# Singapore Management University Institutional Knowledge at Singapore Management University

Research Collection Lee Kong Chian School Of Business

Lee Kong Chian School of Business

5-2010

# Selective Intervention and Economic Re-Engineering: Lessons Form Singapore's Parks in Indonesia and India

Caroline YEOH Singapore Management University, carolineyeoh@smu.edu.sg

Siang Yeung Wong

Follow this and additional works at: http://ink.library.smu.edu.sg/lkcsb\_research Part of the <u>Finance and Financial Management Commons</u>, and the <u>Portfolio and Security</u> <u>Analysis Commons</u>

Citation

YEOH, Caroline and Wong, Siang Yeung. (2010). Selective Intervention and Economic Re-Engineering: Lessons Form Singapore's Parks in Indonesia and India. *Journal of Asian Business Studies*. , 20(2) , 13-40. Research Collection Lee Kong Chian School Of Business.

Available at: http://ink.library.smu.edu.sg/lkcsb\_research/2709.

This Journal Article is brought to you for free and open access by the Lee Kong Chian School of Business at Institutional Knowledge at Singapore Management University. It has been accepted for inclusion in Research Collection Lee Kong Chian School Of Business by an authorized administrator of Institutional Knowledge at Singapore Management University. For more information, please email libIR@smu.edu.sg.

# Selective State Intervention and Economic Re-Engineering: Lessons from Singapore's Industrial Parks in Indonesia and India

# **CAROLINE YEOH\* AND WONG SIANG YEUNG\*\***

The Singapore economy's "success story" has traditionally been underscored by state-led, market-driven intervention. The state enterprise strategy involved the establishment of industrial parks in China, India and several South-East Asian countries. These overseas projects sought to extend Singapore's economic boundaries by exploiting comparative advantages that each region had to offer, so as to achieve sustainable economic development for the city-state. This paper revisits Singapore's flagship projects in Indonesia and India. It finds that the strategic objectives associated with the development of these parks are only partially achieved. The paper concludes that, while the Singapore government's role in developing, managing and operating these overseas industrial parks is crucial from the start, differing agendas, sometimes within the same host government, intertwined with the cultural and political complexities of large foreign economies, and the uncontrolled external environment, serve to diminish the efficiency and commercial viability of such state-sponsored entrepreneurship ventures.

# Introduction

The Singapore model of economic development is a *variation* of the "development state model" (Evans 1995, Woo-Cumings 1999) – economic restructuring, industrial transformation, and rapid economic growth are achieved through "collaborations" with multinational enterprises (MNEs) rather than with local industrial enterprises. The early stages of the city-state's development proved to be hugely successful. The adoption of a free enterprise, open-door policy led to a heavy influx of foreign direct investments, mainly MNEs. Strategic partnerships with these MNEs ensured steady economic growth and jobs for its people However, by the mid-1980s, rising business costs meant that it was imperative to re-engineer the economy towards higher value-added activities in order to realize its vision of becoming a regional center for advanced technology (Lim 1984). Despite liberal financial and tax incentives, few MNEs were willing to upgrade their operations, and continued to shift their labor-intensive and low value-added operations out of Singapore (Kumar and Lee 1991). Facing an uncertain economic future, the Singaporean government chose to evolve from a

<sup>\*</sup> Lee Kong Chian School of Business, Singapore Management University

<sup>\*\*</sup> School of Accountancy, Singapore Management University

developmental to an entrepreneurial state, though with developmental rather than profit motives.<sup>3</sup>

State-led infrastructure projects and a genre of selective interventions (Yeoh et al. 2004a), incentives, and innovations were designed to assist local and Singapore-based MNEs to redistribute their operations to production sites in the region (Okposin 1999, Perry and Yeoh 2000, Blomqvist 2002, Sitathan 2002, Yeung 2002) and to upgrade their operations in Singapore to higher-end activities, utilizing the unique set of benefits and competencies offered by each location. Customized to accommodate resource-dependant operations of firms, it was envisaged that these industrial parks would enhance the collective competitiveness of Singapore-based companies, as well as Singapore's own competitiveness as a high-value investment location with strategic linkages to the region (Figure 1). This not only enhances the cost-competitiveness of firms, but develops Singapore into a high-value investment hub with strategic linkages to resource-abundant locations in the region, effectively manipulating the regional economic geography to expand the city-state's economic space through a symbiotic relationship with its neighbors. To augment the location advantages of the strategic sites, Singapore lends its reputation and competitive strengths in infrastructural development and management to the regional sites, potentially bringing about "developmental effects" in the host environments (Pereira 2003).





Adapted from Singapore Unlimited (Singapore Economic Development Board, 1995)

This paper examines the extent to which such state-sponsored entrepreneurship ventures can extend economic boundaries and help a home economy and its firms cope with shifting comparative advantages and exploit national competitive advantages developed during earlier phases of economic development. The paper will focus, specifically, on the first overseas industrial township project, in Batam Island, Indonesia, and the most recent project, in Bangalore, India's IT capital. Further background on the impetus behind the regionalization initiative is presented in the next section, followed by an account of the origins and progress of the case study parks. The flagship projects are then evaluated in terms of the progress in attracting investment, the contributions to the strategic objectives associated with the parks, as well as to Singapore's broader regionalization initiative. The analysis is reinforced by empirical data from our on-site surveys of the parks' tenants, and in-depth case studies of selected tenants in both locations. The final sections consider the implications of these experiences for Singapore's regionalization program, and evaluate the city-state's determined efforts to harness synergistic complementarities in its strategy to restructure the Singapore economy.

# Regionalization and the Singapore Economy

The city-state of Singapore has continually sought to overcome its resource limitations by extending its economic hinterland beyond its national boundaries. Singapore's global outreach, supported by constant economic reform and its competitive strengths, has allowed it to achieve remarkable economic growth in a relatively short span of time. The mid-1960s saw the beginnings of the Singapore government's aggressive approach to woo foreign MNEs to fuel the city-state's economic development (Mirza 1986, Pang 1987, Rodan 1989, Regnier 1991, Huff 1995, Pereira 2000). However, by the early 1980s, rising business costs at home and increasing competition from low-cost, labor-abundant countries in the region made it imperative for Singapore to shift away from labor-intensive activities. The government initiated a major industrial restructuring, which saw Singapore transforming itself into a hub for MNEs engaged in higher value-added manufacturing activities (Krause 1987, Lim et al. 1988).

Pari passu, Singapore's economic planners sought to expand the island's investment horizons through an overseas direct investment program launched in 1988.<sup>4</sup> The main ideas were set out in the policy document Gearing Up for an Enhanced Role in the Global Economy (Singapore Economic Development Board (SEDB) 1988). The 1990 Global Strategies Conference added new dimensions to these deliberations (SEDB 1990). Capitalizing on the liberalization of foreign investment controls and high growth rates in the Asia-Pacific region, Singapore looked to develop its "external wing" by investing in countries across Asia (Wong and Ng 1991, Regnier 1993, Mahizhnan 1994, Murray and Pereira 1995, Pang 1995, Okposin 1999, Blomqvist 2002). Singapore's regionalization program involved, among others elements,<sup>5</sup> the establishment of industrial parks in emerging economies in the Asian region that replicated the business environment found in Singapore (Perry and Yeoh 2000). These industrial parks were marketed as a propitious synergy of location-specific advantages and Singapore's strengths in infrastructural development and management. The industrial parks were established based on the premise that they would allow Singapore-based firms to maintain access to low-cost, resource-abundant centers for their resourcedependent operations while conducting higher value-added operations in Singapore. The strategic repositioning was discussed at the 1993 Regionalization

Forum and encapsulated in the policy document *Singapore Unlimited* (SEDB 1993a, 1995a, 1995b).

The government's role in the township developments was three-pronged. First, senior politicians and civil servants negotiated the institutional framework for the project, which typically involved garnering special investment conditions in the host location. The stress on exploiting personal ties accords with business practice preferred by the linked communities of "overseas Chinese" (Hamilton 1991, East Asia Analytical Unit 1995, Brown 1998, Yeung 2002), the "bamboo network" which Singapore made use of in its industrial parks in Indonesia and China. Second, Singapore government agencies and government-linked companies (GLCs) were the prime investors in the infrastructure and real estate development, usually via a "government-selected" consortium (Zutshi and Gibbons 1998). Third, senior politicians were aggressively involved in the promotion of the parks, while the Singapore Economic Development Board took on the role of "business architect" by encouraging foreign multinationals to locate their regional headquarters in Singapore and by redistributing lower-end operations to the industrial parks. The government also initiated a series of platforms for strategic discussions and collaborations to market Singapore's overseas industrial parks (SEDB 1993b). The case-study parks in Indonesia and India, along with other similar parks in China and Vietnam, are examples of this mode of regionalization.

Batamindo Industrial Park (BIP), the first overseas industrial township developed by Singapore and launched in 1992, was instigated as a one-time project to provide additional low cost production space at a time when Singapore's strong recovery from the mid-1980s recession was accentuating land and labor shortages. The initial success in establishing BIP provided further justification and support for government leadership in infrastructure projects through selective interventionist policies. It subsequently became the model for other townships developed under the regionalization program, such as the Bintan Industrial Estate (BIE) in Bintan Island, Indonesia, and the Vietnam-Singapore Industrial Park (VSIP) in Ho Chi Minh City, Vietnam. The regionalization strategy was further encouraged when the then-Chinese premier Deng Xiaoping invited Singapore's then-Senior Minister Lee Kuan Yew to develop a model industrial township to test the feasibility of transplanting Singapore's methods to China. This ambition reflected the goal of developing a township to test the effectiveness of the Singapore approach to social and economic development in China. This goal was encouraged by Deng, who regarded Singapore as "a capitalist version of the communist dream." The project was endorsed in an intergovernmental agreement in 1994 to develop the China-Singapore Suzhou Industrial Park (CS-SIP). The project invitation envisaged both infrastructure provision and the transfer of "software" associated with Singapore's social and economic policies. It provided a pseudo-political motive to the regionalization strategy - to enhance Singapore's reputation for efficient, non-corrupt administration and reliable infrastructure and for its ability to export its economic model to a large country like China.

While most of Singapore's initial infrastructure projects were situated in low-cost labor-dependent economies such as Indonesia, Vietnam, and China, the rise of the service and information technology sectors initiated the move into India in 1994, and the timing could not have been better. The early 1990s saw India throwing its doors open to foreign investment as part of a determined liberalization procedure intended to boost economic growth, akin to what Singapore had done in its early years of development. Singapore's attempt to ride on the information technology wave led to the setting up of the International Technology Park Limited (ITPL) in Bangalore, the country's IT capital.

# Singapore's Overseas Industrial Parks

#### Batamindo Industrial Park (BIP), Indonesia

Talks between Indonesia and Singapore to cooperate in Batam's development had been a frequent occurrence during the early 1980s without producing significant results. One stumbling block was Singapore's preference for regulatory concessions. It took until the late 1980s for mutual agreement to be rendered; a time when Singapore's priority was additional production space and Indonesia was prepared to extend foreign investment concessions to kick start Batam's development<sup>6</sup> (Yeoh 1990, Perry 1991, Regnier 1991). Since 1992, foreign companies in Batam were exempted from the need to devolve a share of ownership to Indonesian partners, the number of sectors closed to foreign investors was reduced, and greater opportunity was available for foreign industry to locate outside of bonded industrial estates. The island's duty-free status was amended to facilitate a proportion of output to be exported to other parts of Indonesia. Investment risks were reduced by allowing foreign companies to manage industrial estates, providing the opportunity for the Singapore government-linked companies to set up the joint venture to develop and manage BIP.

BIP was launched in 1992. The park started as a joint-venture between Singapore's GLCs<sup>7</sup> and the Salim Group of Indonesia. Salim was Indonesia's largest business conglomerate at the time, and had close links to senior politicians and privileged access to the major investment projects in the Riau Islands (Sato 1993, Hill 1996). Singaporean GLCs were given control over the development and management of the parks, while Salim's role was to facilitate operations and to provide a guarantee of priority over regulatory controls and administrative approvals. Singapore's reputation for transparent and efficient management of projects lent further credibility to the projects and maximized marketing leverage over Singapore-based multinationals (Yeoh et al. 1992, Naidu 1994, Grundy-Warr et al. 1999).

BIP was envisaged as a self-contained environment, with its communication and business linkages through Singapore rather than through Indonesia. BIP, for instance, has its own power supply, water treatment plant, sewerage system, telecommunications facilities, and social amenities. These, together with the location advantages that Indonesia offers, has resulted in an investment enclave offering facilities close to conditions in Singapore, in marked contrast to the conditions immediately outside the parks.

BIP's first tenants were mainly subsidiaries of American, European, and Japanese multinationals already operating in Singapore. Cumulative investments and export value in BIP topped US \$1 billion and US \$2 billion, respectively, in 2002, and the number of confirmed tenants increased from 17 in 1991 to 82 in 2003. Of these, 39 were Japanese companies, with Singapore-owned companies the next largest concentration at 25. American and European investors have a limited presence. There is a concentration of electronics operations, mainly various component assembly processes, and supporting activities to the electronics sector such as plastic molding and packaging. Out of a total workforce of 65,000, over 85% are female, most aged from 18-22. Table 1A shows the operational statistics in BIP, while Table 1B shows the tenant profile by origin and Table 1C the tenant profile by sector. BIP proved to be profitable, and several similar industrial parks were spawned in Indonesia (BIE), Vietnam (VSIP), and China (CS-SIP and the Wuxi-Singapore Industrial Park), although these encountered more challenges.

General Information				
Investment by Developer	US\$470 million			
Committed Tenants	82			
Area Taken Up	320 hectares			
Investment by Tenants	> US\$1 billion			
Annual Export Value (for 2002)	> US\$2 billion			
No. of Employees	65,000			

#### Table 1A: Batamindo Industrial Park - Operational Statistics (June 2003)

Source: SembCorp Industries.

# Table 1B: Batamindo Industrial Park – Tenant Profile by Country of Origin (June 2003)

(****	
Country	Percent
USA	9
Japan	48
Europe	11
Singapore	30

Source: Batamindo Industrial Park, Tenants' List, June 2003

Sector	Percent	Sector	Percent
Electronics	44	Packaging	6
Precision Parts	15	Medical	4
Plastic moulding	11	Pharmaceuticals	1
Electrical	11	Others	9

Table 1C: Batamindo Industrial Park – Tenant Profile by Sector (June 2003)

Source: Batamindo Industrial Park, Tenants' List, June 2003

#### International Technology Park Limited (ITPL), Bangalore, India

While BIP was essentially set up as a low-cost economic enclave, the motive behind the setting up of ITPL was decidedly different. India put forward numerous location-specific advantages that prompted Singapore to set up an industrial park in Bangalore. The cheap and plenteous availability of both skilled and unskilled labor and the abundant land resources, combined with the cooperative and encouraging attitude of the Indian government, would translate into a myriad of advantages for the city-state if some of its operations were to relocate to India. The information technology boom accompanied by the vast disposal of IT facilities and highly-skilled software specialists presented an avenue for building a technology park wherein high-end activities could take place. Hence, while other parks catered for manufacturing and other activities within the "operations" realm of the value chain, ITPL provided Singapore with the unique set of advantages that blended low-cost and high-end activities at the same time so that firms could integrate their different value chain activities in a single location.

The idea to create a Singapore-style park was first mooted by Singapore's then-Prime Minister Goh Chok Tong and India's former Premier P.V. Narashima Rao, in 1992. Construction commenced in September 1994, and the park was officially inaugurated in 2000. ITPL is located 18km away from Bangalore in India's Silicon Valley.<sup>8</sup> The partners in the ITPL project were a Singapore consortium of companies<sup>9</sup> led by Ascendas International, the Tata Group, and the Karnataka state government in a 40-40-20 arrangement. The Karnataka state government has since reduced its stake to 6%, while the Singapore consortium, and the Tata Group have increased their respective stakes to 47% each.

Marketed aggressively as an environment that "cuts through the red tape and bottlenecks that are a part of India's infrastructure and operating environment" (*The Straits Times*, August 8, 1999), ITPL was slated to provide total business space solutions to multinationals and other conglomerates within a state-of-the-art technology park. More distinctively, ITPL guarantees uninterrupted power supply and telecommunication facilities, immediateoccupancy business incubator space, and the formulaic "one-stop" service. Its futuristic design comes complete with value-added services like business/office support centers, medical center, food court, restaurants, and recreation and fitness centers. ITPL also houses the Indian Institute of Information Technology, which provides professional and skilled manpower for the park's tenants. Operating profits have been registered, and ITPL is projected to break even within the next four years.

The blend of location-specific advantages such as technology and infrastructure on one hand, and competitive skilled labor on the other, led to high value-added activities taking place at ITPL. Its earliest clients included SAP Labs, First Ring and 24/7. As of January 2003, there were 100 confirmed tenants, of which 93 were operational, with 8500 employees. More than half of these tenants were represented by wholly or partially foreign-owned firms, which included some well-known global players like AT&T, IBM, Motorola, Sony, Texas Instruments, Citicorp, and Thomas Cook. The industries there included software development, business process outsourcing, and manufacturing.

Both BIP and ITPL reflect an "industry cluster" strategy. BIP contains a cluster of electronic firms (50%) while ITPL reflects a concentration of software and e-service based firms (70%). However, the difference is that while 91% of firms in BIP are engaged in manufacturing activity, the corresponding percentage in ITPL is only 10%. Table 2A shows the operational statistics in ITPL, Table 2B shows the tenant profile by country of origin, and Table 2C shows the tenant profile by sector.

# Table 2A: International Technology Park Limited - Operational Statistics (June 2003)

General Information		
Scale of Development	About 70 acres	
Developed Area	1.6 million sq ft	
Total Investment Value	SG\$200 Million	
Confirmed Tenants	100	
Operating Tenants	93	
Area	1.4 million sq ft.	
Park Population	8,500	

Source: Ascendas International

Table 2B: International Technology Park Limited –Tenant Profile by Country of Origin (June 2003)

Country	Percent
USA	42
India	36
Europe	16
Asia	6

Source: Ascendas International

Sector	Percent	Sector	Percent
Software Development	49	IC Design	3
BPO/ITES	24	R&D	1
Biotech/Bio-Informatics	3	Educational Institutions	2
Manufacturing	10	Others	8

 Table 2C: International Technology Park Limited – Tenant Profile by Sector

 (June 2003)

Source: Ascendas International

#### **Empirical Data**

Much of the analysis on the parks has relied primarily on secondary data from official publications, press reports, etc. To obtain primary data on the differential impact of various pull factors on firms' investment decisions, along with the differential impact of different types of constraints on their operations, we applied a modified version of the questionnaire developed in Yeoh *et al.* (2000) to the tenants in ITPL in December 2002 and June 2003, and, for BIP, in July 2003. The first set of questions sought to determine the profile of the respondents: type of ownership, nature of operations, and size of establishment; and the second set was structured to gather information on the push-pull factors affecting the investment decisions of the tenants. Other questions pertaining to the respondents' views on the facilities and services in the Parks were culled from the open-ended questions. A total of 60 responses (27 from BIP and 33 from ITPL) were collected. The sample represented 34.6% of BIP tenants and 36.7% of ITPL tenants at the time of survey, and the profile of the sample closely matched that of the population.

#### Statistical treatment of survey results

Apart from analyzing the descriptive statistics and popular rankings on the responses related to factors and constraints, logit analysis was used to compare the push/pull factors influencing the tenants' decision to locate in the Parks. The logit model, estimated by the maximum likelihood, takes the following form:

$$P_i = \frac{e^{Z_i}}{1 + e^{Z_i}}$$

where P<sub>i</sub> is the probability of a firm being located in the particular park exp refers to the exponentiation operator, and

Z<sub>i</sub> is a linear function of the push/pull factors defined as

$$Z_i = \alpha_0 + \sum_{i=1}^{i=6} \alpha_i F_i$$

where  $F_1 = 1$  if "Political commitment from the Singapore government" is selected, 0 otherwise

 $F_2 = 1$  if "Political commitment from the host country government" is selected, 0 otherwise

 $F_3 = 1$  if "Investment incentives" is selected, 0 otherwise

 $F_4 = 1$  if "Competitive labor costs" is selected, 0 otherwise

 $F_5 = 1$  if "Reliable infrastructure facilities" is selected, 0 otherwise

 $F_6 = 1$  if "Access to domestic market" is selected, 0 otherwise

 $\alpha_0 = \text{constant term}$ 

 $\alpha_i$  = coefficient of independent (explanatory) variable

Estimated coefficients in the logit model, if statistically significant (as indicated by the p-values), would suggest that the firm choosing that particular push/pull factor is more likely to be from BIP than from ITPL.

A similar logit model was applied to each type of constraint (Labor, Organizational/Technological, and Environmental) faced by the Parks' tenants:

$$\mathbf{P}_{\mathbf{i}} = \frac{e^{\mathbf{Z}_{\mathbf{i}}}}{1 + e^{\mathbf{Z}_{\mathbf{i}}}}$$

where  $P_i$  is the probability of firm being located in the particular park exp refers to the exponentiation operator, and  $Z_i$  is a linear function of the constraints defined as

$$Z_{i} = \beta_{0} + \sum_{i=1}^{i=n} \beta_{i} C_{i}$$

where  $C_i = 1$  if the *i*<sup>th</sup> constraint within that type is selected, 0 otherwise  $\beta_0 = \text{constant term}$  $\beta_i = \text{coefficient of independent (explanatory) variable}$ 

In this case, estimated coefficients in the logit model, if statistically significant, would suggest that the firm choosing that particular constraint is more likely to be from BIP than from ITPL.

Results from our logit models are presented in Tables 3 and 4.

	Maximum Likelihood		Popular Ranking			
Variables	Estimates - Binary Logits		BIP		ITPL	
	$\alpha_i$	p-value	Frequency	Rank	Frequency	Rank
Political commitment from Singapore government	1.422	0.237	17	4	6	4
Political commitment from host country government	1.992	0.058*	21	3	6	4
Investment incentives	1.253	0.291	16	5	14	2
Competitive labor costs	4.274	0.003***	22	2	1	5
Availability of skilled/educated labor	-0.644	0.622	16	5	12	3
Reliable infrastructure Facilities	-1.124	0.424	23	1	27	1
Constant ( $\alpha_0$ )	-4.504	0.010***				

# Table 3: Factors Influencing the Respondents' Decisions to Invest in BIP/ITPL

Note: <sup>\u03c4</sup> Estimated values were taken from "forced entry" regression. <sup>\u03c4</sup> p-values are for 2-tailed tests. \*\*\* Significant at 1% level \*\* Significant at 5% level

\* Significant at 10% level

Source: Questionnaire surveys

	Maximum Likelihoo	n d	-	Popular Ra	nking	
Variables	Estimates		BIP		ITPL	
		<i>n-value</i>	Frequency	Rank	Frequency	Rank
Labor Constraints Shortage of semi-skilled and skilled labor	2.770	0.024**	11	3	3	4
Shortage of professionals and managers	-0.182	0.865	10	4	4	3
Rising labor costs	2.283	0.021**	21	1	7	1
Industrial relations problems	3.330	0.002***	17	2	3	4
Others	1.235	0.336	4	5	7	1
Constant ( $\beta_0$ )	-6.237	0.004***				
Organizational and Technological Constraints Difficulty in obtaining capital equipment	1.246	0.226	5	4	3	4
Difficulty in introducing new technology and techniques	2.541	0.009***	11	3	3	4
Lack of good supporting services	2.504	0.007***	13	2	4	2
Difficulty in securing funds for expansion	1.699	0.135	4	5	2	6
High and/or rising overhead costs	0.914	0.303	20	1	16	1
Others	-18.831	0.999	0	6	4	2
Constant ( $\beta_0$ )	12.592	0.999				

# Table 4 Major Constraints on the Respondents' Operations in BIP/ITPL

Environmental Constraints Impact of host government regulations	2.312	0.018**	11	1	8	1
Competition from overseas industry competitors	2.920	0.001***	11	1	4	3
Others	-2.705	0.084*	7	3	6	2
Constant ( $\beta_0$ )	0.051	0.971				

Table 4,	cont.
----------	-------

Note:  $^{\Psi}$  Estimated values were taken from "forced entry" regression.

<sup>•</sup> p-values are for 2-tailed tests.

\*\*\* Significant at 1% level

\*\* Significant at 5% level

\* Significant at 10% level

Source: Questionnaire Surveys

# **Case Studies**

Interviews were also conducted with selected companies operating in each of the industrial parks, to understand the unique circumstances facing these companies. Porter (1994, 2000), among others, has argued that not only should the production process be viewed as a value chain, but also that firms should identify comparative or location-specific advantages unique to each country/territory, which will serve to complement the competitive and firmspecific advantages specific to their core functions. Furthermore, according to rationalization theories, firms should situate their operations in different locations to capitalize on the comparative advantages offered in each location. Synergistic efforts will occur when a strategic fit between the competitive and comparative advantages exist. Singapore's involvement in BIP and ITPL represents an effort to synergize superior infrastructure and efficient and transparent management practices, with the location-specific advantages of the case-study parks. The underlying intention is to create an enclave, within a more uncertain environment, where firms can exploit location-specific advantages with greater ease and security.

To address this aspect of our research, we present case studies of eight firms located in the case-study parks to draw out empirical insights on the dynamics of the case-study parks as centers for value-added activities, *inter alia*, the strategic fit between the value-added chain of the firms and the competitive advantages of the sites.

#### Case studies of BIP firms

#### *Company A (Electronics)*

Company A is part of a US-based conglomerate. The subsidiary in Batam is under the electronics arm of the conglomerate. The existing Batam operations started in 1992, but belonged to a competitor German electronics components manufacturer, which located to BIP to take advantage of the stable infrastructure and low labor costs. In October 2000, Company A acquired its rival and took over all its manufacturing operations, including the facility in BIP. It has since become a leading maker of passive electronic components such as automotive relays and connectors. The BIP operations currently employ 560 workers and occupy 4,500 square meters. The company sources its inputs from around the world, and the facility in BIP is mainly for production. The final products are shipped to the US, Australia and some parts of ASEAN.

The company praises the one-stop service provided by the park's management, citing the efficient and transparent administration as a boon to its operations, by providing a more stable operating environment. However, being primarily labor-intensive, the company is feeling the impact of the rising labor and overhead costs on its operations. Specifically, it would like to see more efforts made to lower the operating overheads, such as having variable electricity rates.

#### Company B (Crystal oscillators)

Company B is a 100% owned Japanese firm that produces crystal oscillators. It occupies 6,000 square meters of space in BIP, and is serviced by a workforce of 432 employees. The company manufactures about 100 various types of oscillators to be used in an array of products, from clocks to cell phones. Production and outbound logistics are administered mainly in Batam, with the parent base in Japan engaged in the research and development of new technology.

The company located its production facility to BIP in 1997, drawn by the cheap rent, utilities, and labor. Other pull factors included the strength of BIP's infrastructure and the provision of medical and legal services. These strengths outweighed the perceived weaknesses of BIP, which included poor traffic conditions, restricted telecommunications services brought about by the country's monopoly, and the uncertainty brought about by terrorism.

The company suffered losses for their 2002 financial year, attributed to the September 11 attacks and the region's instability, which further pushed down investors' confidence. The volatile mobile phone market, coupled with economic uncertainty has forced the company to reassess its investment in BIP. In a bid to maintain its cost competitiveness, the company aims to streamline its production processes, and employ advanced technology. It remains optimistic of a potential buoyant economy, fueled by the reduction of leading economies' interest rates in a bid to spur consumer spending, which bodes well for its overseas markets.

#### *Company C (Electronic switches)*

Company C is a Singapore-Switzerland joint venture in the electronics contract manufacturing industry, primarily involved in printed circuit board assembly and box-build assembly. Many of its products, such as refrigerator switches, are used in industry as intermediate products. Their BIP operation employs about 200 workers, and occupies one medium-sized factory. All its products are exported out of Indonesia.

The company cites the competitive costs of unskilled labor and overheads and political commitment and incentives from the Indonesian government as pull factors which drew it to BIP. In particular, it singled out the reliable infrastructure as the park's greatest strength. It was also quite satisfied with the one-stop service provided by the park.

However, though labor was cheap, the company felt that productivity was lacking and its operations were often disrupted by industrial relations problems. The higher overhead costs were also a concern. Though the one-stop service was commendable, the company still felt stifled by red tape as new technologies could not be easily imported.

#### Company D (Adhesives)

Company D is a wholly-owned subsidiary of a Singapore-based company, which in turn is affiliated with a larger Japanese conglomerate. The company is a manufacturer of a diverse range of adhesives for both domestic and industrial usage. It is also involved in the manufacture of the aluminum packaging for its adhesive products. Its manufacturing facility in BIP was set up in 1996, and involved the shifting of all activities purely related to manufacturing from Singapore, where labor costs were eroding their profitability. All inputs for its operations were imported from Singapore. The company does not have a license to export its products, so it ships all final products back to Singapore for re-export. It currently employs 150 workers and occupies two medium-sized factories.

Although the management acknowledges the reliable and stable infrastructure, it is generally displeased with the high cost of utilities, and feels that the premium charged is excessive compared to the benefits obtained from such basic necessities. Labor costs were lower in BIP, but there had been many industrial disputes that caused much uncertainty to its operations and strained relations between the company and its workers. Workers' unions wielded considerable power in negotiations and often disrupted the company's production schedule. Moreover, although labor costs were low, absenteeism was high and the workers' poor work ethic affected productivity. Labor laws were also deemed to be too protective towards workers.

#### Case studies of ITPL firms

#### *Company E (Inter-enterprise software)*

Company E is a wholly-owned subsidiary of an international software giant. Its German parent is recognized as the world leader in providing collaborative business solutions for all types of industries and major markets. Initially a small German outfit operating in Bangalore's Koramangala district, it was taken over in 1998 in a move that was accompanied by a shift into ITPL. One of the first occupiers, it was also the park's largest tenant in terms of space occupancy. The company initially had a choice of relocating itself to ITPL or to other city locations that required only one-fourth the rent. The company chose ITPL, despite its higher rents, largely due to the following critical advantages that ITPL provided: uninterrupted power supply, state-of the-art infrastructure, ease and speed of setting up shop, and excellent communication channels. The company's operation within the park is in software development, and is a "100% export unit." All its exports go to Germany.

In the four years since its inception, it has grown from 70 employees to over 500 employees. Space constraints within the park have forced the company to consider other locations. ITPL has been unable to cater to the growing and irregular needs of the company, being a park suited for small and medium-sized enterprises. With its rapid expansion, Company E no longer views ITPL's costly rents as an expense that can be justified; the company has since relocated into an expansive new 15-acre campus. Furthermore, the company views such a shift as an opportunity to establish its own identity, which it had not fully experienced in a multi-tenanted place like ITPL. However, given ITPL's "distinct" advantages, the company continues to retain office space in the park's new Built-To-Suit facilities.

#### Company F (Business process outsourcing)

Company F is an American-based firm undertaking e-services. Its key operations in the park include call centers, real-time customer service management, and technical support to foreign firms. Catering to customers like Alta Vista, the company has conducted successful programs such as outbound telemarketing, inbound phone customer service, and inbound phone technical service, with service areas spanning countries worldwide, particularly the U.S. and Europe.

ITPL, with its facilities best suited for small and medium-sized enterprises engaged largely in R&D and in the service industry, has become an "incubator" for companies involved in Business Process Outsourcing (BPO). Located at the "Creator" building of ITPL, Company F is one of many such companies. Established in the park in April 2000, the company has over 800 employees.

ITPL's regular power supply, 24-hour speedy connectivity, and plug-andplay services were the distinguishing pull factors for the company. Additionally, Bangalore's colleges and universities provide a ready pool of potential employees, which, for company F, is an added advantage in carrying out its operations from ITPL.

#### Company G (Business process outsourcing)

Company G is a wholly American owned firm, incorporated in May 1999 as a 100% subsidiary. Its facility within the park spreads over 42,000 square feet and employs 12,000 employees. The company's functions within the park largely

focus on Business Process Outsourcing, which includes both inbound and outbound customer care.

As in the case of other companies in the same industry, Company G, too, cites the permanent power supply, 24-hour connectivity and supporting infrastructure as the vital factors that prompted it to situate in the park. The company also employs a sizeable portion of the IT graduates that Bangalore churns out every year. In addition, the firm perceives ITPL's professional support services and maintenance programs as a distinct advantage over other locations. However, the company has expressed reservations over the numerous other call centers making their way into ITPL to make use of the same advantages; this escalates into other problems such as heightened competition, further sharing of resources, and the "the pool of entry-level people getting smaller."

#### Company H (Travel and financial services)

Company H is one of the world's leading international travel and financial services groups and serves over 20 million customers a year. It provides services at 4,500 locations in more than 100 countries and employs over 20,000 people. The company's Indian subsidiary has a network of 54 locations in 16 cities across India.

Company H is one of the very few companies that were approached by the ITPL management itself to set up shop at the park, largely to provide travel, credit card and foreign exchange services. Company H is a small entity with only five employees. However, it has managed to secure a large customer base due to the fact that it is the only tenant providing such services within the park. Moreover, the company also caters to an increasing number of firms outside the park who find it convenient to visit its office in the park, which is in close proximity, instead of approaching its other branches placed in the city center.

# Findings and Analysis

## The pre-investment lure of BIP/ITPL (Table 3)

Singapore leverages on its infrastructural development expertise and the location-specific advantages available in the host environments to market its industrial parks. It supplements these purported advantages with its political commitment to the Parks, as demonstrated by the many bilateral agreements between the GLCs and host governments, or politically-linked business conglomerates, and a host of investment incentives to entice multinationals to locate their activities to these self-contained enclaves. While BIP offered businesses cheap labor for their low value-added activities, ITPL, with its skilled-manpower base and competitive labor costs, could facilitate activities higher up the value chain.

#### Cheap labor

Competitive labor costs were a major pull factor for BIP tenants compared to ITPL tenants, as indicated by the positive and statistically significant  $\alpha_4$  (=

4.274). This is expected since BIP serves as a low-cost investment enclave, and a large proportion (71%) of the tenants in BIP engage in manufacturing activities. Manufacturing being labor intensive inherently requires low-cost labor. ITPL tenants, who are primarily in the services sector, also value cheap labor, but do not require it in the sheer amounts that manufacturing demands. 82% of ITPL respondents had less than 50 employees, while 52% of BIP respondents employed more than 500 people. Our in-depth case studies substantiate the survey results. For Companies A through D, lower labor cost and greater availability of labor were key factors in their decision to locate some of their production operations to Batam, while the ITPL firms cited the importance of skilled labor and the many educational institutions in and around Bangalore contributing to the pool of human talent as essential pull factors.

#### Reliable infrastructure

Not unexpectedly, the reliable and efficient Singapore-styled infrastructure was the main draw of both BIP and ITPL. 85% of the BIP tenants and 82% of the ITPL tenants surveyed cited it as the main pull factor for them to locate in the Park. All our case study companies also cited the reliable infrastructure and efficient support services as significant pull factors, particularly for the software development and BPO companies (Companies E, F, and G), which require uninterrupted power supply and efficient communications infrastructure.

#### Political commitment

Political commitment from the host government is another major concern for BIP tenants compared to ITPL tenants, indicated by the positive and statistically significant  $\alpha_2$  (=1.992). This can be explained by the instability of Indonesia's political system. The post-Suharto era was significant for BIP, as many firms pulled out of BIP during the political unrest. The situation was further exacerbated by the political uncertainties with the Indonesian presidency changing hands from Habibie to the first elected president, Abdurrahman Wahid, and finally to Megawati Sukarnoputri upon her predecessor's impeachment. Key economic positions were reshuffled and economic advisors changed frequently, as power jockeying among the parties, ministries, legislature, central bank, and other institutions continued. All these serve to complicate investors' assessment of Indonesia's political outlook. Political commitment from both the Singapore and Indonesian governments became particularly important in keeping the tenants' confidence in BIP.

#### The post-investment constraints in BIP/ITPL (Table 4)

BIP is now an established industrial estate development. ITPL is relatively new. These parks have demonstrated the portability of the Singapore infrastructural model, and complemented Singapore's inadequacies by taking advantage of comparative advantages overseas. However, while they may have attracted a sizeable number of investments, they have not met the expectations of the current tenants. Our study alludes to some emerging constraints that have undermined the attractiveness of the parks. These constraints are categorized into three broad groups: labor-related constraints, organization and technology-related constraints, and constraints relating to the economic "environment," such as government policies and regulations.

#### Labor-related constraints

The "cheap" labor resources that drew companies to BIP proved to be a perception rather than the reality, as "rising labor costs" was the main constraint faced by 78% of the BIP tenants surveyed. BIP tenants also found rising labor costs to be more of a concern than ITPL tenants as indicated by the positive and statistically significant  $\beta_3$  (= 2.283). Other labor constraints experienced by BIP tenants (but less so by ITPL tenants) include the shortage of semi-skilled and skilled labor and industrial relations problems, as indicated by the positive and statistically significant  $\beta_1$  (= 2.770) and  $\beta_4$  (= 3.330). In fact, industrial relations problems were cited by Companies C and D as being very disruptive to the operations of the tenants in BIP, as workers unhappy with labor laws often resort to pressure tactics such as strikes, demonstrations, and work-to-rule. Coupled with low productivity, high absenteeism and poor work ethics, the cheap unit cost of labor often did not materialize into lower unit cost of production for the BIP tenants.

#### Organizational/technological-related constraints

The Singapore-styled infrastructure, though reliable and efficient, also proved to be costly, as facilities such as the power plant, waste-treatment system and water supply are independently managed. This resulted in high overhead costs, especially in BIP where 74% of the respondents, and most of the case-study companies, cited it as a constraint they faced. This view was echoed less frequently (48%) by the ITPL tenants. Other organizational/technological constraints faced by BIP tenants (but not as much by ITPL tenants) include the lack of good supporting services ( $\beta_3 = 2.504$ ) and difficulty in introducing new technology and techniques ( $\beta_2 = 2.541$ ), both of which are positive and significant.

#### "Environmental" constraints

"Environmental" constraints, or constraints specific to the operational environment, such as "impact of host government regulations" and "competition from overseas industry competitors," were faced by both BIP and ITPL tenants. However, whereas 89% and 78% of BIP tenants cited the above two respective constraints, less than one-third of the ITPL tenants indicated likewise. This accounts for the positive and statistically significant  $\beta_1$  (=2.312) and  $\beta_2$  (=2.920) result. The government's control over the operating environment and the economic landscape shaped by overseas industry competitors proved to be more stifling to the operations of the tenants in BIP than to those of tenants in ITPL.

*The strategic fit between the parks' comparative advantages and firms' competitive advantages* 

While tenants may encounter constraints in every park, the ultimate success of each park is truly measured by the strategic fit of the firms' competitive

advantages and the parks' comparative advantages. Each of the four BIP companies believed that the savings in labor costs allowed them to capture competitive advantage in operations. However, these companies did not capture competitive advantage in the labor chain solely through reduced labor costs. Another related element of the functional differentiation is that, the relocation of labor-intensive operations to Batam was coupled with lower investments and therefore greater savings in production technology. This was due to a variety of factors: the difficulty in automating those processes; the use of low-cost labor as an alternative to investments in technology; the low skill of the labor force; and the maintenance and upgrading of the more automated operations in Singapore. In this sense, the functional and spatial differentiation of the value chain segment "operations" was used by those companies having production operations both in Singapore and in Batam to reduce labor costs and technology investment. Investment in high technology was reserved for operations in Singapore. In short, the search for cost advantages has led to a spatial fragmentation of the production process, and MNEs breaking their value-added chains across national borders to maximize the competitive advantages of the contiguous economies.

The tenants at ITPL pose a stark contrast to those of BIP, which has managed to attract a significant majority of their tenants on the basis of abundant low-cost, low-skilled labor. Our study suggests that the same advantages of plentiful labor and competitive labor costs have not been the sole influencing factor in attracting firms to the park. The primary reason that encouraged firms to settle in the park was the excellent infrastructural facilities and the Singaporestyled management characterized by its quintessential efficiency. Anecdotal evidence from our case studies suggests that international IT firms have relocated to ITPL from other locations for this reason. ITPL represents a modified version of Porter's analytical framework, whereupon ITPL has witnessed the location of firms engaged in marketing and sales and other services (viz., the primary activities), which were supported by other activities such as technological development and infrastructure within the park (viz., the secondary activities), sufficiently provided by the Singapore partner. A case in point is the rapid establishment of companies in the BPO industry and the myriad of e-services, including telemarketing and customer sales services, accomplished simply by making utmost use of the telecommunication facilities that the park showcased, as substantiated by our case studies. This, along with the advanced technology made available at ITPL, has helped make the park the sinecure of companies engaged in the non-manufacturing industries, that is, those placed in the higher end of the value chain.

To a large extent, the case-study parks have succeeded in providing the crucial links within the value-added chain that give client firms a competitive advantage. The problem lies on the flip side of the desired strategic fit – the host country's ability to provide comparative advantages. In both scenarios, the host government has succeeded only in making available the advantages of "basic factors of production." Thus, while the case-study parks do provide some components of comparative advantage which the host country does not, such as reliable infrastructure and political commitment from the Singapore government,

the strategic intent of these flagship projects remains stymied by non-economic, socio-political complexities in the larger host environment.

# Issues and Challenges

The special privileges secured by Singapore's overseas industrial township projects share a common trait: many of the privileges obtained were unprecedented and unique to the case-study parks. For instance, the Singapore partners were granted licenses to build and operate their own power and water treatment plants and telecommunication facilities, which, in Indonesia and India, was an exclusive concession. As such, the parks could leverage on their reputation of reliable infrastructural facilities in areas where these facilities were an anomaly. Moreover, since local government officials were usually part of the parks' management boards, once-cumbersome bureaucratic procedures, such as investment approvals, construction activities, import/export permits, and immigration matters, became accelerated processes. The parks serve to attract investors with their formulaic one-stop service within a self-sufficient, selfcontained environment unburdened by inefficient administration. Significantly, Singapore's positive reputation with multinational corporations for its stable, corruption-free investment environment lends credibility.

Influence can also be exerted through inter-governmental interaction and, where existing, through the links to influential ethnic business groups in the investment location who often rely on state patronage for their access to infrastructural development projects. The main Singapore partners involved in these projects were government-linked companies. For the Indonesian parks, the main local partner was the Salim Group, which, though private, is nevertheless well known for its close links to senior Indonesian politicians and privileged access to major investment projects. ITPL also shares the characteristic of strong government involvement, with the Indian counterparts being the Karnataka state government and the Tata Group, which, though private, is nonetheless well connected with local authorities. The strategic alliances between Singapore's own state-owned enterprise networks and its counterparts in the regional sites were instrumental in mobilizing the financial resources to complete these megaprojects within, in most cases, the comparatively short timeframe of 18 to 24 months.

Nonetheless, as most openly admitted, the strategically "engineered" intergovernment endorsement of the flagship projects and the enormous resources mobilized through the strategic partnerships have "failed" to shield the parks from a gamut of problems.

#### Heightened Competition

Singapore's overseas industrial parks are increasingly facing strong competition from competing parks within their vicinity. Competitor parks, some of which are backed by prominent Indonesian politicians, have mushroomed around BIP. Panbil Industrial Park, for instance, is located directly opposite BIP, and offers similar factories at competitive rentals. The premium placed on the Park's one-stop support service and self-sufficient operating environment is increasingly called into question. Additionally, competition is not limited to within Indonesia. Indonesia's minimum wage, at US \$43 to US \$70 a month, depending on the region, prices it out of the global competition for cheap labor. Investors can get similarly-skilled labor from Bangladesh, Vietnam, and Sri Lanka at monthly wages of US \$17, US \$32, and US \$40, respectively. Recent press reports on Riau's investor exodus<sup>10</sup> cite sluggish bureaucracy, "rowdy" labor scenes, lack of legal certainty and security, and unclear investment policies as reasons for investors' relocating their investments from Riau Province and Indonesia. Populist measures such as raising the minimum wages further heighten the reluctance of investors to pour money into the country.

ITPL's success hinges on the "Singapore-styled design and management" reputation. However, the premium placed on ITPL's formulaic "one-stop" service and self-sufficient infrastructure is similarly, and increasingly, eroded by intense competition from newer, though smaller, parks being developed by street-savvy Indian entrepreneurs, and ITPL's capacity to provide stable electricity is the only differentiating factor from other IT parks like the Software Technology Park and Electronics City. These competitor parks market themselves aggressively on price, charging significantly lower rentals for "no-frills" factory space. As a case in point, ITPL's listed lease price is Rs50 (approximately US\$1) per square foot, whereas the rate in other areas, and within Electronic City itself, is less than Rs15. Our interviews with IPTL tenants have alluded to the possibility that the Park's attractiveness may, in time, be eroded as more IT parks and companies are established within the vicinity to capitalize on the area's repute, while offering lower rentals with reliable energy as the state develops.

#### Political "Commitment"

Reliance on political patronage (and personal ties) rather than transparent contracts has had advantages and disadvantages. For BIP, the reliance on the Salim Group has been necessary in the context of the Indonesian system of "crony capitalism" fostered by then-President Suharto. The end of the Suharto era, and pressure from the IMF and western governments for financial transparency, has diminished Salim's political and commercial influence. Ownership changes at BIP have brought about uncertainties<sup>11</sup> as the parks' privileged access to senior politicians and policy-makers in Jakarta has proved more difficult. Compounding these uncertainties, post-Suharto inter-governmental endorsements no longer suffice to secure commitments at the lower tiers of government. Anecdotal evidence <sup>12</sup> points to a more complex regulatory environment for foreign companies, as they have to deal more intensively with the provincial and subprovincial (district) governments. The parks' reputation as investment enclaves has also not been left unscathed by political developments in the aftermath of the Asian financial crisis, the September 11 attacks in the United States, the Bali and Jakarta-Marriott bomb blasts, and, more recently, negative press reports on active terrorist cells within the region. BIP could do without these added sentiments in its larger environment.

In India, varying degrees of commitment and support by different state governments towards the country's development can affect ITPL's competitive advantage. The lack of good supporting infrastructure in the surrounding environment and the disparity in local state-government supporting different cities serve as a deterrent to investors, even as cities like Hyderabad, Mumbai, and Chennai continue to advance technologically. Additionally, corruption remains endemic, and bureaucratic red-tape is difficult to circumvent. These considerations are by themselves deterrents to potential investors, even with Singapore's presence and involvement. To hedge Singapore's strategic interests in India, Ascendas is reportedly partnering India's largest construction conglomerate, Larsen and Toubro, to build Cyber Pearl in Hyderabad's Hitec City, while plans are in place to develop similar IT parks in Chennai and other Indian cities on a turnkey basis.

#### Social Challenges

On a broader front, BIP's development strategy envisaged a self-contained environment with minimal dependency on the surrounding environment. In reality, the island's reputation as a boom economy has overwhelmed Batam. The island's population has more than tripled since 1990, with one in two new migrants living in illegal squatter housing, and 50,000 illegal houses are reportedly scattered throughout the island. Peachey et al. (1998), among others, have drawn attention to this influx of immigrants to the islands and, concomitantly, to the social problems of squatter settlements. There is much pressure to maintain, or even increase the investment value of BIP, without a shift of resources to meet the needs of the local community. Similarly, the quixotic success of ITPL has spawned competitor parks in the vicinity and with it the infrastructural bottlenecks which threaten to overwhelm the investment value of the Park.

# Conclusion

The Singapore government's role in developing, managing, and operating the overseas industrial parks has been crucial from the start. However, initial assumptions of the advantages engendered by its state enterprise strategy, as successfully proven through its GLC network domestically, were overly optimistic. Our study finds little evidence to show that these selective state interventions, in the form of Singapore-styled overseas industrial parks, were necessary, sufficient, or even successful in goading Singaporean firms to regionalize. BIP's resemblance to a Japanese investment enclave and the limited impact of BIP on the transfer of low-value operations from Singaporean-owned firms are well documented (Peachey et al. 1998, Grundy-Warr et al. 1999, Yeoh et al. 2004b). Similarly, ITPL catered largely to global MNEs, with limited presence of Singaporean firms. Our study suggests that state entrepreneurship, and state enterprise networks, cannot substitute in situ for the lack of firm-specific competitive advantages necessary for indigenous (Singaporean) firms to regionalize. In addition, the competitive advantages engendered by Singapore's state enterprise network can be frustrated by the intricacies of socio-political realities in the host environments. Put simply, in the context of Singapore's trans-border industrialization strategy, there is a pseudo-economic imperative for these competitive advantages to be cloned *inside* the Singapore-styled industrial parks, in strategic locations across the region. Our study suggests that there is naivete in the premise that these strategic advantages cannot be readily imitated, possibly to better effect, *outside* the case-study parks. The limits to Singapore's strategy of state entrepreneurship, and that of its government-linked companies as entrepreneurial agents, have been exposed in these projects.

## Notes

<sup>1</sup> This research is funded by the Wharton-SMU Research Center, Singapore Management University. The authors would also like to express sincere thanks to the journal reviewers whose comments added substantially to the final presentation of this work.

 $^{2}$  The transition from the role of a developmental state to that of an entrepreneurial one is well documented by Pereira (2004).

<sup>3</sup> This initiative initially sought to accelerate access to new technology, or foreign markets, by supporting Singapore companies to form joint ventures with overseas companies in Europe and North America. Most of these investments proved unsuccessful, resulting in enormous losses by the early 1990s (Balakrishnan 1991).

<sup>4</sup> The regionalization strategy had several thrusts, including the regional headquarters program (Perry 1995, Yeung 2001) and the regionalization of Singapore's indigenous enterprises (SEDB 1995a, 1995b, Tan 1995, Yeung 1998).

<sup>5</sup> The cataclysmic collapse of oil prices in the early 1980s impressed upon Indonesia's economic planners the need for a more broad-based development strategy. Deregulatory measures were introduced to stimulate the non-oil sectors of the Indonesian economy. Infrastructural facilities were improved, and investment incentives were liberalised, to mobilise private sector investments, including foreign investments. The Riau islands were an obvious choice to encourage investments not least because Singapore has shown interest in leasing these nearby islands to transcend the city-state's need for inexpensive land and labor. By the late 1980s, the perception from Jakarta was that Singapore was "bursting at the seams," and that the time was right to position Batam and the other Riau islands to take advantage of the spillover from Singapore.

<sup>6</sup> The Singapore consortium was led by Singapore Technologies Industrial Corporation (now SembCorp Industries) and Jurong Town Corporation, Singapore's main industrial estate infrastructure developer. <sup>7</sup> Indian universities reportedly graduate about 20,000 to 30,000 software engineers every year, and Bangalore has been a "hunting ground" for Singapore companies and Singapore-based multinationals seeking low-cost IT specialists.

<sup>8</sup> The Singapore consortium, Information Technology Park Investments Pte Ltd, includes RSP Architects, Planners and Engineers, L&M Properties, Sembawang Industrial, Technology Parks (a Jurong Town Corporation subsidiary) and Parameswara Holdings (the investment arm of the Singapore Indian Chamber of Commerce).

<sup>9</sup> The Straits Times, 30 August 2003; The Straits Times, December 5, 2003.

<sup>10</sup> The Indonesian Bank Restructuring Agency has reportedly offered to sell the Salim Group's stakes in all the Riau projects – estimated to be worth S\$500 million – in a packaged deal (The Business Times, August 28, 2001). Further restructuring have taken place, with the three main stakeholders now being SCI, Ascendas and the Indonesian government.

<sup>11</sup> Law No. 22/199 allows provincial, district and municipal governments to write provincial laws, some of which contradict national laws, or test the boundaries of their power. The Megawati administration is now proposing a revision of laws on regional autonomy, but the direction remains unclear (Van Zorge, Heffernan & Associates 2002). Interviews with BIP executives and tenants, in September 2002 and July 2003 have alluded to this changed operating environment.

# References

- Balakrishnan, N. 1991. "Singapore: Innocents Abroad." Far Eastern Economic Review 46.
- Blomqvist, H. 2002. "Extending the Second Wing: The Outward Direct Investment of Singapore." *Working Paper No. 3, Department of Economics, University Of Vaasa* ERN WPS 8(1): 01092003.
- Brown, C. 1998. "Overseas Chinese Business in South-East Asia." In K. Sheridan Ed., *Emerging Economic Systems in Asia*. Sydney: Allen and Unwin.
- East Asia Analytical Unit 1995. *Overseas Chinese Business Networks in Asia*. Parkes, Australia: Department of Foreign Affairs and Trade.
- Evans, P. 1995. *Embedded Autonomy: States and Industrial Transformation*. Princeton: Princeton University Press.
- Grundy-Warr, C., K. Peachey, and M. Perry. 1999. "Fragmented Integration in The Singapore-Indonesian Border Zone: Southeast Asia's 'Growth Triangle' Against The Global Economy." *International Journal of Urban* and Regional Research 23(2): 304-328.
- Hamilton, G. 1991. Business Networks and Economic Development in East and South East Asia. Hong Kong: Center for Asian Studies, University of Hong Kong.
- Hill, H. 1996. *The Indonesian Economy Since 1966*. Cambridge: Cambridge University Press.

- Huff, W. 1995. "The Development State, Singapore, And Singapore's Economic Development Since 1960." *World Development* 23(8): 1421-1438.
- Krause, L. 1987. "Thinking About Singapore." In L. Krause et al., Eds., *The Singapore Economy Reconsidered*. Singapore: Institute of Southeast Asian Studies.
- Kumar, R. and T.Y. Lee. 1991. "Growth Triangle: A Singaporean Perspective." In T.Y Lee, ed., *Growth Triangle: The Johor Singapore Riau Experience* Singapore: ISEAS.
- Lim, C.Y. 1984. *Economic Restructuring in Singapore*. Singapore: Federal Publications.
- Lim, C.Y. et al. 1988. *Policy Options for the Singapore Economy*. Singapore: McGraw Hill.
- Mahizhnan, A. 1994. "Developing Singapore's External Economy." In *Southeast* Asian Affairs 1994. Singapore: Institute of Southeast Asian Studies.
- Mirza, H. 1986. *Multinationals and the Growth of the Singapore Economy*, London: Croom Helm.
- Murray, G., and A. Pereira. 1995. *Singapore: The Global City-State*. London: Heinemann.
- Naidu, G. 1994. "Johor-Singapore-Riau Growth Triangle: Progress and Prospects." In M. Thant, M. Tang And H. Kakazu Eds.), Growth Triangles in Asia: A New Approach to Economic Cooperation. Hong Kong: Oxford University Press.
- Okposin, S.M. 1999. The Extent of Singapore's Investment Abroad, Ashgate: Aldershot.
- Pang, E.F. 1987. "Foreign Investment and the State in Singapore." In V. Cable and B. Persaud, eds., *Developing with Foreign Investment*. London: Croom Helm.
- Pang, E.F. 1995. Staying Global and Going Regional: Singapore's Inward and Outward Direct Investments, in the New Wave of FDI in Asia. Singapore: Institute Of Southeast Asia Studies And Nomura Research Institute.
- Peachey, K., M. Perry, and C. Grundy-Warr. 1998. "The Riau Islands and Economic Cooperation in the Singapore-Indonesian Border Zone." *Boundary And Territory Briefing* 2(3).
- Pereira, A. 2000. "State Collaboration with Transnational Corporations: The Case of Singapore's Industrial Programmes (1965-1999)." *Competition And Change* 4 (4): 1-29.
- Pereira, A. 2003. *State Collaboration and Development Strategies in China: The Case of the China-Singapore Suzhou Industrial Park.* London: Routledge Curzon.
- Pereira, A. 2004. "State Entrepreneurship and Regional Development: Singapore's Industrial Parks in Batam and Suzhou." *Entrepreneurship And Regional Development* 16: 129-144.
- Perry, M. 1991. "The Singapore Growth Triangle: State, Capital and Labor at a New Frontier in the World Economy." *Singapore Journal of Tropical Geography* 12(2): 138-151.

- Perry, M. 1995. "New Corporate Structures, Regional Offices and Singapore's New Economic Directions." Singapore Journal of Tropical Geography 16(2): 181-196.
- Perry, M. and C. Yeoh. 2000. "Asia's Transborder Industrialization and Singapore's Overseas Industrial Parks." *Regional Studies* 4(2): 199-206.
- Porter, M.E. 1994. "The Role of Location in Competition." *Journal of Economics* of Business 1(1): 35-39.
- Porter M. 2000. "Locations, Clusters and Company Strategy." In G. Clark et al., eds., *The Oxford Handbook of Economic Geography*. Oxford: Oxford University Press.
- Regnier, P. 1991. Singapore: City-State In Southeast Asia. London: Hurst and Company.
- Regnier, P. 1993. "Spreading Singapore's Wings Worldwide: A Review of Traditional Investment Strategies." *The Pacific Review* 6: 305-312.
- Rodan, G. 1989. *The Political Economy of Singapore's Industrialization*. London: Penguin.
- Sato, T. 1993. "The Salim Group in Indonesia: The Development and Behaviour of the Largest Conglomerate in Southeast Asia." *The Developing Economies* 31(4): 408-441.
- Singapore Economic Development Board. 1988. Global Strategies The Singapore Partnership (Conference Proceedings). October 24-26.
- Singapore Economic Development Board. 1990. Global Strategies World Class Partnership (Conference Proceedings). June 4-6.
- Singapore Economic Development Board. 1993a. Regionalization Forum (Conference Proceedings). May 21-23.
- Singapore Economic Development Board. 1993b. Singapore Investment News, Regionalization Supplement. May.
- Singapore Economic Development Board. 1995a. Singapore Unlimited.
- Singapore Economic Development Board. 1995b. Regionalization 2000.
- Sitathan, T. 2002) "Singapore's Regionalisation Challenge." Asia Times (online edition). July 26.
- Tan, C.H. 1995. Venturing Overseas: Singapore's External Wing. Singapore: McGraw-Hill.
- Wong, P.K. and C.Y. Ng 1991. "Singapore's Internationalization Strategy in the 1990s." In *Southeast Asian Affairs 1991*. Singapore: Institute Of Southeast Asian Studies.
- Woo-Cummings, M. 1999. *The Developmental State*. Ithaca: Cornell University Press.
- Van Zorge, Heffernan and Associates. 2002. "Re-Centralization, Guided Decentralization, or Chaos?" Van Zorge Report On Indonesia (online edition). April.
- Yeoh, C. 1990. "The Batam-Singapore-Johor Growth Triangle: A New Dimension in ASEAN Economic Co-Operation." Asia-Oceania Report No.18 (December): 4-7.
- Yeoh, C., G.T. Lau, M. Goh, and J. Richardson. 1992. Strategic Business Opportunities In The Growth Triangle. Singapore: Longman.

- Yeoh, C., M. Perry, and M.L. Lim. 2000. "Profile of a Low Cost Manufacturing Enclave: The Case of Batamindo Industrial Park, Indonesia." In R. Edwards, C. Nyland, and M. Coulthard, eds., *Readings In International Business.* New South Wales: Pearson Education Australia.
- Yeoh, C., J. Cai, and C.S. Koh. 2004a. "Singapore's Regionalization Blueprint: A Case of Strategic Management, State Enterprise Network And Selective Intervention." *Journal Of Transnational Management Development*, forthcoming.
- Yeoh, C., D. Lim, and A. Kwan. 2004b. "Regional Co-Operation and Low-Cost Investment Enclaves: An Empirical Study of Singapore's Industrial Parks in Riau, Indonesia." *Journal Of Asia-Pacific Business*, forthcoming.
- Yeung, H. 1998. "The Political Economy Of Transnational Corporations: A Study of the Regionalization of Singaporean Firms." *Political Geography* 17(4): 389-416.
- Yeung, H. 2001. "Towards a Regional Strategy: The Role of Regional Headquarters of Foreign Firms in Singapore." *Urban Studies* 38: 157-183.
- Yeung, H. 2002. Entrepreneurship and the Internationalization of Asian Firms: An Institutional Perspective. Cheltenham: Edward Elgar.
- Zutshi, R. and P. Gibbons. 1998. "The Internationalization Process of Singapore Government-Linked Companies: A Contextual View." *Asia-Pacific Journal Of Management* 15(2).

<sup>4</sup> This initiative initially sought to accelerate access to new technology, or foreign markets, by supporting Singapore companies to form joint ventures with overseas companies in Europe and North America. Most of these investments proved unsuccessful, resulting in enormous losses by the early 1990s (Balakrishnan 1991).

<sup>5</sup> The regionalization strategy had several thrusts, including the regional headquarters program (Perry 1995, Yeung 2001) and the regionalization of Singapore's indigenous enterprises (SEDB 1995a, 1995b, Tan 1995, Yeung 1998).

<sup>6</sup> The cataclysmic collapse of oil prices in the early 1980s impressed upon Indonesia's economic planners the need for a more broad-based development strategy. Deregulatory measures were introduced to stimulate the nonoil sectors of the Indonesian economy. Infrastructural facilities were improved, and investment incentives were liberalised, to mobilise private sector investments, including foreign investments. The Riau islands were an obvious choice to encourage investments not least because Singapore has shown interest in leasing these nearby islands to transcend the city-state's need for inexpensive land and labor. By the late 1980s, the perception from Jakarta was that Singapore was "bursting at the seams," and that the time was right to position Batam and the other Riau islands to take advantage of the spill-over from Singapore.

<sup>7</sup> The Singapore consortium was led by Singapore Technologies Industrial Corporation (now SembCorp Industries) and Jurong Town Corporation, Singapore's main industrial estate infrastructure developer.

<sup>8</sup> Indian universities reportedly graduate about 20,000 to 30,000 software engineers every year, and Bangalore has been a "hunting ground" for Singapore companies and Singapore-based multinationals seeking low-cost IT specialists.

<sup>9</sup> The Singapore consortium, Information Technology Park Investments Pte Ltd, includes RSP Architects, Planners and Engineers, L&M Properties, Sembawang Industrial, Technology Parks (a Jurong Town Corporation subsidiary) and Parameswara Holdings (the investment arm of the Singapore Indian Chamber of Commerce).

<sup>10</sup> The Straits Times, 30 August 2003; The Straits Times, December 5, 2003.

<sup>11</sup> The Indonesian Bank Restructuring Agency has reportedly offered to sell the Salim Group's stakes in all the Riau projects – estimated to be worth \$\$500 million – in a packaged deal (The Business Times, August 28, 2001). Further restructuring have taken place, with the three main stakeholders now being SCI, Ascendas and the Indonesian government.

<sup>12</sup> Law No. 22/199 allows provincial, district and municipal governments to write provincial laws, some of which contradict national laws, or test the boundaries of their power. The Megawati administration is now proposing a revision of laws on regional autonomy, but the direction remains unclear (Van Zorge, Heffernan & Associates 2002). Interviews with BIP executives and tenants, in September 2002 and July 2003 have alluded to this changed operating environment.

<sup>&</sup>lt;sup>1</sup> This research is funded by the Wharton-SMU Research Center, Singapore Management University. The authors would also like to express sincere thanks to the journal reviewers whose comments added substantially to the final presentation of this work.

<sup>&</sup>lt;sup>3</sup> The transition from the role of a developmental state to that of an entrepreneurial one is well documented by Pereira (2004).