Nam	69	104	21	27	60	32	89	131	100	62	133
Indonesia	73	134	112	33	100	44	51	112	116	146	36
Philippines	124	166	94	29	116	184	132	94	104	151	63
Cambodia	138	185	179	141	124	22	110	137	115	182	79
Lao PDR	154	180	99	156	85	73	174	155	76	162	168
Myanmar	171	152	81	144	136	178	185	126	168	188	164
Timor-Leste	178	68	161	123	187	172	99	140	104	190	168

Source: World Bank (2018):

Table 3-3. Trading across border

	Time to export		Cost to export		Time to import		Cost to import	
	Documentary compliance (hours)	Border compliance (hours)	Documentary compliance (US\$)	Border compliance (US\$)	Documentary compliance (hours)	Border compliance (hours)	Documentary compliance (US\$)	Border compliance (US\$)
Cambodia	132	48	100	375	132	8	120	240
China	21.2	25.9	84.6	484.1	65.7	92.3	170.9	745
LAOS	216	12	235	73	216	14	115	153
Singapore	2	10	37	335	3	33	40	220
Thailand	11	51	97	223	4	50	43	233
Vietnam	50	55	139	290	76	56	183	373

Source: World Bank (2018).

Table 3-4. Logistics Performance Index Ranking (2018)

	LPI Rank	LPI Score	Customs	Infrastructure	International shipments	Logistics competence	Tracking & tracing	Timeliness
Cambodia	89	2.66	2.47	2.26	2.87	2.50	2.64	3.13
China	27	3.60	3.28	3.73	3.57	3.58	3.63	3.86
Lao PDR	120	2.48	2.37	2.23	2.52	2.45	2.48	2.77
Singapore	5	4.05	4.00	4.14	3.72	4.08	4.05	4.34
Thailand	34	3.36	3.13	3.17	3.40	3.29	3.38	3.75
Vietnam	45	3.16	2.86	2.92	3.15	3.17	3.23	3.60

Source: World Bank (2018).

IV. Project Section and methodology approach

D. Project section

- 32.** There are a number of projects related to the RBI in Laos but only three are included in this study: (1) Laos-China High Speed Railway, (2) Mohan-Boten Economic Cooperation Zone, and (3) Agriculture park.

1. The Laos-China High Speed Railway

- 33.** The Laos-China High Speed Railway construction started in December 2016 with the intention to be completed by 2021. According to the concession agreement between the Government of Lao PDR and the Laos-China Railway Company Limited, construction of the US\$6 billion railway, which will run from northern Laos to Vientiane, is on schedule for completion by 2021. It will be the first overseas rail route linking Laos to China's network. Currently, the only railroad in Laos is a 3.5 km extension of Thailand's state railway network (Table 4-1).
- 34.** The 414-kilometer railway will link Boten, the northern Lao town bordering southwest China's Yunnan Province, to Vientiane, the capital of Laos. The China-Laos railway will extend south to link to Bangkok, capital of Thailand, and connect to the Chinese railway network. It is also part of the Trans-Asian Railway, a project designed to be an integrated railway network across Europe and Asia. The project will play an exemplary role in the Belt and Road Initiative and showcase the enhanced connectivity between China and Southeast Asian countries.
- 35.** Six Chinese companies are using Chinese equipment and technology to construct the railway in accordance with Chinese standards. The Lao section of the railway will run south towards the capital and through the provinces of Luang Namtha, Oudomxay, Luang Prabang, and Vientiane.
- 36.** The construction length of the main line is 427.201km (Jianguo et al, 2016). Analysis of the project's financial cash flow shows that the project capital fund's internal rate of return (IRR) is 4.38%, with a payback period on investment of up to 35 years. Within the first 6 years of operation, the Joint-Venture (JV) will lose in the short-run (Table 4-2). The financial sustainability of the project is weak (Jianguo et al, 2016), with the JV under heavy pressure, especially in its early operation stages, to pay principal and interest on a cash flow shortfall of RMB25.99 billion.

Table 4-1. Main Technical Standards for Railway

S/N	Main Technical Standards	Recommendations
1	Railway classification	Class I
2	Number of main tracks	Single track
3	Design running speed of passenger trains	160km/h, conditions for 200km/h are reserved on the plane in Vang Viang-Vientiane section
4	Ruling grade	12‰, and pusher grade of 24‰ for Boten- Vang Viang section
5	Minimum radius of curve	2,000m in general condition and 1,600m in difficult condition
6	Kind of traction	Electric
7	Locomotive type	Passenger train: HXD3D; freight train: HXD2
8	Traction mass	3000t
9	Effective length of receiving-departure track	650m(with a reservation of 850m)
10	Type of block	Automatic inter-station block
11	Mode of traffic command	Centralized traffic control
12	Locomotive axle load	23t, 25t (with component to increase the weight of locomotive)

Source: Jianguo et al, 2016.

Table 4-2. Evaluation Result Indexes

Item	Unit	Index
Interest rate	%	3%
IRR of project investment (after tax)	%	3.93%
Payback period of project investment (after tax)	Year	29.39
IRR of capital fund	%	4.38%
Repayment period of capital fund (including construction period)	Year	34.63
Loss years (excluding construction period)	Year	6
Total loss	100 million RMB	39.7
Maximum financing gap at operation period	100 million RMB	159.9
Total payback period of loan (including construction period)	Year	30
Cumulative after-tax profits at operation period	100 million RMB	677

Source: Jianguo et al, 2016.

2. Mohan-Boten Economic Cooperation Zone

Lao and Chinese government created two development zones projects, Vientiane Saysettha Development Zone and Mohan-Boten Economic Cooperation Zone, to leverage the potential uses of railway. This study focus on the Mohan-Boten Economic Cooperation Zone, which covers a total area of 1,640 Ha and connects to the R3A, a China-ASEAN and North-West Economic Corridor.

37. Construction of China's first cross-border cooperation zone in the southwest began in 2016. The areas along the Kunming-Bangkok Road and the China-Laos Railway form the zone's economic belt while the Mohan and Boten International Trade and Financial Areas form its two centers and serve as focal areas for comprehensive service, bonded logistics, trade, finance, tourism, etc. The Boten Special Economic Zone, a part of the Mohan-Boten Economic Cooperation Zone, started construction on Dec. 18, 2016 (CG, 2018).

38. According to reports from the Lao government, investment projects in the Mohan-Boten Economic Cooperation Zone include (1) Lao-China Northern Inland Logistic Centre (USD 10 Million, Area: 30 Ha), (2) International Border Business Centre (USD 40 Million, Area: 30 Ha), (3) International Golf-Course and tourism Centre (USD 20 Million, Area: 50 Ha), (4) Cultural-tourism Resort Centre (USD 7 Million, Area: 10 Ha), and (5) Education, Culture and Healthcare Centre (6 Million, Area: 10 Ha).

E. Methodology

39. Laos is one of the southeast Asian countries involved with this initiative. China's "Belt and Road" transport and energy infrastructure megaprojects (Laos-China High Speed Railway) will transform Greater Mekong Sub-region (GMS) and southern Chinese province into integrated marketing and production areas. This document intends to present the proposed research plan and implementation methodology. It provides the project's terms of reference (TOR) and the desk research undertaken to date. The approach and number of steps taken to assess the RBI are as follows:

(1) Identify RBI Projects

This study identifies 3 top priority projects:

- The Laos-China High Speed Railway
- Mohan-Meding Economic Cooperation Zone

- Agriculture Parks such as Yunnan-Udomi Agricultural Science and Technology Demonstration Park” and “Guangxi-Champa Chinese Fruit and Vegetable New "species trial base", "Chongqing (Laos) Agricultural Comprehensive Park".

40. In order to investigate the BRI’s impact on sustainable development, this report includes 17 sustainable development goals (SDGs) and examines the compatibility between the effects of these 3 projects and 17 SDGs. The Sustainable Development Goals (SDGs) and targets are shown in appendix 1. The questionnaire on the BRI’s impact on SDGs is in appendix 2. There are existing studies related to RBI’s on SDGs. For instance, Jin, (2018) investigated the synergies between the Belt and Road Initiative and the 2030 SDGs and the Belt and Road’s important role. Hong (2016) overviews the Belt and Road Initiative’s important role in facilitating the implementation of the 2030 Agenda for Sustainable Development

(2) Identify the stakeholders

This study identifies stakeholders in order to understand the different perceptions of the BRI-linked projects. Stakeholders include household, private sectors, NGOs, civil society organizations, and local communities.

- Joint Private and Government Enterprises for general information about projects
- Households: 148 persons for the RBI’s impact
- Local Firms and private sector: 23 persons for the RBI’s impact
- Private community representatives for the RBI’s impact individually
- Leading Economist for the RBI’s impact individually

(3) Interview with high ranking persons

In order to assess the BRI project’s impact on SDGs, we conducted interviews with high-ranking persons to understand the project’s current progress, situation, and challenges.

(4) Review the literature and documents

We collected information from various sources, such as from Chinese and Lao government documents, academic papers, etc.

(5) Conduct surveys

We sent open-ended questionnaires to academia, researchers, government officers, international organizations, NGOs, households, business leaders, etc. We also sent quantitative assessment questionnaires to academia, researchers, international organizations, NGOs, households, business leaders, etc. The questionnaires are in appendix 2.

(6) Analyze the information and data

We collected data from the survey, analyzed the data, then wrote the report. It is important to note that the interviews of government agency and public institution officers were conducted individually and do not reflect the opinions of government agencies or institutes. The main purpose of interviewing government officers is to collect information on the actual situation of the BRI project.

V. Key Findings

- 41.** Based on the assessment, various opportunities and challenges related to the RBI can be identified.

A. Impact on SDGs

- 42.** To last the course of the next 15 years (2016-2030), the United Nations has adopted the Sustainable Development Goals (SDGs), a set of 17 operational objectives with 169 targets intended to guide the developmental actions of governments, international agencies, civil society, and other institutions. The 17 SDGs aim to end poverty and hunger while restoring and sustainably managing natural resources. They consolidate the three dimensions- economic, social, and environmental- of sustainable development, are indivisible – no single goal is separate from the others, and every goal calls for comprehensive and participatory approaches-, and are universal – the 2030 Agenda is as relevant to developed nations as it is to developing nations.
- 43.** 10 SDG goals that impact the RBI are included in this study: Goal 1- end poverty in all forms everywhere, Goal 2- end hunger, achieve food security and improved nutrition, and promote sustainable agriculture; Goal 3- ensure healthy lives and promote well-being for everyone at all ages, Goal 4- ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, Goal 7- ensure access to affordable, reliable, sustainable, and modern energy for all; Goal 8- promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all; Goal 9- build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation; Goal 10- reduce inequality within and among countries, Goal 13- take urgent action to combat climate change and its impacts, Goal 14- conserve and sustainably use ocean, sea, and marine resources; and Goal 15- sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss (UNDP, 2019).

- 44.** We focus on the RBI's impact on the 10 SDG goals. Table 5-1 shows the RBI's impact on SDGs from the perspectives of the private sector and NGOs while Table 5-2 shows its impact from the household perspective. Both show that the RBI positively impacts the fulfillment of SDGs in Laos, which is the Laos' most important priority. The RBI has a strong positive impact on both the private sector and NGOs with its relevance to Goal 4 (ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), Goal 3 (ensure healthy lives and promote well-being for all of all ages), and Goal 9 (build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation). The RBI also has a strong positive impact on households with its relevance to Goal 1 (end poverty in all its forms everywhere), Goal 8 (promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all), and Goal 9 (build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation).
- 45.** From the perspectives of the private sector and NGOs, the main indicators of the BRI's positive impact on poverty are increases in employment, increases in development, better and more efficient transportation, and more products and services (Table 5-3). From the household perspective, the main indicators are more convenient transport facilities, increase in employment, better education, more investment, imported products, and more tourists (Table 5-4). However, from the overall stakeholder perspective, the BRI may also negatively impact poverty as it results in decreases in employment due to an increase in foreign workers and greater debt and economic instability (Table 5-3 and 5-4).

Table 5-1. Impact of RBI on SDGs (Private sectors and NGOs perspective)

		Highly positive effect	Moderately positive effect	Neutral	Moderately Negative effect	Highly negative effect	Don't know	Total
Goal 1: End poverty in all its forms everywhere.	Freq.	1	7	8	2	3	2	23
	%	4.35	30.43	34.78	8.70	13.04	8.70	100.00
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Freq.	2	6	9	3	1	2	23
	%	8.70	26.09	39.13	13.04	4.35	8.70	100.00
Goal 3: Ensure healthy lives and promote well-being for all at all ages	Freq.	2	11	4	2	2	2	23
	%	8.70	47.83	17.39	8.70	8.70	8.70	100.00
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	Freq.	6	10	4	1	1	0	22
	%	27.27	45.45	18.18	4.55	4.55	0	100.00
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.	Freq.	6	5	5	2	2	3	23
	%	26.09	21.74	21.74	8.70	8.70	13.04	100.00
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for	Freq.	3	6	7	2	2	2	22
	%	13.64	27.27	31.82	9.09	9.09	9.09	100.00
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Freq.	6	6	4	3	0	4	23
	%	26.09	26.09	17.39	13.04	0	17.39	100.00
Goal 10: Reduce inequality within and among countries	Freq.	2	7	4	1	2	7	23
	%	8.70	30.43	17.39	4.35	8.70	30.43	100.00
Goal 13: Take urgent action to combat climate change and its impacts	Freq.	2	2	3	4	2	10	23
	%	8.70	8.70	13.04	17.39	8.70	43.48	100.00
Goal 14: Conserve and sustainably use the oceans, seas and marine resources	Freq.	1	2	3	0	3	14	23
	%	4.35	8.70	13.04	0	13.04	60.87	100.00
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	Freq.	4	0	6	5	3	5	23
	%	17.39	0	26.09	21.74	13.04	21.74	100.00

Source: the author's estimation from the survey.

Table 5-2. Impact of RBI on SDGs (Household perspective)

		Highly positive effect	Moderately positive effect	Neutral	Moderately Negative effect	Highly negative effect	Don't know	Total
Goal 1: End poverty in all its forms everywhere.	Freq.	28	59	27	18	2	14	148
	%	18.92	39.86	18.24	12.16	1.35	9.46	100.00
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Freq.	20	53	36	18	6	15	148
	%	13.51	35.81	24.32	12.16	4.05	10.14	100.00
Goal 3: Ensure healthy lives and promote well-being for all at all ages	Freq.	33	45	33	17	3	17	148
	%	22.30	30.41	22.30	11.49	2.03	11.49	100.00
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	Freq.	39	46	28	17	4	14	148
	%	26.35	31.08	18.92	11.49	2.70	9.46	100.00
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.	Freq.	35	45	28	14	1	23	146
	%	23.97	30.82	19.18	9.59	0.68	15.75	100.00
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for	Freq.	37	54	27	15	4	10	147
	%	25.17	36.73	18.37	10.20	2.72	6.80	100.00
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Freq.	51	39	21	14	2	21	148
	%	34.46	26.35	14.19	9.46	1.35	14.19	100.00
Goal 10: Reduce inequality within and among countries	Freq.	21	39	32	25	4	26	147
	%	14.29	26.53	21.77	17.01	2.72	17.69	100.00
Goal 13: Take urgent action to combat climate change and its impacts	Freq.	11	25	33	28	10	41	148
	%	7.43	16.89	22.30	18.92	6.76	27.70	100.00
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	Freq.	13	23	30	31	25	26	148
	%	8.78	15.54	20.27	20.95	16.89	17.57	100.00

Source: the author's estimation from the survey.

Table 5-3. The reasons of positive and negative impacts on Goal 1 (Private sectors and NGOs perspective)

Positive factors			Negative factors		
	Freq.	%		Freq.	%
Increase of development	1	12.50	More debts and economic instability	2	40.00
Better and efficient transportation	2	25.00	High employment rate	1	20.00
More products and services	1	12.50	Less employment due to increasing of foreign workers	2	40.00
Increase of employment	4	50.00	Total	5	100.00
Total	8	100.00			

Source: the author's estimation from the survey.

Table 5-4. The reasons of positive and negative impacts on Goal 1 (Household perspective)

Positive factors			Negative factors		
	Freq.	%		Freq.	%
More convenient transport facilities	7	31.82	Declining the job by foreigners	3	75%
Increase of employment	7	31.82	Unable to export	1	25%
Better education	1	4.55	Total	4	100%
More investment	2	9.09			
Imported product	2	9.09			
More tourist	3	13.64			
Total	22	100.00			

Source: the author's estimation from the survey.

B. The main challenges and opportunities of BRI

(1) The main challenges

46. The BRI project brings challenges to organizations, communities, and the national economy. The assessment of the main challenges of the BRI is shown in Table 5-5 and 5-6. The perceptions of the private sector, NGOs, and household all align with the notion that challenges to the organization, community, and national economy exist. The main indicators of these challenges appear in the forms of

declining job opportunities due to foreign migration, increasing competition with foreign firms, inappropriate land compensation, etc.

Table 5-5. The main challenges of BRI project (the private sectors and NGOs perspective)

		High challenge	Moderate challenge	Small challenge	No challenge	Don't know	Total
Organization	Freq.	10	5	5	1	2	23
	%	43.48	21.74	21.74	4.35	8.70	100.00
Community	Freq.	9	8	2	2	2	23
	%	39.13	34.78	8.70	8.70	8.70	100.00
The national economy	Freq.	16	1	3	2	1	23
	%	69.57	4.35	13.04	8.70	4.35	100.00

Source: the author's estimation from the survey.

Table 5-6. The main challenges of BRI project (The household perspective)

		High challenge	Moderate challenge	Small challenge	No challenge	Don't know	Total
Organization	Freq.	39	25	28	33	22	147
	%	26.53	17.01	19.05	22.45	14.97	100.00
Community	Freq.	38	23	30	34	21	146
	%	26.03	15.75	20.55	23.29	14.38	100.00
The national economy	Freq.	73	20	25	6	22	146
	%	50.00	13.70	17.12	4.11	15.07	100.00

Source: the author's estimation from the survey.

(2) The opportunities

47. The BRI brings a number of opportunities to organizations, communities, and the national economy. The assessment of the main challenges of BRI is shown in Table 5-6 and 5-7. Despite the various potential challenges discussed in the previous section, the BRI also brings many opportunities for organizations, communities, and the national economy. The main opportunities for organizations include exchange of knowledge and ideas with foreign countries, more employment opportunities,

and more cooperation opportunities with foreigners while the opportunities for communities include potential uses of the land areas, convenient transportation, obtaining modern knowledge, and more employment opportunities. The BRI project also brings many economic development opportunities to Laos- Laos will have opportunities to increase GDP, increase export value, improve technology, and secure more investment and tourism.

Table 5-6. The main opportunity of BRI project (the private sectors and NGOs perspective)

		High opportunity	Moderate opportunity	Small opportunity	No opportunity	don't know	Total
Organization	Freq.	4	3	0	12	4	23
	%	17.39	13.04	0	52.17	17.39	100.00
Community	Freq.	4	5	6	2	5	22
	%	18.18	22.73	27.27	9.09	22.73	100.00
National economy	Freq.	8	5	4	1	5	23
	%	34.78	21.74	17.39	4.35	21.74	100.00

Source: the author's estimation from the survey.

Table 5-7. The main opportunity of BRI project (The household perspective)

		High opportunity	Moderate opportunity	Small opportunity	No opportunity	don't know	Total
Organization	Freq.	31	29	45	16	23	144
	%	21.53	20.14	31.25	11.11	15.97	100.00
Community	Freq.	27	30	41	25	20	143
	%	18.88	20.98	28.67	17.48	13.99	100.00
National economy	Freq.	68	19	31	4	22	144
	%	47.22	13.19	21.53	2.78	15.28	100.00

Source: the author's estimation from the survey.

C. The Assessment of the BRI project

48. It is too early for a complete assessment of the BRI project but we tried to capture the stakeholder's perspectives on the BRI project. We used 6 indicators to assess

the BRI project: (1) transparency, (2) stakeholder engagement, (3) public capacity constraints that might limit project potential, (4) private capacity constraints that might limit project potential, (5) project financing, and (6) potential project risks and suggested safeguards. The assessment of the BRI project from the perspectives of stakeholders is shown in Table 5-8 and 5-9.

49. The stakeholder's overall assessment shows that the BRI project performs quite well in terms of transparency, stakeholder engagement, public capacity constraints that might limit project potential, and private capacity constraints that might limit project potential. Stakeholders are, however, concerned with potential project risks and suggested safeguards, and project financing.

Table 5-8. The Assessment of the BRI project (the private sectors and NGOs perspective)

		High	Moderate	Small	None	Don't know	Total
Transparency	Freq.	3	9	5	2	4	23
	%	13.04	39.13	21.74	8.70	17.39	100.00
Stakeholder engagement	Freq.	2	6	3	1	11	23
	%	8.70	26.09	13.04	4.35	47.83	100.00
Public capacity constraints that might limit project potential	Freq.	3	5	3	2	10	23
	%	13.04	21.74	13.04	8.70	43.48	100.00
Private capacity constraints that might limit project potential	Freq.	1	7	2	0	12	22
	%	4.55	31.82	9.09	0	54.55	100.00
Project financing	Freq.	5	7	3	0	8	23
	%	21.74	30.43	13.04	0	34.78	100.00
Potential project risks and suggested safeguards	Freq.	7	5	6	1	4	23
	%	30.43	21.74	26.09	4.35	17.39	100.00

Source: the author's estimation from the survey.

Table 5-9. The Assessment of the BRI project (The household perspective)

		High	Moderate	Small	None	Don't know	Total
Transparency	Freq.	24	30	30	16	39	139
	%	17.27	21.58	21.58	11.51	28.06	100.00
Stakeholder engagement	Freq.	22	24	29	12	52	139
	%	15.83	17.27	20.86	8.63	37.41	100.00
Public capacity constraints that might limit project potential	Freq.	8	22	30	7	70	137
	%	5.84	16.06	21.90	5.11	51.09	100.00
Private capacity constraints that might limit project potential	Freq.	9	27	37	10	54	137
	%	6.57	19.71	27.01	7.30	39.42	100.00
Project financing	Freq.	30	28	24	5	51	138
	%	21.74	20.29	17.39	3.62	36.96	100.00
Potential project risks and suggested safeguards	Freq.	28	27	39	4	38	136
	%	20.59	19.85	28.68	2.94	27.94	100.00

Source: the author's estimation from the survey.

D. The overall impact of BRI on the Lao economy

50. In this section, we assess the BRI project's impact on the Lao economy in three periods: (1) construction period, (2) medium-term, and (3) long-term. The results of the assessment are shown in Table 5-10 and 5-11. The BRI project's overall impact on the Lao economy is mixed in the three periods but there is, however, a positive trend for its medium and long-term impact.

Table 5-10. Overall the impact of RBI project about Lao economy (Private sector and NGOs)

		Highly negative effect	Moderately negative effect	Neutral	Moderately positive effect	Highly positive effect	Don't know	Total
Constructing periods effect	Freq.	7	2	3	3	5	1	21
	%	33.33	9.52	14.29	14.29	23.81	4.76	100.00
Medium-term effect (10-20 years)	Freq.	1	7	2	9	1	2	22
	%	4.55	31.82	9.09	40.91	4.55	9.09	100.00
Long term effect (21 years>)	Freq.	4	5	1	4	4	4	22
	%	18.18	22.73	4.55	18.18	18.18	18.18	100.00

Source: the author's estimation from the survey.

Table 5-11. Overall the impact of BRI project about Lao economy (Household perspective)

		Highly negative effect	Moderately negative effect	Neutral	Moderately positive effect	Highly positive effect	Don't know	Total
Constructing process's effect	Freq.	30	34	8	30	25	9	136
	%	22.06	25.00	5.88	22.06	18.38	6.62	100.00
Medium-term effect (10-20 years)	Freq.	18	43	18	34	10	21	144
	%	12.50	29.86	12.50	23.61	6.94	14.58	100.00
Long term effect (21 years up)	Freq.	27	23	14	35	18	25	142
	%	19.01	16.20	9.86	24.65	12.68	17.61	100.00

Source: the author's estimation from the survey.

51. The BRI's positive impact during construction period is characterized by increased employment and local economic development. Its negative impact is characterized by negative effects on the environment, unsuitable compensation, negative effects on agricultural products, and road damage from increased transportation.
52. The main positive impact during the medium and long-term will be made apparent through increased tourists, more convenient transportation, increased productivity, more market access, local economic development, and increased trade and investment. The negative impact will be made apparent through increased crime, increased public debt, increased expenditure on maintenance, and maintenance capacity.
53. We also asked for household perspectives on ways to maximize the BRI project's benefits. Among the suggestions we received were to provide more opportunities for Lao workers, increase capability of local labor, improve the enforcement of laws and regulations, increase responsibility and improve upon weaknesses, control number of illegal workers, involve Lao people more to support the project, and disclose details and effects of the project.

VI. Recommendation for future policy dialogue

- 54.** China's "Belt and Road Initiative's" transport and infrastructure megaprojects (Laos-China High Speed Railway) are crucial to Lao economic development despite the risks they bring to Laos. However, due to limited studies on this issue, the current situation and its impact are not well understood. Therefore, the main objective of this study is to analyze stakeholder perspectives on the BRI's impact on SDGs and assess the project's challenges and opportunities. From the analysis, we conclude the following:
- 55.** The BRI (especially Laos-China High Speed Railway) is essential to Lao economic development and a crucial factor to regional development. The BRI project has a large positive impact on SDGs and various effects on Lao economy, including a reduction of logistic costs.
- 56.** As a landlocked country, Laos faces various issues on trade facilitation and incurs the highest logistic costs in the region. The BRI plays a significant role in reducing logistic costs and improving the competitiveness of the business sector in Laos. It increases trade and investment in Laos and the surrounding regions. Through reduced logistic costs and increased opportunities provided to business, FDI and trade will increase significantly and contribute to the long-run development in Laos.
- 57.** This project will transform Laos from a landlocked country to a land-linked country. Laos is in the center of the ASEAN, which plays an important role in logistic and regional cooperation. The BRI can realize Lao's dreams of being a land-linked country. Despite Lao economy's high growth rate, its poverty rate and income inequality are both still high. The employment and business opportunities for Lao people created by the BRI will reduce poverty in the long-run.
- 58.** There are several challenges and risks associated with the BRI. First, public debt is increasing. Despite increasing revenues from resource sectors (mining and hydropower), Laos still faces large budget deficits. The budget deficit increased from 2.6% of GDP in 2007 to 3.4% of GDP in 2015 to 6.7% in 2016. The Laos-China High Speed Railway project will involve constructing 154 bridges, 76 tunnels, and about 31 train stations with an estimated cost of about 7 billion USD. Many experts from the Asian Development Bank and World Bank are worried that the debt will be too large for the Lao government to repay. The loan will be almost 90% of the Lao GDP and Laos will, as a result, be one of the world's most indebted countries (Lim, 2015).

- 59.** Second, macroeconomic instability is increasing. Large budget deficits and debt lead to macroeconomic instability in the forms of high inflation and exchange rate depreciation, which have direct and indirect negative consequences on investment and consumption (Easterly and Schmidt-Hebbel, 1993). Large budget deficits were the main factors that caused the financial crisis in many Latin American countries. Therefore, the increasing debt from the railway project could potentially cause macroeconomic stability and a high risk of a Greek-style external debt crisis (Lim, 2015). The BRI project has limited spillover effects on Lao economy. Economists and politicians in many developing countries expect both forward and backward linkage from the megaproject and the spillover effects will play important roles in economic development in their respective countries. The Laos-China High Speed Railway project's construction period, however, will have a limited spillover effect on Lao economy. As industrial development in Lao economy is still in its early stages, there is a limited supply of skilled labor, technologies, and material inputs for railway construction. Moreover, the available unskilled labor is mainly imported from China. As a result, the spillover effects from construction of the railway project will likely not have an immediate significant impact on Lao economy but have a positive impact in the medium and long-term.
- 60.** Last, there are significant social and environmental impacts. The impacts are causes for concern during the construction period and important challenges to consider during and after the project development period.
- 61.** The recommendations for future policy dialogue on the BRI's alignment with national development strategies are as follows:
- E. How to strengthen environmental and social safeguards.
- 62.** The BRI project's social and environmental impacts are main causes for concern in Laos. Strengthening environmental and social safeguards is key to sustainable development in Laos.
- F. How to cooperate with other international partners
- 63.** The BRI project requires large investments. Involving international cooperation will increase the effectiveness and transparency of the project and reduce the risks and burden to the Chinese and Lao.

G. How to coordinate the BRI effectively on the national level

- 64.** The coordination between the Lao and Chinese governments and Laos line ministries is also a main challenge to strengthening project management and monitoring.

H. How to build capacity for the government and private sectors

- 65.** There is limited government capacity at the central and local levels. Human resource development is crucial for investment projects to be effective and generate the maximum amount of profit.

I. How to promote the RBI's spillover effects

- 66.** Use of local firms and labor is one of the main conditions associated with increasing spillover effects from the RBI-railway project. It is important to consider ways to support the RBI's forward and backward linkages with most of the current labor and companies from foreign counties.

J. How to raise awareness for the RBI

- 67.** There are a number of misunderstandings about the project. Unnecessary risks will be incurred without a correct understanding of the reality of the project. Therefore, it is crucial to raise awareness at the local and international levels and ensure their understanding of the project's costs, benefits, and current situation.

VII. References

- Chen, H., and Zhu, T. (2016). The complexity of cooperative governance and optimization of institutional arrangements in the Greater Mekong Subregion, *Land Use Policy*, 50, 363–370.
- Chen, H., and Zhu, T. (2016). The development of the Greater Mekong Subregion (GMS): real promise or false hope, *Journal of Asian Economics* 15, 977–998.
- Deunden Nikomborirak. (2015). The ASEAN Economic Community (AEC): Myths & Realities. *Asian Economic Papers*, 14(2), 71-90.
- ESCAP (2013). *Impact of Trade Facilitation Measures on Poverty and Inclusive Growth: Case Studies from ASIA*. ESCAP.
- Fujimura, K. (2010). *The Increasing Presence of China in Laos Today: A Report on Fixed Point Observation of Local Newspapers from March 2007 to February 2009*, Research Report, Ritsumeikan Asia Pacific University.
- GoL (2004) *National Growth and Poverty Eradication Strategy*, Vientiane: Government of the Lao PDR.
- Hong, P. (2016). Jointly building the “Belt and Road” towards the Sustainable Development Goals, *Background Paper*, United Nations Department of Economic and Social Affairs (DESA).
- Huang, Y. (2016). Understanding China's Belt & Road Initiative: Motivation, framework and assessment, *China Economic Review*, 40, 314–321.
- Itakura, K. (2014). Impact of liberalization and improved connectivity and facilitation in ASEAN, *Journal of Asian Economics*, 35, 2–1.
- Jianguo, C., Youding, X., and Ying, Z. (2016). *New Boten-Vientiane Railway-Feasibility Study: General Report*, China Railway Eryuan Engineering Group Co., Ltd.
- Jin, L. (2018). Synergies between the Belt and Road Initiative and the 2030 SDGs: from the perspective of development, *Economic and Political Studies*, 6(3), 278–292
- Kyophilavong, P. (2012). Mining Sector in Laos”, *BRC Discussion Paper Series No. 18*, Bangkok Research Center (BRC), IDE-JETRO.
- Kyophilavong, P. (2016). Mining booms and growth in Laos – empirical result from CGE Model, *International Journal of Development Issues*, 15(1). 51 – 61
- Kyophilavong, P., Bing, X., Vanhnala, B., Wongpit, P., Phonvisay A., Onphanhdala, P. (2018). The impact of Chinese FDI on economy and poverty of Lao PDR”, *International Journal of China Studies*, 15(3), 215–228.
- Kyophilavong, P., Gallup, J. L., Charoenrat, T., Nozaki, K. (2018). Testing tourism-led growth hypothesis in Laos?, *Tourism Review*, 73(2), 242-251.
- Lim, A, C-H. (2015). *Laos and the silk road economic belt-Analysis*, *Eurasia Review*, July 30.
- Pholsena, S and Phonekeo. D. (2004). *Lao hydropower potential and policy in the GMS context*, United Nations Symposium on Hydropower and Sustainable Development, Beijing International Convention Centre.

- UNDP (2019). Sustainable Development Goals, United Nations Development Programme. Web: <http://www.undp.org/content/undp/en/home/sustainable-development-goals.html>.
- World Bank. (2004). *Lao PDR Country Economic Memorandum: Realizing the Development Potential of Lao PDR*, World Bank, Vientiane.
- Zhenming, Z. (2015). China's economic aid to CLMV and its economic cooperation with them, ERIA Research Report.

Appendix 1. SDGs and Key Targets

- 68.** On 25 September 2015, the 193 Member States of the United Nations adopted the Sustainable Development Goals (SDGs), a set of 17 aspirational objectives with 169 targets expected to guide development actions of governments, international agencies, civil society and other institutions over the next 15 years (2016-2030).
- 69.** The 17 SDGs aim to end poverty and hunger while restoring and sustainably managing natural resources. They integrate the three dimensions of sustainable development – economic, social, and environmental. They are indivisible – no one goal is separate from the others, and all call for comprehensive and participatory approaches. And they are universal – the 2030 Agenda is as relevant to developed as it is to developing nations.

Figure A1.1: Sustainable Development Goals for the UN Agenda 2030



- 70.** Harmonized indicators are essential to measuring progress, and SDGs will ultimately be turned into management tools to help countries develop implementation strategies and allocate resources accordingly, measure progress towards sustainable development, and help ensure the accountability of all stakeholders in achieving the SDGs. Because all the countries participating in the current TA are signatories to the 2030 Sustainable Development Agenda, it is appropriate to use SDGs for evaluation of our RCI and BRI initiatives.

Table A1.1: United Nations Sustainable Development Goals

	Topic	Title
1	Poverty	<u>End poverty in all its forms everywhere</u>
2	Food	<u>End hunger, achieve food security and improved nutrition and promote sustainable agriculture</u>
3	Health	<u>Ensure healthy lives and promote well-being for all at all ages</u>
4	Education	<u>Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all</u>
5	Women	<u>Achieve gender equality and empower all women and girls</u>
6	Water	<u>Ensure availability and sustainable management of water and sanitation for all</u>
7	Energy	<u>Ensure access to affordable, reliable, sustainable and modern energy for all</u>
8	Economy	<u>Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all</u>
9	Infrastructure	<u>Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation</u>
10	Inequality	<u>Reduce inequality within and among countries</u>
11	Habitation	<u>Make cities and human settlements inclusive, safe, resilient and sustainable</u>
12	Consumption	<u>Ensure sustainable consumption and production patterns</u>
13	Climate	<u>Take urgent action to combat climate change and its impacts</u>
14	Marine-ecosystems	<u>Conserve and sustainably use the oceans, seas and marine resources for sustainable development</u>
15	Ecosystems	<u>Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss</u>
16	Institutions	<u>Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels</u>
17	Sustainability	<u>Strengthen the means of implementation and revitalize the global partnership for sustainable development</u>

SDG	Key Targets
Goal 1: End poverty in all its forms everywhere.	By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than \$1.25 a day
	By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
	By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance
	By 2030, build resilience among the poor and vulnerable and reduce their exposure and vulnerability to climate-related extreme events and other economic, social
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient
	By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and
	By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment.
	By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain
Goal 3: Ensure healthy lives and promote well-being for all at all ages	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other
	By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.
	By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university.
Goal 5: Achieve gender equality and empower all women and girls.	End all forms of discrimination against all women and girls everywhere.
	Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of
	Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial
Goal 6: Ensure availability and sustainable management of water and sanitation for all	By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.	By 2030 double the global rate of improvement in energy efficiency
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in
	Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and
	Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental
	By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and	Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the
	Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national
Goal 10: Reduce inequality within and among countries	By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average.
Goal 11: Make cities inclusive, safe, resilient and sustainable	By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums
Goal 12: Ensure sustainable consumption and production patterns	Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries
	By 2030, achieve the sustainable management and efficient use of natural resources
	By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest
	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.
Goal 13: Take urgent action to combat climate change and its impacts	Integrate climate change measures into national policies, strategies and planning.
	Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.
	Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing
	Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing
Goal 14: Conserve and sustainably use the oceans, seas and marine resources	By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-
Goal 16: Promote just, peaceful and inclusive societies.	By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	Enhance the global partnership for sustainable development, complemented by multi-stakeholder partnerships that mobilize and share knowledge, expertise, technology and financial resources, to support the achievement of the sustainable development goals in all countries, in particular developing countries

Appendix 2. Questionnaire

(Research Project)

The Questionnaire

Impact of Belt and Road Initiative (BRI): Laos-China High Speed Railway Project on Sustainable Development Goal (SDGs) in Laos

My name is Phouphet Kyophilavong, Associate Professor at Faculty of Economics and Business Management, National University of Laos. Currently I am doing research the impact of Belt and Road Initiative (BRI): **Laos-China High Speed Railway Project** on Sustainable Development Goal (SDGs) in Laos. I would like to hear your opinion on this matter. Please help me to respond the questionnaires as follow. Please note that your name and your institution are confidential.

Laos-China High Speed Railway Project	Laos-China High Speed Railway Project The project involves the construction of a 420-kilometer single track electrified rail line from Vientiane to the northern border with China. Around 60 percent of the railway line will go through tunnels or on bridges. The railway line is a section of the proposed Kunming – Singapore Trans Asian Railway corridor. Construction activities started in 2017 and are expected to be completed in 2021. The Lao P.D.R. section project cost has been estimated at US\$6.7 billion, of which 30 percent will be provided by a joint venture company formed between Lao P.D.R. and China. Lao P.D.R. will contribute 30 percent of the capital of this company (or around US\$700 million) in annual installments over the medium term. Of this, US\$480 million is borrowed from China while the remaining funds will be provided by the Budget. The Lao P.D.R. Ministry of Finance has noted that no sovereign guarantee will be provided. Per the 2012 Feasibility Study, the IRR is 4.56 percent and the repayment period of investment is 23 years.
Sustainable Development Goal (SDGs)	Please explain how the project be expected to affect each of these SDGs?
Goal 1: End poverty in all its forms everywhere.	
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture	
Goal 3: Ensure healthy lives and promote well-being for all at all ages	
Goal 4: Ensure inclusive and equitable quality education	

and promote lifelong learning opportunities for all.	
Goal 6: Ensure availability and sustainable management of water and sanitation for all.	
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all.	
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	
Goal 10: Reduce inequality within and among countries	
Goal 11: Make cities inclusive, safe, resilient and sustainable	
Goal 12: Ensure sustainable consumption and production patterns	
Goal 13: Take urgent action to combat climate change and its impacts	
Goal 14: Conserve and sustainably use the oceans, seas and marine resources	
Goal 15: Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss	
Goal 16: Promote just, peaceful and inclusive societies.	
Goal 17: Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development	
Please explain the main challenges this project presents from each of the following perspectives:	

2-1. Your organization?	
3-1. Your community?	
4-1. The national economy?	
Please explain the main opportunities this project presents from each of the following perspectives:	
2-2. Your organization?	
3-2. Your community?	
4-2. The national economy?	
Please comment on your assessment of the project along each of the following dimensions:	
5. Transparency	
6. Stakeholder engagement	
7. Public capacity constraints that might limit project potential	
8. Private capacity constraints that might limit project potential	
9. Project financing	
10. Potential project risks and suggested safeguards	

Thank you very much for your time and kind supports.

Dr. Phouphet Kyophilavong

Faculty of Economics and Business Management

National University of Laos

Phouphetkyophilavong@gmail.com

020-55527321

Appendix 3. Households by provinces

Province	Freq.	Percent
Bolikhamxay province	10	6.71
Champasack province	19	12.75
Luangnamtha province	21	14.09
Luangphabang province	16	10.74
Oudomxay province	9	6.04
Savannakhet province	28	18.79
Vientaine province	8	5.37
Vientaine Capital	26	17.45
Xiengkhuang province	7	4.70
Khammuan province	5	3.36
Total	149	100.00