

# STRATEGIC ANALYSIS OF SINGAPORE CONSTRUCTION MARKET-A CHINESE CONTRACTOR'S PERSPECTIVES

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## Abstract

The Singapore construction market has just recovered from the decline of the last seven years. Past annual construction volume remains around S\$10 to 12 billion and the market is saturated with local and international contractors. This study examined the competitiveness of the construction market from the perspective of a Chinese contractor. The case company in this study is China Construction (SP) Development Co Pte Ltd. The purpose of this study is to use strategic research and management methods to analyze the case company's internal and external environment and development strategies, so as to bring about the approaches and measures to achieve its strategic targets.

**Keywords:** Strategic Analysis, SWOT Analysis, Construction Market.

## 1. Introduction

The Singapore construction market can be mainly categorised as general building and civil engineering work. Since 1997, the Singapore construction market began to shrink and the decline only stopped in 2006. Projects from the private sector declined yearly till 2005, during which housing projects had decreased significantly. Although public projects led the decline, a number of large-scale infrastructure projects were initiated by the Government to sustain the economy through expenditure on infrastructure. These several billion dollar investments include the Singapore Northeast Mass Rapid Transit (MRT), Light Railway Transit (LRT) systems, central road main tunnel, island land reclamation, and round island sewage construction etc. The percentage of civil engineering works in the market rose 30% in 2002, 13% in 2003, 26% in 2004 and 17% in 2005.

## 2. Singapore Economic Growth in Brief

The gross domestic product (GDP) increases in last 8 years are shown in Table 1.

Table 1: Singapore GDP growth rates in Last 8 years

Year	1998	1999	2000	2001	2002	2003	2004	2005
GDP Increase Rate (%)	0.1	5.9	10.3	-2.0	3.6	2.2	8.4	8.4

(Source: MND website: Singapore economic growth rates)

The construction industry in China, Japan, Korea and East Asian countries have grown in relative maturity with advanced technology and full market protectionism, making it difficult for foreign companies to enter. With the exception of Singapore, other South-east Asian countries have inherent barriers in their legal system, thereby increasing the risk of foreign companies competing in their local markets. Nonetheless, the Singapore construction market can be synthetically analysed with incomparable characteristics that other South-east Asian countries do not seem to have. Singapore is politically stable, with a well developed legal system and social environment favourable to economic development, all of which are good for markets at risk. Although small in size, the construction market has maintained a certain attraction and advantage to contractors, both local and foreign.

### 3. An Overview of Singapore Construction Market

Total Singapore construction market contract value was S\$24.4 billion in 1997, which sharply dropped to S\$16.6 and \$13.1 billion respectively in 1998 and 1999 due to the Asian financial crisis. To boost the economy, the Government raised the investment of public construction and public housing in 2000 to \$20.2 billion. But this trend did not continue in 2001 when the value decreased to \$12.3 billion, a drop of 39%, due to the reduction in Government investments. In private investments, the demand in 2001 was S\$5.6 billion, almost S\$3 billion less than the year before. Contract value was S\$14.7 billion in 2002 but that dropped to about \$10 billion in 2003, 2004 and 2005. As forecast by the Ministry of National Development, the contract value in 2006 will be somewhere between S\$11 to 12 billion. The above data show a decline in the Singapore construction industry within the past eight years. Although the contract level could not be restored to S\$25 billion as in the early 1990s, which was 10% of total GDP, it is estimated that the value will remain as \$12 - \$15 billion from 2006 to 2010. The construction industry contract volumes in recent years in Singapore are shown in Table 2.

Table 2: Singapore Construction Industry Contract Volume

Year	1998	1999	2000	2001	2002	2003	2004	2005
Total Value (billion S\$)	16.6	13.1	20.2	12.3	14.7	10.0	10.0	12.0
Increasing Rate %	-31	-21	54	-39	19.5	-32	0	20

(Source: Singapore Building and Construction Authority)

Generally, the Singapore construction market can be divided into public and private sectors. Local construction industry has largely declined since the Asian financial crisis in 1998. Market volume was about S\$20 billion in 1998 but dropped to only S\$10 billion in 2003 and 2004, 50% of the peak with an 8.3% annual decline rate. Private investments were also affected by declining economy and market, and the consequent self-adjustments directly influenced market capacity. During the peak period, annual investments on construction totaled S\$10 billion. It dropped to only \$6.8 billion in 2001, suggesting a total reduction of 30% and at an annual decrease rate of 10%. Private investments were S\$5.3

and 5.4 billion in 2003 and 2004 respectively. The portion of the private construction amounted to 50% of total market value in 1997 and 1998 but declined to only 44% in 2001 and 34% in 2002.

From 2000 to 2002, government projects have increased significantly. After the Asian financial crisis, to sustain the economy, Singapore government increased public investments and social infrastructures. A large number of public projects were introduced to sustain industrial development. Although, in general, construction industry has declined, the percentage of government projects was up in the 2000-02 period. From 1998 to 2005, government investment was S\$56.3 billion, 125% over private investment and amounted to 56% of whole social infrastructure investments.

In summary, Singapore's construction industry in 2006 has ceased to decline due to the strong economic recovery. Total contract value will reach S\$12 - \$14 billion per year, faring better than in 2004 and 2005. Total value in the following five years would be \$12 to \$14 billion. However, it is still unclear if private investments have been rejuvenated. To stimulate the economy, the Government tries to invest more on public infrastructure through the sale of land. As can be seen, the construction of public infrastructure has become a major component to help stabilize the local construction industry.

Table 3: Construction Ratio between Public and Private Projects (Unit: million S\$)

Year	Total Volume	Private Project	Public Project
1999	17,250.00	7,296.00	9,954.00
2000	15,886.00	5,727.00	8,489.00
2001	15,408.00	6,799.00	8,611.00
2002	14,700.00	5,000.00	9,700.00
2003	10,000.00	5,300.00	4,700.00
2004	10,000.00	5,400.00	4,600.00

Public Sector - Categories and Percentage in 2004 are shown below

Type	Billion S\$
Civil Engineering	2.0
Institutional & others	1.1
Residential	1.3
Industrial	0.1
Commercial	0.1
Total	4.60

Private Sector - Categories and Percentage in 2004 are shown in below

Type	Billion S\$
Residential	2.60
Industrial	0.90
Commercial	1.10
Institutional & others	0.30
Civil Engineering	0.50
Total:	5.40

(Source: Building and Construction Authority website, contract volume of public and private projects)

#### 4. Analysis of Clients

There are two main types of clients (buyers) in the construction market of Singapore- government or public clients and private clients. The public clients include: the Housing Development Board (HDB), The Ministry of Environment (ENV) and Land Transport Authority (LTA), CPG Corporation and Jurong Corporation (JTC).

- Housing and Development Board (HDB)- Residential Projects

HDB is responsible for providing affordable housing to all Singapore residents who qualify. The HDB is a very important client in public construction market. Its group housing scheme could cover more than 30% of the entire government construction project during the economic boom. Of this, 90% were for housing and other public infrastructure. The HDB housing scheme and upgrading scheme are also the main clienteles for the case company.

- Ministry of Environment (ENV) and Land Transport Authority (LTA)- Civil Engineering Projects

ENV and LTA are central bidding departments for civil engineering works which serve as major investment proxies for the Government to implement stimulus infrastructure projects during economic recession periods. The projects are related to environment and water/wastewater treatment, island highway network and public transportation system respectively. The implementation of these schemes raised the portion of civil engineering works in government sector, accounting for half of the national infrastructure expenditure, thereby enhancing the attraction and opportunity for contractors.

- CPG and JTC --- Public and Industrial Facilities

CPG (formerly Singapore Public Works Department) is mainly responsible for designing, bidding and implementing public construction schemes for school, library and airport etc. Its public programs are mainly focused on building construction. As an important public client, its annual bidding value is about 36% of government infrastructure facilities investment. While the HDB has largely reduced housing investment, CPG is the only department in charge of most government housing building construction programs. The client demand in this area is stable and is less impacted by social economic fluctuation. Periodically, the government has building or upgrading schemes on education and social culture facilities, which can be considered as a stable government client.

Jurong Town Corporation (JTC) helps to develop and operate industrial infrastructure facilities and industrial estates. Generally, rental of industrial buildings comes under the purview of the JTC. In recent years, three major investment areas were identified: continued expansion of land acquisition/reclamation by the Government; secondly, to adapt to the global economic competition, the Government has taken major big steps to promote bio-engineering and other new industries. JTC will invest in a series of infrastructures to meet the challenge; thirdly, as the first period of leased industrial buildings approaches the deadline, the building must be refurbished or expanded after 30-year rental. Therefore, the

first period of deadline will produce a number of demands on factory building refurbishments and expansions. It is estimated that JTC will continue to be one of the major stakeholders of the construction industry.

- Private Clients

Private-sector construction encompasses private housing and private industrial buildings. Private construction has been directly impacted by the market economy, accurately reflecting private consumption demand changes and situations. On the other hand, private investments are extremely sensitive and strongly flexible, that economy is positively significant to private investments while its basic starting point is the market. Table 4 shows the big local developers in the construction market.

Table 4: Big Singapore Local Developers

Name	Annual Investment (million S\$)
Far East Organization	5,778
Hong Leong	3,345
Capital Land	1,732
Center Point	765
MCL LAND	542
Keppel Land	533

(Source : Stock Company Annual Report of Singapore, 2004)

## 5. Analysis of Competitors

There are about 1,800 registered companies in the Singapore construction market in 2005. The majority is in general building, with 912 in civil engineering category. The major competitors, perceived to be on par with China Construction (SP), are shown in Table 5 and 6.

Table 5 Major Competitors in Civil Engineering

No	Name	Capital resource
1	Shimizu Corporation	Private
2	Sembcorp Engineers and Constructors Pte Ltd	Government Partnership
3	Obayashi Corporation	Private
4	Koh Brothers Building & Civil Engineering Contractor (Pte) Ltd	Private
5	Woh Hup (Pte) Ltd	Private
6	Samsung Corporation	Private
7	Lum Chang Building Contractors Pte Ltd	Private

(Source: Singapore Building and Construction Authority)

Table 6 Major Competitors in General Building

No	Name	Capital Resource
1	Chip Eng Seng Contractors (1988) Pte Ltd	Private
2	Evan Lim & Company Pte Ltd	Private
3	Shimizu Corporation	Private
4	Takenaka Corporation	Private
5	Kajima Overseas Asia Pte Ltd	Private

6	Obayashi Corporation	Private
7	Sembcorp. Engineers Constructors	Government Partnership
8	Woh Hup (Pte) Ltd	Private
9	Lian Beng Construction (1988) Pte Ltd	Private
10	Tiong Seng Contractors (Pte) Ltd	Private
11	Hor Kew Pte Ltd	Private
12	Gretearth Construction Pte Ltd	Private
13	Samsung Corporation	Private
14	Lum Chang Building Contractors Pte Ltd	Private

(Source: Singapore Building and Construction Authority)

### 5.1 Foreign Contractors (Japanese and Korean Contractors) in General Building Market in Singapore

Major and potential opponents of Japanese and Korean companies in building construction market are shown in Table 7. In the past, Japanese and Korean companies took the bulk of construction projects in Singapore, mainly involving in building big public construction projects, high-class hotels and office buildings. These were almost exclusively awarded to Japanese and Korean companies. In generally they have the following characteristics:

Table 7 Main Competitors in Singapore Construction Market

No.	Main Competitors	Global Rankings
1	Shimizu Corporation (Japan)	22
2	Takenaka (Japan)	13
3	Samsung Corporation (Korea)	29
4	Kajima Overseas Asia Pte Ltd (Japan)	10

(Source: Singapore Building and Construction Authority)

The perceived advantages of Japanese and Korean companies are:

- Large size and substantial capital;
- International experiences in building construction management;
- Sound enterprise brand and good reputation;
- High market possession percentage. 80-90% of Singapore's large-scale building construction undertaken by them;
- Advanced construction technology and machinery equipments;
- Leading position in industry

The perceived disadvantages of Japanese and Korean companies are:

- High-end contracts are decreasing when Singapore's construction market competition is strong. Lower contractual price is the pressure, which has reduced profits;
- Large size and restricted levels lack flexibility in management;
- Incurrence of substantial debts in relation to home countries' economy; and
- Multi-organizational cultures problems. Low performance in staffing.

The competitive strategies of Japanese and Korean companies in general building are briefly discussed herein. In the case of Japanese and Korean companies, previous competition strategy used to be concentrating on highly technical and large-scale building construction projects in Singapore. This is the top of the pyramid in the market where there are higher obstacles, fewer competitors, high profits and strong payoffs. With the advancement in technology, disparities between companies in technique and size decrease, leading more competitors into the market. Moreover, because of the sustained economic crisis, downsizing of Singapore's construction market, the highly competitive yet smaller market in Singapore has forced the large Japanese and Korean companies to compete in small and middle-scaled building construction market.

## 5.2 Local Contractors in General Building Market in Singapore

There are a number of domestic contractors with different scales and capabilities. Major and potential opponents of local contractors in building construction market are shown in Table 8. In general, they have the following characteristics:

Table 8: Main Local Construction Competitors in Singapore

No.	Name	Global Rankings
1	Chip Eng Seng Contractors (1988) Pte Ltd	No Ranking
2	Lean Hin Lee Contractor & Trading (Pte)	No Ranking
3	Lian Beng Construction (1988) Pte Ltd	No Ranking
4	Evan Lim & Company Pte Ltd	No Ranking
5	Greatearth Construction Pte Ltd	No Ranking
6	Woh Hup (Pte) Ltd	No Ranking

(Source: Singapore Building and Construction Authority)

Domestic company's advantages in general building market are:

- Familiar with local market with good sale network and client relations;
- Most have large-scale assets in Singapore with strong financing ability;
- Close connection with suppliers. Good cooperation with input and output industry;
- Sensitive reaction to market and flexible management; and
- Compatible organization culture and employee relations leading to better performance.

Domestic company's disadvantages are:

- Traditional family operations dominated the management structure;
- Compared with the case company, it has higher costs and less efficiency;
- Operations perceived to be traditional and management methods lack transformative thinking and innovation methods;
- Technical capacity is lower than Korean and Japanese companies; less research and development ability which has limited its development; and
- Uncertain local recessionary economy, which continuously impacts domestic companies; lack of economic support from other directions.

General building is the main area of competency for most Chinese companies. These Chinese companies have the same market competition and management characteristics, which in turn have the same advantages, such as skilled Chinese labour, efficiency, and management capabilities. While China Construction (SP) possesses the above strengths, its multi-national management experiences are not as extensive as its Japanese and Korean counterparts. In addition, local companies are taking a leading role in assembling social production elements. As such, China Construction (SP) faces strategy adjustments that will ultimately determine the company's future development.

### 5.3 Foreign Contractors (Japanese and Korean Contractors) in Civil Engineering Market in Singapore

The main leaders in Singapore's civil engineering market are Japanese and Korean companies, having won 80% of the large-scale construction programs in light railway, MRT and airport. These competitors are shown in Table 9. In general, they have the following characteristics:

Table 9: Main Contractors in Singapore Civil Engineering Market

No.	Name	2002 Global Contractor Ranking
1	Shimizu Corporation (Japan)	25
2	Takenaka (Japan)	19
3	Samsung Corporation (Korea)	38
4	Kajima Overseas Asia Pte Ltd (Japan)	44

(Source: Singapore Building Construction Authority)

Perceived advantages of main Japanese and Korean competitors in civil engineering market are:

- Good management team with rich experiences;
- Advanced technique and research development capability;
- Sound enterprise brand and good reputation;
- Large size and resourceful financing as dimensional effects;
- Long history of international operation with advanced management experiences;
- Strong engineering equipment supports.

Perceived disadvantages of main Japanese and Korean competitors in civil engineering market are:

- High cost. Unlikely to sustain in a highly competitive environment;
- Previous advantage on technology decreases with economic development;
- Enterprise culture is incompatible with local customs;
- Lack of management flexibility. Large scale of company and formalized rigidity management model are difficult to change and unhealthy for competition;
- Actual competency and competitiveness may be weakened given its longstanding history in the industry which may result in complacency.



## 5.4 Local Construction Contractors in Civil Engineering Market in Singapore

Except for 80% of the large-scale civil engineering projects undertaken by Japanese companies, the remainder is shared by local companies which are not as strong as Japanese companies. Some of the major local companies are shown in Table 10. In general, they have the following characteristics:

Advantages of domestic competitors in civil engineering market:

- Flexible and highly effective management;
- Customer and selling network;
- Compatible company culture with governmental and local customs; and
- Sufficient support for engineering equipments and communications.

Disadvantages of domestic competitors in civil engineering market:

- Economic and technical weakness;
- Lack of international management experiences;
- Technical research development weakness; and
- Weak financial status since 1997 economic crisis;
- Uncompetitive market where entry of foreign competitors is ignored
- Single production line; and
- Small scale, difficult to gain stronger competency.

Table 10: Local Competitors in Singapore Civil Engineering Market

No.	Name
1	Sembcorp Engineers and Constructors Pte Ltd
2	Koh Brothers Building & Civil Engineering Contractors Pte Ltd
3	Woh Hup (Pte) Ltd

(Source: Singapore Building and Construction Authority)

## 5.5 Summary of Competitors Analysis

In the Singapore construction and housing market, the previous advantages associated with Japanese and Korean companies on the top of the pyramid no longer exist. When the market downsized and competition became more intense, local contractors accelerated on self-improvement. Already in a stable position, China Construction (SP) has the potential of becoming a major force to be reckoned with in conventional construction market through enhanced management, strengthening its existing lead position and expanding its market share.

## 6. Internal Appraisal of the Case Company

China Construction (SP) Development Co Pte Ltd, as the overseas branch of China State Construction Engineering Corporation (CSCEC), was set up in 1992 in Singapore and has become one of the best performing contractors in Singapore in a period of ten years. CSCEC was set up in 1982 and was subsidized by China Construction Bureau. As the largest construction company, the group has all levels of the highest qualifications on construction enterprises in China, besides being the country's top international contractor. CSCEC has been awarded as the top 10 housing building companies in the world for the last ten years, and was the 16<sup>th</sup> largest international ENR contractor in the world.

The contract value of the case-company has increased from less than \$10 million in 1993 to \$600 million in 2006. The company has established an effective management system and developed its core competitiveness. To integrate the characteristics of Chinese companies during the process of localisation and internationalisation, it is expected that its competitive advantage would be maintained in the foreseeable future even as the company is facing difficulty optimizing its current mechanism while expanding market share. The countermeasure could be pursuing optimization of management structure based on strategic beliefs.

## **6.1 Organization and General Management Skills**

After years of personnel structuring, CSCEC has transformed from a labour intensive model dominated by the mission to fulfil “self-production”, to an intensive model driven by “general project contract”, which is based on technology and management. Sixty percent of its headquarters' employees are in the management level. CSCEC and some of its subsidiaries are approaching internationally large-scale contractor standing in the management model of modern construction enterprises.

The case-company's strengths lie in its labour and integrated management competency. The Chinese management capability of construction team has been improved significantly during the economic boom, while its technical proficiencies have remained the same compared with its international counterparts. As the Chinese construction workers have largely improved their skills, the construction teams have been appraised by many organizations and are welcomed in the contractual market world-wide. This is especially true for Singapore construction projects where Chinese labour is found to be cost-effective with the necessary skills. As the labour supply in Singapore relies mostly on foreign workers, the highly effective Chinese labour is significant for China Construction (SP)'s business development. It is suggested that the company should adopt positive policies to stabilize current Chinese labour teams.

## **6.2 SWOT Analysis of Case Company**

As a large state-owned Chinese construction company, China Construction (SP)'s major strengths are:

- The entire workplace operation procedure and practices developed by this branded company through the years result in effective construction and cost efficiency.

- Practical technology and experiences gained are suitable for various kinds of building construction and civil engineering works including those with specific high standards and stringent requirements.
- A large fleet of sophisticated machinery and equipments place the case company in an advantaged position.
- A large pool of hardworking and experienced managerial, technical and skilled personnel and work teams

The case company's major weaknesses are:

- Disparities in large-scale project management proficiency as compared to foreign companies, particularly in human resource optimization and contract management.
- Reliance on imported Chinese labor resources, and inexperience in mobilizing and managing productive elements in construction market.
- Over reliance on the building market in Singapore where the profit is low and risk is high due to large number of competitors. It has not been successful in the civil engineering market where there are fewer competitors with higher profits.

The case company's major opportunities are:

- The annual Singapore market capacity is valued at \$12 to 14 billion for the next few years. The market is stable and transparent, providing many opportunities for the case company's development.
- The competitive cost advantage ranges from 3% to 6% of the total costs and is related to structure, decoration, electricity and aluminum alloy construction. These advantages can be exploited to expand construction and increasing market share.
- The expanded public expenditure by the Singapore government results in a large number of civil engineering projects which require advanced technology, thus favoring the company.
- China Construction (SP) has developed in-depth understanding of the Singapore market, and accumulated operational experience and capabilities in large-scale construction. The bidding capacity of the case company has also been strengthened.

The case company's major threats are:

- Currently the biggest threat the case company is facing is the strict labour policies stipulated by the government over the issuance of permit. To mitigate the negative effects arising from this problem is a challenge to the company.
- The restriction imposed by one large public client, the Republic Polytechnic (RP), is a potentially risky undertaking for the case company. If it has not been successful in the construction of RP, it would have to identify ways to go about enhancing its operations and assure its client of timely completion of the mega project.
- The management proficiency needs to have a breakthrough.
- The competitors have also found the new and potential opportunities in the market, and Japanese and Korean companies have consolidated their market share. Other industrialized countries' civil engineering companies have been entering Singapore, using their abundant experiences and equipment. Other large-scale Chinese civil engineering firms have also entered Singapore through continuous supply and completion of their projects elsewhere.

Competition in Singapore has become more intense, with profits reduced and operational risks increased.

## 7. Conclusions

The Singapore government has invested heavily on infrastructure and civil engineering works. The Singapore construction market will be stable in the foreseeable future, and contract volume can be maintained at minimum S\$12 billion per year. China Construction (SP) will have to continuously strengthen its leading position through formulation of competitive strategies contingent upon external and internal environmental factors.

Summarising the above analyses, the strategic targets of the company are as follows:

- Strengthening company's core competency, expanding general building market share to maintain the leading role in the market;
- Harnessing parent group's strengths, aiming and developing the potential civil engineering and real estate market in Singapore;
- Utilizing and controlling local resources to realise management localisation and internationalisation;
- Optimising company operational system and developing modern enterprise management, especially in efficiency; and
- Partnering with local and international clients and contractors to enhance market share, mitigating risks and exploring new market segment.

The biggest risk to achieve the strategic targets is the imminent conflict between headquarters' management mechanism and China Construction (SP)'s internationalisation or localisation effort, which may impact its performance. The headquarters must be open-minded and the case company should take the development and survival as the first issue for consideration in its effort towards internationalisation and localisation.

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