Evaluating Construction Market of ASEAN Nations

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Abstract: This research evaluated the construction market and project environment of nine nations within the ASEAN members. Quantitative data from global consulting firms and international organizations were identified and normalized for evaluation. The result of the analysis was that Indonesia was ranked highest for construction market growth while Singapore was ranked highest for stability of project environment. The research results can be utilized by construction companies that are planning on entering the construction market within the ASEAN members.

Key Words: ASEAN, Construction Market, Evaluating

1. INTRODUCTION

Infrastructure demand of ASEAN members (2016~2030) is evaluated to be 3.147 trillion dollars. The scale of the construction market in the region is estimated to grow due to policies related to infrastructure improvement aimed to alleviate development gaps and enhance economic growth [1]. In addition, growing urbanization effect and intensified industrialization are drastically increasing the demand for various infrastructure facilities which has led to various global construction companies in entering the ASEAN market [2]. This research utilizes objective data of the ASEAN members in order to evaluate the construction market per nation and suggest basic information that can be utilized by construction companies that plan to enter the market.

2. SCOPE AND METHODOLOGY

This research analyzed data of nine nations excluding Brunei Darussalam from the ASEAN members that were provided by international organizations and consulting companies.

Acquired data had to be standardized with the following method as the units of the indexes differed for each evaluation criteria. Criteria where a higher value is better were normalized utilized Equation (1), and criteria where a lower value is better were normalized utilizing Equation (2). [3]

$$Normalization\ process = \frac{(X - Min\ X)}{(Max\ X - Min\ X)} \times 9 + 1 \qquad (1)$$

$$Normalization\ process = \frac{(Max\ X - X)}{(Max\ X - Min\ X)} \times 9 + 1 \qquad (2)$$

Two classifications, construction market growth and stability of project environment, were defined to evaluate the nations. Data for each evaluation criteria within the classifications were gathered from reports nu consulting firms and international organizations. Details of the evaluation criteria are as shown in <Table 1>.

Table 1. Evaluation Criteria for ASEAN members

Classification		Evaluation Criteria	Code
Construction market growth	Construction market status (A)	Construction industry value (billion, 2019 forecast)	A-1
		Construction Industry Value, Real Growth (2019 forecast)	A-2
		Construction Industry Value, % of GDP (2019 forecast)	A-3
	Economy and investment status (B)	GDP (billion, 2019)	B-1
		GDP growth (%, 2019)	B-2
		Urban population (%, 2017)	B-3
		FDI Flow: Greenfield Project (million, 2018)	B-4
Stability of project environment	Economy and Social Environment (C)	Inflation (%, 2019)	C-1
		Sovereign credit ratings (2019)	C-2
		Global terrorism index (2018)	C-3
		Corruption perception index (2018)	C-4
	Project Environment (D)	Logistics Performance Index (2018)	D-1
		Dealing with construction permits (2018)	D-2
		Enforcing contracts (2018)	D-3
		Paying taxes (2018)	D-4

In order to identify the weight for each evaluation criterion, Korean experts (3 academia persons, more than 5 years of project or research experience in South-East Asia) on overseas construction were surveyed. The weights of the evaluation criteria are as follows.

Table 2. Weights by each Evaluation Criteria

Evaluation Criteria Code			Source	Weight	
Construction market growth	A	A-1	Business Monitor International [4]	40.0%	52.0%
		A-2		35.0%	
		A-3		25.0%	
	B	B-1	International Monetary Fund [5]	40.0%	48.0%
		B-2	Asian Development Bank [6,7]	10.0%	
		B-3		25.0%	
		B-4	United Nations Conference on Trade and Development [8]	25.0%	
Stability of project environment	C	C-1	Asian Development Bank [6]	25.0%	46.0%
		C-2	Organization for Economic Cooperation and Development [9]	30.0%	
		C-3	Institute for Economics & Peace [10]	15.0%	
		C-4	Transparency International [11]	30.0%	
	D	D-1	Arvis et al. [12]	30.0%	54.0%
		D-2		30.0%	
		D-3	World Bank [13]	25.0%	
		D-4		15.0%	

3. ANALYSIS AND RESULTS

The analysis results of the construction market growth indexes are as follows. Among the three evaluation criteria of construction market status (A), Indonesia has the highest construction industry value (A-1) of $128 billion, Myanmar had the highest construction industry value, real growth (A-2) of 14.67%, and Cambodia had the highest construction industry value, % of GDP (A-3) of 12.60%. Among the four evaluation criteria of economy and investment status (B), Indonesia has the highest GDP (B-1) of $1,100.9 billion, Cambodia has the highest GDP growth (B-2) of 7.0%, Singapore had the highest urban population (B-3) of 100.0%, and Indonesia had the highest FDI Flow: Greenfield Project (B-4) of $392 billion.

Table 3. Construction market growth Statistics Data

Criteria	Construction market status			Economy and investment status			
	A-1 (billion)	A-2 (%)	A-3 (%)	B-1 (billion)	B-2 (%)	B-3 (%)	B-4 (million)
Cambodia	3.36	11.35	12.60	26.98	7.0	23.0	3,056
Indonesia	128.04	7.03	10.60	1,100.91	5.2	54.7	39,238
Lao PDR	1.19	7.23	5.60	20.15	6.5	34.4	2,208
Malaysia	19.14	6.10	4.90	373.45	4.5	75.5	14,145
Myanmar	7.09	14.67	7.70	65.67	6.6	29.5	4,965
Philippines	29.69	10.39	7.70	356.68	6.4	46.7	22,548
Singapore	14.45	2.82	4.00	372.81	2.6	100.0	16,439
Thailand	13.57	5.03	2.60	516.66	3.9	49.2	7,273
Vietnam	15.93	7.23	5.80	260.30	6.8	35.0	29,147

The analysis results of the stability of project environment indexes are as follows. Among the four evaluation criteria of economy and social environment (C), Thailand had the lowest inflation (C-1) of 0.98%, and Singapore scored 0.00 on both sovereign credit ratings (C-2) and global terrorism index (C-3). In addition, Singapore was evaluated for corruption perception index (C-4) with a value of 85 points. Excluding inflation criteria, Singapore was evaluated to be the highest on the other three criteria compared to other nations.

Table 4. Stability of project environment Statistics Data

Criteria	Economy and Social Environment				Project Environment			
	C-1 (%)	C-2 (Index)	C-3 (Score)	C-4 (Score)	D-1 (Score)	D-2 (Score)	D-3 (Score)	D-4 (Score)
Cambodia	2.54	6.00	0.02	20	2.58	44.23	31.75	61.28
Indonesia	3.34	3.00	4.54	38	3.15	66.57	47.23	68.03
Lao PDR	3.10	7.00	1.68	29	2.70	67.94	41.99	54.22
Malaysia	2.00	2.00	2.70	47	3.22	86.96	68.23	76.06
Myanmar	7.52	6.00	5.92	29	2.30	70.35	24.53	63.94
Philippines	3.84	3.00	7.18	36	2.90	68.58	45.96	71.80
Singapore	1.33	0.00	0.00	85	4.00	84.73	84.53	91.58
Thailand	0.98	3.00	6.25	36	3.41	71.86	67.91	77.72
Vietnam	3.09	4.00	0.66	33	3.27	79.05	62.07	62.87

Equation (1) was utilized on the criteria of construction market growth which are shown below.

Table 5. Standardization Data for Construction market growth

Criteria	Construction market status			Economy and investment status			
	A-1	A-2	A-3	B-1	B-2	B-3	B-4
Cambodia	1.15	7.48	10.00	1.06	10.00	1.00	1.21
Indonesia	10.00	4.20	8.20	10.00	6.32	4.71	10.00
Lao PDR	1.00	4.35	3.70	1.00	8.98	2.33	1.00
Malaysia	2.27	3.49	3.07	3.94	4.89	7.14	3.90
Myanmar	1.42	10.00	5.59	1.38	9.18	1.76	1.67
Philippines	3.02	6.75	5.59	3.80	8.77	3.77	5.94
Singapore	1.94	1.00	2.26	3.94	1.00	10.00	4.46
Thailand	1.88	2.68	1.00	5.13	3.66	4.06	2.23
Vietnam	2.05	4.35	3.88	3.00	9.59	2.40	7.55

The result of applying Equation (1) and Equation (2) on stability of project environment are as follows. Criteria that utilized Equation (2), in which lower values are better, were applied to C-1, C-2, and C-3.

Table 6. Standardization Data for Stability of project environment

Criteria	Economy and Social Environment				Project Environment			
	C-1	C-2	C-3	C-4	D-1	D-2	D-3	D-4
Cambodia	7.85	2.29	9.98	1.00	2.49	1.00	2.08	2.70
Indonesia	6.75	6.14	4.31	3.49	5.51	5.71	4.41	4.33
Lao PDR	7.09	1.00	7.90	2.25	3.13	5.99	3.62	1.00
Malaysia	8.60	7.43	6.62	4.74	5.88	10.00	7.56	6.26
Myanmar	1.00	2.29	2.59	2.25	1.00	6.50	1.00	3.34
Philippines	6.07	6.14	1.00	3.22	4.18	6.13	4.21	5.24
Singapore	9.52	10.00	10.00	10.00	10.00	9.53	10.00	10.00
Thailand	10.00	6.14	2.16	3.22	6.88	6.82	7.51	6.66
Vietnam	7.10	4.86	9.17	2.80	6.16	8.33	6.63	3.08

Overall, Indonesia ranked highest for construction market growth with a value of 7.90, which was followed by Philippines (4.90) and Vietnam (3.95). For stability of project environment, Singapore has the highest value of 9.87 and was followed by Malaysia (7.22) and Thailand (6.36).

Table 7. Results of the Application of Weights by Construction market growth and Stability of project environment

Criteria	Construction market growth			Stability of project environment		
	Construction market status	Economy and investment status	Total	Economy and Social Environment	Project Environment	Total
	52.0%	48.0%		46.0%	54.0%	
Cambodia	5.58	1.97	3.85	4.45	1.97	3.11
Indonesia	7.52	8.31	7.90	5.22	5.11	5.16
Lao PDR	2.85	2.13	2.50	3.93	3.79	3.86
Malaysia	2.90	4.82	3.82	6.79	7.59	7.22
Myanmar	5.47	2.33	3.96	2.00	3.00	2.54
Philippines	4.97	4.83	4.90	4.48	4.93	4.72
Singapore	1.69	5.29	3.42	9.88	9.86	9.87

Thailand	1.94	3.99	2.92	5.63	6.99	6.36
Vietnam	3.31	4.65	3.95	5.45	6.47	6.00

Utilizing the overall analysis, the nine nations were plotted on a graph as follows. The average of the X axis (construction market growth) was 4.14 and Y axis (stability of project environment) was 5.43.
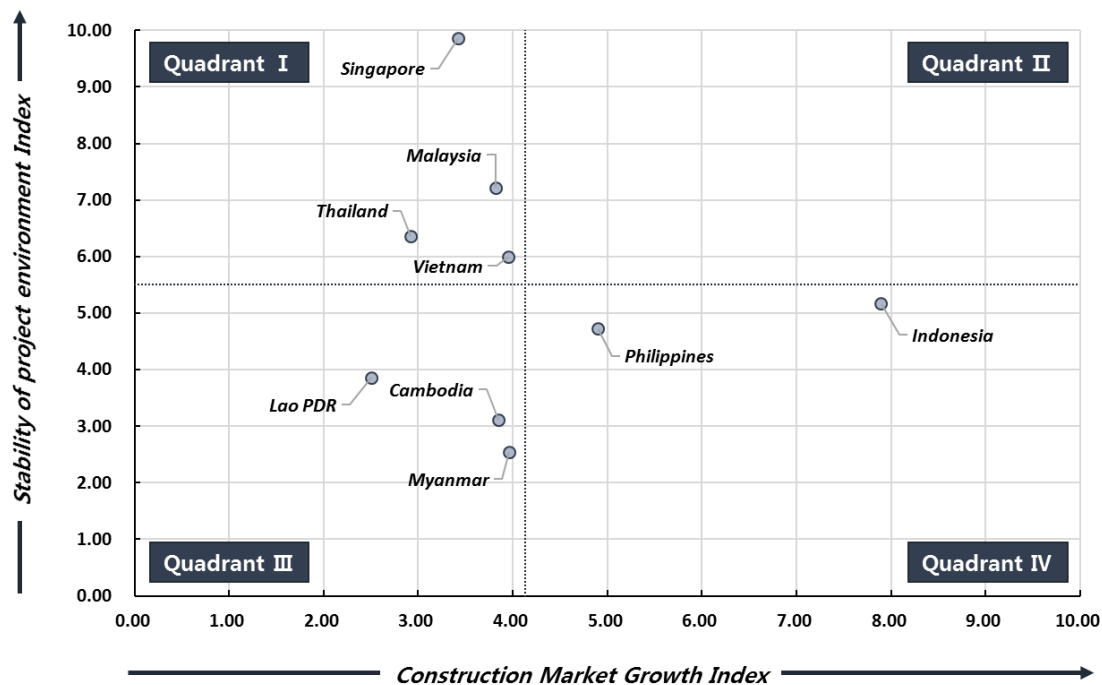

Figure 1. Graphic Representation of the Results on a quadrant matrix

According to the analysis result, Quadrant Ⅰ, high stability of project environment yet low construction market growth, included Singapore, Malaysia, Thailand, and Vietnam. Quadrant Ⅱ, high stability of project environment and high construction market grow, involved none of the ASEAN members. Quadrant Ⅲ, which represents low stability of project environment and construction market growth, included Lao PDR, Cambodia and Myanmar. Finally, Quadrant Ⅳ, low stability of project environment but high construction market growth, included Indonesia and Philippines.

It is possible to suggest the following advice to construction companies that plan on entering the ASEAN member. For the four nations (Singapore, Malaysia, Thailand, and Vietnam) in Quadrant Ⅰ, companies should prioritize in entering the above nations due to their high stability of the project environment. Especially, Singapore was ranked high on stability of project evaluation, which presents that it is one of the most stable markets among the ASEAN members. Singapore scored relatively high on political/economic stability compared to other nations. Singapore also has business-related policies and procedures, and infrastructure to support foreign investors in the nation. However, due to its high stability, it is likely that competition among construction companies are very intense. Observing where global construction companies (250 firms) are advancing, Singapore, Malaysia, Thailand, and Vietnam consisted of 51, 69, 50, and 54 foreign firms in the nation [14]. Therefore, it would be necessary to analyze the strengths and competitive advantages of one's firm and then identify entrance strategies into the nation.

Indonesia and Philippines that are located in Quadrant Ⅳ have high construction market growth,

resulting in increased opportunities for construction companies in winning contracts in the region. Companies need to identify methods to mitigate risks when entering these nations. In particular, companies need to consider in identifying projects with high stability. Governments in both nations are implementing infrastructure investment policies, which in turn will increase project orders from the public. It is most likely that such projects will be government or Multilateral Development Bank funded. Hence it will be necessary to consider participating in such projects with priority.

In addition, the Global Infrastructure Hub [15] estimated Indonesia's investment needs to be $5.5 billion in 2019. However, it is forecasted that a funding cap of $0.2 billion as the current investment trend in infrastructure is estimated to reach $5.3 billion. The current local government is pursuing Public-Private Partnership contracts for various infrastructure projects to ensure stable economic growth. However, as the government currently lacks the funds, the financial procurement of the infrastructure project is composed of more than half by private funds, creating a situation for private sector to actively participate in the related projects. Nevertheless, consideration of 'weak logistic environment, land acquisition and financial procurement issues, lack of infrastructure material supply', and other barriers will be necessary [16].

For the Philippines, Build Build Build policy is pursued by the local government which focuses on infrastructure development. The government aims to revitalize the economy and create jobs through the policy and is currently expanding its cause towards developing housing/office buildings. Hence, it is possible to expect that the local construction market size will further expand as well. However, limitations on foreign entities in acquiring local construction license, corruption of public servants and inefficiency in administration, high logistics cost, unstable policy, crimes, and other issues need to be considered when planning on entering the local construction market [17].

4. CONCLUSION

After analyzing the ASEAN member's construction market and project environment, each nation had distinctively different characteristics. Hence, construction companies that plan on entering the ASEAN market need to carefully consider the characteristics of the subject nation and develop a strategy accordingly. For nations that have relatively high project risks, companies need to establish risk mitigation strategies prior to advancing into the nation. One method to achieve it would be to establish a joint venture or consortium with companies that already have entered the market. On the other hand, when entering a nation with high project stability, it will be necessary to identify projects where the company can have a competitive advantage as competition in the local market is likely to be saturated and fierce among other construction firms.

This research analyzed the basic data of ASEAN members to identify methods to enter the local construction market. The followings are the limitations and future research.

It will be necessary to apply other various evaluation criteria for construction market growth and stability of project environment. This research suggested results based on quantitative values provided by consulting firms and international organizations for objectivity. In order to accurately represent the construction market growth and stability of project environment for each nation, it is necessary to consult with local construction related experts or experts who have experience in a local project and acquire various qualitative information. In addition, there needs to be more participants when calculating the weight of each criterion. This research utilized the analysis results and plotted them on a graph. Nations were evaluated only based on the characteristics of the quadrant. However, in the future research, it will be necessary to analyze each nation in depth.

ACKNOWLEGEMENTS

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