



GLAMS Research Publications

Technical Papers

- N Viswanadham and Roshan Gaonkar, *A Conceptual and Analytical Framework for the Management of Risk in Supply Chains*, to appear in **IEEE TASE**, 2007.
- D Garg, Y Narahari, and N Viswanadham, *Achieving sharp deliveries in Supply Chains through Variance Pool Allocation*, **European Journal of Operations Research**, May 2006.
- N Viswanadham and Kannan Balaji, *Foreign Direct Investment or Outsourcing : A Tax Integrated Supply Chain Decision Model*, to appear in **E-business and E-commerce**, Kluwer, Eds: Christopher Tang, Wei Kwok Kee and CP Teo, 2006.
- Sunil Chopra, Usha Mohan and Gilles Reinhardt, *The Importance of Decoupling Recurrent and Disruption Risks in a Supply Chain*, to appear in **Naval Logistics Research**, 2006.
- N Viswanadham and S Kameshwaran, *Location Selection in Global Supply Chains*, 2006.
- Milind Sohoni, Sunil Chopra, Usha Mohan and M Nuri Sendil, *Impact of Stair-Step Incentives and Dealer Structures on a Manufacturers Sales Variance*, 2005.
- Ram Bala, *Pricing of Software Services*, 2005.
- Ram Bala, *Pricing and Market Segmentation for Software Upgrades*, Ram Bala, 2005.
- Ram Bala, *Renting of Software Services under Competition*, 2004.
- Milind Sohoni, Ellis L Johnson and T Glenn Bailey, *Operational Airline Reserve Crew Planning*, 2004.

Books

- *Achieving Rural and Global Supply Chain Excellence: The Indian Way*, Eds: N Viswanadham, December 2006.

Thought Leadership Papers

- N Viswanadham and Roshan Gaonkar, *E-Logistics - Trends and Opportunities*, TDB Tradelink Web-site, Jan 2001.
- N Viswanadham, *Supply Chain Automation: The Past, Present and Future*, June 2001.
- N Viswanadham and Roshan Gaonkar, *Foundations of E-Supply Chains*.

Achieving Rural & Global Supply Chain Excellence

The Indian Way

Edited by

N Viswanadham
Executive Director, GLAMS
Indian School of Business
Hyderabad 500032

Center for Global Logistics and Manufacturing Strategies
Indian School of Business
Gachibowli, Hyderabad 500032

Disclaimer: The contributors of this book have used their best efforts in preparing this manuscript. These efforts include the research and development of the theories and methods to determine their usefulness. The contributors or the ISB makes no warranty of any kind, expressed or implied, with regard to the documentation contained in this book.

Copyright © 2006 by ISB

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, photocopying, recording, or otherwise, without the prior written permission of GLAMS, ISB, Gachibowli, Hyderabad 500032

Printed in India. Not for sale.

Released by
Honourable Prime Minister of India
Dr Manmohan Singh,
during the inaugural session of the
Global Logistics Summit 2006
December 5-6, 2006
Indian School of Business
Gachibowli, Hyderabad 500032

Contents

List of Figures	viii
List of Tables	ix
Foreword <i>M Rammohan Rao</i>	1
Introduction <i>N Viswanadham</i>	3
1 Can India be the Food Basket for the World? <i>N Viswanadham</i>	9
1.1 Introduction	9
1.2 Current State of Indian Agricultural Industry	10
1.3 The Indian Food Processing Industry	11
1.4 The Food Supply Chain	12
1.5 Food Supply Chain Cluster	13
1.6 Government Initiatives to Promote Food Exports	17
1.7 Private Sector Initiatives	19
1.8 Opportunities for Improving Food Supply Chain	19
1.9 Opportunities for Research in Food Supply Chain	20
1.10 Conclusions	21
References	22
2 Dynamics of Retail in India: Case Studies of Andhra Pradesh and Punjab <i>N Viswanadham and Navolina Patnaik</i>	23
2.1 Introduction	23
2.2 Food and Retail in India	25
2.3 Food and Retail in Andhra Pradesh	30
	xi

xii Contents

2.4	Food and Retail in Punjab	36
2.5	Conclusions	43
	References	46
3	Impact of Avian Influenza in the Indian Poultry Industry: A Supply Chain Risk Perspective	49
	<i>N Viswanadham, Usha Mohan, and Prachi Trikha</i>	
3.1	Introduction	49
3.2	Literature Review	50
3.3	Avian Influenza: Background and Analysis	52
3.4	Supply Chain Risk Mitigation Strategies	59
3.5	Poultry Supply Chain in India	60
3.6	Risk Management in Supply Chains	64
3.7	Conclusions and Discussions	68
	References	69
4	Rural Business Transformation - Empowering Villages using Kisan-bandhu	71
	<i>N Viswanadham and D Ramakrishna</i>	
4.1	Introduction	71
4.2	Private and Public Sector Initiatives in India	73
4.3	Rural Business Transformation (RBT)	76
4.4	Village as a Business System	80
4.5	Rural Supply Chain Transformation	83
4.6	Rural Retailing	87
4.7	Conclusion	89
	References	90
5	Design of Special Economic Zones as Economic Engines of Growth	93
	<i>N Viswanadham</i>	
5.1	Introduction	93
5.2	Background on SEZs	94
5.3	SEZ Policy 2005	97
5.4	Economic and Technical Issues concerning SEZs	101
5.5	Performance of the Indian SEZs	103
5.6	Market Attractiveness of Indian States	105
5.7	Design of SEZ	107
5.8	Selection of Location	110
5.9	Conclusions	114

References	114
6 FDI Attractiveness of Indian States and Location Choice of MNCs	117
<i>N Viswanadham and S Kameshwaran</i>	
6.1 Introduction	117
6.2 Location Choice Problem	119
6.3 Related Literature	124
6.4 Methodology	128
6.5 Analysis: PERC based Hierarchical Structuring	131
6.6 Synthesis: Analytic Hierarchy Process	139
6.7 Location of a Biotech R&D Centre	140
6.8 Measuring FDI and Market Attractiveness	145
6.9 Final Notes and Proposals	146
References	148
7 Design of Competitive Indian Construction Supply Chain Networks	153
<i>N Viswanadham and Vinit Kumar</i>	
7.1 Introduction	153
7.2 Construction Supply Chains: Characteristics	155
7.3 Indian Construction Supply Chains: Status, Issues & Scope	157
7.4 Indian Construction Supply Chains: Strategies	168
7.5 Conclusions	184
Appendix: Cases of Government Infrastructure Projects & Causes of Delays	185
Appendix: Indian Construction System	187
References	189
Index	193

5 Design of Special Economic Zones as Economic Engines of Growth

N VISWANADHAM[†]

5.1 Introduction

India is a booming economy and is the fourth largest in terms of purchase power parity. Past couple of years it is a favored destination for foreign direct investment. India has the advantage of a large domestic market as well as favorable export markets. The Government of India is introducing several policy reforms to make India a destination of choice for foreign companies and countries. The Special Economic Zones act-2005 is one such initiative. The Special Economic Zones (SEZs) are projected as Engines of growth and must have embedded in them the national manufacturing strategy.

There is considerable amount of literature on SEZs and their impact on the economies and their performance. However, there is no literature on the design of SEZs. There is lots of management literature on a related topic of Clusters which are special cases of SEZs. The World Bank is interested in the SEZ topic and has large number of reports have appeared basically surveying the performance of the SEZs in developing countries. There are surveys on SEZs in India by both KPMG and the Confederation of Indian Industries and the government of India maintains a website on SEZ¹.

In this paper, we briefly summarise the SEZ concepts and their purpose and presence around the world. We then trace their evolution in India and summarise the performance of existing SEZs in India. At the same time, we discuss the design of SEZs taking into account the logistical, informational and value chain requirements. We also highlight the factors involved in

[†]This research was partially sponsored by Institute of South Asian Studies, Singapore

¹<http://www.sezindia.com>

project selection in a SEZ. Finally, we conclude this paper on a positive note.

Our concern is about the design of SEZs as engines of growth. Currently, the SEZs are treated as a real estate development where in any company owners looking for tax breaks set up their shops inside the SEZ. The result is a multi product SEZ with no sharing of logistics or human expertise, each product belonging to a different industry vertical such as information technology (IT), pharmaceuticals, food, leather, gems and jewelry. It is known that their performance is not up to expectations and the reason is that they are not well designed.

We consider two problems here in this report:

1. A multinational corporation (MNC) or a foreign country wants to enter India and establish an SEZ. We have to resolve the location problem which involves determining the State in which the SEZ is established and also the city in the State. The SEZ may be either:
 - (a) A multi product SEZ where several companies belonging to different industry verticals with varying logistics and knowledge requirements; and
 - (b) A cluster oriented SEZ where companies in the zone have the same logistics, maintenance and repair knowledge and financial requirements and can share the corresponding facilities.
2. The design of the SEZ or the composition of the SEZ consists of companies taking care of inbound, outbound, MRO and manufacturing logistics activities, information infrastructure for common procurement and communication among the companies within the SEZ as well as outside of it, venture capital firms, human resource training in global supply chain excellence, global marketing and logistics and several others to complement the above activities.

Our aim is not to use mathematical techniques such as multi-attribute decision analysis or mathematical programming techniques but to discuss the issues that are important in the problem formulation that leads to a good decision.

5.2 Background on SEZs

An SEZ or Free Trade Zone (FTZ) is typically an enclave of units operating in a well-defined area within the geographical boundary of a country where certain economic activities are promoted by a set of policy measures that are

not generally applicable to the rest of the country. These zones are known by different names such as Industrial Free Zone, Export Processing Zones (EPZ), Bonded Free Zones, Maquiladoras (Mexico) and Special Economic Zones (China). These zones offer high quality infrastructure facilities and support services, and allow duty free import of capital goods and raw materials. In addition, attractive fiscal incentives, relaxed labor laws and simpler procedures are also offered in such zones. Over a period of time, this concept has expanded and evolved to encompass larger areas, higher levels of integration within the defined geographical boundaries and an increased integration with the local economy.

Since the 1950s, most of the countries around the world have adopted export zones as a growth strategy including the United States, Puerto Rico, Thailand, Taiwan, Singapore, Ireland, Mexico, United Arab Emirates and, currently, coastal China. The first example of such a zone is the Shannon EPZ in Ireland, which was set up in 1958. This was set up as a traditional EPZ model of a bonded designated enclave. More recent examples include the Kaoshiung EPZ in Taiwan, the Santacruz Electronics EPZ in India, both of which were established in the late 1960s and the Masan FTZ in South Korea, set up in the early 1970s. Currently SEZ models have been implemented in more than 100 countries around the globe accounting for more than 3,000 free trade zone projects.

The main objectives often considered by governments for setting up such zones are:

- Attract Foreign Direct Investment (FDI)
- Earn foreign exchange and contribute to exchange rate stability
- Create jobs and raise standard of living
- Transfer new skills and expertise to local human resources
- Create backward and forward linkages to increase the output and raise the standard of local enterprises that supply goods and services to the zone
- Develop backward regions by locating such zones in these areas and attracting industries
- Stimulate sectors regarded as strategically important to the economy, for example, electronics, IT, research and development, tourism, infrastructure and human resource development

Governments have also promoted such zones as *pilot projects* to test policy reforms before introducing them across the country. Given the difficulties involved in strengthening the general infrastructure base in the country

and in reforming country level policies, these *islands of excellence* with relatively superior infrastructure and policy environment served as useful policy tools which were later extended to other parts of the country, especially in large countries such as China and India. The vision of all the economic zones is generally in tune with the host countrys economic policies. They have aroused out of different economic compulsions. The Jebel Ali Free Zone and Sharjah Airport International Free Zone were more concerned to diversify the economy which is overly dependent on the oil sector. Poland, on the other hand, had severe employment problems, so the emphasis of SEZs in Poland was more on labor intensive industries. Singapore is an export dependent economy with excellent resource management skills and IT and logistics infrastructure. The emphasis in Singapores case is to attract MNCs to Singapore. Chinas objective was to initially attract high level of foreign investment with open foreign investment policy and later on to infuse high technology in to the economy.

International institutions like the World Bank, United Nations Industrial Development Organization (UNIDO), International Labour Organization (ILO) and United Nations Conference on Trade and Development (UNCTAD) have played an important role in creating and legitimizing the concept of EPZs. While, UNIDO has been instrumental in the creation of the World Export Processing Zone Association (WEPZA), UNCTAD has contributed greatly to legitimising the idea of EPZs through basic studies on the costs, benefits and advantages of these zones. ILO has also been playing a deterministic role by formulating guideline for labor policies in the EPZs.

5.2.1 The Chinese Example

The Chinese government first considered large FTZs to attract foreign capital in the late 1970s, and in 1979, four such zones were created in Shenzhen, Zhuhai, Xiamen and Shantou. All these areas were in the south-east coast of the country, in close proximity to the main trading and financial centres like Hong Kong, which was not then under Chinese control. Subsequently, the entire island of Hainan was declared as a SEZ. More such zones in the Yangtze and Pearl River deltas, Shandong peninsula and Pudong near Shanghai followed.

After a slow start, these zones started attracting foreign capital in a big way and were mostly responsible for the emergence of China as a manufacturing super power. Liberal regulatory controls, cheap labour and location advantages helped these zones to become major growth drivers for the entire Chinese economy. More importantly these zones covered large areas, hundreds of square kilometres in some cases, which ensured that the in-

frastructure was developed in an integrated manner, with sufficient room to expand, once these zones started attracting investments in large scale.

5.2.2 Indian SEZs

Indian SEZs are primarily set up with the objectives of attracting FDI, promoting export, generating employment and infusing new technologies. Indian SEZs can leverage the factor advantages and also the comparative cost advantages in various industry sectors to capture a share of these investments. Also, the rising cost of manufacturing and service operations in several Asian economies offers an opportunity for Indian SEZs to gain a share of the relocating investments. Domestic investment in export oriented activities is also a distinct market opportunity for SEZs.

The concept of designated industrial zones to promote exports is not new to this country. The Kandla EPZ was set up in 1965, even before the Chinese thought about such zones. The Santa Cruz Electronic EPZ (SEEPZ) in Mumbai followed in 1972. Subsequently, the government set up more such EPZ in select locations across the country.

These zones were not really "free trade" zones in the real sense and were nowhere as successful as those in China ones for a host of reasons. With an average area of just 200 acres each, these early zones lacked sufficient space to grow. They failed to attract large-scale foreign investment as those days overseas investors were not enamored of India as an attractive manufacturing location.

The total exports from the existing EPZs, notified as SEZs after the SEZ Act, for the financial year 2004-05 totalled Rs 18,300 crore. Nearly 45% of the total exports came from just one such zone, SEEPZ, the most successful among these early zones.

5.3 SEZ Policy 2005

The recent Indian SEZ policy is the latest and most ambitious of export boosting efforts. The SEZ 2005 policy goes much further than the existing SEZs in the world, in that it seeks to radically change the environment for exports and FDI, by offering a hassle-free business-friendly environment and world class infrastructure over an unprecedented large geographical area. It allows the government to experiment with radical economic reform on a localized basis, introducing reforms that are difficult to implement at the national level, given the countrys large size.

The SEZ policy offers a host of incentives to developers of such zones and units within such zones with very minimum regulatory controls. The SEZ

Act says the area inside an SEZ would be treated as foreign territory as far as application of commercial laws is concerned. Apart from wide-ranging tax benefits, 100% FDI is permitted in SEZ units, except in select strategic sectors. Such units can keep full export proceeds in foreign currency and repatriate such earnings as they wish. They can borrow up to US\$500 million from overseas markets every year and can outsource production and other activities to overseas units.

The SEZ Act provides for very liberal fiscal benefits to SEZ developers and SEZ units. These benefits far exceed those available under earlier export promotion schemes and hence have attracted criticism.

1. Units in an SEZ are exempt from customs duty on imports of capital goods and inputs and excise duty on purchases from the domestic market. These units would be exempt from income tax for the first five years and would get 50% exemption for another two years. Investment allowance of 50% of reinvested profits is also available.
2. Domestic units supplying goods to SEZ units will be exempt from central sales tax and service tax and can claim income tax exemption under Section 80 HHC as their supplies would be considered as deemed exports.
3. Tax benefits to SEZ developers are even more liberal. Apart from customs and excise duty exemptions on purchase of capital goods and other material, they get complete income tax exemption for 10 years. Individuals investing in SEZ developments are also eligible for tax exemptions.
4. Developers of large, multi-product zones with a minimum area of 1,000 hectares are required to utilise only 25% of the SEZ for industrial purpose. The rest can be utilised for residential and shopping purposes, hotels, malls, and the other trappings of *development*. Moreover, the developers have a completely free hand to allocate space and other facilities within the zone on a commercial basis.
5. Though there are conditions that only the units within that zone and their employees can use such non-core facilities inside an SEZ, there is no way that these ventures can be prevented from being mis-utilised as upscale, residential townships for sale or *resale* to those who may have nothing to do without the core activities of the SEZ.
6. The policy on de-notification of a failed SEZ and the exit options for developers has either been left deliberately opaque or is non-existent.

5.3.1 Profile of SEZs approved in 2006

Since the SEZ law was enacted in February 2006, there has been a rush for blocking the land since there was a cap of 150 on the total number of SEZs to be finally approved. Subsequently, however, the cap was removed and currently there is no upper limit on the number of SEZs that can be operational. On March 17, the government approved 148 proposals for setting up SEZs, covering about 40,000 hectares of land and involving a total investment of Rs 100,000 Crore. All these will enjoy the several benefits that have been offered under the recent SEZ policy framework and are expected to be operational within three years in order to be entitled to them.

As many as 85 of the 150 SEZs, which have obtained "formal approval" from the Board of Approvals for SEZs so far will be devoted to the category of information technology and IT-enabled services. These IT/ITES zones will be located in 14 states, but the largest number of approvals are in the states of Andhra Pradesh, Karnataka and Tamil Nadu (each 16), followed by Maharashtra (10) and West Bengal and Uttar Pradesh (five each). Thus these six states account for 68 of the 85 zones in the IT sector. Understandably, however, these zones account for a small portion of land area allotted to the SEZs as a whole.

In terms of the number of approved SEZs, the next in ranking sector-wise are pharmaceuticals and biotechnology (14), multi-product (10) and textiles/apparel (9) and electronic hardware and telecommunication equipment (9). There has been some overlapping of sectoral categories in the case of some zones like IT hardware and software/ITES, electronics and pharmaceuticals and biotechnology. Other SEZ categories approved include leather and footwear, engineering, glass and ceramic. It is expected that 94 SEZs to become operational by April 2008 and the number of jobs created by the SEZs would be to the tune of 500,000 by December 2007.

There are basically three formats of SEZs: integrated multi-product SEZs with complex infrastructures on a huge landmass; single industry-based SEZs being set up on huge landmasses by large companies like Reliance and Posco for own use; and single-product SEZs, such as a garment SEZ or a gem and jewellery SEZ. There is also a fourth category of SEZs for the service industries such as it that need only a couple of multistoried buildings supported by infrastructures.

The SEZs are supposed to be a robust format for the creation of a globally competitive environment for manufacturing, processing and exports. This has been achieved in other Countries including China by promoting the first or second kind of mega-SEZs. In India, the approvals have shown a trend in the direction of approving large number of small SEZs. Further, more

the bids for SEZs included prime farm land involving displacement of large number of small farmers.

5.3.2 Road Blocks in SEZ Implementation and Uncertainty in how many SEZs will actually take off

There have been several recent events that have taken place and decisions that have been announced by Government agencies and opinions expressed by some political parties, non-government organizations and activists which may dampen the enthusiasm and also put a break on the SEZ rush. Any policy will carry critics with it always. This is just another example of "resistance to change" and few political parties are blowing it big. But, the government is determined to develop SEZs with democratic sense. We mention below some of these issues which may affect the final number of SEZs that will finally take off.

SEZs treated as real estate The RBI today ruled out concessional finance to developers and units in these zones. SEZs treated as real estate for purposes of loans granted by the Banks. The RBI has clarified to commercial banks that all loans to SEZ developers and for acquiring units in SEZ should be considered as exposure to commercial real estate. In other words, such loans would not be treated as industrial advances and hence the interest costs would be much higher. Banks are generally very conservative when it comes to exposure to commercial real estate, mostly because of the fluctuations in market prices. The RBI decision is aimed at limiting the exposure of commercial banks to SEZs and could also lead to an increase in interest rates for such projects as real estate funding carry a higher risk weight. RBI's decision to treat SEZs as real estate projects was bound to affect the economic viability of these projects as the cost of lending would go up.

Taking this criticism from RBI, the commerce ministry has recently issued detailed guidelines for the developers of the SEZs. Developers need to have a net worth of at least Rs 250 crore and invest a minimum of Rs 1,000 crore for a multi-product SEZ. For sector-specific zones, the Board of Approvals fixed the minimum investment at Rs 250 crore or a net worth of Rs 50 crore. This would pressure on the developers since borrowing from public financial institutions gets expensive.

Fate of existing schemes While there is euphoria over the new SEZ scheme, the fate of the existing Export Processing Zones, Export-oriented Units Scheme, Export Intensive Area Sub-Plan, Infrastructure Development Scheme (aimed at developing 93 'no industry districts') etc. is uncertain. While these

schemes have not made any significant impact so far, they will lose their attraction altogether once the new SEZs come into being.

What is more disappointing, even the fairly successful experiment of setting up Software Technology Parks (STPs) may suffer a major setback. The IT Ministry fears that many of the 6,500 companies located in the 47 STPs would prefer to shift to new IT SEZs, rendering the STPs across India unviable. The companies located in these STPs have been exporting software worth about Rs 1,00,000 crore per annum and the software exports from these parks are set to increase further at a healthy rate in the coming years.

Against this backdrop, the National Association for Software Service Companies (Nasscom) has demanded SEZ status for the 47 STPs, but the Commerce and Industry Ministry has rejected this demand. The Commerce Ministry feels that it is for the IT Ministry to decide the future of the STPs.

5.4 Economic and Technical Issues concerning SEZs

Several concerns have been raised by economists, Finance ministry, Reserve Bank on the technical problems that will be encountered and also the implementation would lead to creating two Indias as a result of the growing inequalities. While the SEZs will have a glittering landscape of malls and multiplexes, the other presents a dismal scene of farmers committing suicide. We will discuss some of these below.

5.4.1 Lack of Forward and Backward linkages

The central bank had openly stated that mushrooming of SEZs would lead to a diversion of resources from domestic tariff areas, besides revenue losses to the government. In its annual report of 2005-06 released in August 2006, the Reserve Bank has said The SEZs are envisaged to act as catalysts for growth. The simplification of the procedures for development, operation and maintenance of the SEZs and the fiscal incentives are expected to spur investment and promote industrial activity. At the same time, there are concerns that the SEZs could aggravate the uneven pattern of development by pulling out resources from less developed areas. Revenue implications of taxation benefits would also need to be factored. The revenue loss for the Government in providing incentives may be justified only if the SEZ units ensure forward and backward linkages with the domestic economy.

Traditionally, export-processing zones have been characterized by narrow industry focus with high import intensity in exports. This resulted in many such zones being insulated from the rest of the economy, thereby giving rise to fewer economic spin offs. Backward linkages with the local

economy in the form of movement of raw materials, labour and sub contracting in the domestic tariff area, i.e. out-zone processing, are necessary for susceptibility of such zones. Countries such as China and South Korea have pursued this strategy of uniting with the interior in developing their SEZ's. This has contributed to rapid indigenization of production, technology absorption and import substitution. Similarly Forward linkages in the form of sales in domestic tariff area (DTA) have been an important motivation for investors especially when the domestic market size is large and growing. Investors in the SEZ's in China view the vast domestic market in China as extremely promising in the long run. This has been an important determinant of their investment decisions. Also, limited sales in DTA provide a safety net to hedge against possible swings in international markets besides providing the opportunity to test domestic markets. Most countries have well defined policies for sales made from SEZ to DTA. The policies are combination of quantitative restrictions and concessions duty structure. Most of the countries allow a certain percentage of the output to be sold to DTA. In many countries the DTA sale attracts concessions duties.

Loss of Revenue and Legality of the Tax Incentives The Finance Ministry resisted the attempt to remove the cap on the number of SEZs by arguing that the policy would lead to large revenue losses because of tax exemptions. According to Finance Ministry's estimates, SEZs could lead to a revenue loss of Rs 175,000 crore in direct taxes, customs and excise duties over the next five years while the Commerce Ministry says the zones will lead to Rs 44,000 crore revenue gain for the government in a year and 500,000 jobs next year. Others point out that the tax subsidies being offered by the government may well be challenged in the World Trade Organization, and could attract trade retaliatory measures from importing countries. IMF Chief Economist Raghuram Rajan criticized the perverse economic incentives offered by the zones. His concern is if you focus on tax incentives to set up these special economic zones, the incentives diminish and you hurt the revenues of the government. "Overall, it becomes yet another give-away which the government cannot afford." The Reserve Bank argued that these zones would lead to large-scale resource diversion from other areas widening the industrial inequity since the majority of SEZ applications appear to be in the industrially advanced states.

5.4.2 Size and Location

Another contentious issue in the SEZ Act relates to the size and location of these zones. Though multi-product SEZs are required to have a minimum area of 1000 hectares that specified for service sector zones is only

100 hectares. In the case of single product zones, such as IT and gems and jewellery, it can be as small as 10 hectares. Despite the Finance Ministry's opposition, the Commerce Ministry had its way with the Empowered Group of Ministers and managed to retain the minimum area for IT and biotech zones at 10 hectares. *"About half of India's small special economic zones may not really take off,"* says Morgan Stanley economist Chetan Ahya in Mumbai. *"In today's highly competitive, globalized world, the concept of small-sized special economic zones is completely outdated."*

The major attraction for real-estate developers is that most of these SEZs are going to be located near big cities and towns where land is scarce and the State governments are supposed to offer it at concessional rates. Ideally, new SEZs should be located far from cities and towns to build new towns and should be spread over a minimum 1000 sq. km. Instead of offering all kinds of tax holidays and concessions, the Government should provide infrastructure support to such zones by building highways and expressways to connect them to ports, airports and other large towns and cities. This would involve minimum displacement of population and help in developing some underdeveloped regions.

5.4.3 Manufacturing strategy totally neglected

The task of design of the portfolio of industries and their logistical and knowledge synergies with the local resources and environment is left with the developer. The type of industries and their potential for export and employment generations could be big issues if not taken care.

5.5 Performance of the Indian SEZs

Thirty years ago, 80 SEZs in 30 countries generated barely US\$6 billion in exports and employed about one million people. Today, 3,000 SEZs operate in 120 countries and account for more than US\$600 billion in exports and 50 million direct jobs. By offering privileged trading terms for manufacturing-based exports, SEZs can attract investment and foreign exchange, spur employment, and boost the development of improved technologies and infrastructure.

Despite their appeal, critics claim that SEZs attract investment only by offering distortion incentives rather than building underlying competitive conditions. They also argue that these incentives create a fiscal burden on the taxpayer and hurt environmental and labor standards. In addition, critics believe that the direct and indirect costs of maintaining zone privileges

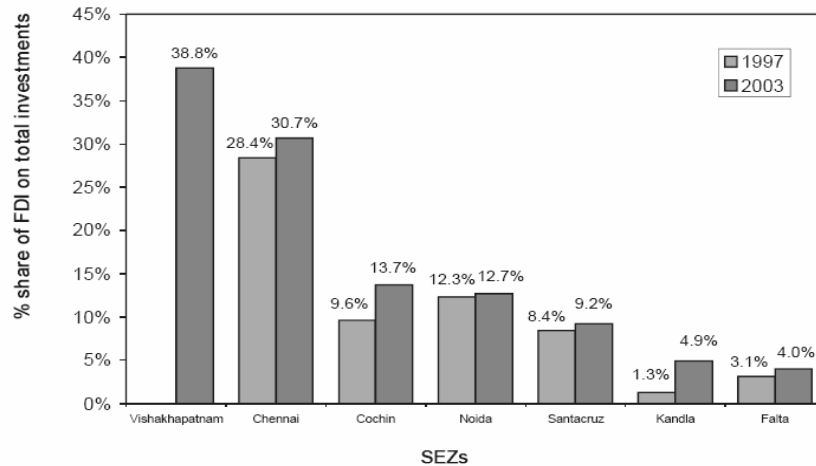


Fig. 5.1 Share of FDI in total investment in Indian SEZs [9]

do not benefit the rest of the economy and, instead, lead to enclaves of prosperity.

Active linkage programs, adequate social and environmental safeguards, and private sector involvement in zone development and operation can go a long way in ensuring that the benefits of SEZs are maximized. Moreover, SEZs must be seen in the context of an overall strategy to promote private sector-led growth, rather than as a substitute for a good investment climate.

5.5.1 Generating Foreign Exchange

This first goal of EPZs, generating foreign exchange for the countries in which they are active, has not been an across the board and unequivocal success. The establishment of EPZs seems to be synonymous with the country providing a multitude of tax breaks and tax holidays to attract FDI to their zones. The other costs incurred are the investments for the planning, construction of the zone the cost of maintenance, administration and promotion of the SEZ, and the cost of the different incentives and subsidies offered by the government to investing companies.

All countries offer similar tariff-free imports and export, free repatriation of profit and market access. The length and extent of tax provisions varies across nations. The foregoing of the income is partially offset if backward linkages and forward linkages are created between the SEZ and the domestic firms.

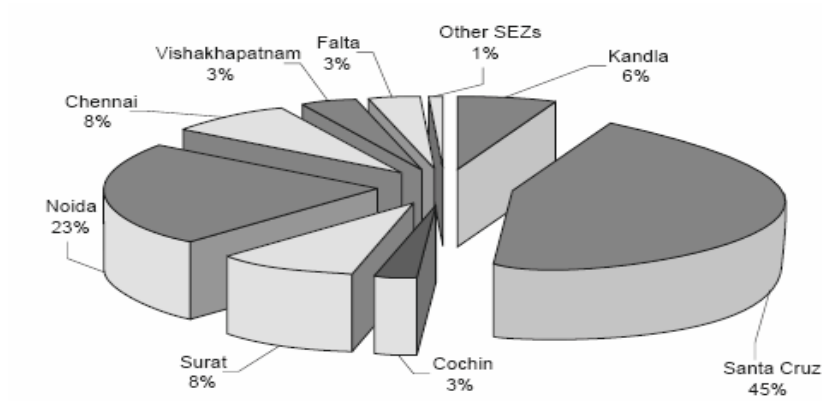


Fig. 5.2 Zone-wise composition of exports from SEZs in 2004-05 [9]

The corporate policies of international firms may discourage them from creating a long term relationship with a domestic supplier. These firms may find more flexibility in securing a competitive international supplier.

5.5.2 Employment Creation

Job creation is considered one of the primary goals and one of the most important contributions of any SEZ to the economy. There has no doubt been a great deal of knowledge spill-over effect from the creation of EPZs in developing countries. Some employees also receive training at the managerial or supervisory level, thus enriching the entrepreneurial capital of the country.

5.6 Market Attractiveness of Indian States

In India there are opportunities for investment in all the 28 states and Union territories in India. The decision of selecting a state in India for investment is a very complex one. Some states are more advanced in terms of the infrastructure and may also provide higher returns on investments. The issue of where to invest depends on the nature of product, the resources needed and other factors including the political and social compulsions. The situation is that states are now competing with one another to attract customers into their SEZs. This is a good situation and prospective investors can negotiate with the states. In this context of strategic location and multi modal connectivity Mumbai in Maharashtra, Chennai in Tamil Nadu, Kolkata in West

Table 5.1 Top 5 ranking of states by independent studies (2005)

	FICCI	World Bank	Rediff
1	Maharashtra	Maharashtra	TN
2	Gujarat	Delhi	Gujarat
3	Karnataka	Gujarat	Kerala
4	TN	AP	AP
5	AP	Karnataka	MP

Bengal, Cochin in Kerala, Visakhapatnam in Andhra Pradesh, Ahmedabad in Gujarat automatically select themselves as favored locations for industries requiring sea transport. Delhi has good air transport facilities. There are already SEZs in operation in those cities and these cities are also very congested.

5.6.1 Investment Climate

Investment climate measures such as the strength of property rights, rule of law, and level of corruption are also well correlated with growth. It refers collectively to four components of the external (economic) environment within which business operates, namely, physical infrastructure, government regulation, the macroeconomic-cum- trade policy regime, and financial and business services.

The quantity and quality of investment flowing into any specific region depend upon the returns that investors expect and the uncertainties around those returns. These expectations can be categorised as follows:

1. Economic and political stability and national policy towards foreign trade and investment.
2. Efficacy of a countrys regulatory framework relating to the issues of entry and exit, labor relations and flexibility in labor use, efficiency and transparency of financing and taxation, and other legitimate public interests.
3. The quality and quantity of available physical and financial infrastructure, such as power, transport, communications, banking and the availability skilled workers.

Based on the World Bank investment climate report, the Indian states are ranked as shown in Table 5.1. There are several problems with the selection of the SEZ site from the investment climate data.

1. The data is not sensitive to the industry vertical and is the same for Petrochemical to Apparel. This obviously is not admissible since the logistical, backward linkage requirements are different for different verticals.
2. The list of the evaluation indices is arrived in rather ad hoc manner by industry surveys and misses several important factors such as resource management skills (such as global sourcing, global marketing and multinational, multi cultural human resource management), intellectual property issues, free trade agreements, etc to name a few.
3. The decision makers for changing the evaluation indices are not clearly identified.

Our model for SEZ is in an abstract setting and from the four factors we can derive the indices in the lower levels until we arrive at the evaluation indices which are measurable are reached.

5.7 Design of SEZ

An SEZ is a geographic concentration of interconnected companies, specialized suppliers, service providers, firms in related industries, research institutions, consultants and associated institutions in particular fields that compete but also cooperate.

In our view, an SEZ incorporates four interdependent operational and policy making components industry product and process value chains to meet the competitive markets, connecting technologies (information and logistics), resource management and knowledge creation and finally the global integration of the region in which the SEZ is located in to economic world (see Figure 5.3). One way in which the competitiveness of the SEZ and its performance can be enhanced is by identifying the various factors that influence the above four components of the SEZ and adopting an integrated approach in nurturing all of them. Specific actions should be driven by a strategy of balanced investments since each factor enhances the SEZ in different ways to different degrees depending on the industry vertical under consideration. These four elements of the SEZ are discussed below in detail.

5.7.1 Connecting Technologies

A logistics cluster is a part of this SEZ and comprises of shippers, logistics service providers, IT vendors, port and airport infrastructure providers, regulatory agencies, and other logistics-related organisations that leverage on

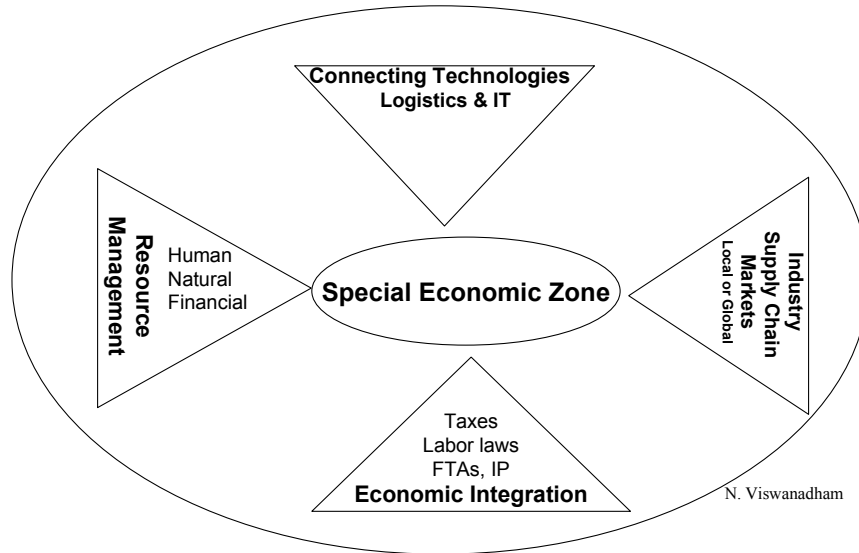


Fig. 5.3 Special Economic Zone - Design Components

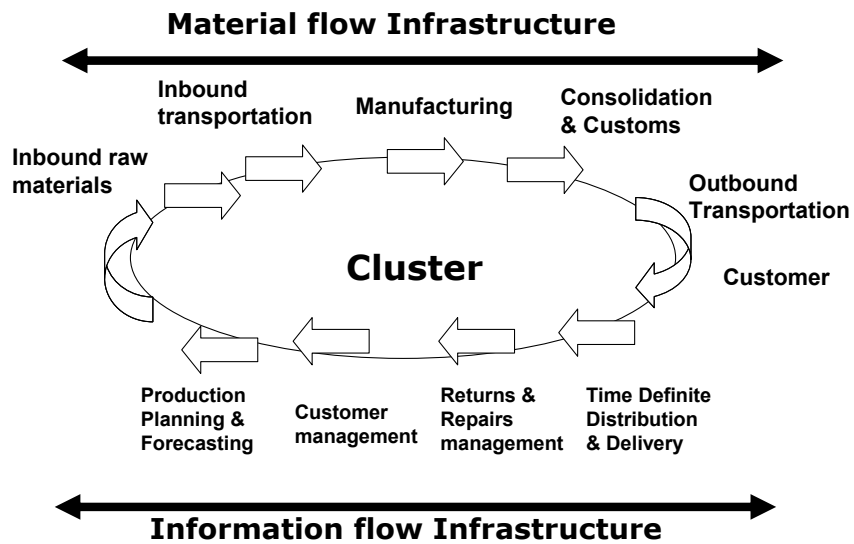


Fig. 5.4 Connecting Technologies in an SEZ

the interdependencies between them to provide highly efficient and effective logistics solutions and create innovative new solutions.

As shown in Figure 5.4, a good logistics and transportation infrastructure is the basis for a world-class logistics industry. Development of physical infrastructure for intra- country and international movement of goods is very important given the global nature of trade today. The development of a world-class infrastructure requires a phased approach towards investment in various sectors of industry that comprises this physical infrastructure cluster.

In today's globally connected business environment global information networks have an increasingly important role to play. It is possible that some of the limitations of the physical logistics infrastructure can be overcome by a superior information infrastructure. Real-time information systems and decision-support tools are the key to increased supply chain productivity and efficiency. It has been widely reported that computerization and internet-based business interaction has contributed to a growth of 1.5 per cent to the GDP of the United States economy. Similar to the investment strategy in physical infrastructure, investments in information infrastructure need to be undertaken in phases so as to build up the various segments of this cluster.

5.7.2 Resource Management

We have so far looked at investments in infrastructure that will drive the competitiveness of the logistics industry. However, the true potential of these investments will not be realised until competent manpower and breakthrough ideas and solutions become available to fully harness the power of these investments. Global human, natural and financial resource management skills are crucial for development of a competitive SEZ. In particular global sourcing, and global marketing skills are needed to make an economic impact and attract FDI. Educational institutions and research centers have a crucial role to play in imparting these skills.

5.7.3 Vertical Industry Supply Chain Network

The product and process developments and their modularity are important for the SEZ products to be competitive. Ultimately the companies in the SEZ need to be world class and their products need to be globally competitive. Global manufacturing needs outsourcing to low cost countries, efficient logistics and supply chain visibility. Approaches towards developing industry modular supply chains will need to be focused on specific vertical indus-

tries, since the approach to be adopted will be very different from industry to industry.

5.7.4 Economic Integration

The SEZs by definition are regions where export and import rules are relaxed to attract MNCs and FDI. The success of the products created in the SEZ in the global market depends on the extent of integration of the host country in to the global economy. The FTAs, IP, excise duties, real estate ownership laws all matter a great deal.

In our view, attention to all four components would be needed for the SEZ to succeed. Design of SEZ involves a balanced investment in all four components for enhanced performance.

5.8 Selection of Location

The decision to invest in India is an easy one but where to invest in India is a tough one. There are opportunities for investing in existing SEZ or in initiating a green field SEZ project or participate in some of the new initiatives in the country or participate and turnaround an existing SEZ. In a specific SEZ, the opportunities for investment include

- *Developer*, including a co-developer, engaged in the establishment and development of the zone, including individual components of infrastructure such as roads, water and drainage system.
- *Operators*, which are enterprises engaged in the operation and/or maintenance of all/ any infrastructure facility in the zone
- *Tenant/units*, which are the occupant enterprises within the zone and include enterprises engaged in manufacturing, services and trading

There are various kinds of build, operate and transfer models available depending on the context. There is a large amount of literature on what is called the location problem. We discuss below some international best practices which may guide the site selection, industry focus and possible joint partners.

Strategic location and multi modal connectivity with major trading destinations are critical factors for success of SEZ's. It has been observed that the most successful zones are strategically located giving the units in the zone an easy gateway to international trade. For example, the location for Chinese SEZ's and FTZs were consciously selected along the east coast close to Hong Kong, Macau and Taiwan. These countries have served not only

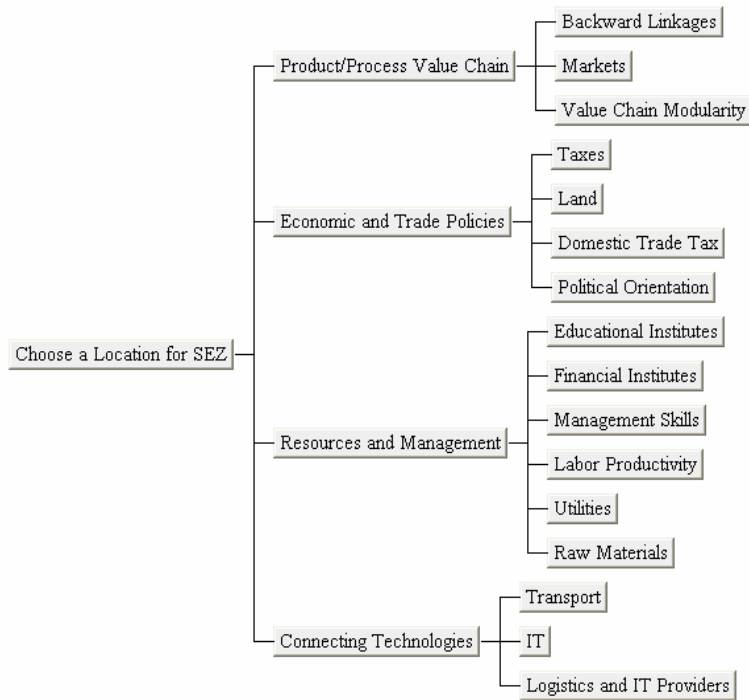


Fig. 5.5 Hierarchical structure of location factors for SEZ selection

as transshipment points for exporting to international markets but also as consumption centers. Proximity to the seaports and airports of Hong Kong and Taiwan has played a critical role in the growth and success of these SEZ's. Likewise, free zones in Malaysia, Indonesia and Thailand are located near the capital cities with minimum distance from seaports and airports. Middle East and Caribbean free zones are also favorably located close to airports and seaports.

Earlier, we dealt with the design of an SEZ and the four factors that are important for making an SEZ a location of choice. We use this four factor model for the location choice of an SEZ.

The location of an SEZ is a very important decision-making problem for a multinational corporation. Classical location theory, as represented by A. Weber, was based on a particular hypothesis with a small number of location factors, such as transport costs and labor costs.

Traditional factors are still important, but they are becoming less dominant, and non- economic factors such as living conditions are receiving

more attention than in the past. When a manufacturer sets up his plant in the SEZ, the location selection process involves two fairly distinct stages: the selection of states and the final decision on a specific SEZ in a state. The SEZs are approved by the Central Government but the state Governments has mainly a stake in it. The land and work force and some of the taxes are in the domain of the state government.

The location factors for SEZ selection are divided into the following groups:

1. Factors directly related to production activities and value chain such as raw materials, suppliers quality, design and other value chain related functions.
2. Factors relating to connecting technologies such as port and airport infrastructure, transport, IT connectivity, logistics and software service providers.
3. Factors related to the government policies such as land allotment, tax breaks at both central and state level, taxes when outsourced locally outside the SEZ and also when sold.
4. Factors relating to the availability and quality of the resources: natural resources such as raw materials, water, industrial inputs such as power, human resources and their productivity, management skills for global sourcing, global marketing and global human resource management and availability financial inputs such as venture capital firms and so on.

We have shown in Figure 5.5 three levels of indices. Each of the level three indices can be subdivided into evaluation indices for which numerical values can be assigned. For example under IT one can have the indices such as B2B connectivity, number of internet connections, software providers and their quality and so on. Using this information one can work backwards using techniques such as AHP to find the relative importance of the various factors and finally the score of the SEZ with references to these factors.

Our method here is more abstract and come from the factors important in the design to the evaluation indices. This is in contrast to a number of studies including the World Banks investment climate where the selection of the evaluation indices was rather ad hoc. Our methodology also allows us to change one of the evaluation parameters such as the port dwell time or the corporate taxes.

5.8.1 Project Selection

Foreign direct investment is usually sub-divided into three-types. The investment could be in producing goods and services for export or for domestic market. Investments in infrastructure are the third category. Investing in SEZs involves all the three types of FDI. Investing in infrastructure is the riskiest for the investor and probably the most useful for the country receiving the FDI. With the promise of reliable power, telephone, transport network and information technology networks for the SEZs by the governments, the risk may not be as great as earlier. Multiple partners from different countries may be a wise option for risk pooling. Investments in companies inside the economic zones have the potential of large profits in the near term.

Indian domestic market is huge, FDI can be in units producing new products and services that were previously unavailable in the market probably using new production processes. Further more; with SEZs opening up in other South Asian developing countries the opportunities for using the learnings from the Indian experience in other countries are immense.

What kinds of projects should be selected for location in an SEZ is the question that each developer faces. The projects selected should fit in to the geographic and economic environment of the SEZ. The location of the SEZ should have the backward linkages for procurement of the raw materials and the project should thrive in the location industry environment, the internal and external logistics infrastructure to carry the products to the local or global markets, the local human skills to support the manufacturing and marketing and the financial institutions to support the venture.

The projects also gain from other selected projects some times with complementary products. For example a petroleum refinery project will benefit by the presence of a third party logistics provider and a shipping line. Equally important is the investment analysis for each project: investment amount, recovery period, returns rate and risk of capital. Thus economic and technical evaluation of each project and comprehensive joint evaluation of all projects is needed. Methodologies for evaluating and ranking a set of proposed projects based on identifying and quantifying certain key target criteria and for joint evaluation projects include simulation, multi-attribute analysis, analytic hierarchy process etc. We believe the selection of the right kind of projects is a must for the overall competitiveness of the SEZ.

5.9 Conclusions

India is booming and the signals are there all over. Several companies and countries are interested in investing in India. Investing in India has dual advantage of producing for a huge domestic market as well as access to fertile natural resources and skilled and unskilled human resources. Investment in an SEZ in India will save time and effort involved in the bureaucratic processes for setting up operations in India. The Indian market size can absorb all that is produced; however, the investors have the option of export and repatriation of the proceeds. Singapore companies have worked in India and have implemented flagship projects such as the Bangalore Technology Park. The opportunity India provides is real and there will be other immense future opportunities as the India story unfolds.

The recent renewed interest in the creation or revival of regional trade/integration arrangements (RTA/RIA) has raised questions regarding the potential status and role of SEZs in such economic entities. This relationship is multifaceted and complex. Whether SEZ firms and countries in which they operate would be hurt by the creation or revival of an RTA/RIA is determined by the membership in or exclusion from such an arrangement.

References

1. Ashok Kundra, *The performance of Indias export zones: a comparison with the Chinese approach*, Sage publications (2000).
2. Wei Ge, *Special Economic zones and the Economic transition in China*, WorldScientific (1999).
3. Nirupam Bajpai and Nandita Dasgupta, "Multinational Companies and Foreign Direct Investment in China and India," *CGSD Working Paper No. 2* (January 2004).
4. Aradhna Aggarwal, "Export processing zones in India: Analysis of the export performance," Working Paper no. 148, *Indian council for research on international economic relations* (November 2004).
5. W. A. Porter, "Clusters and the new economics of competition," *Harvard Business Review*, pp: 77-90, (Nov-Dec 1998).
6. The World Bank, *India: Investment Climate Assessment 200*, Washington and ND, Finance and Private Sector Development Unit South Asia Region (November 2004).

7. Dorsati Madani, *A Review of the Role and Impact of Export Processing Zones*, The World Bank, Development Research Group (November 1999).
8. FICCI-KPMG study, "Driving Growth through Special Economic Zones," Theme Paper, *International Convention On Special Economic Zones* March 21 - 22, New Delhi (2002).
9. CII Northern Region, *Special Economic Zones-Engines for Growth* (May 2006) <http://www.sezindia.nic.in/>
10. Shigeru Yurimoto and Tadayuki Masui, "Design of a decision support system for overseas plant location in the EC", *Int. J. Production Economics* 41:411-418 (1995).

glams

<http://www.isb.edu/glams/>

The primary goal of GLAMS is to be a knowledge partner of choice to the Government and industry in the areas of manufacturing, logistics, and supply chain management. Its focus is to engage in innovative research and conduct executive programs to become the driving force behind rural and global supply chain excellence in India.

The current reserach activities at GLAMS include:

- PERC model, which provides a unique framework for integrated design of global supply chain networks including the value chain architecture and organization structure.
- Business transformation of the core value delivery process in rural supply chains such as procurement and retail, leveraging the current logistical infrastructure and *kisan-bandhu*, a farmer friendly electronic exchange.
- Lean construction supply chain deisgns.

Two top industry houses TAFE and Hero Group are sponsors for the centre.



Indian School of Business
Gachibowli, Hyderabad 500032
<http://www.isb.edu>