

# Utilizing SWOT Model to Define a Strategy for the Korean Construction Companies in Preparation of the Changes in the Global Construction Market

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**Abstract:** SWOT model was used to develop strategies for the Korean construction firms in entering the global construction market. Literature review, official statistics survey and other research methods were utilized in order to extract internal and external environmental factors of both the firm and local area. By extracting strength, weakness, opportunity and threat factors, a total of 12 strategies were produced: SO (Strengths-Opportunities), ST (Strengths-Threats), WT (Weaknesses-Threats), and WO (Weaknesses-Opportunities). The result of the study can be utilized as a basic data in developing a strategy for the Korean construction firms to penetrate into the global construction market.

**Keywords:** Global Construction Market, SWOT Model, Overseas Construction, Korean Construction Company

## I. INTRODUCTION

Korea's overseas construction contract order in 2005 was \$10.9 billion and recorded an all-time high of \$71.6 billion in 2010. Also, in 2014, contract order was \$66 billion and achieved an accumulated contract order of \$687.9 billion as of March 2015. It is estimated to record more than \$700 billion by the end of the first half of 2015.

Such drastic expansion of Korean overseas contract order is caused by the increased investment by the middle-east nations in various infrastructure and plant facilities due to the high oil prices. Among the Korean overseas construction contract orders, contract orders from the Middle East accounted for 72.73% of all contract orders in 2009 and 47.5% in 2014. Korean government set a goal to achieve a yearly overseas construction contract of \$100 billion by 2017 and an aggregate construction contract of \$1 trillion by 2020. As a result, Korean construction companies are expanding into various regions and construction sectors in order to realize the goal.

However, since the Lehman Brothers situation in 2008, European financial crisis in 2010, and low oil price towards the end of 2014, financial environment of the developing countries and oil producing nations had been affected. As a result, investment in the construction sector had decreased which in turn affected the global construction market.

Hence, major construction companies in Korea are diversifying regions to enter. Such regions are developing nations in Asia, South America, and Africa, where demand for infrastructure facilities due to rapid economic development, GDP increase, population increase, and urbanization is occurring.

## II. RESEARCH METHOD

SWOT Model was utilized in order to analyze the effect of the global financial environment to the Korean construction companies in the global market. Furthermore, the model was used to define a strategy for the Korean

construction companies to advance into the global market in consideration of the global financial environment.

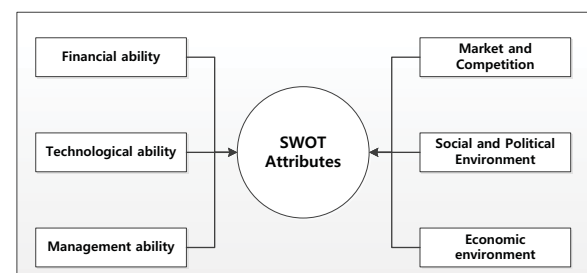


Figure 1. SWOT Attributes

Then, "SO, ST, WO, and WT strategies" were developed utilizing the extracted factors. The strategies were used to suggest a sustainable approach for Korea to expand into the foreign construction market despite the rapid changing environment of the global construction market.

Table 1. SWOT Analysis and Strategy

Classification	Strength	Weakness
Opportunity	SO Strategy	WO Strategy
Threat	ST Strategy	WT Strategy

① SO strategy: pursue opportunities that are a good fit to the company's strengths.

② WO strategy: overcome weaknesses to pursue opportunities.

③ ST strategy: identify ways that the firm can use its strengths to reduce its vulnerability to external threats.

④ WT strategy: establish a defensive plan to prevent the firm's weaknesses from making it highly susceptible to external threats

## III. RESEARCH CONTENTS

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Table 2. Identification of KIC's Strengths, Weakness, Opportunity, and Threats in the International Construction Market

SWOT Factors	Korean International Contractors (KICs) SWOT	Analysis by
[SW Factors]  Technological Ability Management Ability Financial Ability	S <sub>1</sub> = Experience on large scale and complex projects	R, S
	S <sub>2</sub> = High share in global construction market	S
	S <sub>3</sub> = Joint entry with Sogo Sogo shosha	R, I
	S <sub>4</sub> = Joint entry with Infrastructure-related public enterprise	I
	W <sub>1</sub> = Inadequate design capacity	R
	W <sub>2</sub> = Lack of financing capacity	R
	W <sub>3</sub> = Focusing on industry facility business structure	S
	W <sub>4</sub> = Lack of engineers expert in overseas construction	R
[OT Factors]  Social and Political Environment Economic Environment Market and Competition	O <sub>1</sub> = Government support	R, I
	O <sub>2</sub> = Growing global construction market	R, S
	O <sub>3</sub> = Increasing infrastructure investment global ODA	R, S
	O <sub>4</sub> = Increasing private investment in developing countries	S
	T <sub>1</sub> = Intense competition in the global market	R
	T <sub>2</sub> = Global financial instability	R
	T <sub>3</sub> = Political and regulatory risk	R
	T <sub>4</sub> = Falling global oil price	R, S

I= Interview, R= Research Papers, S = Official Statistics

### 1) Strength Factors

S<sub>1</sub>: Experience on large scale and complex projects

During the process of Korea's economic growth, Korea has acquired experience on various infrastructure facility and development of new city projects.

After analyzing the construction orders received for the recent 3 years, the average of each order received was 9.8 million dollars (International Constructors Association of Korea, 2014).

Especially, experienced in various large scale industry facility projects and other large scale projects from the Middle East region (Engineering News Record, 2014).

S<sub>2</sub>: High share in global construction market

Based on 2013 revenue figures, global construction market share of the Korean construction companies (13 companies) was 7.8% (\$42.4 billion), ranking 6th in the world. Especially, the Middle East region ranked 1st for the past 3 years and accounted for 25.8% of the market share. (Engineering News Record, 2014)

S<sub>3</sub>: Joint entry with Sogo Shosha

Korea's Sogo Shosha has various branches and corporate bodies across the world, and recently, they provide total solution including planning/financial/operation & maintenance according to the public-private partnership for the large infrastructure facility in developing nations (Kim & Ock, 2011).

Japan's Sogo Shosha is known as a project organizer as they provide financing and liaison of consortium companies, and are leading various infrastructure projects in developing nations. According to 2013 figures, 4 infrastructure projects for developing nations are under way by co-working with Korean construction companies (Korea International Trade Association, 2013)

S<sub>4</sub>: Joint entry with Infrastructure-related public enterprise

Korea took a major role in establishing various infrastructure facilities (Electric power station, Port,

Industrial complex, Airport construction and operation), and acquired valuable experience.

Especially, as they have knowledge of operation & maintenance sector that is needed to enter the overseas Public Private Partnership projects, it is possible for the Korean construction companies to supplement sectors, which may be weak for others.

### 2) Weakness Factors

W<sub>1</sub>: Inadequate design capacity

Design capacity was evaluated to be much weaker than the construction capacity. Based on the 2014 global construction competitiveness evaluation, of the 20 nations, design ranked 16<sup>th</sup> (Design productivity 10<sup>th</sup>, 17<sup>th</sup> for overseas contract revenue). (Korea Institute of Civil Engineering and Building Technology, 2014)

Especially, for the engineering sector, it lacked competitiveness compared to other advanced nations and is structurally vulnerable.

Table 3 Comparison of advanced nation's technical capacity (US=100)

country	Original technology	Basic design	Detail design	equipment	Construction management
Korea	72.8	73.4	85.0	81.5	82.6
EU	92.3	91.1	91.3	87.1	88.2
Japan	90.3	88.4	89.1	87.2	88.2

W<sub>2</sub>: Lack of financing capacity

Between 2010 and 2013, PF (Export-import Bank of Korea or Korea Trade Insurance Corporation of Warranty Conditions) loans from overseas projects accounted for \$12.17 billion. Korean financial companies represented 27%, about \$3.28 billion, and the other 73%, or \$8.89 billion, of the PF was by overseas financial companies (Lee, 2014)

W<sub>3</sub>: Focusing on industry facility business structure

Of the overseas construction projects won by Korean companies, industry facility accounted for 78.3% (\$51.7 billion out of \$66 billion of the total orders received)

based on 2014 figures (International Constructors Association of Korea, 2014).

Also, when observing the project type ratio of the orders received by Korea, the industry facility accounted for 69%. (Engineering News Record, 2014)

W<sub>4</sub>: Lack of engineer's expert in foreign construction

There is lack of overseas construction-related professional engineers, and currently, the supply of engineers is through educational institutes etc.

Especially, according to a survey related to overseas construction, it is imperative to acquire experts when entering the foreign market. (International Constructors Association of Korea, 2014)

### 3) Opportunity Factors

O<sub>1</sub>: Government support

The government has enforced various policies (support in foreign infrastructure project, policy support and reinforcing capability, support in exporting foreign infrastructure, cooperation support for international development etc.) in order to encourage participation in penetrating the overseas market. (Ministry of Land, Infrastructure, and Transport, 2014)

Export-import Bank of Korea, Korea Trade Insurance Corporation and the Korea Development Bank etc. announced a policy to financially support to encourage entering the overseas market. (Korea Consulting Center for Overseas Infra & Plant Projects, 2015)

Korean Official Development Assistance projects (Korea International Cooperation Agency, Economic Development Cooperation Fund) and World Bank, Asian Development Bank etc., are providing construction project information ordered by the overseas Multilateral Development Bank.

O<sub>2</sub>: Growing global construction market

Global construction industry is projected to grow from US\$7.4 trillion in 2010 to US\$8.5 trillion in 2015 and to US\$15 trillion in 2025 (Global Construction Perspectives and Oxford Economics, 2013).

Global construction investment in 2015 was 11 billion USD and is expected to grow at a rate of 8.5% until 2017. (Global insight, 2014)

Overall, the investment required globally for infrastructure projects is at least \$4 trillion (or 5% of global GDP) per year until 2030 (World Bank, 2013)

It's estimated that an additional US\$1 trillion to US\$1.5 trillion of annual investment in low and middle income countries will be required through 2020 to meet the infrastructure demand from industry and households. Electricity, water, and transport are expected to account for the bulk of future spending needs. (Global Infrastructure Facility, 2015)

O<sub>3</sub>: Increasing infrastructure investment global ODA

The results of OECD-DAC members and Multilateral Development Bank's support for developed

nations, investment in the infrastructure sector (transport & storage, communications, energy) increased 145%, from \$1.36 billion in 2004 to \$3.34 billion in 2013.

Measures to decrease absolute poverty in developing nations by the Global ODA (Creating and Economic Activities, Reducing Production Cost, Expanding Production Capacity, Connecting Markets and Economic Activities, Improving Access to Key Facilities) include increasing investment in the infrastructure sector. (OECD Stats Database, 2015; Asian Development Bank, 2012)

O<sub>4</sub>: Increasing private investment in developing countries

Total investment in infrastructure for projects with private participation in the energy, transport, and water and sanitation sectors increased 6% to US\$107.5 billion in 2014. Although the energy sector had the most new projects, the sector with the greatest investment was transport, receiving US\$55.3 billion, or 51% of total global investment. The energy sector accounted for US\$48.2 billion, or 45%, and the water and sanitation sector had US\$4.1 billion, which was 4% of total investment committed (Public Private Infrastructure Advisory Facility, 2015).

Table 4. Total investment committed by sector, 2014

	Average Investment Commitment	Total Investment Commitment	% of Total
Transport	1,024	55.3	51
Energy	228	48.2	45
Water & Sewage	124	4.1	4
Total	361	107.5	100

### 4) Threaten Factors

T<sub>1</sub>: Intense competition in the global market

On top of the increasing overseas advancement of construction companies from China, India, Turkey, etc., European companies advancing to overseas construction market due to decreasing Euro value, Japan's quantitative easing due to decreased value of Yen, and implementing policies by government of Korea to encourage participation in the overseas market, the competition in the overseas construction market is expected to intensify. (Korea Investors Service, 2014)

T<sub>2</sub>: Global financial instability

Due to the global financial instability, main developed and developing nations are currently slow in recovering their economic growth. Growth in advanced economies is projected to increase from 1.8 percent in 2014 to 2.1 percent in 2015 and 2.4 percent in 2016, a more gradual pickup than was forecast in the April 2015 WEO, Growth in emerging market and developing economies is projected to slow from 4.6 percent in 2014 to 4.2 percent in 2015, In 2016, growth in emerging market and developing economies is expected to pick up to 4.7 percent. (International Monetary Fund, 2015)

Table 5. Growth Risk

	Contents
Near-Term	Increase in financial market volatility, including

Risks	from Greece
	Economic distress from geopolitical factors
Medium-Term Risks	Advanced economies not reaching full employment
	Lower commodity prices undermining growth in low-income countries
	Further U.S. dollar appreciation creating balance sheet challenges for dollar debtors
	Sharper-than-expected slowdown in china

T<sub>3</sub>: Political and regulatory risk

According to the presentation from the World Economic Forum, political risk was suggested as the major risk related to the investment of infrastructure facilities in developing nations. It was suggested that for regulations, “cancellation & change of scope risk, Environmental & other permit risk, community risk” etc. exists (World Economic Forum, 2015).

T<sub>4</sub>: Falling global oil price

Middle East projects had been cancelled or delayed due to the decrease in oil prices

Not only oil producing countries in the Middle East but also in Russia, Central Asia, South America, and Africa Region, financial strength is worsening due to the oil price drop. In the future, the number of construction-related projects is expected to decrease. (International Monetary Fund, 2014)

Especially, Saudi Arabia has borrowed \$4 billion from local markets in the past year, selling its first bonds for eight years as part of efforts to sustain high levels of public spending as oil prices slump. (simeon, 2015)

1) SO Strategies

SO<sub>1</sub>: Penetrating infrastructure market of developing nations through public-private partnership consortium between Sogo shosha and public enterprise (S<sub>1</sub>, S<sub>3</sub>, S<sub>4</sub>, O<sub>4</sub>)

SO<sub>2</sub>: Establishing penetration method utilizing official development assistance and public-private partnership for the underdeveloped nations that prefer to develop their economy by constructing large-scale infrastructure facilities. (S<sub>1</sub>, S<sub>3</sub>, O<sub>1</sub>, O<sub>3</sub>)

SO<sub>3</sub>: Creating an economy of scale and a condition for sustainable growth by expanding the market share in the global construction market. (S<sub>2</sub>, O<sub>2</sub>)

2) ST Strategies

ST<sub>1</sub>: Establishing a method for joint advancement in the competitive market between advanced companies and late entry companies to acquire competitive advantage (S<sub>3</sub>, S<sub>4</sub>, T<sub>1</sub>)

ST<sub>2</sub>: Expanding into infrastructure sector of developing nations to diversify project regions and construction types. (S<sub>3</sub>, T<sub>4</sub>)

ST<sub>3</sub>: Diversifying the portfolio that is based on subcontract projects into total service by providing total service including operation & maintenance and construction. (S<sub>1</sub>, T<sub>2</sub>, T<sub>3</sub>, T<sub>4</sub>)

3) WO Strategies

WO<sub>1</sub>: Increasing participation in Global ODA donor country and Multilateral Development Bank projects (W<sub>2</sub>, O<sub>2</sub>, O<sub>3</sub>)

WO<sub>2</sub>: Penetrating into the power plant industry in developing nations where the demand for electricity is increasing (W<sub>3</sub>, O<sub>3</sub>, O<sub>4</sub>)

WO<sub>3</sub>: For project financing, utilizing the funds by Korea’s Service Financial, and expand participation in Public-private partnership projects which utilizes guarantees from Export-Import Bank and Multilateral Investment Guarantee Agency from International Finance Corporation etc. to secure stability of the project. (W<sub>2</sub>, O<sub>1</sub>, O<sub>4</sub>)

4) WT Strategies

WT<sub>1</sub>: Enhance the weak design technique and acquiring competitive advantage in the bidding competition by finding a method to establish a consortium or share stakes with global engineering companies. (W<sub>1</sub>, W<sub>4</sub>, T<sub>1</sub>)

WT<sub>2</sub>: establish a consortium with construction companies from China and India where the Korean construction company performs management techniques for construction management and procurement etc., whereas foreign construction companies performs for simple construction tasks (W<sub>4</sub>, T<sub>1</sub>)

WT<sub>3</sub>: Although construction-related projects is estimated to increase in the future, in the short-term, increase participation in stable projects by the Multilateral Development Bank for nations where economic or political stability is difficult. (W<sub>2</sub>, T<sub>2</sub>, T<sub>3</sub>)

IV. CONCLUSION

In order to find a method for the construction companies in Korea to enter the global construction market, SWOT model was utilized for this research.

After researching and analysing the internal environmental factors of construction companies in Korea, and external factors of the global construction market, a total of 12 strategies (3 strategies each for SO strategies, ST strategies, WO strategies, and WT strategies) were derived.

The construction companies in Korea in entering the global construction market in the future may utilize the strategies extracted as a fundamental data in the future.

In the future, aside from literature review for the research, it is necessary to conduct interviews with experts related to international construction and other field-related workers from companies.

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