Case Study

Strategies for Developing Countries to Expand Their Shares in the Global Construction Market: Phase-Based SWOT and AAA Analyses of Korea

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Abstract: Korea's level of competitiveness in the global construction market has significantly improved over the years; from being an underdeveloped country in the 1960s, Korea is currently one of the top ten countries in terms of revenue in the global construction market. In general, an international construction business entails various risks and requires advanced financing and managerial and technical ability to become competitive. Therefore, it is challenging for developing countries to expand their share in the global construction market. In this regard, the case of the Korean international construction business (KICB) may serve as a benchmark for other countries aspiring to enter or reinforce their status in the global construction market. To this end, the strategies to achieve and maintain competitiveness need to be analyzed chronologically rather than focusing only on a particular period, especially the current status. This paper details the history of KICB, showing its evolution over the past 40 years, divided into four major phases that correspond with significant events. Moreover, the important aspects for securing competitive advantage in the market are clarified using four sets of strength, weakness, opportunity, and threat (SWOT) analyses. In addition, the strategic evolution over the four major phases is explored by introducing the adaptation, aggregation, and arbitrage (AAA) framework. The research findings indicate that the strategies adopted by KICB for achieving competitiveness included presenting a memorable performance in a primary country of a particular region (adaptation) during the initial phase, achieving economies of scale in a few regions during the development phase (aggregation), developing international specialization during the depression phase (arbitrage), and adapting to receive orders in a severely competitive market while coping with the local industry protection policy during the resurrection phase (adaptation). **DOI: 10.1061/(ASCE)CO.1943-7862.0000316.** © *2011 American Society of Civil Engineers.*

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Introduction

Those construction companies in developing countries whose domestic construction market is relatively small may get the opportunity to grow in the international construction market (Han and James 2001). However, they may face various challenges in entering or expanding their market share in the global market because international construction entails various risks (Zhi 1995; Bing et al. 1999) and requires competitive abilities for handling physical, technological, financial, legal, sociocultural, and political issues (Ofori 2003). Therefore, those construction and engineering firms from developed countries who dominate the market in terms of gross national product (GNP) per capita are likely to possess the relevant capabilities and experience. According to Ofori (2003), 58 companies had appeared in the Engineering News-Record (ENR) top 30 list between 1990 and 1999. Among these, five firms were from the developing countries, Korea and China, and the other firms were all based in developed countries. As indicated by Reina (2007), China has become a force in the international construction marketplace along with India. In this respect, the case of a number of leading developing countries participating in the international construction business, especially China, may serve as a benchmark for other underdeveloped and developing countries that are considering entering or expanding their shares in this market. Therefore, the status (i.e., Low and Jiang 2003; Centre for Chinese Studies 2006) and strategy (Shen et al. 2006; Lu et al. 2009) of Chinese construction companies in the global market are being continuously researched. However, as criticized by Lu et al. (2009), the international construction industry in emerging economies, even China, are not well studied and are, therefore, misunderstood. Their arguments necessitate further research. In addition, the unique context of the Chinese international construction business must be considered—abundant and inexpensive resources and the existence of economies of scale and technology owing to the large booming domestic economy (Lu et al. 2009). Only a few countries are likely to possess such resources. Therefore, the case of a country that possesses limited resources and initiates entrance into the international construction business from a relatively small domestic construction market may present a significant scope for analysis.

In this regard, the history of the Korean international construction business (henceforth, KICB) is rather valuable. Korea's share in the global construction market has rapidly increased over the past 40 years. According to data from the International Contractors

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Association of Korea (ICAK) (2009), KICB was listed among the top ten countries as its total contracting revenue expanded from US $10 million in 1966 to US $48 billion in 2008.

The objective of this paper is to explore the evolution of KICB and present execution strategies using strengths, weaknesses, opportunities, and threats (SWOT) analyses for the four major phases that have been identified on the basis of significant events in terms of the political and economic environments. Various researchers (Shen et al. 2006; Lu et al. 2009) have conducted SWOT analyses; however, these researchers focused on the contemporary situation, thereby limiting the study of the dynamic history that may explain its evolution from the very beginning.

Although, SWOT analyses may explain the internal competitiveness and external environment, globalization options focusing on the coordination of operations in terms of country, business, region, customer, and function necessitate further investigation. Ghemawat (2007) presented the adaptation, aggregation, and arbitrage (AAA) framework, which is suitable for analyzing the aforementioned aspects. The evolution of KICB's strategies over a period of time has been further investigated by introducing the AAA framework in this paper.

The SWOT and AAA analysis results are compared to those of other leading developing countries in the global construction market, such as China and Turkey, to elucidate KICB's unique approach. This comparison may support underdeveloped or other developing countries to identify their current status and establish strategies that are suitable for the present as well as the future.

International Construction Literature

Some research has focused on the risks involved in international construction owing to its unique context, as compared to domestic construction. Bing et al. (1999) classified 25 risks into project-specific factors, internal risk factors, and external risk factors. Wang et al. (1999) identified the risks that could impact the build, operate, and transfer (BOT) infrastructure projects in China; the findings of this research may be useful for non-Chinese firms that are considering establishing businesses in China. Han and James (2001) classified the international construction risks into the following five categories: political, economic, cultural/legal, technical, and other risks. Risks may create problematic situations; therefore, the construction industry in developing countries may encounter similar risk factors, including a lack of management skills, shortage of skilled labor, low productivity, shortage of supplies, poor quality supplies, and lack of equipment (Ofori 2003). Baloi and Price (2003) emphasized that cost performance may be influenced by risk factors such as design, competitiveness, customs and cultures, construction, and economic conditions. In addition, they compared various risk modeling approaches and methods to identify those that could handle uncertainty effectively. Risks may emerge as weakness internally and threats externally for those companies that do not handle them effectively. On the contrary, handling risks effectively may create internal strengths and external opportunities. Therefore, research on identifying the SWOT of companies in the international construction business (i.e., Gunhan and Arditi 2005; Shen et al. 2006) may also be broadly classified into this research trend.

Other research trends include presenting practical solutions for supporting decision-making when companies receive international project orders (i.e., Han and James 2001; Kim et al. 2008). Moreover, the impact of cultural aspects (i.e., Chan and Tse 2003), cross-national issues (i.e., Mahalingam and Levitt 2007), and knowledge (i.e., Javernick-Will and Scott 2010) on projects have been studied as well.

In this research, the risks and other aspects that have been presented in the aforementioned literature have been considered to develop a framework for SWOT and AAA analyses and have been referred to in interpreting the data that has been collected on the basis of real world investigation.

KICB in the Global Market, 1965–2008

As an intermediate analysis for developing frameworks for phase-based SWOT and AAA analyses, the brief history of KICB is presented. According to ICAK (2009), Korea received 6,635 international construction project orders over the past 40 years, grossing approximately US $300 billion. Analysis results for market segments according to region and project categories may provide a broader picture. In terms of region, the Middle East contributes US $170 billion (58.2%), Asia contributes US $96 billion (31.4%), and the combined contribution of the other regions approximates US $30 billion (10.4%). With regard to the category of projects, plant projects comprise the maximum proportion with US $130 billion (41.4%), followed by building projects with US $89 billion (29.6%), infrastructure projects with US $74 billion (24.7%), and other type of projects such as consulting comprise US $13 billion (4.3%).

For analyzing the evolution chronologically, given that the preceding figures holistically represent the statistics for 40 years, the history of KICB was divided into four major phases, as indicated in Fig. 1. The four phases are divided according to the international environment and significant events (Han et al. 2007), such as the Cold War between the Union of Soviet Socialist Republics and the United States, the oil crisis, and the Korean financial crisis. Phase 1 denotes the period between 1965 and 1972, when Korea initially entered the global construction market. Phase 2 denotes the period between 1973 and 1982, when KICB experienced incremental growth. Phase 3 denotes the period between 1983 and 1996, when construction orders from the Middle East began decreasing owing to falling oil prices and the debt crisis; this period was also characterized by stagnation in the international construction business, during which time the target market shifted from the Middle East to Asia. Phase 4 denotes the period from 1997 onward, when Korea received financial aid from the International Monetary Fund (IMF), and the number of their international business orders had decreased for a few years. However, in the middle of phase 4, KICB recovered when the international economy boomed once again, and the portfolio of KICB was restructured by increasing the proportion of plant construction projects. KICB's revival was owing to the reorientation of its market segments, primary business, and position in the supply chain. These will be further analyzed with the help of the AAA framework.

Analysis Framework: SWOT and AAA

When a business strategy is determined, success depends on the adept handling of the four relevant factors, i.e., SWOT (Porter 1980). Strength and weakness are considered internal factors, which implies that they comprise internal aspects such as financial resources and technological position. On the other hand, opportunity and threat represent external aspects such as competitive environments resulting from changes in governmental policies and society, as well as the international environment (Porter 1980). SWOT analysis enables companies to plan how to overcome weaknesses and threats by taking advantage of strengths and opportunities (Pearce 1992). Therefore, the results of the SWOT analysis can investigate the strategies adopted by KICB with

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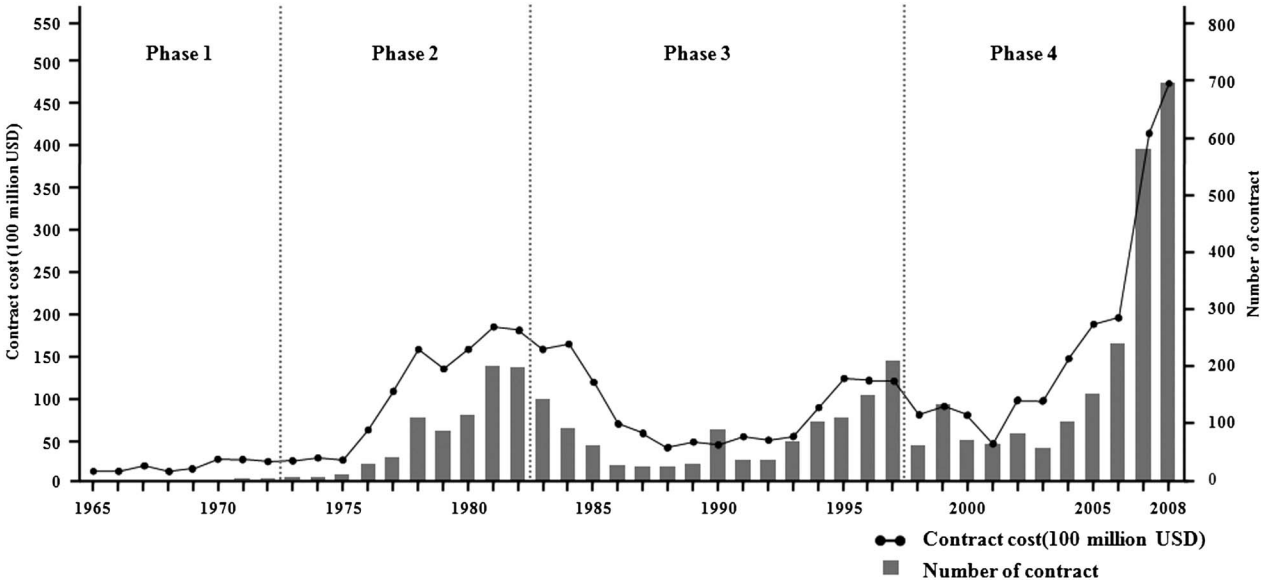

Fig. 1. Korea's total revenue and number of contracts in global construction market

respect to survival and increasing its market share over a period of time in the global construction market.

In order to conduct SWOT analyses, a framework is prepared by identifying the strength–weakness (SW) factors (internal factors) and the opportunity–threat (OT) factors (external factors) among the factors mentioned in the literature review section. As indicated in Table 1, the SW factors are classified into labor, technology, financing, and management ability. However, the scope of the factors presented in Table 1 is not determined because a predefined rigid framework cannot accommodate additional factors and relevant strategies from real world investigations.

In addition to SWOT strategies, construction firms must adopt long-term strategies, reposition their business, readapt their resources and experiences, and reorient and retrain their personnel (Ofori 2003). Moreover, Korkmaz and Messner (2008) emphasized competitive positioning and continuity in the context of scope, i.e., segment, vertical, geographic, and industry. The strategic decisions regarding these concepts necessitate another framework. Ghemawat (2007) presented a framework that would enable firms to reposition and readapt their business. He emphasized that any firm that engages in international business must select the most suitable strategy from among the following three distinct types of global strategies: maximizing the local or country relevance for boosting revenues and market shares, achieving economies of scale undertaking regional or global operations, and exploiting the differences among national or regional markets. These three strategies are known as adaptation, aggregation, and arbitrage, respectively. The competitive advantages, coordination, and corporate diplomacy of AAA are summarized in Table 2. Usually, companies may be able to pursue only one of the three A's; however, leading companies manage to execute two A's particularly well (Ghemawat 2007). Ghemawat emphasized that a balance among the three A's would enable firms to maintain competence.

Evidently, the market shares of developing countries indicate that they have been following the aggregation strategy: escalated market shares in Asia and Africa, in the case of China (Lu et al. 2009), and a boom in the Middle East and Russia, in the case of Turkey (Ofori 2003). A firm or country may achieve economies of scale by means of aggregation because it implies that the entire region constitutes the firm's market share. Regarding Ghemawat's AAA framework, prior to executing the aggregation strategy, the aforementioned developing countries may experience adaptation, which implies that a firm exhibits outstanding performance in a country and expands the scope of its services in the supply chain.

Compared to adaptation and aggregation, the arbitrage strategy may operate as an indicator for distinguishing the international

Table 1. Classification of Potential Factors for Strength, Weakness, Opportunities, and Treats (SWOT) Analysis

Classification	Factor	Definition
SW factors (internal factors)	Labor ability	Productivity according to workers' construction abilities and technological proficiency (including supply of skilled labor)
	Technical ability	Specialized technology level beyond overall general construction technology
	Financing ability	Ability to secure finances and pay off pending debts, and possessing short-term and long-term borrowing power
	Management ability	Overall managerial ability for enhanced project performance
	Experience	Ability to smoothly complete projects on basis of extensive international construction experience
	International relationship	Ability to acquire information and establish cooperative relationships with project participants
OT factors (external factors)	Global environment	Factors influencing market conditions (for example, cultural, legal): level of globalization, macroeconomic conditions, situation of international politics
	Domestic environment	Domestic environment factors: environment factors in host country (including cross-board issues)

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Table 2. Competitive Advantage, Coordination, and Corporate Diplomacy of Adaptation, Aggregation, and Arbitrage (AAA) Framework (Ghemawat 2007)

Classification	Adaptation	Aggregation	Arbitrage
Competitive advantage (reasons for globalization)	To achieve local relevance through national focus, while exploiting some economies of scale	To achieve scale and scope economies through international standardization	To achieve absolute economies of scale through international specialization
Coordination	By country, with emphasis on achieving local presence within borders	By business, region, or customer, with emphasis on horizontal relationships for cross-border economies of scale	By function, with emphasis on vertical relationships, even across organizational boundaries
Cooperate diplomacy	Address issues of concern, but proceed with discretion, given emphasis on cultivating local presence	Avoid appearance of homogenization or hegemonism (especially for U.S. companies); be sensitive to any backlash	Address exploitation or displacement of suppliers, channels, or intermediaries, which are potentially most prone to political disruption

construction business of developed countries from that of developing countries. Mahalingam and Levitt (2007) presented a case of Kattadam, a real estate developer in the United States. Kattadam established an overseas office in Europe, set up an investment fund in partnership with local players, retained U.S. architects, employed local engineers as project managers, and selected local construction companies as general contractors (Mahalingam and Levitt 2007). General contractors recruited local subcontractors, who in turn employed laborers from Poland, Turkey, and Portugal; the wages of laborers in these countries were lower than those in the host countries. As already described, arbitrage may be effectively executed only by a company that possesses sufficient financial, managerial, and technical expertise; only a few companies from developing countries may possess expertise in all these fields.

It is not necessary for a company to execute all three A's simultaneously. In this framework, decisions for selecting a maximum of two A's simultaneously are the most suitable, and the turning points where the shifts among the three A's may occur are important (Ghemawat 2007). In order to analyze KICB with respect to the AAA framework, the following data have been extracted from the real world investigation: primary country and dominant project types according to the phase, regional market shares in terms of the revenue generated in each phase, and noticeable changes in the organizational structure of Korean construction companies.

Data Collection and Analysis Method

In order to obtain data for the phase-based SWOT and AAA analyses, we conducted interviews with experts who had been working in international construction projects since the 1960s. Given that there was no population from which to sample, because a list of all experts who possessed experience in international construction projects was unavailable, random sampling was not possible. Therefore, purposeful sampling was introduced. One of writers possesses 40 years of work experience in a major Korean construction company. He has been working in international construction projects since the 1960s. His private contact information and a list of members from ICAK were merged to create an initial sampling list. Only professional practitioners who had held positions higher than that of a department manager were included in the initial sampling list because they were assumed to possess a more thorough understanding of the international construction business. Phone calls were made to all the experts in this list to request participation in an interview. In addition, we asked them general questions regarding the position they held in their company, as well as the international construction projects in which they were previously or are currently involved. The deceased experts were excluded from the list, and 96 experts were finally selected. On the basis of the telephonic interviews, 156 international projects in which the experts were involved were selected as cases for further analysis.

Table 3 indicates the result of analyzing interviewees. The retired seniors over the age of 60 have also been included in the list because the first phase under consideration in this study begins in 1965. Fourteen percent of respondents are working in the field of design and consulting because KICB broadened its service scope from construction to design, engineering, and/or consulting in the late 1990s.

We conducted face-to-face interviews with 96 experts who had collectively worked on 156 international construction projects. We explained the SWOT analysis method and the four major phases. The respondents were requested to answer three open-ended questions regarding each of projects that they worked on in the past. The three open-ended questions were (1) general information regarding the projects that they had worked on in the past, including region, procurement type, contract price, ownership, and project type; (2) SWOT of each phase; and (3) SO, WO, ST, and WT strategies for each phase as identified by them, if any. In addition to these interviews, archival data such as contract documents, site reports, and memoranda were obtained from the Korean construction companies.

All the interviews were recorded, and the audio files were transcribed using NVivo, a commercial qualitative analysis software. In general, respondents narrated their answers to open-ended

Table 3. Analysis of Respondents

Category	Number	Percent (%)
Age		
40–50	38	40%
50–60	36	38%
>60	22	22%
Total	96	100%
Position		
Department manager	34	35%
Executive	30	31%
CEO	13	14%
Retirement	19	20%
Total	96	100%
Professional Field		
Construction	47	49%
Engineering	16	17%
Design and consultancy	14	14%
Retirement	19	20%
Total	96	100%

Table 4. Analysis of Respondents' Projects according to Phases

Category		Phase 1 (1965–1972)	Phase 2 (1973–1982)	Phase 3 (1983–1997)	Phase 4 (1998–2008)
Regional segment	Middle East	—	39	23	13
	Asia	15	8	37	10
	Other regions	4	6	—	1
Procurement type	General contractor	11	34	45	17
	Subcontractor	8	9	2	—
	Turnkey	—	10	13	7
Contract price (USD)	Under $5 million	15	4	—	—
	$5–20 million	4	4	1	—
	$20–50 million	—	9	—	—
	$50–100 million	—	7	—	4
	Over $100 million	—	29	59	20
Project type	Building	7	20	14	4
	Infrastructure	12	13	27	5
	Plant	—	19	16	12
	Other	—	1	3	3
Total		19	53	60	24

questions, focusing on the projects rather than on the phases. The documents on the same projects from various respondents were merged into another document, and 156 project-based documents were prepared. Subsequently, project-based documents were grouped according to phases. Table 4 indicates the analysis of the 156 projects in which interviewees participated according to the phases. Responses on SWOT and strategies that corresponded to SO, WO, ST, and WT were classified. Consequently, 16 SWOT documents (e.g., strength in phase 1) and 16 strategy documents (e.g., SO strategy in phase 1) were prepared, although exact-fit data were rare owing to the project-based narrative response tendency. One hundred and eighty-eight documents were analyzed in the following manner: developing categories (i.e., node in the NVivo), coding words in documents (i.e., selecting a word and adding it into a category), counting the frequencies of words, modifying categories (i.e., adding a new category if it is missing), and interpreting data.

Phase-Based SWOT and AAA Analysis

Incubation in Phase 1

Construction companies with advanced managerial and technical abilities may demonstrate outstanding performance in particular countries and, therefore, may execute the adaptation strategy more easily. How can companies from evolving economies and without any competitive assets adapt? Certainly, they may have encountered opportunities for experiencing international construction projects in their own countries and may retain relevant resources to initiate international business. This process is called incubation in this paper.

As a result of participation in international construction projects that were ordered by the U.S. military in Korea after the Korean War, KICB was able to develop knowledge and training that facilitated entrance into the international construction business. In this process, KICB obtained skilled laborers, learned fundamental techniques, and became familiar with international standards introduced by U.S. clients who, as supervisors, ensured adherence to those standards. In addition, KICB established informal business networks, primarily with professionals from U.S. construction firms and high-ranking U.S. military officers. Through these informal business networks, KICB was able to obtain information regarding international construction projects.

Global Market Entry through Informal Business Networks in Phase 1

As indicated in Table 5, although labor competence and international relationships with Western countries, especially the United States, were considered to be strengths, the other internal factors were all considered to be weaknesses in phase 1. Labor competence, which is regarded as a strength for developing countries (Drewer 2001), was a leading factor for KICB's global market entry. Overall, Korea was able to achieve labor-oriented competitiveness with limited international relationships during the initial phase. For example, on the basis of the good reputation earned by KICB in the U.S. military, KICB was able to start a new business in Vietnam and Thailand during the Vietnam War.

During the initial phase, it may be practical for developing countries to participate in international projects as subcontractors or as a consortium with main contractors who participate in projects of their own countries. Although the revenue was meager, KICB participated in projects in other southeast Asian countries, such as Indonesia, Malaysia, and Singapore. Relationship with the primary Western contractors and local clients emerged as a primary recourse for the execution of the adaptation strategy in phase 2.

Adaptation in Initial Stages of Phase 2

As described in Table 6, labor ability, technology in a few fields, and experience were classified as strengths in phase 2. In the initial stages of phase 2, international construction demands had been increasing owing to rapid economic development in the Middle East. Coincidently, Korea had experienced rapid growth in the domestic economy that enabled it to enhance construction technologies in the domestic market. Trained laborers and field engineers with management experience could be categorized as strengths to expand the company's share in the global market. Ofori (2003) had mentioned that the strength of Korea, a middle-income country, was its highly skilled labor. However, the field of technologies possessed by Korea was specific to building projects, given that the Korean domestic market focused on this area. The field of technologies for plants and heavy construction projects had still not been developed during this phase. Nevertheless, KICB could expand its market

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Table 5. SWOT Analysis for Phase 1

	Strength		Weakness	
	S_{11}	Experience through construction project by U.S. Army in Korea	W_{11}	Lack of financing ability
			W_{12}	Lack of construction technology
	S_{12}	Close connection with potential U.S. client	W_{13}	Lack of management skill
	S_{13}	Relatively high labor productivity	W_{14}	Lack of experience in overseas projects
Opportunity	SO strategy		WO strategy	
O_{11} U.S. Army alignment by strategic importance of Asia	SO_{11}	Advancing into construction project ordered by U.S. clients in Asia	WO_{11}	Participating in similar project ordered by U.S. Army in Korea and avoiding risks from a lack of technology and management skills
O_{12} Increase of construction projects in Asia	SO_{12}	Participating in project as labor-oriented contractor		
O_{13} Poor labor productivity of local workers				
Threat	ST strategy		WT strategy	
T_{11} Risk of foreign construction during Cold War	ST_{11}	Using close relationship with U.S. client for lowering risk of threatening political factors	WT_{11}	Participating in project as a subcontractor
T_{12} Lack of governmental promotion of overseas construction business			WT_{12}	Participation in small-scale or simple projects

Note: SO = strength–opportunity; WO = weakness–opportunity; ST = strength–threat; WT = weakness–threat.

Table 6. SWOT Analysis for Phase 2

	Strength		Weakness	
	S_{21}	Prior experience in Asia	W_{21}	Lack of knowledge regarding large-scale construction
	S_{22}	Competitive labor productivity	W_{22}	Limited channels for sourcing construction information
	S_{23}	Acquired technology in a specific area in domestic market, i.e., residential building, road construction	W_{23}	Lack of management skill
			W_{24}	Lack of advanced construction technology
			W_{25}	Difficulty providing guarantee for new orders
			W_{26}	Lack of financing ability
			W_{27}	Lack of knowledge on regulations
Opportunity	SO strategy		WO strategy	
O_{21} Expansion of economy in Middle East owing to rising oil prices	SO_{21}	Progressing in construction project in Middle East	WO_{21}	Using government support for contract guarantee and financing
O_{22} Increase in large-scale construction projects in Middle East	SO_{22}	Participating in overseas project with skilled and inexpensive labor	WO_{22}	Securing owner's confidence
O_{23} Promotion of overseas construction projects by government	SO_{23}	Participating in overseas project as a general contractor		
O_{24} Poor labor productivity of local workers				
O_{25} Breach of contracts by rival foreign construction companies				
Threat	ST strategy		WT strategy	
T_{21} Different cultural environment	ST_{21}	Securing competitive advantage through low cost labor	WT_{21}	Founding a joint venture with local company
T_{22} Legal restrictions			WT_{22}	Strengthening competitiveness by cooperating with foreign company experiencing large-scale construction
T_{23} Geographic environment				
T_{24} Intense competition for obtaining an order				
T_{25} Unstable international situation				
T_{26} Language barrier				

Note: SO = strength–opportunity; WO = weakness–opportunity; ST = strength–threat; WT = weakness–threat.

share in the Middle East owing to a remarkable performance in Saudi Arabia.

KICB's first construction project in Saudi Arabia was the Khaiba–Al Ula highway construction project in 1973. An Italian engineering consulting firm, Sauti Engineering, provided information regarding this project to a Korean construction company, Samhwan Co. These two companies were previously associated in phase 1 of the Indonesian highway construction project, during which they developed mutual business relationships. Samhwan Co. established a local partnership, owing to the Saudi Arabian government policy that requires overseas construction companies to participate in projects with local companies. The participation

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of Samhwan Co. encouraged other Korean construction companies to become involved in various projects in Saudi Arabia. The climax of adaptation in Saudi Arabia during this phase was the Jubail Industrial Port Construction Project by Hyundai Construction Co. between 1976 and 1979. The client, the Saudi Arabia Royal Commission, wanted to select an Asian contractor to retain control over contractors from developed countries. Regarding the discussion of Javernick-Will and Scott (2010), the KICB's bidding process was successful, resulting from their enhanced knowledge regarding government policies. The contract price of this project was larger than the total revenue of the projects ordered by KICB in Saudi Arabia prior to 1976.

After completing the Jubail Industrial Port Construction Project, the proportion of KICB's revenue from the Middle East region rose to 82.81%. With respect to the procurement path, the number of projects awarded to KICB as the primary contractor in phase 2 significantly increased compared to phase 1, in which the numbers of projects awarded as general contractors and subcontractors were approximately equal. Based on a strong reputation as a hard-working culture that adapts to local technical standards and has an enhanced understanding of Arab cultures, it was rather simple for KICB to initiate business in other Middle East countries. Adaptation in a country that represents a particular regional market may reduce problems that occur as a result of differences in building codes, available building materials, and contracting practices, and delays caused by differences in regulations, as indicated by Mahalingam and Levitt (2007), when conducting other projects in the region.

Aggregation in Phase 2

KICB began executing the aggregation strategy by focusing on the regional-base business and consequently achieved economies of scale. In this phase, the markets were divided into Saudi Arabia, Libya, Egypt, Africa, Asia, and South America. As compared to the initial stages of phase 2, in this phase, KICB could circumvent the appearance of homogenization. For KICB, a unique aspect of operating region-based business is its relationship with other companies or divisions within the conglomerate, Jaebul in Korean. For example, Daewoo Construction Co. could obtain information on a project from Daewoo International Co. The Jaebul system had provided synergies by supporting the intelligence, acquaintance, and administrative operations.

Regarding the business or product verticals, the proportion of plant construction projects increased in phase 2. KICB received business from clients in various other industries. To add value, Middle East countries initiated the construction of petroleum plants for processing crude oil. At the time, KICB did not possess sufficient financing and technical abilities for undertaking plant projects. However, KICB undertook domestic petroleum projects. The experience subsequently became a basis for rapid development in phase 3 and for resurrecting KICB in phase 4. Ghemawat (2007) had classified region-based coordination and corporate strategy focusing on business as well as client industry into aggregation; KICB effectively focused on these two objectives in phase 2.

Weakened Competitiveness in Initial Stages of Phase 3

Without a doubt, the training of highly skilled laborers must not be neglected because this factor may serve as a strength for developing countries in surviving competition. However, the competitiveness of KICB on the basis of cheap and highly skilled labor was weakened during the initial stage of phase 3 owing to changes in the global and domestic environment, i.e., a local industry protection policy and an increase in the wages of Korean laborers, described in Table 7. Like other countries, Middle East countries also began

Table 7. SWOT Analysis for Phase 3

		Strength		Weakness	
		S_{31}	Higher level of technology than phase 2	W_{31}	Lower labor productivity
		S_{32}	Experience in overseas construction projects	W_{32}	Poor financing ability
				W_{33}	Lack of knowledge on regulations
				W_{34}	Lack of project management ability
				W_{35}	Limited channels for sourcing construction information
Opportunity		SO strategy		WO strategy	
O_{31}	Change in business from exporting oil to exporting petrochemicals by countries in Middle East	SO_{31}	Enhancing market share in Asia	WO_{31}	Using EDCF for participating in construction projects as financier
O_{32}	Foundation of EDCF in Korea	SO_{32}	Concentrating on plant projects in Middle East	WO_{32}	Employing local workers
O_{33}	Economic growth in Asia				
O_{34}	Improved skill of local workers				
Threat		ST strategy		WT strategy	
T_{31}	Decreased orders from Middle East owing to fall in oil prices	ST_{31}	Using experience for lowering risk from threatening environment factors	WT_{31}	Cooperating with local construction companies
T_{32}	Strengthening regulations for facilitating economic growth by company in Middle East			WT_{32}	Training project management professionals
T_{33}	Intense competition for obtaining an order				
T_{34}	Environmental restrictions				

Note: SO = strength–opportunity; WO = weakness–opportunity; ST = strength–threat; WT = weakness–threat; EDCF = Economic Development Cooperation Fund.

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limiting the quota of foreign labor and restraining overseas construction companies from participating in domestic construction projects to protect its local industry. Furthermore, during the initial stages of phase 3, the construction market in the Middle East matured, and clients became cautious regarding ordering new projects because of falling oil prices. Internally, the demand exceeded the supply of labor in Korea resulting from a large number of construction projects to prepare for the 1988 Seoul Olympic Games, as well as the requirement of a government policy for the construction of 2 million housing units within a period of four years, i.e., from 1988 to 1992. The excessive demand for laborers in the domestic market resulted in increasing labor wages. Furthermore, severe competition among Korean construction companies in the Middle East decreased KICB's profits. Therefore, the total revenues of KICB began shrinking in the initial stage of phase 3, and the financial status of Korean construction companies became volatile.

Aggregation and Adaptation in Middle of Phase 3

The lessons learned from the depression in the initial stages of phase 3 included the necessity to diversify regional market segments by consistently developing technology and specializing in high value-added projects. However, developing countries that attempt to establish differentiated strategies for various regional market segments by enhancing technology encounter a challenge—the more advanced the technology, the more complicated the projects and, therefore, the greater risk. As a result, clients select contractors with a stable financial status to ensure the completion of project. Furthermore, as a result of severe competition in the global market, clients have requested additional services such as financing from contractors. Therefore, without financing ability, developing countries cannot enter new markets that necessitate advanced technology, notwithstanding their labor and technical ability. Moreover, Ofori (2003) indicates that capital investment has become a more severe barrier than technical knowledge for entering the international construction business. KICB needed to enhance their financing ability to obtain orders that involved high risks. In phase 3, KICB employed a strategy to directly improve its financing ability by using the Economic Development Cooperation Fund (EDCF). Despite an enhanced financing ability, however, aggregation focusing on the Middle East region could not maintain the competitiveness of KICB.

Consequently, KICB attempted to identify alternative markets for obtaining construction projects. Fortunately, in phase 2, KICB demonstrated outstanding performance in southeast Asia, especially in Singapore. KICB expanded its market share in the region from Singapore. As observed in the case of KICB, it is essential for adaptation to maintain long-term relationships with local authorities and contractors (Javernick-Will and Scott 2010). Adaptation in an experienced market in an alternative region may be an essential strategy for overcoming depression. In the subsequent stages of phase 3, the total revenue of KICB in southeast Asia was four times its revenue in phase 2. Plant construction projects were the leading contributors to this revenue growth. KICB received a total of 67 plant construction projects in the global market and of these, 36 projects (53.73% in total) were ordered in southeast Asia during phase 3.

Arbitrage in Subsequent Stages of Phase 3

In the subsequent stages of phase 3, KICB introduced the arbitrage strategy for reorganizing its structure to focus on plant construction projects and other new business verticals including high-rise building projects. Korean construction companies began establishing inhouse plant divisions and task forces to prepare for undertaking high-rise building projects. KICB started developing international specialization.

Arbitrage strategy was efficient for operating regional market blocs with optimized human resources. KICB introduced a unique approach in this aspect. As previously mentioned, approximately all major Korean construction companies are a part of a conglomerate. Generally, conglomerates employ inhouse regional specialists who can analyze intelligence and support various decisions on bidding for construction projects. KICB have used these human resources for obtaining information on bidding and for performing various administrative operations. A few Korean construction companies were merged with industrial companies within a conglomerate. For instance, Samsung Construction Co. was merged to Samsung Industrial Co. in 1995. By doing this, the strategic decisions regarding "Go-or-No-Go" in certain projects, and sustainable businesses in target countries or regions could be made across organizational boundaries with additional information and without maintaining construction-oriented human resources.

Resurrection by Enhancing Financing Ability and International Specialization in Phase 4

As described in Table 8, managerial and financing ability were considered as strengths in phase 4. The financing ability of the construction business is closely associated with the nation's economic safety. Since the financial businesses in Korea were compelled to restructure their business in line with international standards specified by the IMF, the Korean economy managed to maintain stability even during the external economic crisis. Owing to this steady financial condition, KICB received orders for value-added projects that necessitated capital investment. As discussed thus far, international specialization in value-added projects cannot be accomplished without financing ability.

Another determinant of the resurrection of KICB in phase 4 was its specialized ability to successfully handle plant construction projects. Plant projects constituted a major portion of KICB's portfolio (approximately 60% in total revenue in phase 4). In addition, unbiased market segments facilitated the revival of KICB; KICB received plant project orders from more countries in phase 4 than those in phase 2 (i.e., a majority of the orders from the Middle East) and phase 3 (i.e., a majority of the orders were from southeast Asia).

Arbitrage and Adaptation in Phase 4

Despite the enhanced financing ability, technology continued to remain as a weakness for KICB even in phase 4. However, technological categories must be considered cautiously. For KICB, technology in the case of design and engineering was weak; however, technology employed in other fields such as plants and high-rise building construction projects determined the level of competitiveness of the firm.

If developing countries fail to reorient their competitiveness strategies, i.e., if they fail to make them more management- and technology-driven, instead of only being labor-oriented, they may lose market shares in all their market segments, as observed in the case of KICB in the middle of phase 3. Therefore, developing countries should obtain competitiveness in a certain area by adopting a "choice and focus" approach. To this end, the government of developing countries can play an important role. By adopting a long-term plan, the government may restructure its construction industry to focus on specialized fields and support technical development. As indicated by Ofori (2003), government support has played an important role in the development of KICB, and in fact, the Korean government was involved in restructuring the construction industry during the initial stages of phase 4. However, unlike the

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Table 8. SWOT Analysis for Phase 4

		Strength		Weakness	
		S_{41}	Higher prestige and confidence in world	W_{41}	Poor labor productivity
		S_{42}	Improved project management skill	W_{42}	Lack of developed construction technology by company
		S_{43}	Accumulating experience in overseas construction projects		
		S_{44}	Advanced technology		
		S_{45}	Favorable relationship with key market players in each continent		
		S_{46}	Better financing ability		
Opportunity		SO strategy		WO strategy	
O_{41}	World Trade Organization (WTO) agreement	SO_{41}	Diversifying the business territory	WO_{41}	Employing local workers
O_{42}	Economic growth of developing countries	SO_{42}	Advancing in investment development projects through self-financing		
O_{43}	Economic growth of Korea				
O_{44}	Promotion for overseas construction projects by government				
O_{45}	Increase of investment development projects				
O_{46}	Improved ability of local workers				
Threat		ST strategy		WT strategy	
T_{41}	Intense competition for receiving an order	ST_{41}	Diversifying business vertical (i.e., construction management, urban design)	WT_{41}	Preoccupation with new market (ubiquitous city, high-rise buildings) through government-led technical development
T_{42}	Improving technology of foreign companies who entered business late				
T_{43}	Environmental restrictions	ST_{42}	Using close relationships and past experiences for lowering risk of threatening environment factors		

Note: SO = strength–opportunity; WO = weakness–opportunity; ST = strength–threat; WT = weakness–threat.

previous phase, the government could not provide direct support such as financial guarantees or subsidies for reinforcing the financial status of companies in the subsequent stage of phase 4, owing to the international agreements wherein the World Trade Organization (WTO) prohibited governments from providing subsidies to the companies. Subsequently, the Korean government restricted the use of the licenses of domestic construction companies for the international construction business. In addition, it launched ten mega-research projects to develop next-generation construction technologies. One of the largest funded research groups, the Urban Renewal Research Group, received US $125 million for a period of seven years. KICB has attempted to receive orders on integrated services for urban development by means of knowledge-sharing with the research group.

Externally, KICB introduced financing-, management-, and technology-oriented approaches to acquire competitiveness through local industry protection policies. Competitiveness derived from cheap labor is likely to be limited, owing to the quota of local labor. Fortunately, international specialization in the field of plant and high-rise building construction projects was initiated from the middle of phase 3.

With an arbitrage strategy, KICB was required to prepare solutions for adjusting to the local industry protection policies. In other words, KICB's adaptability significantly improved during this phase. In the previous phases, KICB focused on the geographical border to establish the adaptation strategy; i.e., KICB concentrated on a particular country at a time, and therefore, it commanded a significant proportion of the market share in these countries. In phase 4, KICB paid significant attention to the cultural and administrative characteristics of the host country to demonstrate competence in receiving orders as well as managing local manpower. An example of this is the construction of Burj Khalifa in Dubai, United Arab Emirates. The construction division of Samsung Industrial Co. had begun investigating the site and construction methods in 2004, i.e., two years prior to the actual bidding. In addition, to facilitate adaptation, Samsung organized a consortium with Besix, a Belgian construction company that already had abundant experience in Dubai, and Arabtec, a local construction company that had the ability to supply laborers and materials. By employing the adaptation strategy effectively, Samsung was successful in obtaining the order and completed the project despite various difficulties. Therefore, this example indicates that thorough adaptation may be a solution to effectively cope with the local industry protection policy.

Discussion and Conclusion

It is rather attractive for emerging economies to earn foreign currency by executing international construction projects. For construction companies from developing countries, participating in international construction projects can provide opportunities for enhancing managerial as well as technical abilities. However, a lack of financial, managerial, and technical abilities restrict companies from participating in overseas construction projects. In this context, the case of KICB being currently regarded as one of the top ten countries in the global construction market, from having been an underdeveloped country in the 1960s, may provide lessons to

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developing countries that are considering entering or expanding their shares in the global market. This study presented the evolution of KICB's strategies in a chronological order rather than focusing on its current status. In this manner, developing countries can compare their own current situations with the phase-based situations and strategies of KICB and can, accordingly, establish suitable growth strategies.

In this paper, the results of SWOT and AAA analyses of KICB have been presented according to four phases. For the SWOT analyses, internal factors include labor, technology, financing, management ability, experience, and international relationships. The external factors are classified into the global and domestic environments. In addition, the strategies adopted by KICB regarding repositioning themselves in the market, readapting their resources and experiences, and reorienting and retraining their personnel were analyzed by introducing the AAA framework.

The interviews with 96 experts with experience in international construction projects were classified into 156 project-based documents, 16 SWOT-factor documents, and 16 SWOT-strategy documents, according to the phases for enabling qualitative analysis. Information on primary country or region, dominant project types, regional market shares, and noticeable changes in organizational structure were extracted from documents for the AAA analysis.

From the SWOT analyses, it was found that KICB achieved its competitive advantage through labor ability in phase 1, labor ability and a relatively competitive technology in building and road construction in phase 2, technology in wider segments and government-supported financing in phase 3, and internationally specialized technologies in a few business segments, financing ability, and management experience in phase 4. KICB possesses strengths that are common with that of China (Lu et al. 2009); these strengths include a hardworking culture, abundant labor supply at lower wages (for KICB until phase 2), favorable relationship with certain countries (Asian and African countries for China and Middle East and Asian countries for Korea), booming domestic market (for KICB in phase 3), and strong support from the government (for KICB until phase 3). Unlike Korea, China possesses abundant and cheap construction materials. The labor situation in Turkey is comparable with that of Korea in phase 2: competitive labor in terms of capability and wages (Öz 2001). Moreover, like Korea and China, Turkey has also maintained favorable relationships with particular regions including the Middle East, owing to religious similarities, and the Commonwealth of Independent States (CIS), owing to geographical and cultural proximity (Öz 2001). In addition, Turkish construction firms apparently maintain competitiveness by adopting a relatively wide-range segment scope strategy in international markets by participating in those for which they posses prior know-how and experience (Korkmaz and Messner 2008).

However, as mentioned repeatedly in this paper, certain strengths possessed by developing countries may not be permanent. It is crucial for developing countries to prepare for the future by determining the turning point when competitive assets like labor must be overlapped and exchanged with efficient management and the latest technology. The latter must be done consequently with financing ability. If this is not undertaken, market shares of companies in developing countries may shrink, as observed in the middle of KICB's phase 3. Evidently, international environments, such as severe competition, local industry protection, and regional economic-bloc policies are harsh to developing countries. Employing low-wage labor of their own country may offer only a limited competitive advantage to companies, owing to the quota of local labor. In addition, clients request additional services, such as financing. Capital investment may operate as an entry barrier, especially for developing countries, even though they may possess adequate technical ability.

In these contexts, adaptation, aggregation, and arbitrage strategies may provide effective solutions. Adaptation may operate as a foundation strategy for initiating business in a particular country by establishing mature cooperative relationships with construction or consulting firms; these relationships may be established in domestic or international construction projects. The aggregation strategies were executed for Korea, China, and Turkey by focusing on particular regions; as a result, these countries were able to achieve economies of scale. However, there exists an alternative strategy, i.e., arbitrage, which indicates that international specialization in a few business verticals may provide a competitiveness advantage with limited resources. For example, KICB overcame depression by focusing on plant and high-rise building construction projects. Developing countries that are either entering the international construction market or are already well established in the market may compare their own current status with that of the phase-based history of KICB.

It is essential to present a wider comparison between developing and developed countries in future research. The case of Korea, which comprises both middle- and high-income groups, may be considered for bridging the evolution gap between developing and developed countries. The comparison results may be developed further as a self-assessment framework which may be used by underdeveloped or developing countries for diagnosing their current status as compared to the relevant phase of other countries, identifying their positions in the global market and selecting appropriate strategies in terms of SWOT and AAA.

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