Overview of the Construction Sector

1. The local construction industry is of a fragmented nature, with numerous small firms. Based on BCA’s last survey in 1999, there are 13,909 contracting firms in the industry. Of these, more than 70% of the firms have a paid-up capital of less than $0.25 million and an annual turnover of less than $0.5 million.

2. With most of the physical infrastructure and buildings already in place and the economy entering the mature stage, the Singapore construction sector is expected to shrink in size. Construction orders are projected to average between $12 billion and $15 billion per year for the next 10 years. This is a sharp decline from its peak in 1997, which saw total construction demand at $24.4 billion.

Vision for the Construction Sector

3. The vision is for Singapore’s construction industry to develop into one which will encompass all aspects of the construction value chain, from design to construction to maintenance. The overall vision will have a place for both the big and small players. The economic reality demands that Singapore has world-class winners, with the size, range and expertise to compete against international players. At the same time, the increasing economic uncertainty warrants that firms are kept lean and nimble, outsourcing where possible in particular specialisation or disciplines.
4. In the remaking of the construction sector, it is envisaged that a few global sized firms, supported by a network of smaller niche specialists, will emerge to take advantage of the global export opportunities. The Construction Working Group proposes a target of 15% of our overall construction demand to be driven by exports in 5 years’ time, about $2 billion.

Key Issues

5. The key issues facing the sector are:

5.1 Overcapacity of local construction resources that is coupled with a dwindling local demand for construction services.

5.2 The need to upgrade capabilities of local firms to compete successfully against the established foreign construction firms.

5.3 Size and financial constraints faced by the construction sector, in venturing overseas.

Key Recommendations

6. The top three recommendations proposed pertain to restructuring the industry, upgrading local capabilities through innovation and better skills, and increasing economic pie by venturing overseas.

Industry Restructuring

7. Current system of tender based on lowest bid could be reviewed to introduce factors like company’s track record, quality and performance. This will ensure the playing field favours firms that are efficient and quality-conscious. Besides quality, size and range of services are also important prerequisites for firms competing in the international arena. To foster firm size, a few small public sector projects
can be grouped together into one larger undertaking. Similarly, public sector contracts can be re-organised to include a wider range of services from design to build or even maintenance so that local firms can build up multi-disciplinary capabilities.

**Upgrading Local Capabilities through Innovation and Better Skills**

8. To promote greater innovation within the industry, incentives could be offered for new or novel marketable products. At the same time, building regulatory agencies should regularly review and remove rules with a view of fostering a pro-enterprise playing field.

9. To raise the skills level and enhance job mobility, a multi-skill certification and workers’ loan programme could be established as a means to raising workers’ productivity. Our foreign worker policy should also be reviewed to consider retaining the better skilled foreign workers, with a view of granting PR, as well as relaxing policies for dependents.

**Increasing Economic Pie by Venturing Overseas**

10. Given the dwindling local demand, we recommend that an action agency be designated to champion the overall development of the industry by facilitating the internationalisation of local firms. Export opportunities exist in certain niche markets in China, India, and other regional countries.

11. Talent and expertise within public agencies should be harnessed, in areas such as town planning (URA), public housing (HDB) and transport (LTA). One way is to create a portfolio of local JV of public and private companies (between 5–8). The anchor could be a corporatised public agency or an established private firm, providing both an equity stake and a broker in the JV.
12. The high initial investment cost of construction projects serves as a financial barrier for construction firms venturing overseas. To overcome this, BCA together with IES could facilitate the provision of export credit and credit insurance for exporting firms by tying them up with financial institutions.
Construction Working Group Report

Aim

1. This paper summarises the key issues facing the construction industry and the key thrusts proposed by the ERC WG for Construction to take the industry over the next 5 years.

Current Situation

Fragmentation of Local Industry

2. Singapore continues to face challenges ahead in the efforts to transform the construction industry into one that is professional, productive and progressive. The local industry is very fragmented, with numerous small firms (refer to Annex A). Based on BCA's last survey in 1999, there are 13,909 contracting firms in the industry. Of these, more than 70% of the firms have a paid-up capital of less than $0.25 million and an annual turnover of less than $0.5 million. Of 1,504 consultancy firms in the industry, 80% have only 1 Professional Engineer or 1 Architect in its employment. The number of firms in the industry will reach 16,043 if other services such as real estate development are included. The presence of numerous small players does not encourage industry upgrading and economies of scale. Many contractors are constrained also by costs and time to initiate or adopt better techniques or invest in research and development.

Construction Outlook

3. The domestic construction cycle reached its peak in year 1997 and began to show signs of decline in the following years (Annex B). The projected construction contract value for year 2002 only reaches $12.9 billion dollars. With most of the physical infrastructure and buildings already in place and the economy entering the mature stage, the Singapore construction sector is expected to shrink in size, with construction orders projected to average between $12 billion and $13 billion per year for the next 10 years. Hence, future growth opportunities within the local market for construction firms are rather limited.
4. The growth of the construction sector is in part driven by how well the economy performs. Corporate downsizing explains a lot of the current poor prognosis. After two decades of expansion on new facilities and building expansions, many private companies are finding they have more space than they need, particularly as they scale back their operations to mitigate the effects of the recession. For industrial space, demand has also shrunk as manufacturers downsize, move their operations to lower production cost areas overseas or even shut down altogether.

5. Against this depressing economic situation, the public sector continues to be the main force stabilising construction demand, accounting for about 65% of the projects (in terms of value). There is, however, a limit to such public pump priming efforts and it is unlikely to be sustainable in the long-run.

6. As the domestic market size is too small to sustain many local contractors, the local contractors have either downsized or exited the industry. While there is a case to consider partnering, mergers or acquisitions to build firm size in order to take on bigger projects, we have yet to witness any significant industry changes.

7. Given the current overcapacity of construction resources, coupled with a dwindling local demand, it is inevitable for our local construction firms to consider seriously venturing overseas.

**Overseas Prospects**

8. There are emerging markets in the region worth considering. Going by the estimates done by a MIT study, the prospects for construction services export to China, Indonesia and India by US firms are enormous, at US$360 billion. Even if companies originating from Singapore earn a mere 1% of this value, it represents a revenue of US$3.6 billion, which is roughly equivalent to half of our total construction demand for last year.

9. According to DRI/FW Dodge, the Chinese and Indian construction markets will be growing at an average annual rate of 10% per year in the next five years. By 2010, it is forecast that the Chinese construction market would reach US$1.2 trillion and the Indian market would reach US$114 billion. The Indonesian and Thai markets are also forecast to reach US$120 billion and US$71 billion respectively in 2010.
10. Such opportunities will not be around forever. Already, many countries are making inroads into the Chinese market. For example, in 2001, Team Canada, driven by the Canadian Prime Minister, initiated a joint housing committee looking at building codes with the Chinese counterparts. This will offer tremendous spin-offs for the Canadian building industry. At the same time, the Chinese builders themselves are eager to learn. Their expertise in many areas like building construction are now giving the foreign competitors a run for their money. Our construction practitioners must therefore organise themselves, be creative, and willing to move up the value-chain in order to seize the huge economic opportunities available.

Construction 21 Initiatives

11. The Construction 21 (C21) report, completed in 1999 has 39 recommendations under 6 strategic thrusts to help achieve the vision of making the industry ‘a world-class builder in the knowledge age’.

12. The C21 initiatives focus mainly on transforming the construction industry into a knowledge and high-value added industry in the local context, with the aim to
   i. Enhance professionalism of the industry
   ii. Raise skills level of workers
   iii. Improve industry practices and techniques
   iv. Adopt an integrated approach to construction

13. The recommendations will serve to tackle the domestic issues at hand, whilst also laying the foundations for a stable and prospering industry in the longer term. The recommendations under BCA’s purview are in various stages of implementation. They include raising productivity through legislating buildability, the use of IT, raising minimum skill levels, and reducing the reliance of foreign manpower via MYE cuts. More Design and Build contracts are being pushed out to integrate the delivery of services and BCA is also currently revamping the Contractors’ Registry System. It will take some time before we reaped the benefits of the measures but already for FY2001, the construction industry registers +0.2% productivity growth after several years of negative productivity growth.

14. With the local industry in place, venturing overseas would be the next step where the industry can achieve a higher level of performance. The construction sector is expected to represent at least 6% of our GDP in the coming years, even at the matured state of our economy, and will remain one of the local engines of our economic growth. This figure will grow to 12% if other construction-related activities, such as
manufacturing of construction materials, design and consultancy, production of precast components, etc taken into account. In our aspiration to climb up the economic ladder in the international arena, such a sizable domestic sector cannot be ignored. Experience elsewhere in other matured economies shows that certain construction expertise can be exported and subsequently become generators of wealth for the local economy.

**Vision for the Construction Industry**

15. The vision is for Singapore’s construction industry to develop into one which will encompass all aspects of the construction value chain, from design to construction to maintenance. Our overall vision will have a place for both the big and small players. The economic reality demands that we have world-class winners, with the size, range and expertise to compete against international players. At the same time, the increasing economic uncertainty warrants that firms are kept lean and nimble, outsourcing where possible in particular specialisation or disciplines. In the remaking of the construction sector, we envisage that a few global sized firms, supported by a network of smaller niche specialists, will emerge to take advantage of the global export opportunities.

16. We propose a target of 15% of our overall construction demand to be driven by exports in 5 years’ time, about $2 billion.

17. An analysis of the Engineering News Record’s Survey of the Top 225 International Contractors from 1995 to 2000 shows that the top American and Japanese contractors clinched an average of 20.5% and 14.8% of international projects (Annex C). Our export level currently is about $700 million. Although it is unrealistic to expect Singapore construction firms to reach similar heights, nevertheless, the target of $2 billion is achievable with the concerted effort by the industry to upgrade itself and focused policies from the Government. Secondly, this export target also takes into account the numerous acquisition opportunities available in China and Japan when our local firms expand overseas.

**Construction Value Chain**

18. Increasingly, the construction sector is no longer regarded as a single entity but considered as a much larger industry. A client does not think of only the initial cost of construction, but also the life cycle cost (LCC) of the building/project. In addition, socio-economical and environmental issues will also come into consideration.
Members of the construction industry need to redefine themselves as being part of a service industry which not only incorporates physical construction, but also LCC, maintenance and management.

19. As such, what a construction firm will need to meet the future demands of the market is to have a group of competent people who can handle planning, coordination work and management and together with external niche specialists, to take on complex projects like BOT (build-operate-transfer) or PFI (private finance initiative). Hence, the future industry environment is likely to favour those which can organise themselves with a range of specialities, from general management to finance to specialist trades required to accomplish a project.

Specialist Construction Niches

20. With the development of the regional economies, there would be numerous opportunities in the building/property maintenance and upgrading sectors. The consumers’ power will be more weighted, and high-end demand will increase. This trend will create demand for remodelling and renovation; and Singapore design is strong in certain areas such as planning and condominium design, which is sought after by other countries. Given the unpredictable business cycles, a group of small niche firms, specialising in particular trades will emerge and thrive.

Proposed Approach

21. Singapore has always thrived on competition from an open economy. Unlike other countries that practise state-sponsored fiscal measures, Singapore does not have such a deliberate policy of offering direct monetary subsidies or infrastructure projects to sustain the construction industry on a long-term basis. The recent shakeout (Annex D) in the Japanese construction industry where small and inefficient construction firms were forced to exit in response to reduced public-spending, is a timely reminder of the dangers of relying on such prime-pumping efforts.

22. As such, the principle of free market competition that has stood Singapore in good stead must continue. However, while the fundamentals remain, we must also avoid the excesses of unhealthy competition generated currently by the open market. For example, the present excess capacity has led to serious price undercutting, resulting in subsequent loss of quality as the contractors would be under pressure to cut corners. Therefore, we must foster a climate of healthy competition where the playing field is tilted to favour the more efficient and quality-conscious players.
23. The main proposals that were generated from the various subgroup discussions, surveys with the foreign consultants and inputs from CIJC (Construction Industry Joint Committee) and SIA (Singapore Institute of Architect) are categorised into the following three main thrusts:

**A. Restructuring the Industry**

*i. Procurement Policies*

With public sector projects comprising half of the total domestic demand, government procurement policies have a huge impact on consolidating the playing field. The current policy of awarding projects to the lowest bidder may not be a true indication of the true cost and quality of the project. Many unsuccessful bids also equate to the loss of time and effort, lower productivity and hence higher cost to the construction firms and clients. Therefore, the current tender policy should be re-examined to include more stringent & fairer tender requirements through evaluation & measurement of contractors’ performance. For instance, developing a point system for the evaluation of the contractors based on a set of criteria, each carrying different weightage. These criteria should include factors like track record, quality and performance. A system similar to the Quality Based Selection System (QBS) used overseas could be developed to serve our local needs. This will create fair opportunities for local firms to participate in design or construction of local landmarks.

The current perception is that procurement officers are often rule-bound and not discretionary in making decisions that affect the quality or performance of projects. The reward for good performance is also not apparent. Besides changes to the tendering award system, procurement agencies may also have to change the way they work with contracting firms if we are to reap significant improvements in quality and workmanship of projects. For instance, the procurement agencies could be more flexible and consultative when dealing with the contractors. We should foster a closer working culture between contractors and procurement agencies that is based on commonly agreed performance indicators. Staff could be empowered to monitor and measure performance against agreed targets. We could review the partnering system practised in UK and adopt some of the useful practices.

*ii. Grouping of Public Projects to Foster Firm Size*

Secondly, size and range of services are critical success factors for firms competing on the international scene. Using Malaysia as a comparison, a good size engineering firm has about 1500 staff whereas a firm with about 100-200 staff would be considered
large here, which goes to explain why few Singapore firms venture out of Singapore. The Contractor’s Registry System, introduced in July 2002, is one policy-based approach to set the stage for progressive and efficient firms to grow in size. Other ways to foster the growth of bigger firms could be to group individual projects of similar nature into one project, eg. 5 school projects grouped as one undertaking, so that only larger firms or a collaboration of smaller firms can tender for the job. This may encourage small firms to team up with one another for projects, and possibly foster a permanent relationship amongst the firms.

Another possibility is to deliberately offer “All-in-one” contracts whereby the tendering firms will need to offer a range of services. Besides fostering multi-disciplinary capabilities, it will also help build up a core group of competent generalist contractors who are in touch with niche specialist experts, capable of supporting complex overseas projects like BOT or PFI.

**B. Upgrading Capability**

*i. Consolidating Our Niche Expertise*

To compete successfully against more established Japanese, European, and US firms, local players need to build on current strengths or develop new niches.

*(a) Current niches.* To help strengthened our current niches, tax incentives can be offered to players along the value-chain to attract additional investments and R&D. These niches include:

* BOT or BOOT infrastructure projects
* Design and technical expertise in high end condominium
* Low cost public housings
* IT solutions like CORENET and electronic plan submission
* Tropical design

In addition, an area worth exploring further is precast technology. New capabilities and innovative products that will enhance the use of precast products in the industry have been developed, such as high strength lightweight concrete, integrated architectural pre-finishes and volumetric componentisation. The development of these new capabilities and products will create niche areas for our local precasters and this will sharpen their competitiveness. Moreover, as BCA tightens up the
buildibility score requirement, the future of the precast industry looks promising with more designers and builders adopting precast construction for their projects in meeting their quality and productivity targets.

(b) New possibilities. Architectural and Engineering consultant firms could look into building up expertise in environmental/ ecological technology to export services to developing countries. For example, there are three possible niches that the local industry could explore under the Green Plan 2016. They are:

- **Eco-efficient design** for architecture and urban planning. An upstream knowledge that architect and engineering firms could specialise in.

- **Environmental technologies** such as the use of district cooling, wind and solar renewable energy. Considered a mid-stream knowledge, it could path the way for an array of value-added products and services in designing for the tropics.

- **Green products and services**. This would encourage the design and imaginative use of environmentally friendly products such as technical wood to replace tropical wood.

ii. Innovation

(a) Novel ideas. The French’s presence in Singapore taught us the importance of innovation and alternative design solutions to engineering challenges. We must strive to make Singapore the hotbed for new ideas and creative solutions. One way is to offer incentives as a kickstart for developers/contractors/consultants who proposed new or novel marketable products in their developments. Incentives could be in the form of tax relief, monetary rewards or increased GFA. Over the longer-term, an innovative culture will emerge where the benefits of such novel ideas would be self-evident and the incentives can be withdrawn.

(b) Flexibility in Government Regulations. To promote greater innovation, government agencies should reduce the number of conditions and rules in the tenders as well as operating environment. For example, some architects have complained that D&B tenders by HDB has many conditions. Time for approval to applications should be kept minimal, otherwise firms will be discourage to change or innovate product lines because of the lengthy bureaucratic procedures. For example, JTC requires a business proposal for any change of use to be submitted. Given the dynamic business environment, JTC should review its current policies to allow greater flexibility.
To promote innovation in the government regulatory framework, Building Innovation Units (BIU) could be set up within the various authorities like URA, BCA, JTC and HDB. In HK, this was mooted to continually re-invent the building and construction industry. A small group of 2 or 3 young graduates are drafted into the BIU for a term of about 1 to 2 years. The role of the members of this BIU is to look at the existing controls and re-make, unmake or even break the unnecessary rules.

(c) Raise IT literacy. The construction industry is generally viewed as a laggard in the use of IT compared with other sectors. A networked IT infrastructure offers a means to export the industry’s services overseas. Electronic integration between various players will reduce fragmentation and open up opportunities for adding value to construction projects.

iii. Industry Development

Many local firms do not have the critical mass to undertake investments or R&D work with long gestation period. We propose to set up an Industry Development Fund on a co-funding basis with the Government to cover development costs in system designs, processes, standards, technology, pilot testing and experimentation of new products and services. To encourage industrial cooperation, companies can group together to work on a viable project.

iv. Manpower Development and Management

(a) Professional talent development. The best and brightest must also be attracted to the building and construction industry to ensure we have a core pool of talent to drive our overseas forays. It is important that efforts are needed to provide and maintain a certain level in upgrading the professionalism for the different players in the industry to compete with their international counterparts. For instance, a Professional Development Fund could be created for the purpose of funding continuing professional development (CPD) programmes, similar to the skills development fund we have for workers.

(b) Skilled Workers. Given that locals shun construction work, we should do more to retain highly skilled foreign workers to ensure minimum turnover and leakage from the industry’s overall workforce.

• Permanent residencies (PRs) could be granted to these capable foreigners (currently available only for professionals and TS workers in construction) who could be Q passes holder, with the appropriate skill qualifications and their dependents.
• Training incentive schemes, co-funded by the Government and the employer could be devised for these workers, with a bond of service attached. Continuous learning, through a re-certification programme could also be introduced to allow us to assess the better skilled workers.

• A foreign worker loaning scheme via a central system or private transactions between contractors could be set up (similar to the marine industry) to provide job sustainability to good workers.

• Multi-skills can be a means to raise productivity, enhance job mobility, and raise the status and the income-earnings of construction workers. In line with the push for more buildable designs with the introduction of legislation, multi-skills will increasingly become the prevalent way of training construction workers in Singapore. In order to facilitate the promotion of multi-skills training of workers, a list of multi-skilled trade in line with buildability requirements, could be established to determine training needs.

C. Increasing the Economic Pie by Venturing Overseas

i. Tax Relief/Incentives

While we must be clear that any form of government subsidies can destroy the very spirit of entrepreneurship, there could be a case for government to promote overseas ventures through tax relief and assistance schemes. The existing eligibility criteria of IES overseas grants could be reviewed to include and benefit all construction enterprises - both big and small. The tax relief could go beyond the marketing aspects and provide support to ease the high overseas running cost in the subsequent project phase.

ii. Overcoming Financial Constraints faced by the Construction Sector

Traditionally, commercial banks are reluctant to grant project loan facilities to construction-related companies as there are little or no direct collateral to be pledged on project basis. With high upfront financial commitment in overseas projects, construction-related companies are finding it harder to seek financing from commercial banks who will be even more risk-adverse given that the projects are outside of Singapore.

A possible solution is the establishment of a government related financial facility whereby initial financing to companies venturing overseas could be obtained. This set-up could be run on a stand-alone basis or through an existing scheme with IES in
collaboration with existing banks. It will assess the merits of each of the overseas investment projects, not restricting to just construction-related companies, and will help to kick-start (in financial sense) the drive to conduct business in foreign land and bring back the value home.

This financial facility can have the flexibility to issue bank guarantee, performance bond, export credit insurance or loan facility. The exposure for each project/company could be limited to a certain percentage of the total requirement, with the remainder to be funded through other commercial banks as well as the companies’ internal funds. There can be ongoing review processes to determine the viability of the projects to manage the risk profile and exposure.

iii. An Agency to Promote Construction Development

A public agency could be identified to focus on developing local firms to expand into overseas market, such as leading trade missions to developing countries in the region to help path the way for such countries to use Singapore construction products and services. For example, by assisting Singapore firms to network and establish contacts for future possible business dealings in these countries. Marketing offices can be set up at overseas nodes to source for projects, given that local individual firms do not have the resources and size to do so on a permanent basis. On the local scene, this agency could also help local firms consolidate and merge by providing the necessary consultancy services, similar to the role played by SPRING for SMEs.

iv. Public and Private Partnership

Singapore is highly regarded by other countries for our town planning, port construction, green environment and public housing policies. However, most of the talent and expertise in these areas are locked within public agencies (HDB, LTA, NParks, PSA, URA and ENV) and the climate within them does not encourage officers to be business-oriented. We should seriously explore possible frameworks whereby public and private partnership can be formed to seek the overseas opportunities available.

One possible option to create a portfolio of local JV companies (between 5-8), either anchored by a strong corporatised public agency or an established private firm. This is similar to the “Gladiator” scheme by EDB where a leading local firm is identified, together with several smaller firms with complementary niche expertises. EDB provides up to 25% equity stake and serves as a broker role in the JV. In the case
of construction, a business unit within BCA can front this scheme and the equity details can be worked out amongst the partners.

\textit{v. Strong Branding}

The Americans are well known for their Centres of Excellence, be it Houston for oil and gas cluster or New Jersey for pharmaceutical hub. The same teams are always involved in building similar facilities elsewhere in the world. Singapore has built up a strong reputation internationally given our remarkable economic development over the last 3 decades. This has been supported by world-class infrastructure like Changi Airport, MRT system and well-designed public housing. Our local construction players are also well regarded in China and other countries to provide quality service and products. We should continue to rely and improve our honest image and excellent sense of professionalism as an asset in venturing into overseas markets.

We should build on our unique brand name, and local firms could band together (the current Construction Industry Joint Committee could also play this role) and set up a Centre of Excellence for Engineering, Procurement and Construction (EPC). As a hub, local firms could offer expertise such as design excellence, high-density housing and infrastructure projects. Other niches could even extend to port facilities and town planning.

An executive summary of the list of recommendations highlighted in this paper in table format is at \textit{Annex E}.

\section*{For Endorsement}

24. In short, we should have a sustained and deliberate policy to tilt the playing field with a view of fostering world-class construction firms that are competitive and technologically advanced, capable of working on the most complex overseas projects within certain fields either on its own or consortium which it leads. We need to constantly upgrade and enhance the capabilities of our local firms to ensure that they maintain the competitive edge to match other global players, as the future of the construction industry could possibly lies outside Singapore.
ANNEX A

Structure of Industry

Based on BCA’s last survey in 1999, there are 13,909 firms in the industry. Only 2.6% (364 firms) have a paid-up capital of over $2.5m, and 0.5% (67 firms) with an annual turnover of $100m or more. A large proportion of the local industry is made up of numerous small firms.

<table>
<thead>
<tr>
<th>Paid-Up Capital ($)</th>
<th>No. of firms</th>
<th>Percentage of total firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $0.25m</td>
<td>11,928</td>
<td>85.8%</td>
</tr>
<tr>
<td>$0.25m – $2.5m</td>
<td>1,617</td>
<td>11.6%</td>
</tr>
<tr>
<td>&gt; $2.5m</td>
<td>364</td>
<td>2.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annual Turnover</th>
<th>No. of firms</th>
<th>Number of persons employed</th>
<th>No. of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; $0.5m</td>
<td>8,576</td>
<td>&lt; 5</td>
<td>7,379</td>
</tr>
<tr>
<td>$0.5m – $1.9m</td>
<td>3,773</td>
<td>5 – 9</td>
<td>2,165</td>
</tr>
<tr>
<td>$2m – $4.9m</td>
<td>685</td>
<td>10 – 49</td>
<td>3,315</td>
</tr>
<tr>
<td>$5m – $9.9m</td>
<td>59</td>
<td>50 – 99</td>
<td>628</td>
</tr>
<tr>
<td>$10m – $19.9m</td>
<td>208</td>
<td>100 – 149</td>
<td>168</td>
</tr>
<tr>
<td>$20m – $49.9m</td>
<td>172</td>
<td>150 – 199</td>
<td>93</td>
</tr>
<tr>
<td>$50m – $99.9m</td>
<td>69</td>
<td>200 – 299</td>
<td>76</td>
</tr>
<tr>
<td>&gt; $100m</td>
<td>67</td>
<td>300 – 399</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>400 – 499</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td>500 &amp; more</td>
<td>32</td>
</tr>
</tbody>
</table>

Within the Singapore market, our local firms have a much lower turnover than the foreign firms. The average turnover per local firm is only $2m, compared to $42m per foreign enterprise.
**Profile of Top 10 Local Contractors**

Contracts Awarded (Table 1 and 2) From 1995 to 1999, the top 10 local contractors clinched an average of about S$200 million worth of main contracts a year, excluding joint-venture contracts. Overall, the top local contractors accounted for about 10% of the total industry construction demand. Average contract value awarded locally to each of the selected foreign contractors was about S$160 million a year.

A majority of the main contracts awarded to top local contractors were traditional Design-Bid-Build projects. Design & Build (D&B) projects only constituted about 10% of their total contract values.

Contract values awarded to Bovis Lend Lease showed an uptrend due to its specialisation in Engineering, Procurement, Construction (EPC) projects, especially after 1998. In general, the proportion of D&B and EPC projects undertaken by top foreign contractors was generally higher than that of our top local contractors.
Construction Demand (1980–2002)
## ANNEX C

### Top 225 International Contractors in 2000

<table>
<thead>
<tr>
<th>No.</th>
<th>Contractor's Nationality</th>
<th>No. of firms</th>
<th>International Billing $ Million</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>American</strong></td>
<td>73</td>
<td>24,962.8</td>
<td>21.5%</td>
</tr>
<tr>
<td>2</td>
<td>Canadian</td>
<td>5</td>
<td>194.6</td>
<td>0.2%</td>
</tr>
<tr>
<td>3</td>
<td>British</td>
<td>7</td>
<td>9,182.8</td>
<td>7.9%</td>
</tr>
<tr>
<td>4</td>
<td>German</td>
<td>11</td>
<td>18,162.6</td>
<td>15.7%</td>
</tr>
<tr>
<td>5</td>
<td>French</td>
<td>7</td>
<td>15,991.6</td>
<td>13.8%</td>
</tr>
<tr>
<td>6</td>
<td>Italian</td>
<td>10</td>
<td>3,437.2</td>
<td>3.0%</td>
</tr>
<tr>
<td>7</td>
<td>Dutch</td>
<td>2</td>
<td>4,522.4</td>
<td>3.9%</td>
</tr>
<tr>
<td>8</td>
<td>Other European</td>
<td>19</td>
<td>17,124.0</td>
<td>14.8%</td>
</tr>
<tr>
<td>9</td>
<td><strong>Japanese</strong></td>
<td><strong>21</strong></td>
<td><strong>8,801.6</strong></td>
<td><strong>7.6%</strong></td>
</tr>
<tr>
<td>10</td>
<td>Chinese</td>
<td>35</td>
<td>5,383.8</td>
<td>4.6%</td>
</tr>
<tr>
<td>11</td>
<td>Korean</td>
<td>7</td>
<td>3,611.8</td>
<td>3.1%</td>
</tr>
<tr>
<td>12</td>
<td>All Others</td>
<td>28</td>
<td>4,532.3</td>
<td>3.9%</td>
</tr>
<tr>
<td><strong>All Firms</strong></td>
<td></td>
<td><strong>225</strong></td>
<td><strong>115,907.5</strong></td>
<td><strong>100.0%</strong></td>
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*Source: ENR 2000*
TOKYO — There is nowhere to go for Japan’s construction industry but down. Public works spending is down, private works spending is down, demand is down. The only thing going up is supply, and this is bad news as a glut of office space and condominiums is expected as early as next year.

Last year, one out of three bankruptcies in Japan involved a construction company. That came to 450 a month.

However, with more than 550,000 construction companies still in operation across the country, the shakedown in the industry is considered too slow as it still accounts for 12 to 13 per cent of the country’s gross domestic product when the optimum level is said to be only 8 to 10 per cent.

An imminent collapse for many is expected, according to analysts, and the immediate socio-economic consequences are dire.

Teetering in the most dangerous category were 19 general contractors whose share prices have dipped below 100 yen (S$1.42), said UBS Warburg senior analyst Toshihiko Okino.

‘If they go under, not only will the 48,000 workers they directly employ lose their jobs, another 400,000 who secure a job because of them will have to go,’ he warned.

If this happened too quickly, other sectors would be unable to absorb all the workers at once and unemployment would go up by at least 160,000, he added.

Many of the bigger construction companies, which are efficient at their core business, now have to pay for their bubble-year folly of straying into the real estate market where they end up being unable to balance their books, however hard they try.

The collapse last week of Sato Kogyo, Japan’s 10th largest general contractor in terms of revenue, came just three months after another mid-sized construction company folded business.

The liabilities from their land holdings exceeded their assets by hundreds of billions of yen, making it impossible for them to carry on although both were making decent operational profits.

Inefficient small construction firms, usually found in local areas, recently lost their legal protection following the abolition of a law stipulating that local projects were to be awarded to small local contractors rather than their big competitors.

The law that replaces it is an attempt to deal with an absurdity in Japan’s construction industry — small firms incapable of handling a big project had to sub-contract it to a major firm for a hefty fee.

On the ground, contractors and the related companies are already bracing themselves for the big crunch
ANNEX E

Proposed Key Recommendations

Restructuring the Industry

1. Procurement Policies

• Re-examine current Government’s tender policy of awarding to the lowest bidder. Introduce a Quality Based Selection System (QBS) to qualify developers, contractors and consultants, taking into account other factors like track record, quality and performance.

• Create fair opportunities for local firms to participate in design or construction of local landmarks.

2. Regrouping of Public Sector Projects

• Foster the growth of firms by regrouping individual projects of similar nature into one project.

• Offer “All-in-one” local contracts whereby the tendering firms will need to reorganise themselves to offer a range of multi-disciplinary capabilities, with a view of building up a core group of competent generalist contractors who are in touch with niche specialist experts, capable of supporting complex overseas projects.

Upgrading Capability

3. Consolidating Expertise/Developing Niche Areas

• Consolidate expertise in various areas in environmental/ ecological technology to export services to developing countries. Eg. Precast technology, eco-efficient design, Environmental technologies such as the use of district cooling, wind and solar renewable energy and green products.

• Other possible niche opportunities include:
  – BOT projects
  – Design and technical expertise especially in medium to high-end housing like condominiums
  – Offer total solutions for low cost housing and public works especially in China, India, Philippines or other regional countries. Target UN or World Bank projects to mitigate risks.
– IT solutions like OSSC and CORENET by BCA with potential spinoffs for local consultants who are familiar with such systems when venturing overseas
– Tropical Design of ecologically friendly and sustainable buildings

4. Innovation

• Offer incentives for developers/contractors/consultants who propose new or novel marketable products in their developments. Eg. Tax incentives, utilities discount for energy saving buildings and GFA rebates.

• Greater flexibility in government regulations. Allow easier change of use of premises given the dynamic business environment.

• Set up a Building Innovation Unit (BIU) within all government agencies whose sole function is to validate and remove existing rules, with a view of making the playing field business-friendly.

• Raise level of IT literacy and usage to integrate the whole value chain from supplies to construction.

5. Industry Development

• Set up an Industry Development Fund on a co-funding basis with the Government and to support:

  – Development costs in system designs, processes, standards, technology, pilot testing and experimentation and localization of products or services for overseas markets.

  – A group of companies that is keen to embark on mutually beneficially projects.

6. Creating a Skilled and Sustainable Workforce

• Create a Professional Development Fund for the purpose of funding continuing professional development (CPD) programmes, promoting creativity and innovation via developing niche capabilities and research facilities.

• To consider granting Q1 workpass to highly skilled, potential supervisory level foreign workers, with a view of granting PR, as well as relaxed policies for dependents.

• Introduce a re-certification programme with a view of identifying and retention of the better foreign workers.
• Devise a loaning scheme via a central system or private transactions between contractors to provide job sustainability to good workers.

• Establish a list of new trades, besides traditional ones, in line with buildability requirements to determine new training needs.

• Devise training programmes and incentive schemes to train workers for building maintenance jobs, as the mainstay of construction works, including M&E systems, retrofitting, etc.

• Establish multi-skilled workers as a means to raise productivity, enhance job mobility, and raise the status and the income-earnings of construction workers.

**Increasing Economic Pie**

*7. Tax Relief/Incentives*

• Proceeds from overseas construction projects remitted back to Singapore for purchase of materials should not be considered as “profits” and taxable under Section 10(15) of Income Tax Act.

• Tax relief to provide support to ease the high overseas running cost in the subsequent project phase.

• Tax relief for firms moving into IT, high-technology and niche areas that are willing to invest in high capital.

*8. Public and Private Partnership*

• Explore mechanism for greater public and private collaboration in overseas projects. The former can spearhead areas such as town planning (URA), port construction (PSA), transport (LTA) while the latter could be involved in residential and industrial buildings.

• One possible option is to create a portfolio of local JV companies (between 5-8), either anchored by a strong corporatised public agency or an established private firm. This is similar to the “Gladiator” scheme by EDB where a leading local firm is identified, together with several smaller firms with complementary niche expertises. An identified government champion can provide a portion of equity stake and serves as a broker role in the JV.
9. Funding for Overseas Projects to Overcome Constraints

- Explore financing options by the government for the issue of low interest loans to any developer or construction firm for overseas projects. The loan should be limited to a certain percentage of the financing requirement, with the remainder to be financed by commercial banks or participating developers. These loans should also be made available to other sectors, and construction firms would have to compete for merit for them. Other facilities include:
  - Bank guarantees
  - Performance/advance payment bonds
  - Letter of Credit facilities
  - Bill Receivable Sales (BRS) in the form of 100% factoring
  - Export credit insurance at lower premium rates

10. An Agency to Promote Construction Development

- BCA to focus on developing local firms to expand into overseas markets that could:
  - Adopt a Team Singapore approach by organising mission trips and matchmaking services to marry up compatible firms to compete overseas.
  - Set up marketing offices to help local firms source for overseas projects.
  - Help small local firms consolidate and merge, similar to the role played by SPRING Singapore in franchising.
  - Facilitate financial institutions to team up with local firms to vie for BOT projects.

11. Branding in Export

- Create Centre of Excellence for Housing, Infrastructure and Town Planning (serve as showcases for exports as well) or Centre of Excellence for Engineering, Procurement and Construction (EPC).

- Promote Singapore's architectural/cultural heritage, to raise our international standing.