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Are Chinese contractors competitive in international markets?

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Chinese contractors have become more active in recent years in the international arena. This development is largely due to the encouragement and support by the Chinese government, coupled with the pressure of intensive competition within the domestic market. The increasing presence of Chinese international contractors (CICs) has attracted the attention of competitors from other countries. The CICs' strengths, weaknesses, opportunities and threats in the international construction market are identified through analysing their business performance. Data used for the analysis are from multiple sources including literature reviews, policy reports, published statistics data and interviews with 25 construction professionals who work in CICs. It is suggested that CICs have made significant progress in building up their competitiveness in recent years and become competitors to other overseas contractors in international construction markets. The results provide valuable references for undertaking comparative research on organizational competitiveness among the contractors who come from different countries in international construction markets.

Keywords: China, construction industry, contractor, international business, competitiveness.

Introduction

In line with the development of the integration of global economies and China's accession to the World Trade Organization (WTO), the Chinese government has been encouraging and supporting its contractors to compete for contracts in overseas markets (Wen, 2005; Hu, 2007). Governmental efforts have brought significant progress in obtaining overseas works for Chinese contractors, evidenced by the inclusion of 46 Chinese contractors in the top 225 international contractors list of the *Engineering News Record* (ENR, 2006). However, the share by Chinese contractors in the international market is still much smaller in comparison with their capacity. A report by the Chinese Ministry of Construction (MOC) (MOC, 2003) indicates that the value of construction works contracted by Chinese contractors in the international markets was only about 1% of the total works.

As the competition in the domestic construction market in China has become intensive, both the government and construction enterprises consider it as a major strategy for the enterprises to enter into international construction markets. This outward expansion can help to release the pressure of the intensive competition in the domestic market (Li, 2006). In fact, many Chinese contractors have started to strategically develop their overseas construction market (Lei and Chen, 2004). Furthermore, competing internationally is considered as a strategy to improve Chinese contractors' competitiveness as the contractors can learn advanced management skills and technologies from their overseas competitors (Zhu, 2006). It is believed that more Chinese contractors will enter into international markets in the near future.

However, while the momentum for Chinese contractors to enlarge their business share in the international arena is increasing, the awareness by other overseas contractors about the competitiveness of their Chinese counterparts is also growing. This awareness does not necessarily imply a lack of welcome to the entry of Chinese contractors into the international market, but poses a question as to whether the Chinese contractors can make a contribution to the development of the international construction market (ENR,

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2003). Thus international contractors are keen to know the characteristics, advantages and weaknesses of Chinese contractors in order to adopt effective strategies to maintain their competitive positions.

Chinese contractors often find difficulties and barriers in developing their overseas businesses largely because of the differences in operating their business in the domestic market compared with the international market. Shen *et al.* (2004) identified the typical differences between the Chinese construction market and the overseas markets. For example the Chinese construction market is regulated through a set of complicated policy systems, including quality monitoring system, tendering procedures, contract administration system, owner responsible system, business licence and qualification system. These differences suggest that Chinese contractors need to adjust their business strategy cultivated in the domestic market to be adaptable to the international market when they operate in overseas markets. This adjustment not only helps to improve their business performance, but also contributes to the development of international construction markets. Previous researches have presented various methodologies and advice for helping contractors to develop overseas business in global markets (Friedman, 1984; He, 1995; Warszawski, 1996; Jaselskis and Talukhaba, 1998; and Drewer, 2001). Shen *et al.* (2006) investigated the competition strategies and business performance by overseas contractors in the Chinese construction market. And Pheng and Jiang (2006) did a comparative study of top British and Chinese international contractors in the global market. These works provide valuable references for examining the strengths and weaknesses of Chinese contractors and investigating suitable strategies for the contractors to adopt for developing their overseas business performance.

The above discussion leads to the formulation of the focus of this study to identify the strengths, weaknesses, opportunities and threats (SWOT) of Chinese international contractors (CICs) in overseas construction markets. This identification is followed by proposing a framework for assisting the CICs to select suitable strategies for developing overseas business. The framework can also help other overseas contractors to assess the competitiveness of CICs.

The background of CICs

Business development

The Chinese government started sending its contractors through administration procedures for undertaking overseas construction works mainly in developing countries in the 1950s. The volume of CICs' business was not sizable until the late 1980s. Figure 1 shows that the contract value obtained by the CICs from 1989 to 2005 has been increasing rapidly, with the annual turnover increased by more than 10 times from 1990 to 2005 (CSYB, 1990–2006; MOCOM, 2004a).

The construction projects undertaken by CICs in international markets are mainly in six categories: (1) projects loaned from the World Bank, Asia

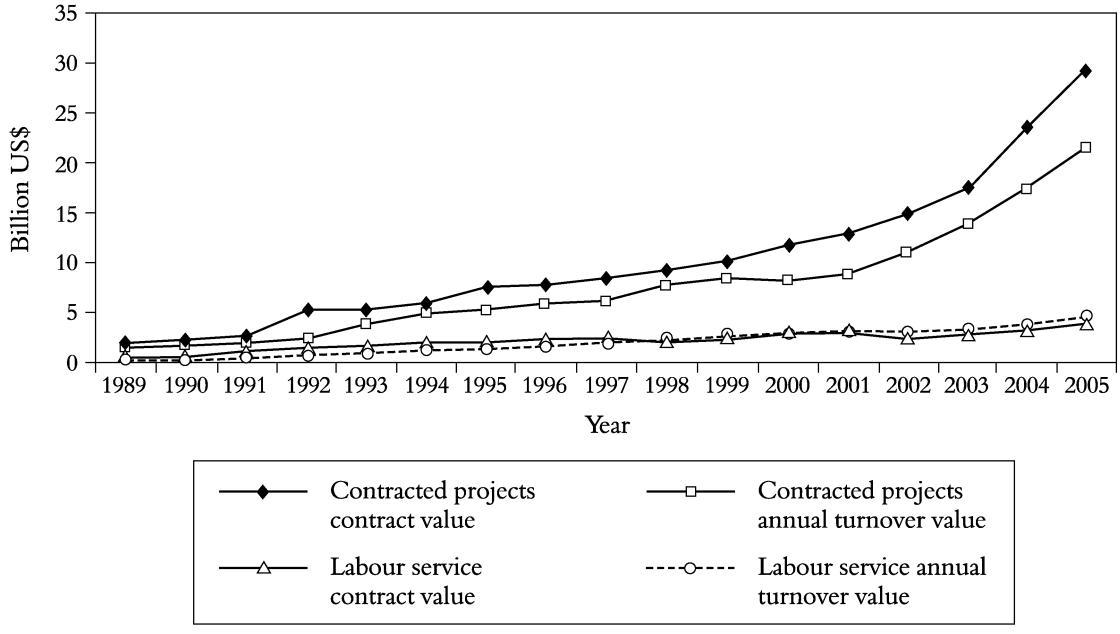

Figure 1 Overseas construction works by Chinese international contractors

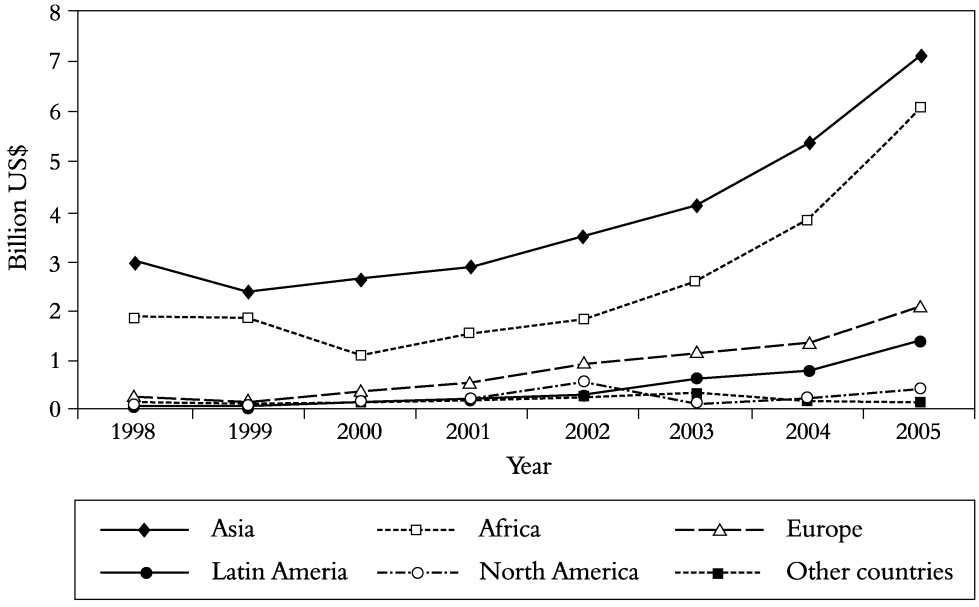

Figure 2 Annual turnover value of CICs in different international construction markets

Development Bank and Africa Development Bank; (2) investment by the host governments; (3) projects financed by Chinese export credit to developing countries; (4) aid projects by the Chinese government; (5) projects invested in by Chinese enterprises; and (6) Chinese embassy or consulate buildings in foreign countries.

According to the *China Statistical Yearbook* (CSYB, 1990–2006), CICs have been undertaking construction projects in more than 180 countries. Figure 2 shows the distribution of CICs' annual turnover in different regions from 1998 to 2005. Figure 3 presents CICs' top 20 overseas markets from 1998 to 2005 (CSYB, 1990–2006). It can be seen that 90% of CICs' businesses are in Asia and Africa, with the majority of them in developing countries.

Classification of CICs

A Chinese contractor is required by regulations to acquire a licence from the Chinese government in order to contract overseas projects. All the Chinese contractors in international markets are classified into the following four groups:

International Economic Cooperative Corporations (IECCs)

Prior to the end of the 1970s, the Chinese government provided financial aid for implementing projects in some third world countries. These projects were operated according to the agreement between the Chinese government and the host governments, and they were administered by governmental authorities instead of enterprises (Pheng and Jiang, 2003).

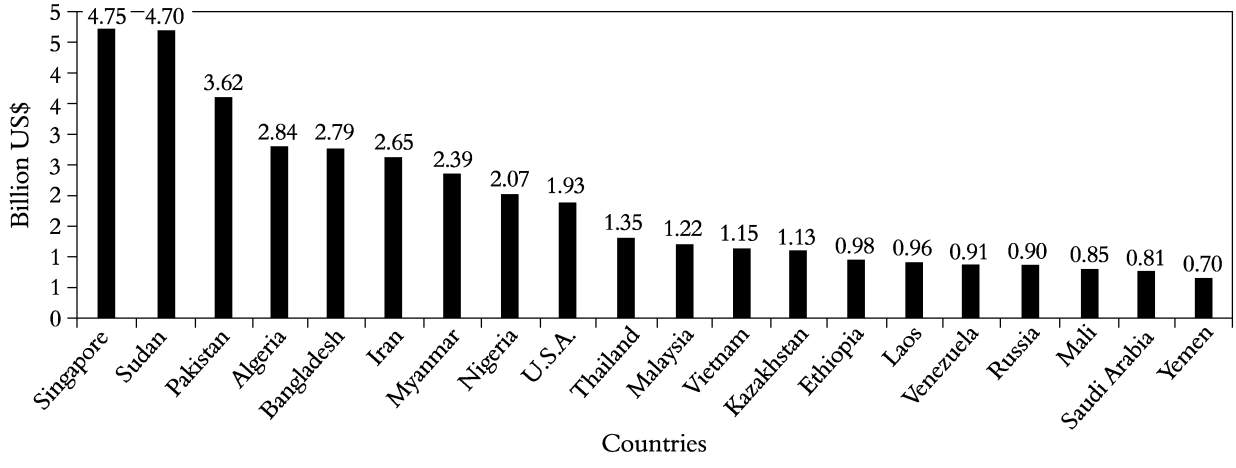

Figure 3 CICs' top 20 countries of contracted projects' value from 1998 to 2005

Nevertheless, by the end of the 1970s, with the introduction of 'open-door' policy, a small number of IECCs were promoted as 'window firms', such as China Civil Engineering Construction Corp., China Road and Bridge Corp., licensed to contract overseas projects. Most of these projects were sponsored by the Chinese government in the form of economic aid to some developing countries. Thus the firms sent by the Chinese government to undertake these projects were called 'International Economic Cooperative Corporations'. These firms were the pilots of Chinese firms entering into international construction markets, and have already acquired good experience in operating overseas business. They have good project management teams with the knowledge of foreign trade, project bidding, contract management, cost control and risk management. Nevertheless, as they do not have their own designers and construction workers, IECCs usually have to invite other design institutes and construction firms as their partners to undertake overseas projects.

State-Owned Construction Enterprises (SOCEs)

Contractors in China are divided into three categories: main contractor, specialist contractor and labour contractor. Main contractors are graded into Special Grade (highest level) and Grades I, II and III (MOC, 2001). The majority of the contractors are state owned, named State-Owned Construction Enterprises (SOCEs). Until 1999 the common SOCEs were not given licences for contracting overseas projects but worked as subcontractors to IECCs (MFTEC, 1999). With the new policy implemented by the Chinese government in 1999, all the contractors in Special Grade or Grade I were able to apply for overseas business licenses. The contractors that possess licences for contracting overseas works are generally considered more competent in both technology and management. Nevertheless, compared with IECCs, most SOCEs are less experienced in operating business in overseas construction markets.

Engineering and Design Firms (EDFs)

Engineering and Design Firms (EDFs) are graded into Grade A (highest level), B and C (MOC, 1999). The Grade A EDFs are allowed to apply for licences for contracting overseas projects (Lin, 2003). As these firms have no construction workers and equipment, they usually join with main contractors to bid for construction projects in international markets.

Large manufacturers

Manufacturing firms play an important part in the construction supply chain. According to governmental regulations in China, the large manufacturers which have the ability to design and manufacture equipment and have exports to a value of over US$10 million annually are allowed to apply for the licences for contracting overseas projects (MFTEC, 1999). These manufacturing enterprises can contract for overseas projects and technical services by exporting machines and equipment. These enterprises have strengths in manufacture and installation works but are weak in undertaking civil works, thus usually they will form joint ventures with other SOCEs to contract overseas projects.

Research method

A SWOT analysis framework is used for identifying CICs' strengths, weaknesses, opportunities and threats. Enterprises' strengths and weaknesses are usually considered as business internal factors which are controllable, while opportunities and threats are external factors over which enterprises have no direct control, but to which they can react to their own advantage (Pearce, 1992).

This research started by reviewing the relevant literature in order to understand general factors affecting construction firms' strengths, weaknesses, opportunities and threats. For example, Weihrich (1982) presented a typical list of attributes affecting enterprise businesses, being classified as economic factors, social and political factors, management and finance abilities, markets and competition. Porter (1980) investigated the major factors affecting the competition for business internationally versus nationally, such as cost differences, markets differences, regulation differences and resources differences. Shen *et al.* (2006) classified contractors' strengths and weaknesses factors into management ability, technological ability, financial ability, organization structure and operation procedures. They further examined the factors contributing to contractors' opportunities and threats, including social and political environment, economic environment, market opportunities and competition mechanism. Based on these existing studies, the typical attributes for examining CICs' SWOT are identified as: (1) management ability; (2) financial ability; (3) technological ability; (4) cost differences; (5) resources differences; (6) social and political environment; (7) economic environment; and (8) markets and competition. By using these SWOT attributes and examining the CICs characteristics, CICs' SWOTs are identified.

Data used for the analysis in this study were collected from the following four sources:

(1) *Literature studies*: There are many previous studies investigating construction practice and contractors in China. A review of these studies, particularly those published from 2003 to 2007, provides valuable data.
(2) *Statistical data*: The statistical data applied are from *China Statistical Yearbooks* (CSYB, 1990–2006), *China Building Industry Yearbooks* (CBYB, 1994–2005), the *Statistics of International Economic Cooperative Business of China* (MOCOM, 2004a) and *China Urban Life and Price Yearbook* (CUPYB, 2007).
(3) *Policy reports*: The policy reports include various official reports and regulations published recently by major governmental bodies including the Plenary Session of the Chinese Communist Party (Hu, 2007), National People's Congress (Wen, 2005), State Council of China (SCC) (SCC, 2000), Ministry of Construction (MOC, 2001, 2003, 2005), National Development and Plan Commission (NDPC), Ministry of Finance (MOF) (MOC, NDPC and MOF, 2005), Ministry of Commerce (MOCOM, 2004a, 2004b), People's Bank of China (PBC, 2005) and China–Africa Cooperation Forum (2006).
(4) *Interview surveys*: 25 interviews were conducted with senior professionals who come from five CICs, including general managers, project managers and senior engineers. The interviewees have comprehensive experience and knowledge about the practice of CICs in the overseas construction market. Three of the five participating CICs were among the top 225 international contractors list in 2005 (ENR, 2006). The distribution of the interviewees is summarized in Table 1.

The interview surveys focused on SWOT attributes and allowed open-ended discussions with interviewees. The questions raised were in three areas:

(1) At the present and in the future, what are your strengths and weaknesses for developing your businesses in the international market, and to what extent? Any examples?
(2) How do you take advantage of your strengths and improve your weaknesses? Any examples?
(3) At the present and in the future, what are the opportunities and threats to develop your business in international construction markets? Any examples?

By using the data collected, CICs' strengths, weaknesses, opportunities and threats were identified, as shown in Table 2. These results will be further analysed in the next section.

Table 1 Distribution of interviewees

Companies	Interviewees	Number of interviewees
• China State Construction Engineering Corp. (Beijing)	General manager	1
	Project manager	3
	Senior engineer	2
• China Railway Engineering Corp. (Beijing)	Project manager	3
	Senior engineer	2
• China National Electric Equipment Corp. (Beijing)	General manager	1
	Project manager	4
	Senior engineer	2
• Shanghai Construction General Co. (Shanghai)	Project manager	2
	Senior engineer	1
• The JiuYe Metallurgical Construction Co (Xi'an)	General manager	1
	Project manager	3

CICs' strengths

Manpower with low cost, good skills and high degree of adaptability to work in different environments (S_1)

Manpower costs assume a major part of the expenses in the labour-intensive construction industry, and have a profound effect on a contractor's business performance (Thomas, 2002). It is well known that the cost of manpower in China is relatively low (Jin and Ning, 2006). According to the *China Statistical Yearbook*, the annual average salary of working staff in the Chinese construction industry in 2005 was about US$1600 (CSYB, 1990–2006), while that in the USA construction industry in 2002 was about US$29 000 (US Bureau of the Census, 2004), and about US$48 000 in the Japanese construction industry in 2002 (JSY, 2004). In addition, Chinese workers usually will attend an intensive training programme before they are sent to overseas construction sites, and their skills are well received. In particular, most Chinese workers are multi-skilled and will be involved in each stage of construction. Furthermore, according to a report by Pheng *et al*. (2004), CICs' manpower has a high degree of motivation and adaptability to work in different environments. Chinese managers, engineers and labourers often live onsite with very simple accommodation. There is little difference in living conditions among different levels of staff, which facilitates effective understanding and communication, and costs can be reduced as a result (Corkin, 2007).

Table 2 CICs' strength, weakness, opportunity and threats factors in international construction market

SWOT factors	CICs' SWOT[a]	Analysis by[b]
SW factors		
Management ability Financial ability Technological ability	S_1 = Manpower with low cost, good skills and high degree of adaptability working in different environments	I,L,D
Resources differences	S_2 = Lower price of construction components	I,L
Cost differences	S_3 = Advancement in certain technologies	I,L,D
	S_4 = Advantageous geographical location	I,L
	S_5 = Good relationship with developing countries	I,L
	W_1 = Lack of well-trained human resources	I,L
	W_2 = Absence of design capability	I,L,D
	W_3 = Weak financial capability	I,L,D
	W_4 = Language disadvantage	I,L
OT factors		
Social and political Environment	O_1 = Governmental encouragement and promotion	L,P
Economic environment	O_2 = Financial support by state-owned banks	I,L,P
Market and competition	O_3 = The increase of Chinese enterprises' overseas investments	I,L,D
	O_4 = Development of the construction industry in the countries where CICs are well established	I,L
	O_5 = Exploring new markets in line with China's accession to the WTO	I,D
	O_6 = Further opening up in Africa for CICs	L,P
	T_1 = High business risks	I,L
	T_2 = High political risks	I,L
	T_3 = Growth of competition	I,L
	T_4 = The increase in value of the Chinese currency and the pressure from domestic inflation	I,L,D,P

Notes: [a] S = strength; W = weakness; O = opportunity; T = threat. [b] I = interview; L = literatures; D = statistical data; P = policy reports.

Lower price of construction components (S_2)

CICs usually choose the materials and equipment made in China. The prices of the materials and products are lower compared with those made in Western countries (Zhu, 2006). For example, according to the sample case provided by China National Electric Equipment Corporation, one of the interviewed CICs, the prices of some mechanical and electric components made in China, such as turbine, generator, transformer and circuit breaker, are about 70% of those made in the West. For another example, in Africa, a 50kg bag of Angolan-made cement would cost US$10, while that made in China costs US$4. Accordingly, the construction costs to CICs are much lower. It is reported that the cost per square metre of construction to CICs is one-quarter of that of Europeans companies (Corkin, 2007). The interview discussion further supports that using equipment and materials made in China is a key contributor to the CICs' competitive bid price. This is echoed by Pheng *et al.* (2004), suggesting that the relatively low cost of construction machinery, material and equipment from China helps the reduction of the bidding price for Chinese firms. Therefore, the practice of awarding construction contracts to the lowest bidder in the developing countries has given an advantage to the Chinese firms.

Advancement in certain technologies (S_3)

Chinese construction firms have been making progress in improving productivity by using advanced technologies. According to the statistics, the overall labour productivity of Chinese state-owned construction firms has increased by 1.5 times from 2002 to 2005 (CSYB, 1990–2006). The implementation of huge numbers of construction projects in China during the past two decades has been driving the development of Chinese construction technologies. During this period, a number of world-class projects were completed in China mainly by domestic contractors, such as Three-Gorge Hydropower Project, Shanghai Jinmao Mansion, Qinghai-Tibet Railway and Jiangyin Yangtze River Bridge. According to the report by Hu (2005), Chinese construction enterprises have world-class advanced construction technologies in certain areas, including highway and railroad bridges, tunnels and underground, retaining structure for deep foundation pits, super high-rise buildings, blasting technology, large structure and equipment hoisting, pre-stressed concrete and mass concrete pouring. This is echoed by Shang *et al.* (2006) and Pheng *et al.* (2004) who pointed out that CICs have major technical advantages in a number of areas, and they are now capable of undertaking more technically complex projects which were previously not possible for them.

Advantageous geographical location (S_4)

Asia and developing countries are the main markets of CICs' overseas businesses. Seymour (1987) suggested that the lack of adequate infrastructure and the lack of indigenous contractors in developing countries highlights that the clients in these countries are in need of the skills from those international contractors who can also offer low prices. This is exactly what CICs can offer. The interview surveys revealed that a large number of CICs have successfully entered into a number of developing countries in Asia, such as Pakistan, Bangladesh, Myanmar, Vietnam, Thailand, Laos, Malaysia and Kazakhstan. This development is also viewed as the result of the CICs' advantageous geographical location. CICs have lower freight fees owing to the shorter distance from their home bases than those faced by their Western competitors. Nevertheless, such location advantage has resulted in the growth of the number of competitors from China. The pressure from the competition can in turn force CICs to achieve better project performance (Pheng and Jiang, 2006).

Good relationship with developing countries (S_5)

Some developing countries particularly in Africa and the Middle East, such as Sudan, Algeria, Ethiopia and Iran, have established longstanding friendly relationships with China. Bilateral business activities including construction works in these developing countries have been highly promoted by the governments (Pheng *et al.* 2004). These good business connections allow CICs to build up good relationships with the local governments, clients and the local people. Consequently, CICs have obtained a large number of construction contracts in these countries, and in turn, have accumulated good experience in operating a business in the international market.

CICs' weaknesses

Lack of well-trained human resources (W_1)

The interview discussions indicate that the low salary and poor working conditions in construction make the industry unattractive to well-educated people. In fact, the brain drain in the construction industry is a global phenomenon (ENR, 2004a). The economic reforms in China have changed the practice of employment from allocating jobs by assignments to allowing people to find jobs by themselves. This development has led to a significant brain drain from construction to other industries in China. Furthermore, in recent years, construction firms in China have evolved from traditional state ownership to diversified ownerships comprising joint ventures, foreign-invested firms and private firms (Wang *et al.*, 2006). As these new business sectors generally offer much better employment conditions, many professionals who used to work in state-owned enterprises including CICs have joined these new construction firms. The studies by Zhu (2006) and Yan (2005) pointed out that CICs are generally short of trained professionals particularly in the areas of project management, contract administration, risk management, finance management and international conventions and laws. The lack of well-trained human resources in CICs is considered one of the most serious weaknesses contributing to the poor business performance.

Absence of design capability (W_2)

Design and construction works are traditionally separated in China and undertaken by two different types of firms, namely, design institutes and contractors. As a result, the majority of the overseas businesses contracted by CICs are civil and building works, which involve a very small proportion of consultancy and design works (Jin and Zhang, 2006). According to the statistics (CSYB, 1990–2006), the average value of CICs' consultancy and design works in overseas markets is less than 1% of their total overseas businesses during 1995–2005. Very few CICs have the ability to undertake both design and construction works (Zhu, 2006). This practice shows a weakness and puts CICs in a disadvantageous position in competing for large projects. The interview discussions revealed that many clients in international markets prefer to award the main contract to a contractor who can undertake collectively the consultancy, design service and construction works. This type of project is usually named an engineering, procurement and construction (EPC) type contract where turnkey contract conditions are imposed. Thus those Western contractors who have the abilities of both design and construction are more favoured. This is echoed in a report by ENR (2004a, 2004b), suggesting that the EPC or turnkey type projects always favour those contractors who are good at both design and construction.

Weak financial capability (W_3)

A research report by the Ministry of Construction (MOC, 2005) shows that lack of financial capability is a significant weakness for Chinese construction firms when competing for overseas projects. Compared to contractors from many other countries, CICs have lower registered capital, higher debt–asset ratio and lower profit margin. According to the statistics (CBYB,

1994–2005), the average debt–asset ratio of Chinese state-owned construction firms was about 70% in 2004, which indicates very poor financial status. In fact, it is common that CICs are lacking in financial capability, and the reasons for this are multiple. A typical reason is that Chinese construction firms have limited finance-raising channels (Zhu, 2006). The weak financial capability has led to significant consequences for CICs, typically including: (1) losing in the competition for projects where large amount of performance bond is required; (2) being disqualified for bidding because of insufficient registered capital; (3) loss of the opportunities to compete for projects where the contractors are required to undertake certain construction expenses in the project early stages; (4) being disadvantaged when competing for BOT type projects.

Language disadvantage (W_4)

English is commonly used for communication in undertaking projects in international markets, particularly for those projects funded by the World Bank or the Asia Development Bank. It is well noted, however, that the Chinese employees working in the CICs generally have worse English-speaking skills than those who work for Western contractors (Yan, 2005). This problem applies to all types of employees in CICs, including managerial staff, professionals and workers. Therefore, when bidding for overseas projects, CICs often spend more resources and effort in preparing and translating project documents including tendering documents, technical specifications, operation and maintenance manuals. The interview discussions suggest that, owing to incompetence in English, a typical Chinese professional will contribute at least 10% more time and effort than will a Western professional undertaking a similar task (Lei and Chen, 2004). The interviews further indicate that in a typical CIC, about 5% of the overheads is spent on appointing resources to deal with language. The language disadvantage is also a significant barrier affecting the effectiveness of communication between CICs and overseas project clients, resulting in the reduction of business opportunity in international markets.

CICs' opportunities

Governmental encouragement and promotion (O_1)

In order to integrate its economy with global economies, the Chinese government has been encouraging its enterprises enter into overseas markets (MOC, NDPC and MOF, 2005). The government considers exporting services equally important as attracting foreign investment to China. According to the policy paper issued by President Hu Jin-tao and the Premier Wen Jia-bao (Hu, 2007; Wen, 2005), 'entering into the international market' is one of the major governmental policies for further implementing the national economic reform. In line with this, the Chinese government has been helping CICs to compete for works in overseas markets by developing and enhancing bilateral and multilateral cooperation with foreign countries, improving the efficiency of administration in approving overseas construction works, and reducing the CICs' customs duties.

Financial support by state-owned banks (O_2)

As pointed out previously, lack of financial capability is one of the CICs' major weaknesses. To mitigate this weakness, the Chinese State Council published in 2000 a document requiring the Ministry of Finance and state-owned banks to adopt measures for helping the CICs (SCC, 2000). Accordingly, the Ministry of Finance appropriated US$30 million from the 'International Economic Cooperative Funds' and established the 'Bid Bonds and Contingencies Special Funds'. CICs can apply for loans from the Funds and can enjoy a special interest rate, which is much lower than the interest rates charged by commercial banks. Furthermore, the government has also been encouraging commercial banks to provide finance to CICs with special interest rates when they undertake Build, Own and Operate; Build, Own and Transfer; Build, Own, Operate and Transfer (BOO, BOT and BOOT) projects in overseas construction markets (SCC, 2000). A recent survey by the Ministry of Construction reported that the China Export and Import Bank has started to provide export credit support for overseas projects undertaken by CICs (Shang *et al.*, 2006).

The increase of Chinese enterprises' overseas investments (O_3)

There is a rapid increase in overseas investments by various types of Chinese enterprises in recent years. According to statistics, Chinese overseas direct investment has increased by three times from US$5.5 billion in 2004 to US$16.1 billion in 2006 (CSYB, 1990–2006). These investments have been extended from traditionally trade-dominated businesses to manufacture, raw materials, resources exploitation, traffic, transport, real estate and hotel projects, spreading to more than 160 countries (MOCOM, 2004b). Increasing numbers of large Chinese companies, such as the Capital Steel & Iron Company, China

Metallurgical Construction Company and Haier Group, have been investing in various projects all over the world during the past decade (Zhao, 2004). Many of those projects are construction works, presenting good opportunities to CICs. The interview discussions also suggest that an increasing number of projects investment by Chinese businesses attract CICs. One of the interviewed CICs indicated that its first overseas project in the USA was the Haier Group's factory. CICs have obvious advantages in competing for projects invested in by Chinese clients.

Development of the construction industry in the countries where CICs are well established (O_4)

An overseas firm is likely to perform well when it has a significant advantage on its reputation and its accessibility to resources when compared with local contractors (Pheng and Jiang, 2006). According to the interview surveys, CICs have gained a good reputation for cost saving and quality performance in increasing numbers of countries such as Pakistan, Iran, Vietnam, Myanmar, Laos, Algeria, Sudan, Nigeria and Singapore. On the other hand, the construction markets in these countries have been developing rapidly, particularly in infrastructure projects for water, traffic, electric power and building construction works. It is estimated that this development will remain in the foreseeable future (Hu, 2005). For example, in Iran, the railways, subway projects and electric power projects have been continuing to grow in recent years. In Vietnam, the government will spend US$1 billion on traffic construction in the five years following 2006 (Jin and Ning, 2006). In Algeria, more than US$12 billion will be invested on water projects from 2006 to 2009 (Jin and Ning, 2006). In Singapore, the Housing and Development Board of Singapore forecast that about US$20–25 billion annual construction works will be needed over the next few years (Yang, 2003). These plans present CICs with excellent opportunities.

Exploring new markets in line with China's accession to the WTO (O_5)

China's accession to the WTO in 2001 offered new opportunities to CICs to operate business in those countries that traditionally were against the entry of Chinese firms. According to the WTO's regulations, the WTO member countries will be allowed to trade without discrimination under the principles of free trade, national treatment and fair competition. In implementing these principles, all the WTO member countries must reduce trade barriers against other members. Foreign enterprises from the WTO member countries and local enterprises should be treated equally. This development presents more opportunities to CICs, particularly in Europe. According to the report (CSYB, 1990–2006), CICs' businesses in Europe have increased significantly since China's entry to the WTO. The WTO entry also provides CICs with the legal mechanism to protect their benefits as disputes or unfair treatment can be settled by applying the WTO principles. Thus CICs' confidence has been increased in developing new overseas markets.

Further opening up in Africa for CICs (O_6)

It is considered that CICs have good opportunities in Africa. China has developed strategic partnerships with Africa, underpinned by political equality and mutual trust, economic win-win cooperation and cultural exchanges (Chua, 2006). These partnerships have been further enhanced by holding the Forum on China–Africa Cooperation in Beijing in November 2006. The Forum was considered a great success, with the presence of the presidents or premiers from 48 African countries and the publication of the Beijing Action Plan 2007–2009. According to the plan, China–Africa business value will reach US$100 billion in 2010. China will further open up its African market by continuing to supply soft loans to African governments, and granting preferential loans and export credit to those Chinese firms who run businesses in Africa. African governments have committed to further open up their markets to the Chinese firms. They particularly welcome CICs' participation in African construction markets, especially in the fields of railway, road, telecommunications, electric power, water and irrigation construction works (China–Africa Cooperation Forum, 2006; Ofori, 2006). According to World Bank statistics, the China Export and Import Bank has disbursed over US$13 billion in sub-Saharan African countries. More than 80% of these investments were for large-scale infrastructural projects (Corkin, 2007).

CICs' threats

High business risks (T_1)

Contracting overseas construction projects is a high risk business. He (1995) identified the risks for undertaking overseas construction projects, and suggested that these risks should be identified from the global view including political and economic environments instead of only considering project conditions. Business performance is particularly at risk in those developing countries where the political and economic environments are more uncertain (Jaselskis and Talukhaba, 1998). However, CICs' major businesses are in

developing countries. This indicates a high-level threat of uncertainties to CICs' overseas business performance. According to the interview discussions, there are three major reasons contributing to the risks to CICs:

(1) Developing countries in general lack funds, and the project clients in these countries have a poor knowledge of contract. Therefore, there is higher possibility that CICs will face clients' default in payment.
(2) CICs have to hire local labourers and purchase some local construction components. However, the unexpected high inflation in these countries can greatly increase projects costs. This is considered a major factor affecting CICs' profits.
(3) The foreign exchange rates often fluctuate significantly in developing countries. This uncertainty is also considered a major threat to CICs' profitability.

High political risks (T_2)

Political risks are high in developing countries. Typically, the policies concerning the appointment of CICs can change dramatically as a result of the change or replacement of government leaders. This is echoed by the interview discussions, suggesting that many CICs have the experience of losing business substantially because of the changes of governments or officials. Another typical political risk is the corruption and bribery which are not uncommon in some developing countries. Furthermore, there is also a risk of personnel security to CICs' staff in some developing countries where the social stability is uncertain. Incidents have happened in recent years, for example in Pakistan, Afghanistan, Philippines, Ethiopia, where a number of CICs' employees were killed by terrorists or local anti-government militia (MOC, 2005; MOFA, 2007). This security risk presents a significant threat affecting CICs' business development plans.

Growth of competition (T_3)

The intensive competition in international construction markets affects contractors from all over the world including CICs. In line with the promotion by the Chinese government, the number of the Chinese firms entering into international markets has been growing rapidly in recently years (Pheng *et al*. 2004). Thus, the Chinese firms compete in international markets not only with the overseas contractors but also among themselves. It was revealed during interview discussions that the number of bidders for a typical infrastructure project in the international market is usually more than 10. In Africa, very few local contractors are able to undertake large-scale projects or have competence to compete with CICs. Thus, the competition is often between the CICs themselves. As a result of the intensive competition, there is a growing 'low-bid-price war' among the Chinese firms. The impact of this 'low-bid-price war' on CICs' business is considerable, resulting in substantial reduction in profits.

The increase in value of the Chinese currency and the pressure from domestic inflation (T_4)

The People's Bank of China announced in 2005 that the exchange rate mechanism of the Chinese currency would be changed gradually from fixed rate to floating rate (PBC, 2005). This is a governmental policy as the Bank is the administration department governing all Chinese commercial banks. The floating exchange rate policy will introduce the pressure of increase in value to the Chinese Yuan in next few years (Lei and Liu, 2005). In fact, from 2005 to 2007, the exchange rate of the Chinese Yuan increased by 5.25% (PBC, 2007). On the other hand, CICs are usually paid in US dollars for their overseas works. The value increase of the Chinese Yuan will result in the reduction of their income in Chinese Yuan. It is estimated that the value increase in the Chinese Yuan against US dollars will remain in the near future. The statistics also demonstrate the occurrence of inflation in China. The Chinese construction industry has seen swift salary increases since 2005; the prices of fuel, transport, construction raw materials and commodities in China have been obviously rising (CSYB, 1990–2006; CUPYB, 2007). Therefore, CICs are going to face the pressure from both the higher exchange rate of Chinese Yuan and higher domestic inflation. This will weaken the CICs' traditional advantages of low costs in their future overseas businesses.

Conclusions

Support from the Chinese government and intensive competition in the domestic construction market have led Chinese contractors to develop business rapidly in the international construction arena. Their major overseas markets are in the developing countries in Asia and Africa, while they have started in 2000 entering into the construction markets in Europe and the USA. With strengths in a number of areas, CICs have become increasingly competitive in international markets. Their typical strengths include the lower construction costs, the good working experience particularly in developing countries, and advanced

technologies in certain areas such as infrastructure works and high-rise building construction. Nevertheless, CICs' weaknesses limit them from long-term development. Their poor English skills, narrow business coverage, lack of finance channels, and shortage of well-trained human resources are typical disadvantages in competing for large-scale projects in international markets.

The understanding of CICs' strengths, weaknesses, opportunities and threats helps both the Chinese construction firms and their overseas competitors in examining the competitiveness of Chinese firms. Thus comparison can be undertaken to find out individual contractors' advantages and disadvantages, so that action can be taken to improve their competitiveness. The results provide valuable references for undertaking a comparative study on organizational competitiveness among the contractors from different countries in international construction markets.

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