Evaluating impact of SEZs in India through sectoral analysis and case studies

Final report

July 2021

Preface

The *'Evaluating Impact of SEZs in India through sectoral analysis and case studies'* report provides evidence-based support to policymakers about the impact of SEZs on the overall economic and industrial development scenario in India. This report has been prepared for submission to the Director General, Export Promotion Council of EOUs and SEZs (EPCES).

For quite a while now, the global policy ecosystem for trade and investment has not been as cordial as it was in the acme of export-led growth and development. Yet the need to entice investment and encourage exports is a dominant paradigm for industrial development, economic diversification and structural transformation for developing countries, especially India. Many new industrial policies that have been adopted in India in recent years, focus significantly on increasing industrial capacity and attracting investments. It is in this context we are seeing an amplified growth in the use of Special Economic Zones (SEZs) as a key instrument for attracting foreign direct investment, creating employment opportunities, developing infrastructure, and facilitating transfer of technology. It has been about one and a half decades since the legislative framework for SEZs in India was put in place. To conduct a study to assess the impact of SEZs, EPCES had engaged PricewaterhouseCoopers Pvt Ltd (PwCPL).

This report provides an analysis of some of the industrial sectors (other than IT and ITES, petroleum, and gems and jewelry) in SEZs to understand their contribution in investment, employment, exports and including a few good case studies on technology transfer, hi-tech industry, API, backward area development, and labor reforms. The PwC study team evaluated both the scale and quality of impact of SEZs across the three macro-economic dimensions of exports, FDI and employment. The team interviewed more than 30 stakeholders across the seven zones to gather their inputs on performance of SEZs and identified 12 case study subjects. Further, the study team selected and studied some of the successful international SEZs to identify some best practices relevant to Indian context.

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1 SEZs in India have been part of the overall reform agenda

With India poised to become the third largest global economy by 2030, a key policy of the Ministry of Commerce and Industry (MOCI), GoI has been to establish Special Economic Zones (SEZs).[i] These zones are geographic regions in which a distinct legal framework provides for more liberal regulations than prevailing in the rest of the country. The broad category of SEZs encompasses several more specific types of zones, such as free trade zones (FTZs), export processing zones (EPZs), free zones, industrial estates, free ports & enterprise specific zones.[ii]

SEZs were established to attract foreign direct investment, create employment opportunities, develop infrastructure, and facilitate transfer of technology and access to the global market. And hence, the objective was to provide an internationally competitive and hassle-free environment to encourage exports. With this goal in mind, the Government of India announced its SEZ policy in 2000 and enacted the SEZ Act in 2005, with objectives including creating integrated infrastructure for export production, offering a package of incentives to attract foreign and domestic investment to promote export led growth and creation of employment opportunities.

The number of operational SEZs in India stands at 262 with 5,537 units approved within these SEZs. From sectoral point of view, IT/ITes sector is dominating with approximately 61 percent of total operational SEZs and hosting 3,378 approved units. Multi Product SEZs account for 10 percent of SEZs in the country, followed by sector specific SEZs in pharmaceutical/ chemical (5 percent) and Engineering (4 percent) sectors.[iii] From geographical point of view, the spread of SEZs across India broadly follows the pattern of overall industrialization, with six states, i.e., Maharashtra, Telangana, Karnataka, Andhra Pradesh, Telengana and Tamil Nadu, catering to 56% of the industrial output host 73% of the operational SEZs. Tamil Nadu leads the tally with 46 operational SEZs, followed by Maharashtra (37), Karnataka (34), Telangana (34), and Andhra Pradesh (24).[iv]

SEZs in India have generated around 2.35 million direct jobs by FY2021. Manufacturing exports from SEZs amounted to $45 billion FY2020; thereby accounting for 35 percent of India's manufacturing exports. Foreign direct investment in SEZs stood at $4.1 billion in FY2020. [v]

2 Evaluating both the size and the quality of impact of SEZs has been the objective of this study

In this report the study team has tried to evaluate the impact of SEZs on size and growth of employment, exports and FDI from both quantitative and qualitative perspective. Quality aspects were mainly captured through on ground sentiments of firms or units operating in SEZs to understand how the SEZ framework has helped them. Further, under the present scenario of COVID 19 pandemic and its expected impacts on global and Indian economy, the best practices of top performing SEZs globally were mapped in tandem with the key challenges faced by Indian SEZs. This will help the decision makers with evidence-based policy advice to formulate policy strategies, organizational set-ups, etc. that could help Indian SEZs to minimize their challenges.

3 In some of the sectors, SEZs have been able to develop niche expertise to develop high value-added and complex products (vis-à-vis rest of India)

Out of the total exports from SEZs in FY2020, IT & services sector accounts for a major share (~59 percent), followed by trading & warehousing (~1 percent) and manufacturing sector (~40 percent). Within the manufacturing sector, petrochemical and gems & jewelry together comprise about 62% of the exports. This study focuses on analyzing exports from sectors which are within 38% of the Manufacturing exports from SEZs. Pharmaceuticals, Chemicals and Electronics sectors comprise about 50% of the exports from the manufacturing sectors (excluding petrochemical and gems and jewellery).[vi]

There seems to be a similarity between the share profile of sectoral exports from SEZs and rest of India. For example, top 5 sectors in terms of exports (*Pharmaceutical, Chemicals, Electronics, Metal-based, Engineering goods*) from SEZs are also significant for the rest of India. However, there are certain sectors which feature relatively more prominently in SEZs' export profile. Take for example, Aerospace and Defence sector. SEZs also hosts some of the prominent sectoral tenants in India.

i Business Standard news article. India to become 5th largest economy in 2025, 3rd largest by 2030: CEBR.
ii Report of the Comptroller and Auditor General of India For the year 2012-13 Performance of Special Economic Zones (SEZs).
iii SEZ India factsheet. http://sezindia.nic.in/upload/uploadfiles/files/Sectorwi.pdf (accessed on 5th March 2021).
iv SEZ India factsheet. http://sezindia.nic.in/upload/uploadfiles/files/Statewi.pdf (accessed on 5th March 2021).
v EPCES, NSDL database, PwC analysis.
vi. EPCES, NSDL database, PwC analysis.

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Another prominent feature of SEZs is that they have enabled higher value addition in some of the sectors. In FY2018, for low technology sectors (labour intensive) such as basic metals, apparel, textile, chemicals and non- metallic minerals, rest of India ranked higher in terms of value addition vis-à-vis SEZs. But in high technology sectors (except electronics and engineering goods) such as pharmaceuticals, rubber, plastic and automotive, SEZs have performed better than rest of India in terms of value addition. [vii] This suggests that the share of capital intensive and high technology sectors in overall value add from SEZs is high, compared with rest of India's average.

This can be better understood from product complexity index and product priority index (Table I). Product complexity index indicates the diversity and sophistication of the productive know-how required to produce a product. [viii] On the other hand, product priority measures the share of a product in exports from the sector to which the product belongs.

Table I: Measures of product complexity, product priority and value chain for select sectors of SEZs and RoI

Sector	Products	Product complexity	Product priority		Value chain perspective
			SEZ	RoI	
	Formulations	◑	◕	◕	➢ Out of the total pharmaceutical exports from SEZs, more than 85 percent comprise of complex products. ➢ Most of the pharmaceutical companies in SEZs are engaged in all the operations across the value chain. ➢ Some of the prominent industry players functioning in the SEZ include SUN Pharma, Wockhardt, Cadila Healthcare, Dr. Reddy's, Divi Laboratories, Biocon and Serum Institute of India.
	Immunological products & vaccines	◕	◑	◑	
	Integrated circuits	◑	◑	◔	➢ At present, SEZs in India are currently operating in the upstream segment of electronics value chain wherein they have been mainly involved in manufacturing of electronic components and sub assemblies (> 45 percent in total electronics exports). ➢ Except, Flextronics Ltd., SYRMA and Delta Electronics, majority of the OEMs are located outside SEZs.
	Mobile phones	◑	◑	◕	
	Conduction & optical cables	◔	◔	◑	
	LEDS	◑	◑	◔	
	Automobiles	◕	◔	◕	➢ SEZs are currently operating in the upstream part of the automotive value chain wherein they have been mainly involved in the manufacturing of complex auto accessories products (> 94 percent in total auto exports). ➢ Some of the Auto SEZs have been able to position themselves as a preferred destination for some of the joint ventures between Indian manufacturers and foreign OEMs. ➢ For example, Mahindra World City Auto SEZ in Chennai is a joint venture between Mahindra Ltd and Sumitomo Corporation, Japan. The manufacturing units in SEZ mainly operate in engineering, tool-making, plastics, and metal fabrication and supply their produce to Sumitomo Corporation.
	Auto accessories	◕	◕	◑	

◔ *Low* ◑ *Medium* ◕ *High*

Source: ATLAS of Economic Complexity, NSDL database, ITC Trademap, PwC analysis

vii Annual Survey of Industries 2017-18, NSDL database, ITC Trademap, PwC analysis.
vii ATLAS of Economic Complexity.
https://atlas.cid.harvard.edu/glossary#:~:text=Where%20P%20C%20I%20PCI,country%20is%20not%20currently%20producing.&text=PCI%20is%20calculated%20based%20on,economic%20complexity%20of%20those%20countries. (accessed on 5th March 2021).

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4 FDI attracted by SEZs have been more productive as visible through trends in quality of FDI

We have used FDI Quality Indicators to assess how FDI affects socio-economic and environmental outcomes through various channels. The indicators covered in this report include a) productivity and innovation, b) employment and job quality, c) skills, d) gender equality and e) carbon footprint.

a Production and Innovation

Several companies in Indian SEZs have entered in a JV partnership with foreign companies which has resulted in the transfer of knowledge and technology in hi-tech sectors. Prominent examples include L&T MBDA, Tata Boeing Aerospace Limited and Mahindra World City Auto SEZ

b Employment and job quality

SEZs in India have created a large number of quality jobs. They have provided several monetary and non-monetary benefits, occupational safety standards, insurances, transportation facilities, etc.

c Skills

In Indian SEZs, the FDI-attracting hi-tech sectors such as defense, apparel, aerospace, automotive, etc. have supported skill development by offering training opportunities to employees for technical and managerial skills.

d Gender equality

FDI inflow in SEZs in India have been impactful for promoting women employment and gender equal employment opportunities. The Salcomp SEZ near Chennai hires more than 10,000 workers of which 90% are women. Brandix Apparel City SEZ employs ~16,000 female workers (76% of their total employment).

e Carbon footprint

Among various examples, Brandix Apparel City SEZ has undertaken measures towards driving a more sustainable future. Brandix has developed a sustainability framework across the pillars of Air, Water and Earth and supported it by investment in robust infrastructure.

5 SEZs have also been successful in increasing labor productivity and in enhancing workforce participation of female workers

Labour productivity

It is defined as the ratio of real economic output per unit of labour. The results suggest that SEZs have performed better in terms of labor productivity vis-a-vis the rest of India. Labour productivity in SEZs has averaged over INR 1.5 Crore compared to INR 1 Crore in rest of India.[x]

Female employment ratio

It is defined as the share of females in overall direct employment. SEZs have performed better in generating employment opportunities for women, compared to the rest of India. Employment ratio of women in SEZs has averaged over 31 percent compared to less than 20 percent in rest of India.[xi]

ix Annual Survey of Industries 2017-18, NSDL database, PwC analysis.
x Refer footnote ix.
xi Refer footnote ix.

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6 **We have selected 12 success stories reflecting positive contribution of SEZs in India**

The empirical analysis carried out in this study showed that SEZs in India have been successful in helping Indian exports move up the value chain, attracting quality FDI in terms of job creation and labour productivity and increasing the participation of women in the workforce. This section further strengthens the argument of positive impact of SEZs by studying the success stories of some of the SEZs and tenants and how they have been impacted by the SEZ framework. These have been detailed out in the form of case studies across six themes: technology transfer, hi-tech industry, APIs, backward area development, labor reforms and other initiatives and innovation (Table II).

Table II: Case study subjects' brief description

Case Study Subject	SEZ	Theme	Rationale for Case Study
Tata Boeing Aerospace Ltd	Aerospace SEZ Adibatla	• Transfer of Technology • Hi-Tech	Boeing's first equity venture in India, TBAL manufactures aero-structures for Boeing's AH-64 Apache helicopter, major step towards co-development of integrated systems in aerospace and defense in India
Brandix India Apparel City- SEZ	Brandix India Apparel City- SEZ	• Labour reforms • Backward area development	The BIAC facility houses almost the entire value chain for textiles and has created jobs for more than 16,000 women (76%). It has also created an enabling environment to sustain it with creche facilities, transportation and educational assistance for children and training programs, full time counsellors & free legal aid support etc.
L&T MBDA Missile Systems Limited	Coimbatore SEZ	• Technology Transfer • Hi-Tech	Manufacturing and supply of advanced missile systems including testing facility & launch systems, JV between Larsen & Toubro and French company MBDA, JV has resulted in technology transfer including access to proprietary machinery, calibration support, technical trainings etc. Company is in the process of obtaining contracts for direct supply to Government of India.
Biocon SEZ	Biocon SEZ	• Hi-Tech • API	An innovation led biopharmaceutical company that develops biosimilars, API & generics, novel biologics and research services and exports to 126 countries
Serum Institute of India	Serum Biopharma Park	• Hi-Tech	First biotechnology park in India, established with the aim of manufacturing and supplying immuno biologicals, largest manufacturer of vaccinations globally, substantial focus on R&D, manufacture of vaccines and exporting anti-cancer products to the US and EU markets, have entered into new partnership with GAVI and BMGF to escalate the production of up to 100 million doses of COVID-19 vaccines for India and for 65 other countries.
Pranavam Aerospace	KIADB Aerospace SEZ	• Transfer of Technology • Hi-Tech	A UK-based company has invested in enabling acquisition of technology and machinery for Pranavam. Their team of experts is also helping its employees learn how to implement the technology.
Divi's Laboratories	Divi's Laboratories Pharma SEZ	• Hi-Tech • API • Backward Area Development	Divi's laboratories is one of the top 2 manufacturers globally for 18 APIs. Divi's Laboratories alone caters to 80% of the world's demand for naproxen. Divi's exports its products to 95 countries. Divi's has also undertaken several initiatives for area development around its plant facilities including village development, education, women empowerment and skill development etc.

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Case Study Subject	SEZ	Theme	Rationale for Case Study
GMR Aero Technic	GMR Aerospace SEZ	• Hi-Tech • Other • Initiatives & Innovation	GMR Aero Technic is the first and largest MRO facility in India. The group is opening a specialized school with programs in aircraft maintenance for reducing skill gap in the country within aviation sector. It has deployed state-of-the-art training equipment with collaboration with leading foreign companies.
CIM Tools Pvt. Ltd.	KIADB Aerospace SEZ	• Hi-Tech	CIM tools Pvt. Ltd. is an aerospace company specializing in manufacture of aero-structural parts, machined parts and sub-assemblies. It is a tier 1 supplier to Boeing. CIM tools has successfully adopted several hi-tech manufacturing techniques with industry 4.0 components including IoT & robotics. CIM Tools is the first private aerospace firm in India to adopt Flexible Manufacturing Systems
Aequs SEZ (Belgaum)	Aequs SEZ (Belgaum)	• Backward area development	The establishment of Aequs SEZ has transformed a barren and dry area into an industrial hub for aerospace, automotive, tools and IT & ITeS sectors. SEZ development in Belgaum has led to overall area development including employment generation, skilling, women empowerment and land value enhancement. More than 8000 new jobs were created.
Sri City	Sri City SEZ	• Backward area development	SEZ development has transformed the socio-economic landscape of the region with development of industries, social infrastructure, educational facilities etc. ~85% of the people in the villages of Sri City, started receiving good earnings within 4 years of setting up of Sri City.
IFSC, GIFT City	IFSC, GIFT City	• Other Initiatives & Innovation	One of a kind financial services centre in India which permits activities that are currently carried on outside India by overseas financial institutions and overseas branches /subsidiaries of Indian financial institutions. Simplified regulatory procedures within the SEZ for financial services. More than 10,000 jobs created.

Source: Stakeholder consultations..

7 **We have mapped the best practices of shortlisted zones in tandem with the key challenges faced by Indian SEZs to draw key learnings from them**

Globally SEZs have been effective policy instruments in delivering outcomes such as employment generation, promotion of exports, FDI inflows, regional development, among others. SEZs in East Asia and Middle East countries have been prominently known for their contribution in industrial development. Given the success of SEZs worldwide, we have adopted a dimensional approach consisting of parameters: characteristic factors, contextual factors, and regulatory factors, to identify the top performing SEZs of the world. xii

The shortlisted SEZs include, Khalifa Industrial Zone Abu Dhabi (KIZAD, UAE), Suzhou Industrial Park (China), Bayan Lepas Free Trade Zone (Malaysia), Jebel Ali Free Zone (JAFZA, UAE), Incheon Free Economic Zone (South Korea), Aqaba Special Economic Zone (Jordan), Jurong Free Trade Zone (JTC, Singapore) and Shanghai Free Trade Zone (China). To get a closer insight in the results of the analysis, we have identified some of the success trends or best practices of the shortlisted SEZs and mapped them with the key challenges faced by SEZs in India (Figure I).

xii Special Economic Zones: An Operational Review of Their Impacts. World Bank Group and Competitive Industries and Innovation Program.

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Figure I: Best practise relevant to challenges faced by Indian SEZs

	Best practise and relevant subject case	Relevance for India
Establishing a well-defined institutional structure with effective one stop shop for SEZ development	• Aqaba SEZ is governed by two authorities- Aqaba SEZ Authority & Aqaba Development Corporation. Clearly defined roles, financial & regulatory autonomy and endowments along with a strong management team enable efficient governance. • JAFZA one stop shop with information provided in English, with minimum red tapes and utmost transparency. Licenses provided in one day. • IEFZ one stop shop provides various services including investment consultation, advice, and approval of business etc.	Institutional framework of BoA and UAC confined to grant approvals for authorized operations only, resulting in inordinate time for seeking approvals Inefficient implementation of EoDB framework
Attracting anchor investors for ecosystem development and incentivizing hi-tech sectors	• SEZs across the world incentivize anchor investors for ecosystem development: - Bayan Lepas SEZ: aggressive investment promotion to attract 8 electronics MNCs. - KIZAD: 25-50% discount on rentals fees. - DAFZA: one-year rental grace period. - Dubai Internet City: discounted lease rate of 25-40% - ADAFZ: 10-30% discount • Shenzhen SEZ has provided incentives for establishment of hi-tech industries and securities & equity market for hi-tech firms.	Absence of investment promotion activities and financial benefits to attract anchor investors Absence of fiscal and non-fiscal incentives based on employment, investment, technology, value addition and other activities
Developing SEZs which are in proximity & well connected to major markets & gateways	Incheon Free Zone has on-site port & airport, proximity to capital, 3 hour flight to 61 mega cities JAFZA- on-site airport, Dubai Logistics Corridor Shanghai FTZ-On-site airport and port	Availability and quality of link is not meeting expectations in SEZ.
Creating a facilitating business environment with multiple options for investors	• JAFZA provides 100% foreign ownership, no restriction on capital repatriation, no currency restrictions, no restrictions on foreign talent, 7 types of licenses offered, several types of company formation types • Sohar Free Zone provides 5-25 years lease length, no currency restrictions, sub-leasing permitted • In Philippines approvals granted in 12-17 days, exit in 15-20 days • In Indonesia temporary license provided in 3 hours	Rigid lease structure for developers and tenants

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		Best practise and relevant subject case	Relevance for India
	**Providing high value services related to quality of life & business services in SEZs**	• SEZs with Value Added Services: • Recreation Centre & Sports Complex: JAFZA, Dubai Airport Free Zone, JAFZA, Dubai Multi Commodities Centre • MICE: Port Klang Free Zone, Sohar Free Zone, KIZAD, Antalya Free Zone • School- KIZAD, Dubai Multi Commodities Centre, Dubai Internet City, Sohar Free Zone • Talent Services- Dubai Multi Commodities Centre • Green Utilities- Sei Mangkei, Kalundborg Eco-industrial Park in Denmark • Data Centre- Dubai International Financial Centre	Absence of high value added support services Availability and quality of internal infrastructure is not meeting expectations in SEZ Lack of enablers or facilitation measures to promote green technology and green energy.
	**Lessons for joint SEZ development for addressing capital & knowledge constraints**	China-Singapore Suzhou Industrial Park is one of the most successful cases for joint SEZ development. • Lessons for joint SEZ development: • Effective alignment of incentives between key partners: • Active Commitment from Political Leadership • Establishing a strong institutional structure for project governance • Ensuring a strong two-way commitment to learning and knowledge sharing	Non availability of infrastructure status to some components of SEZs restricts access to concessional option of finance

2

Introduction

Growth story of SEZs in India

Special Economic Zones: Concept

The expansion of global value chains (GVCs) has metamorphosed the world economy by offering new paths of industrial development for developing countries. Instead of building up industrial capacities from scratch, these countries can join existing supply chains and upgrade along them. This opportunity has unbridled intense competition among developing countries to attract GVC-linked investment using various policy tools. One such policy tool that is increasingly believed to be most powerful in this drive is special economic zone (SEZ).

A Special Economic Zone is a geographical region within a Nation-State in which a distinct legal framework provides for more liberal economic policies and governance arrangements than prevailing in the country at large.[1] Depending on their geographical location, Free trade zones around the world are called by different names and attributes of this structure vary according to the nature of the SEZ regime, the prevalent administrative culture, the number of existing SEZs, the role of the private sector in developing and operating SEZs, among other factors. In the United States, they are called as foreign trade zones while those in developing countries producing specifically for export are typically called export processing zones. They are also called special economic zones in China and India, industrial free zones or export free zones in Ireland, Qualifying Industrial Zones (QIZs) in Jordan and Egypt, free zones in the United Arab Emirates, and duty-free export processing zones in the Republic of Korea.

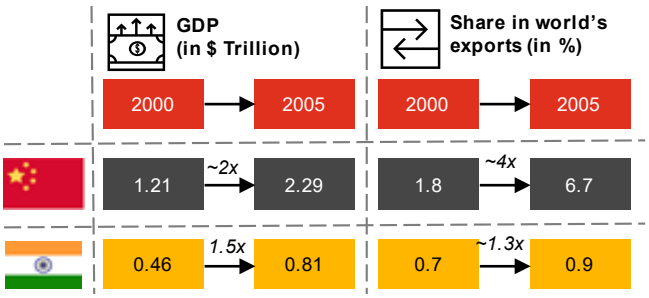
Evolution of SEZs in India

As per the World Investment Report 2019, [UN Conference on Trade and Development (UNCTAD)] more than 140 economies around the world have SEZs in their countries.[2] While almost all transition economies have SEZs in their countries, about three-quarters of developing economies adopted this strategy.[3]

SEZ concept and policy, per se, was introduced in India after one decade of economic reforms, which came about as a response to challenges that emerged as a fall out of liberalization initiated worldwide.[4] Nevertheless, much before that, India had embarked upon a plan to promote such development zones through the Free Trade Zones (FTZ) or Export Processing Zones (EPZs) in the early 1960s.

Global trade dynamics during the period of 2000-05 acted as a forward push for India to adopt the outward-looking SEZ framework. As shown in figure below, the share of China in world's merchandise exports witnessed a 4-fold increase, compared with India's 1.3 times. China's merchandise trade activity was largely attributed to the success of the country's SEZs developed alongside the eastern provinces along the seacoast.[5]

Figure 1: Global trade dynamics between 2000-05



Source: ITC Trademap, IMF database

With this backdrop, recognizing the need to promote exports to propel GDP growth of the country, the Government of India, announced the Special Economic Zones (SEZs) Policy in April 2000, as a part of EXIM policy. A comprehensive legislation, the SEZ ACT, was then passed in the parliament in 2005 followed by, the SEZ Rules promulgated in February 2006. *The objective was to bring in foreign investment, increase exports, create jobs, develop world class infrastructure and create a globally competitive and hassle-free environment for companies engaged in exports of goods and services.* Thus, making India an epicenter of manufacturing and service activity, generating multitude of employment avenues for its large young workforce.

Since the enactment of SEZ Act in 2005 and Rules in February 2006, formal approvals have been granted for setting up of 426 SEZs, of which 360 have been notified and 33 have been given in-principle approvals as on 30th November 2020. While 262 SEZs are operational and around 5,537 units are approved within the SEZs as on 30th November, 2020.[6] Transition from EPZs to SEZs in India in five distinct phases over the last six decades has been depicted in figure 2.

1 Report of the Comptroller and Auditor General of India For the year 2012-13 Performance of Special Economic Zones (SEZs).

2 UN Conference on Trade and Development (UNCTAD), World Investment Report, 2019: Special Economic Zones, New York.

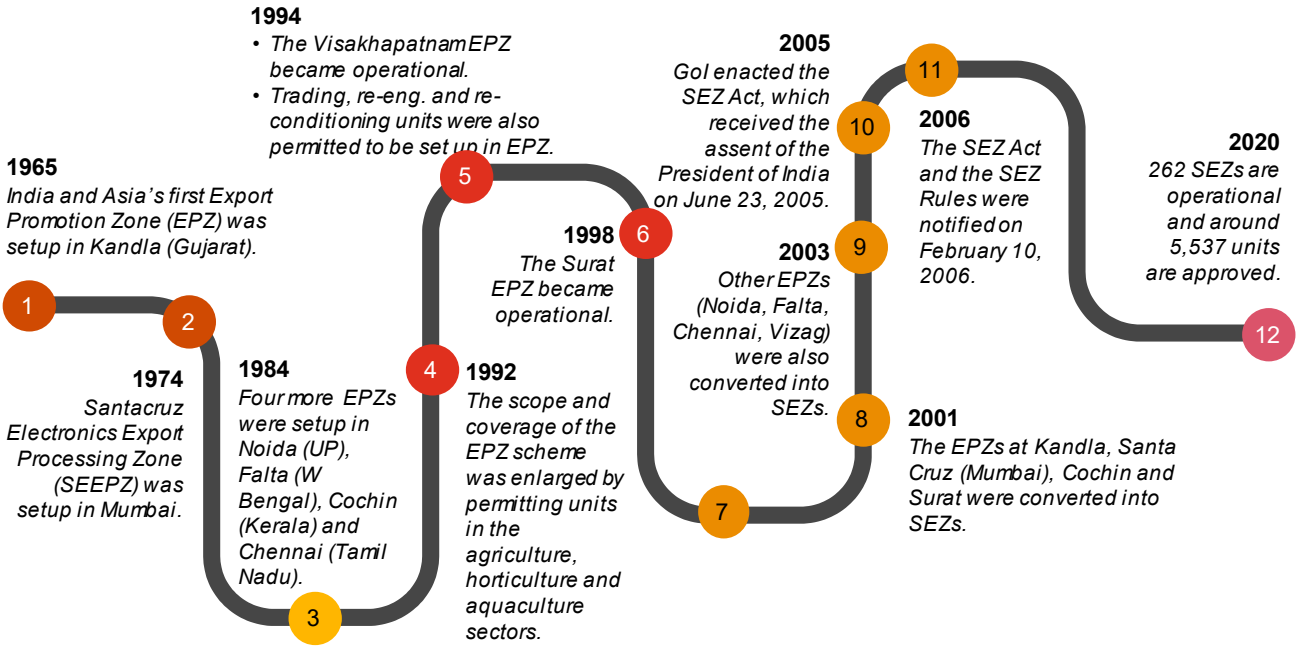
3 Lok Sabha Secretariat, Developing Special Economic Zones (SEZs) of India, September 2020.

4 Evolution of Special Economic Zones and some Issues: The Indian Experience. RBI report. https://m.rbi.org.in/scripts/PublicationReportDetails.aspx?UrlPage=&ID=558 (accessed on 5th March 2021).

5 Baba Kalyani report on SEZs. PwC. http://sezindia.nic.in/upload/latestnews/5c401a4291212Circular.pdf (accessed on 5th March 2021).

6 Fact Sheet SEZ India. http://sezindia.nic.in/upload/uploadfiles/files/Sectorwi.pdf, http://sezindia.nic.in/upload/uploadfiles/files/Statewi.pdf, http://sezindia.nic.in/upload/602380372b1efMX-M452N_20210210_153158.pdf (accessed on 5th March 2021).

Figure 2: Transition from EPZs to SEZs over five distinct phases over the last six decades



Initial phase (1965-80)	Expansionary phase (1981-90)	Consolidation phase (1991-99)	Initial phase (1965-80)	Growth phase (2007-Till now)
India was one of the first in Asia to recognize the effectiveness of the EPZ model in promoting exports. Kandla EPZ in Gujarat in 1965 and SEEPZ in Mumbai in 1973.	More zones were established based on the Tandon Committee recommendation on strengthening outward-oriented export promotion.[12] Four more zones namely Noida EPZ, Madras EPZ, Cochin EPZ and Falta EPZ established during the mid-eighties; Export Oriented Units (EOUs) Scheme introduced in 1980s.	EPZs underwent administrative restructuring, procedural simplification, delegation and decentralisation of powers at functioning level, and rationalisation of customs procedures.	Export and Import Policy 2000' framework adopted in April 2000 for the establishment of public, private or joint public private SEZs. A number of fiscal & non fiscal incentives were extended to units operating in the SEZs. 19 EPZs were converted into SEZs and in 2005 they got a legally deemed status after the enactment of SEZ Act 2005	Post enactment of SEZ Act 2005, number of formal approvals for setting up SEZs increased from 453 in 2007-08 to 589 in 2020-21, while number of operational SEZs increased from 87 in 2008-09 to 262in 2020-21.[15]

Source: Special Economic Zone: Performance, Problems and Opportunities, PHD Chamber of Commerce and Industry. April 2017.

Growth story of SEZs in India

Geographical spread of SEZs of India

Developing Special Economic Zones (SEZs) has been one of the key strategies adopted by the Government for promoting economic growth and investment in the country. Given that SEZs have the inherent benefit of attracting greater foreign investment alongside generating employment and infrastructure development, India pursues the agenda of developing SEZs to unlock the true potential of the country. However, availability of enablers of industrial development like factors of production, socioeconomic environment, infrastructure, connectivity etc. have made the geographical spread of SEZs in India follow the broad regional pattern of industrialization. It is evident from the fact that 6 States catering to 56% of the industrial output host 73% of the operational SEZs (Figure 3).[7] These are the States in southern and western part of the country, with Tamil Nadu leading the tally with 41 operational SEZs.[8] Also, these zones host some of the prominent sectoral tenants (Figure 3).

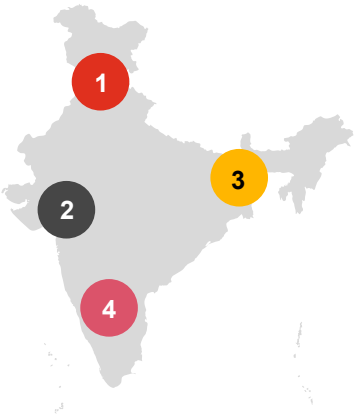
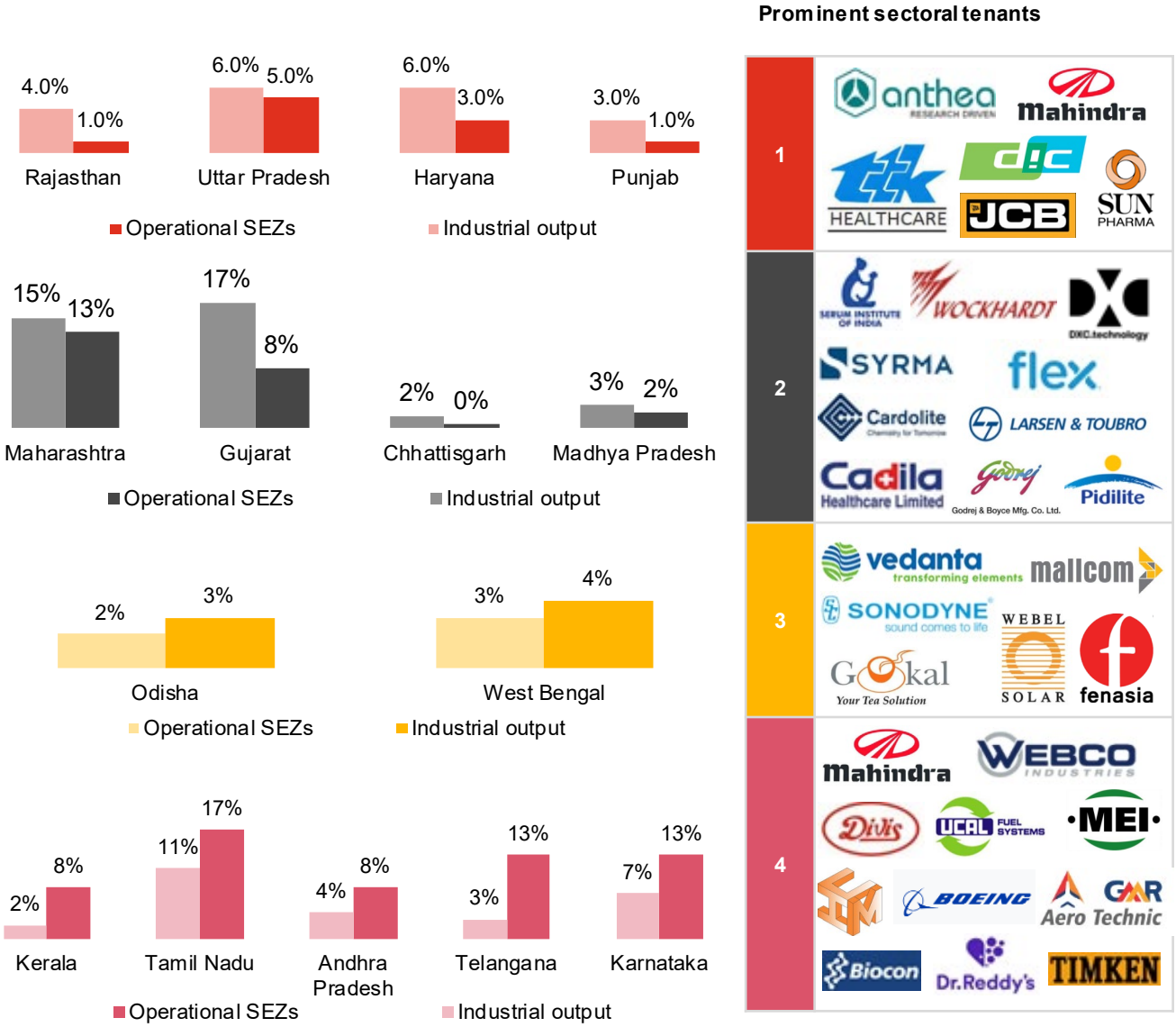


Figure 3: Output (%), Operational SEZs (%) and some prominent sectoral tenants across 4 SEZ zones



Source: SEZ India database

7 SEZ India database. Sezindia.nic.in (accessed on 8th March 2021).
8 Fact Sheet SEZ India. http://sezindia.nic.in/upload/uploadfiles/files/Statewi.pdf, http://sezindia.nic.in/upload/602380372b1efMX-M452N_20210210_153158.pdf (accessed on 8th March 2021).

Sectoral-view of SEZs in India

Though the aim of the SEZ policy is to encourage infrastructure development through multi-product SEZs, specific product SEZs have been approved in large numbers in many states. Sector wise distribution of SEZs clearly reflects that IT/ ITes SEZs got a lion's share in the formal approvals and notified SEZs with 65.7 percent and 66.7 percent, respectively (Figure 4).[9] Other prominent sectors such as Bio-tech, Multi-Products, Engineering, Pharmaceuticals, Chemicals, Textiles, Apparel and Multi-Services have been granted significant number of approvals. Some large size multi-product SEZs have been set up in the states of Maharashtra and Gujarat.

From the sectoral output (exports) perspective, IT/ ITes and Gems & Jewelry sectors have performed well in absolute terms on parameter of contribution to exports (Figure 5).[10] However, sectors like pharmaceuticals, chemicals, food processing, plastic & rubber, and electronics hardware have witnessed significant growth in last few years owing to specific government endeavors such as, in case of electronics sector, Modified Special Incentive Scheme (M-SIPS), Electronics Manufacturing Clusters, Electronics Development Fund, National Policy on Electronics 2019 etc.

Figure 4: Sector-wise notified SEZs (%)

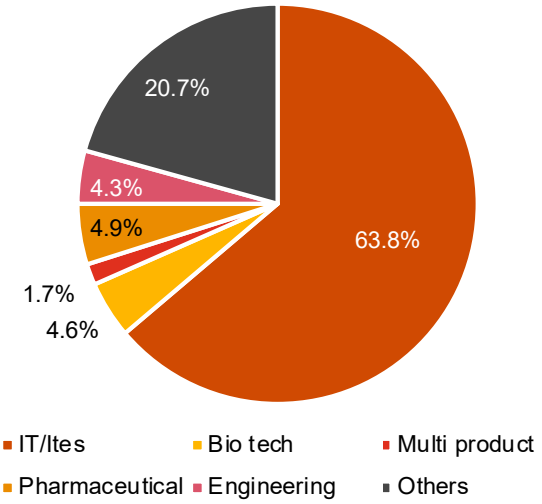
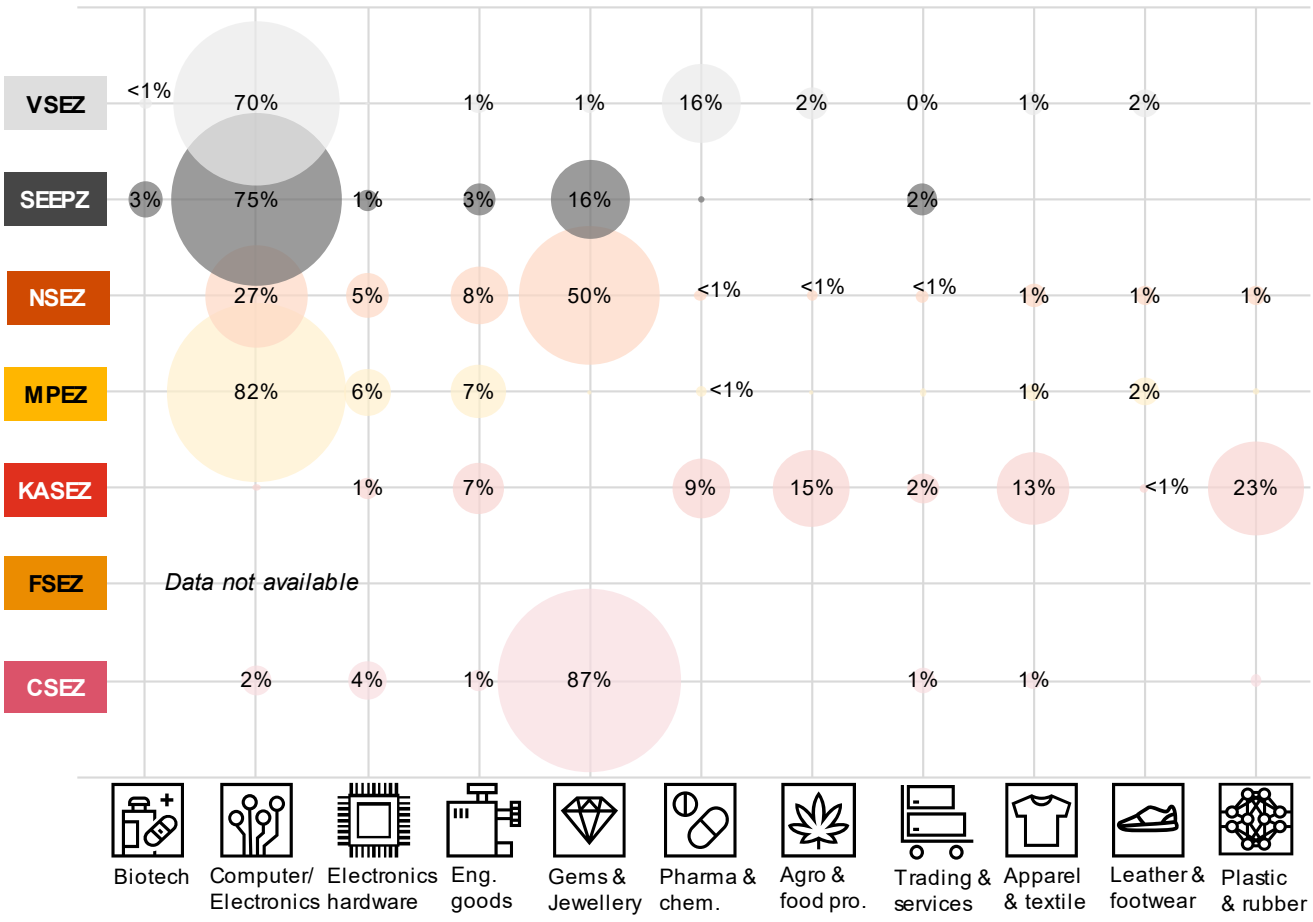


Figure 5: SEZ zone wise sectoral export composition (FY2019)



Source: Annual report of Cochin SEZ, Falta SEZ, Kandla SEZ, Madras SEZ, Noida SEZ, SEEPZ and Visakhapatnam SEZ

9 Fact Sheet SEZ India. http://sezindia.nic.in/upload/uploadfiles/files/Statewi.pdf, http://sezindia.nic.in/upload/602380372b1efMX-M452N_20210210_153158.pdf (accessed on 8th March 2021).
10 Annual report of Cochin SEZ, Falta SEZ, Kandla SEZ, Madras SEZ, Noida SEZ, SEEPZ and Visakhapatnam SEZ.

Scope and context of this study

SEZ's impact

Case studies

International best practises

Module 1

An in-depth analysis of sectors (other than IT and ITES, Petroleum and Gems and Jewelry) to understand their contribution in investment, employment and exports.

SEZs are equipped with efficient infrastructure, quality services favorable business environment and a minimum of red tape. They are setup to generate a circular and cumulative growth process that requires a two-way linkage between SEZs and the wider economy.

Given this backdrop, the objective of this module is to understand and analyse the contribution of SEZs in the macroeconomic development (exports, FDI and employment) of the wider economy. Further this module is also aimed to identify the major sectors prevailing in the SEZs and steps taken by those sectors for inducing value chain build up.

Module 2

At least 10 good case studies on technology transfer, hi tech industry, API, backward area development, labour reforms, other initiatives and innovations for assessing and understanding SEZ contribution.

Given the positive impact of SEZs on the macroeconomic outlook of India, the objective of this module is to identify, select and develop some of the success stories related to SEZs of India.

These success stories will demonstrate the impact of SEZs on the sectors as well as ecosystem development such as labour reforms, backward area development, innovations, hi-tech industry, among others.

Module 3

A comparison of international best practices of SEZs vis-à-vis India.

Given the success of SEZs world over, the objective of this module is to identify the key performance indicators or best practices of the top performing SEZs globally.

In addition to this, the module also intends to map the identified key performance indicators or best practises along the key challenges faced by Indian SEZs and draw learnings for them.

Our approach

A lot of studies had been conducted on assessment of impact of SEZs in India. After a thorough review of a large number of such studies, it was observed that their nature was largely descriptive and concerned with the impact on size and growth of employment, exports and FDI. To the take subject matte forward, this study has tried to expand the depth of analysis and so focus also on the quality of contribution of SEZs in Indian economy. In this regard, the analysis has been structured around 9 key questions

Promotion of exports

a) Which manufacturing sectors have emerged as strengths of Indian SEZs ?
b) Given integrated nature of global value chains, have SEZs enabled higher value addition?
c) Have SEZs been able to distinguish themselves by exporting more complex products?

Promotion of FDI

a) What has been the trend and quantum of foreign investment in SEZs?
b) What has been the impact of FDI, in terms of productivity gains, job opportunities, skilling, gender equality and sustainability?

Job creation

a) What has been the scale of creation of direct employment opportunities by SEZs?
b) What has been the impact of job creation in increasing labor productivity and in enhancing workforce participation of female workers?

Case studies

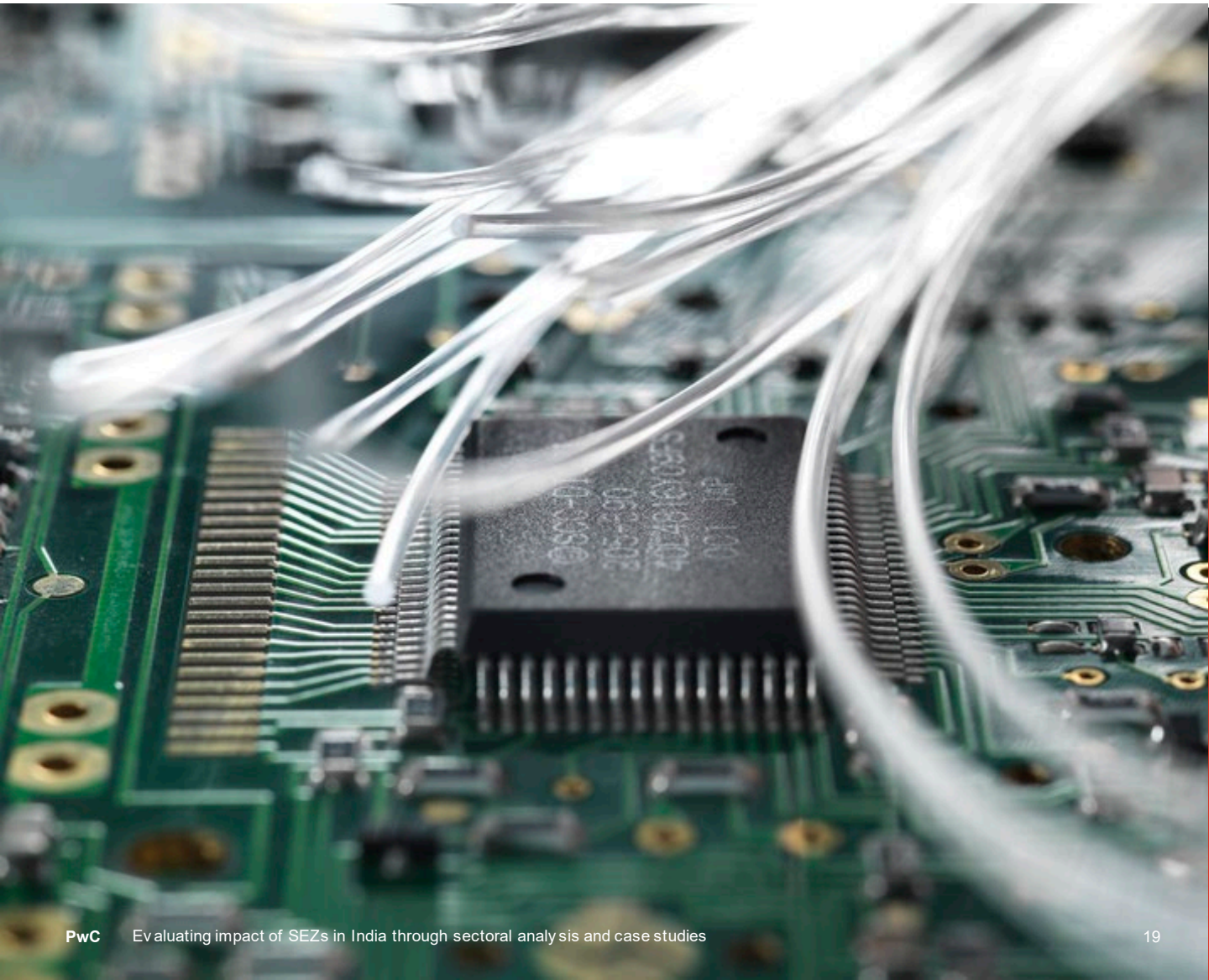
a) Which are some of the success stories which reflect these successes of India SEZs?
b) How has the SEZ framework of India enabled their success?

International best practises

a) What are some of the international best practices which have enabled successes of some of the zones?

3

Assessing the impact of SEZs



Various studies provide evidence of the successful impact that SEZs have had on a country's economic growth and development. The expected economic contributions from zone development are both direct and indirect. The direct benefits include FDI attraction, job creation, export growth and diversification, and foreign exchange earnings. Indirect economic benefits are more difficult to define and measure, yet they are an essential component of the sustainable development impact of zones beyond their confines. They include quality of FDI enticed, promotion of female workforce participation they create, as well as the induced income and jobs resulting from investments.

In this chapter we have analyzed the direct and indirect economic outcomes of SEZs in India in accordance with the objectives of SEZ Act 2005. The three important objectives of SEZ Act, 2005 are to generate employment opportunities, encourage investments, and increase India's exports. Under this ambit, the performance of Indian SEZs is measured in terms of a) exports, b) foreign direct investment, and c) employment generation.

Promotion of exports

Which manufacturing sectors have emerged as strengths of Indian SEZs?

With 35% share in India's exports, SEZs' exports profile largely aligns with that of India with Pharma, Chemicals & Electronics sectors forming the half of it

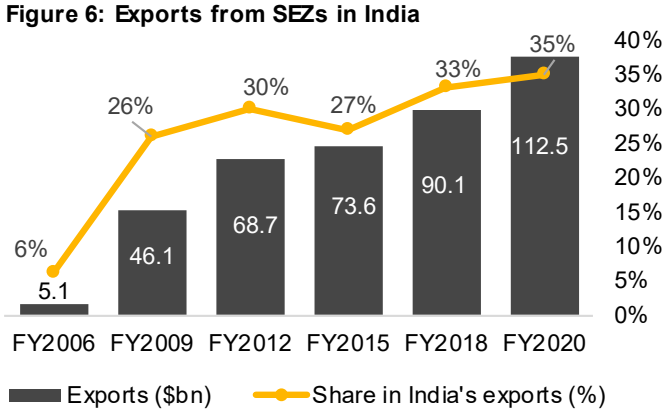
Since enactment of SEZ Act in 2005, SEZs have played a stellar role in facilitating growth of exports from the country. In FY2020, exports from SEZs were valued at $112.5 billion and grew at a healthy cumulative growth rate (CAGR) of 22.9 percent from FY2006 to FY2020, compared with India's average of 7.8 percent during the same period (Figure 6).[11] Also, the share of exports from SEZs in the overall exports from India has witnessed a 6-fold increase, starting from 6 percent in FY2006 to 35 percent in FY2020.[12]

As discussed in the previous chapter, more than 60% of the notified SEZs belong to IT/ITeS/Services sectors. A proportionate impact is also reflected in the exports domain. Out of the total exports, the IT/ITeS/Services sectors account for a major share (~59 percent), followed by manufacturing sector (~40 percent) and trading & warehousing (~1 percent) (Figure 7).[13]

Within the manufacturing sector, petrochemical and gems & jewellery together comprise about 62% of the exports. This study focuses on analyzing exports from sectors which are within 38% of the Manufacturing exports from SEZs. [14]

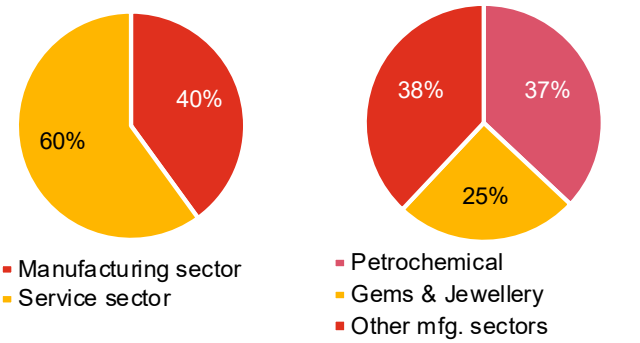
Pharmaceuticals, Chemicals and Electronics sectors comprise about 50% of the exports from the manufacturing sectors (excluding petrochemical and gems and jewellery).[15] Out of the seven SEZ zones in India, Cochin SEZ occupied the largest share (~23%) in the overall exports from SEZ in FY20, followed by Kandla SEZ (~22%), and SEEPZ (~17%).[16]

Figure 6: Exports from SEZs in India



Source: EPCES.

Figure 7: Composition of exports from SEZs



Manufacturing sector comprised about 40% of exports from SEZs

Within mfg. sector, petrochemical and gems & jewellery together comprise about 62%

Source: EPCES.

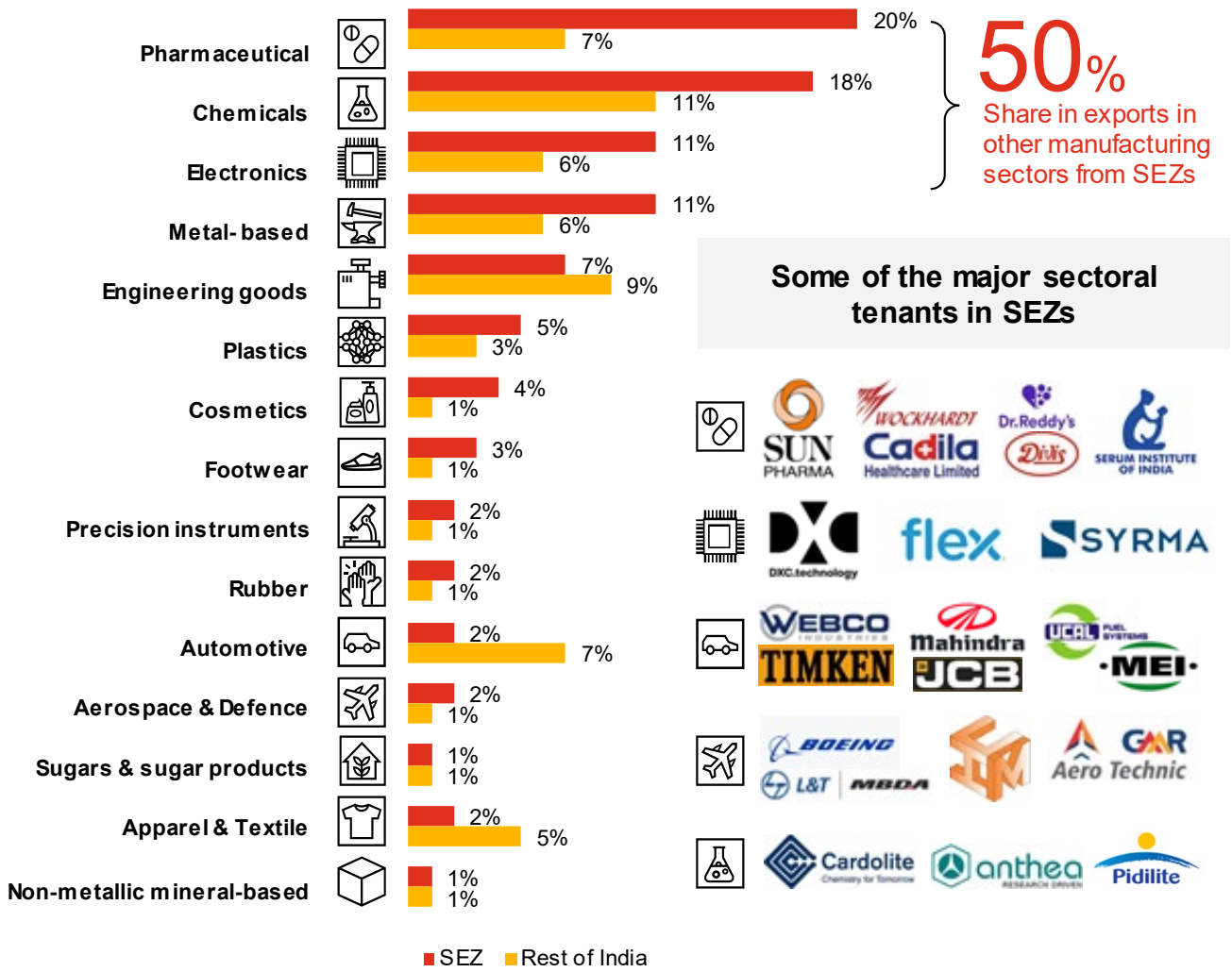
11 EPCES. http://www.epces.in/facts-and-figures.php (accessed on 5th March 2021), PwC analysis.
12 ITC Trademap, EPCES. http://www.epces.in/facts-and-figures.php (accessed on 5th March 2021), PwC analysis.
13 Refer footnote 12.
14 Refer footnote 12.
15 NSDL database and PwC analysis.
16 Refer footnote 15.

There seems to be a similarity between the share profile of sectoral exports from SEZs and rest of India (Figure 8). For example, top 5 sectors in terms of exports (Pharmaceutical, Chemicals, Electronics, Metal-based, Engineering goods) from SEZs are also significant for the rest of India.[17] However, there are certain sectors which feature relatively more prominently in SEZs' export profile. Take for example, Aerospace and Defence sector. SEZs have been able to position themselves as a preferred destination for some of the joint ventures between Indian manufacturers and foreign OEMs. This has also translated into exports from SEZs. For example, Mahindra World City SEZ in Chennai is joint venture between Mahindra Ltd and Sumitomo Corporation, Japan. The manufacturing units in SEZ mainly operate in engineering, tool-making, plastics, and metal fabrication and supply their produce to Sumitomo Corporation.[18]

This is majorly due to availability of enablers of value chain like presence of forward and backward linkages of value chain, presence of anchor tenants and original equipment manufactures (OEMs), proximity to gateways (airports and ports) and state of art infrastructure and research and development facilities. These enablers have been discussed in more detail in next sections.

Some of the most prominent tenants across these sectors in India have presence in SEZs. For instance, industry players such as SUN Pharma, Wockhardt Cadila, Dr. Reddy's, Divi Laboratories, Biocon & Serum Institute of India, which comprise about 54% of the pharma market in India are present in SEZs.[19] There are also tenants like Tata-Boeing, L&T-MBDA, Webco, TIMKEN and Madras Engineering (MEI).

Figure 8: Manufacturing sector wise export profile of SEZs and Rest of India



Source: ITC Trademap, NSDL database

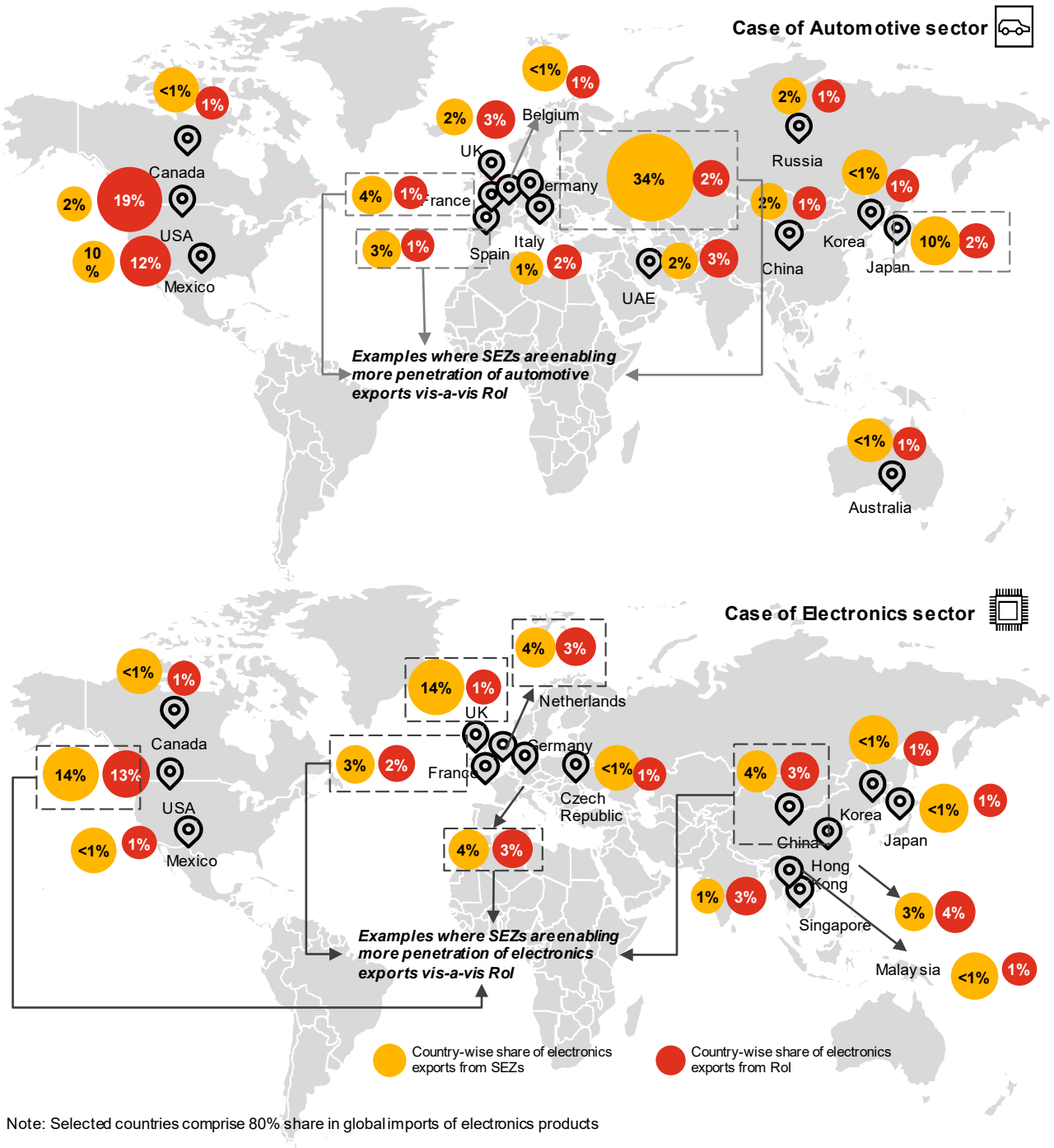
17 ITC Trademap, NSDL database and PwC analysis.
18 Mahindra World City SEZ database. https://www.mahindraworldcity.com/wp-content/themes/mwc/brochures/MWC-Combined-Brochure-2020.pdf. (accessed on 5th March 2021).
19 Moneycontrol database. https://www.moneycontrol.com/stocks/marketinfo/marketcap/bse/pharmaceuticals-drugs.html (accessed on 5th March 2021).

In terms of market presence also, SEZs have supported further penetration of India's exports

In FY2020, about half of the exports from SEZs went to the markets of the US and middle east. Among them, the US accounts for a major share (~26 percent), followed by China (~10 percent), UAE (~7 percent) and Malaysia (~4 percent).[20] It is quite interesting to note that these countries also contribute over 56 percent to the country's export basket.[21]

SEZs are also supporting to diversify the exports of India (Figure 9). For instance, in large markets such as Germany, Japan, France and Spain, SEZs account for a higher share in exports from automotive sector. In the electronics sector, in large markets such as the UK, the US, Netherlands, France, Spain, Germany and China, SEZs are enabling more penetration of exports of electronics products vis-a-vis the rest of India. Case of Pharmaceutical and Chemicals sector have been placed in Annexure I.

Figure 9: Sector wise market penetration of SEZs and Rest of India



Note: Selected countries comprise 80% share in global imports of electronics products

Source: ITC Trademap, NSDL database, PwC analysis

20 ITC Trademap, NSDL database and PwC analysis.
21 Refer footnote 20.

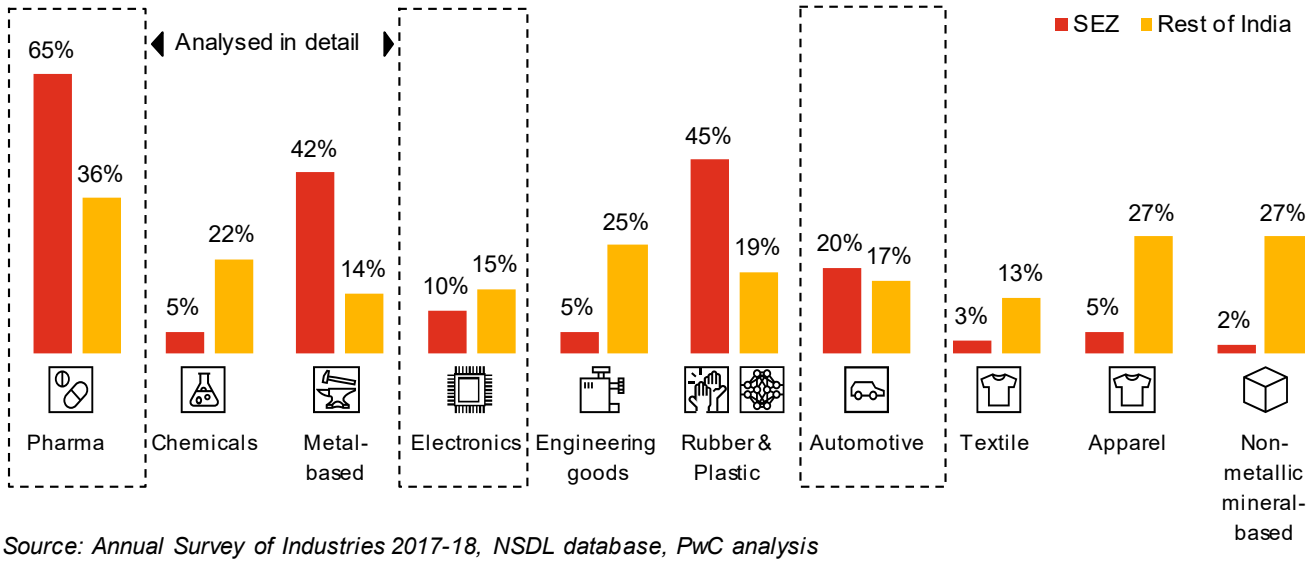
Given integrated nature of global value chains, have SEZs enabled higher value addition?

SEZs have enabled higher value-addition in some of the sectors which has translated into higher share of 'complex products' in manufacturing output

SEZs help attract investment, create jobs and boost exports – both directly and indirectly, where they succeed in building linkages with the broader economy. These linkages with the economy support SEZs to participate in the global value chain, undergo industrial upgradation and diversification. In order to analyze the extent of these linkages to comprehend trade integration, it is critical to measure the depth of value chains in SEZs. The build-up of value chains in SEZs can be traced through the production weight between low (labour intensive) to high technology (capital intensive) manufactures—the higher value exports.

In FY2018, for low technology sectors (labour intensive) such as basic metals, apparel, textile, chemicals and nonmetallic minerals, rest of India ranked higher in terms of value addition vis-à-vis SEZs (Figure 10). But in high technology sectors (except electronics and engineering goods) such as pharmaceuticals, rubber, plastic and automotive, SEZs have performed better than rest of India in terms of value addition (Figure 10).[22] This suggests that the share of capital intensive and high technology sectors in overall value add from SEZs is high, compared with rest of India's average. Broadly speaking, SEZs in India have sought to attract high tech investors and increase manufacturing of complex products to leapfrog into higher value activities.

Figure 10: Value addition (%) in manufactured product in SEZs and Rest of India



Source: Annual Survey of Industries 2017-18, NSDL database, PwC analysis

This can be better understood from the measure of product complexity index and product priority. According to the ATLAS of Economic complexity, product complexity index indicates the diversity and sophistication of the productive know-how required to produce a product. It has been calculated based on how many other countries can produce the product and the economic complexity of those countries.[23] On the other hand, product priority measures the share of a product in exports from the sector to which the product belongs.

For instance, in the case of the pharmaceutical sector, immunological products and vaccines have high product complexity and also, have medium product priority in SEZs and Rest of India respectively. However, if we consider the case of the automotive sector, auto accessories and ancillary products have a high product complexity, but the product priority is more in SEZs vis-a-vis rest of India. On the other hand, automobiles have a high product complexity but the product priority is less in SEZs, compared with the rest of India.[24] This reflects that high value addition in pharmaceutical and automotive sector in SEZs vis-a-vis the rest of India, has enabled SEZs to manufacture a higher share of 'complex products' in manufacturing output.

In the subsequent sections we have carried out a detailed analysis including value chain perspective of the following sectors: a) pharmaceutical sector, b) automotive sector, c) electronics sector.

22 Annual Survey of Industries 2017-18, NSDL database, PwC analysis.
23 Economic complexity index ranks the countries based on how diversified and complex their export basket is. Source: ATLAS of Economic Complexity.
https://atlas.cid.harvard.edu/glossary#:~:text=Where%20P%20C%20I%20PCI,country%20is%20not%20currently%20producing.&text=PCI%20is%20calculated%20based%20on,economic%20complexity%20of%20those%20countries. (accessed on 5th March 2021).
24 NSDL database, ITC Trademap database, PwC analysis.

Given integrated nature of global value chains, have SEZs enabled higher value addition?

SEZs have enabled higher value-addition in some of the sectors which has translated into higher share of 'complex products' in manufacturing output

Table 1: Measures of product complexity and product priority for pharma, auto and electronics sector for SEZs and RoI

Sector	Products	Product complexity	Product priority	
			SEZ	Rest of India
	Formulations	Low Medium High	Low Medium High	Low Medium High
	Immunological products & vaccines	Low Medium High	Low Medium High	Low Medium High
	Integrated circuits	Low Medium High	Low Medium High	Low Medium High
	Mobile phones	Low Medium High	Low Medium High	Low Medium High
	Conduction and optical cables	Low Medium High	Low Medium High	Low Medium High
	LEDs	Low Medium High	Low Medium High	Low Medium High
	Automobiles	Low Medium High	Low Medium High	Low Medium High
	Auto accessories	Low Medium High	Low Medium High	Low Medium High

Pharmaceutical sector

1. **>85%** exports from SEZs comprise of formulations and immunological pdts; within this **>76%** of the exports are from VSEZ, KASEZ and SEEPZ SEZ.
2. Major pharma. tenants in these SEZs are:

Cadila Healthcare Limited, Dr.Reddy's, SII, Wockhardt, INTAS

Electronics sector

1. **>45%** exports from SEZs comprise of electronics sub assemblies and components; within this **>75%** of the exports are from MEPZ and NSEZ.
2. Some of the **major electronics** tenants functioning in these SEZs are:

SYRMA, DELTA, DIXC.technology, CSS CORP, flex

Automotive sector

1. **>90%** exports from SEZs within automotive sector comprise of auto ancillary & components; within this **>52%** of the exports are from **Mahindra World City Auto SEZ.**

ORIGINS by Mahindra World City

1. Mahindra World City Auto SEZ in Chennai is a **joint venture between Mahindra Pvt Ltd (India) and Sumitomo Corporation (Japan)** for supply of auto components.
2. Some of the **major auto ancillary tenants** functioning in the SEZ are:

NISSEI, YANMAR, usui, WEBCO, UCAL, MEI, TIMKEN

Product complexity

- It indicates diversity and sophistication of the productive know-how required to produce a product.
- It indicates how many other countries can produce the product & the economic complexity of those countries
- In effect, it captures the amount and sophistication of know-how required to produce a product.

Product priority

- It measures share of a product in exports from the sector to which the product belongs

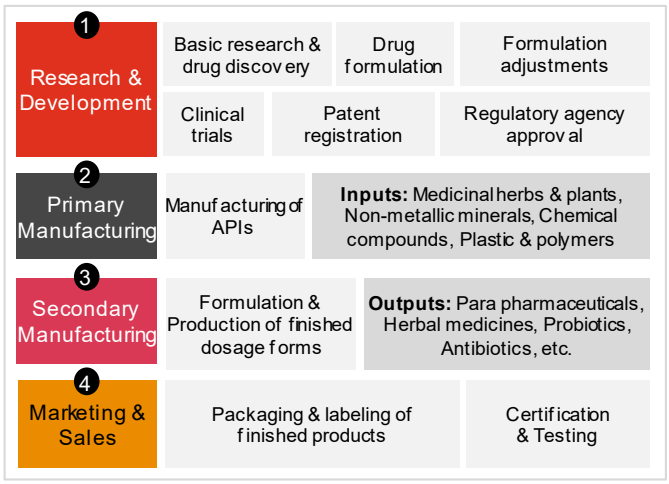
Source: ATLAS of Economic Complexity, NSDL database, ITC Trademap, PwC analysis

Value chain overview of pharmaceutical sector

The Indian pharmaceutical industry is a strategic industry for the nation, with the advantage of scale (at $37 billion in 2019-20, it contributed 1.5 per cent to the GDP directly, with another 3 per cent coming indirectly). *The industry has global reach and is a net foreign exchange earner of more than $10 billion annually.*[25]

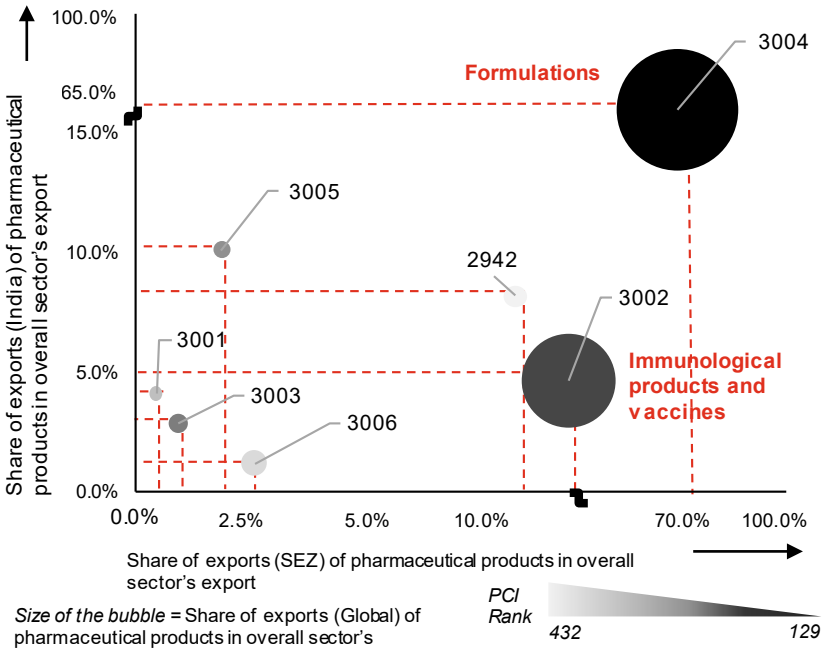
In 1969, Indian pharmaceuticals had a 5 per cent share of the market in India, and global pharma had a 95 per cent share. By 2020, it was the reverse, with Indian pharma having an almost 85 per cent share and global, 15 per cent.[26] Over the last 50-plus years — in terms of both meeting the domestic needs as well as building a leading position in the global pharmaceuticals landscape — Indian firms have been successful. *India already contributes over 20 per cent by value to the global generics market, with Indian products contributing over 40 per cent (by volume) of US drugs.* [27]

Figure 11: Typical value chain of pharmaceutical sector



Source: 'Understanding the Pharmaceutical value chain' report by IMS Institute for Healthcare.

Figure 12: Bubble graph representing share of exports of pharma products in SEZs and Rest of India



A typical value chain for the pharmaceutical sector has been depicted in figure 11. Primary manufacturing basically involves producing ingredients such as active pharmaceutical ingredients. Secondary manufacturing involves industries which source APIs from primary manufacturers & produce formulations & biosimilars.

Most of the pharmaceutical companies in SEZs are engaged across the breadth of value chain (both primary and secondary manufacturing operations). As shown in figure 12, 3002 (Immunological products and vaccines) and 3004 (Formulations) account for a higher share in exports from rest of India and SEZs. These are 'highly complex' products also have high global demand. ***Out of the total pharmaceutical exports from SEZs, more than 85 percent comprise of such complex products.***[28]

Source: ATLAS of Economic Complexity, NSDL database, ITC Trademap, PwC analysis

Some of the prominent industry players functioning in the SEZ include SUN Pharma, Wockhardt, Cadila Healthcare, Dr. Reddy's, Divi Laboratories, Biocon and Serum Institute of India. These companies also comprise about 54% of the overall pharmaceutical market in India.[29] Majority of these anchor tenants present in SEZs have been involved in manufacturing of APIs and immunological drugs and vaccines vis-a-vis rest of India with minimal imports. ***For instance, share of APIs in total imports of pharmaceutical products in SEZ is 2%, compared to rest of India's average of 32%. Also, the share of immunological drugs and vaccines in total imports of pharmaceutical products from SEZ is 11%, compared with the rest of India's 37%.***[30]

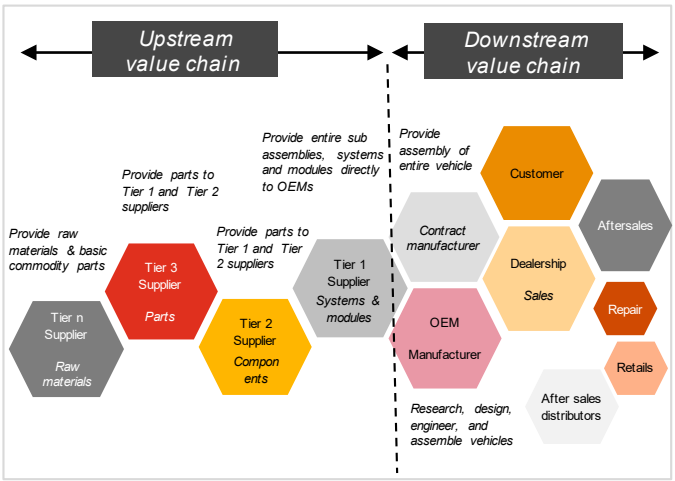
25 Hindu Business article. https://www.thehindubusinessline.com/opinion/india-can-become-the-pharmacy-of-the-world/article31516558.ece (accessed on 5th March 2021).
26 Refer footnote 25.
27 Refer footnote 25.
28 NSDL database, ITC Trademap and PwC analysis.
29 Moneycontrol database. https://www.moneycontrol.com/stocks/marketinfo/marketcap/bse/pharmaceuticals-drugs.html (accessed on 5th March 2021).
30 NSDL database, ITC Trademap and PwC analysis.

Value chain overview of automotive sector

The Indian automotive industry is seeing significant transformation with respect to its sustainable growth and profitability. The industry is crucial for the economy as it accounts for 7.1 percent of the country's Gross Domestic Product (GDP) and as per Automotive Mission Plan (AMP) 2016–26, its contribution is projected to increase to 12 percent.[31] *India is expected to emerge as the world's third-largest passenger vehicle market by 2021.*[32]

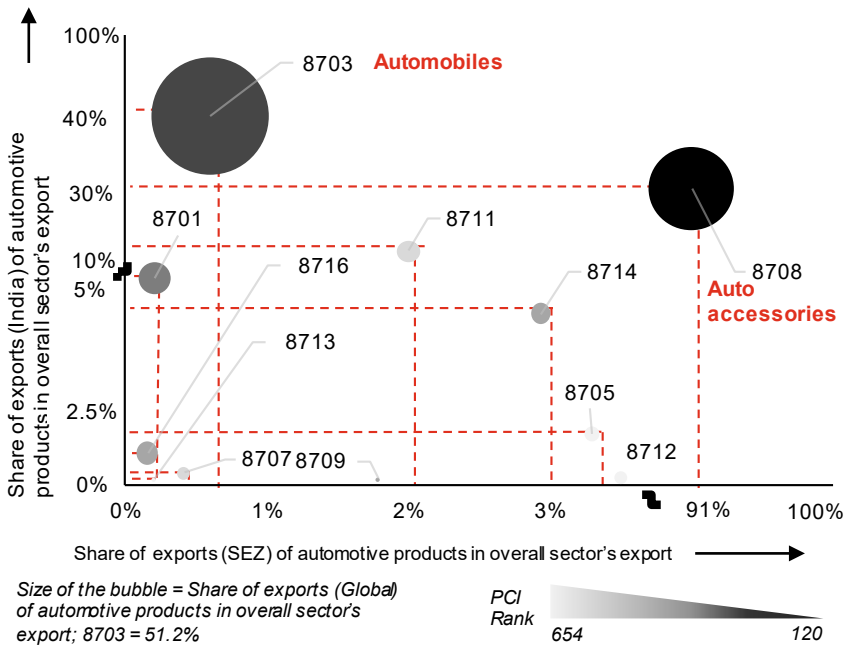
A typical value chain for the automotive sector has been depicted in figure 13. The upstream segment of automotive value chain starts from raw material suppliers and ends at components manufacturers. The next link is the downstream segment where the sub-assemblers and assemblers; they are typically automakers (OEMs), which source various components or completely knock down units, and assemble vehicles in locations near their main markets.

Figure 13: Typical value chain of automotive sector



Source: 'Automotive value chain' report by World Trade Center.

Figure 14: Bubble graph representing share of exports of auto products in SEZs and Rest of India



Most of the automotive companies in SEZs are engaged across the upstream segment of value chain (auto ancillary and component manufacturers). As shown in figure 14, 8703 (automobiles) and 8708 (auto accessories) account for a higher share in exports from rest of India and SEZs respectively. These are 'highly complex' products also have high global demand. *Out of the total auto exports from SEZs, more than 94 percent comprise of complex auto components and accessories.* Automobiles constitute a meagre share (less than 1 percent) in SEZ exports.[33] Except, BMW, JCB and Mahindra Ltd, majority of the automakers (OEMs) are located outside SEZs.

Auto firms over the years in India have increased their collaboration with foreign ones as they seek to upgrade their products and compete in the external market. This sentiment has been complemented in Auto SEZs also.

Source: ATLAS of Economic Complexity, NSDL database, ITC Trademap, PwC analysis

Auto SEZs have been able to successfully collaborate with foreign players to move into the global supply chain. One such example is of Mahindra World City Auto SEZ in Chennai. The SEZ contributes about 52% in overall auto exports from SEZs. The SEZ is a joint venture between Mahindra Ltd and Sumitomo Corporation, Japan. The manufacturing units in SEZ mainly operate in engineering, tool-making, plastics, and metal fabrication and supply their produce to Sumitomo Corporation. Some of the major auto ancillary tenants present in the SEZ include Timken, Wabco, Madras Engineering, TVS Group of Companies, Yanmar, Nissei and UCAL Fuel Systems amongst others.[34]

31 Automotive Mission Plan: 2016-26 (A Curtain Raiser) (2015) http://www.siamindia.com/uploads/filemanager/47AUTOMOTIVEMISSIONPLAN.pdf (last accessed on 5th March 2021).
32 IHS Auto Database, Light Vehicle Sales Forecast, ihsmarkit.com (last accessed on 5th March 2021).
33 NSDL database, ITC Trademap and PwC analysis.
34 Mahindra World City SEZ database. https://www.mahindraworldcity.com/wp-content/themes/mwc/brochures/MWC-Combined-Brochure-2020.pdf. (accessed on 5th March 2021).

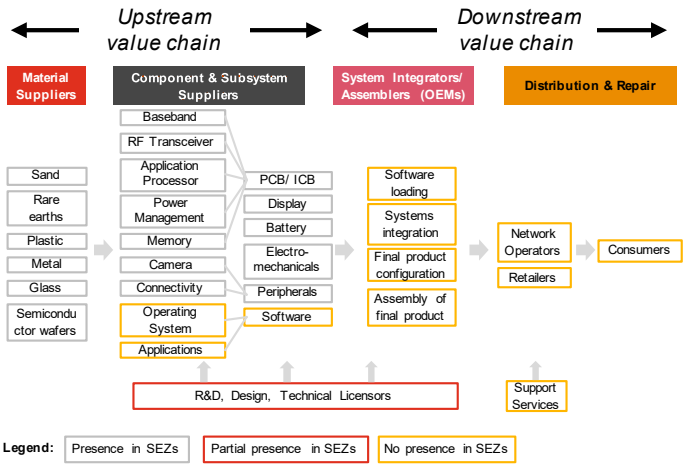
Value chain overview of electronics sector

The world's fastest growing industry, Electronics System Design and Manufacturing (ESDM) continues to transform lives, businesses, and economies across the globe. The global electronics market is estimated to be over $2 tn. India's share in global electronics manufacturing has grown from 1.3% in 2012 to 6% in 2020.[35]

Technology transitions such as the rollout of 5G networks and IoT are driving the accelerated adoption of electronics products. Initiatives such as 'Digital India' and 'Smart City' projects have raised the demand for IoT in the market and will undoubtedly usher in a new era for electronic products.

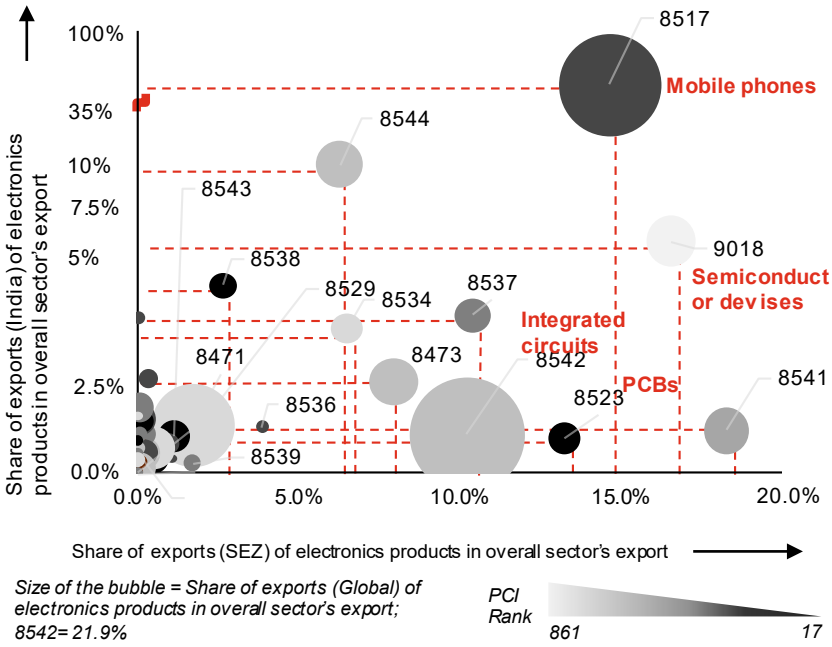
Based on current growth levels, *India is anticipated to become one of the largest electronics markets in the world reaching $400 bn by 2025. Also, the sector is expected to generate $100 - 130 bn in economic value by 2025.*[36]

Figure 15: Typical value chain of mobile phone manufacturing



Source: Stakeholder consultations.

Figure 16: Bubble graph representing share of exports of electronics products in SEZs and Rest of India



Source: ATLAS of Economic Complexity, NSDL database, ITC Trademap, PwC analysis

A typical value chain of the mobile manufacturing along with the presence of SEZ has been depicted in figure 15. Mobile phones and its accessories account for more than 2/5th of global demand and also constitute a high share in exports from SEZs and rest of India.[37]

Most of the electronics companies in SEZs are engaged in the upstream segment of value chain (electronic components and sub assemblies manufacturing). As shown in figure 16, 8517 (Mobile phones) account for a higher share in exports from rest of India; whereas in SEZs it accounts for less than 9 percent in overall exports. Products with HS4 8541 (Semiconductor devices), 8523 (PCBs) and 8542 (Integrated circuits) account for a higher share in exports from SEZs. These are 'highly complex' products also have high global demand. *Out of the total electronics exports from SEZs, more than 45 percent comprise of such complex products.*[38]

Finished downstream products accounts for a small share of less than 15 percent in overall electronics exports from SEZs. More than 75 percent of the exports from SEZs are from Madras and Noida. Also except, Flextronics Ltd., SYRMA and Delta Electronics, majority of the OEMs are located outside SEZs.

Despite catering to the upstream value chain, SEZs have performed adequately in terms of value addition vis-à-vis the rest of India. This is majorly due to the fact that rest of India largely imports more complex electronics products vis-a-vis SEZs. ***For instance, more than 35 percent of the complex electronics components and sub assemblies are imported by the rest of India.***[39]

35 Invest India article. https://www.investindia.gov.in/sector/electronic-systems (accessed on 5th March 2021).
36 Refer footnote 35.
37 NSDL database, ITC Trademap and PwC analysis..
38 Refer footnote 37.
39 Refer footnote 37.

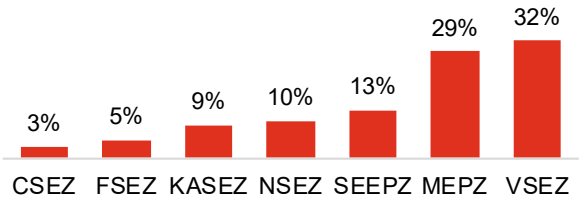
Promotion of FDI

What has been the trend and quantum of foreign investment in SEZs? How much does it comprise of in overall FDI in India?

SEZs are a key investment promotion tool and can play an important role in attracting FDI. FDI in SEZs in India have increased over the last few decades, leading to increased trade, job creation and more effective governance. FDI inflows in SEZs have witnessed a four-fold increase, from $0.3 billion in FY2006 and had grown to $4.1 billion as of FY2020 (cumulative).[40]

Since enactment of SEZ Act in 2005, the major SEZ zones that witnessed significant FDI inflows were Visakhapatnam SEZ (with ~32 percent share), Madras EPZ (~29 percent share) and Santacruz Electronics EPZ (~13 percent share) (Figure 17).[41]

Figure 17: SEZ zone wise FDI share in (%)

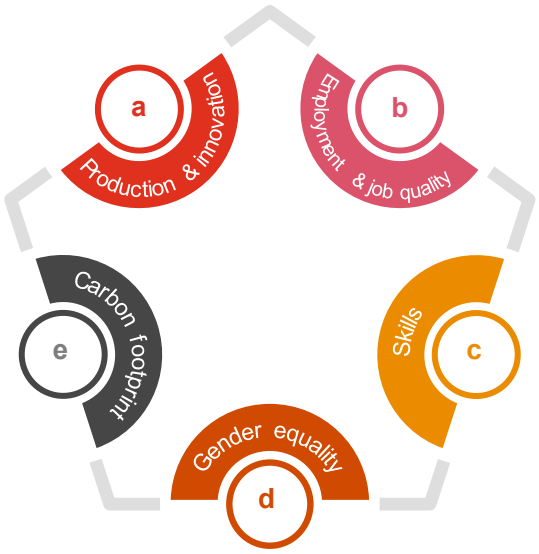


Source: NSDL database, PwC analysis.

What has been the impact of FDI, in terms of productivity gains, job opportunities, skilling, gender equality and sustainability?

In this report, we have used FDI Qualities Indicators to assess how FDI affects socioeconomic and environmental outcomes through various channels, both directly through the activities of foreign firms, and through spillovers that arise from market interactions. The indicators covered in this report include a) productivity and innovation, b) employment and job quality, c) skills, d) gender equality and e) carbon footprint.[42]

Figure 18: FDI Quality Indicators



a **Production and innovation**
Extent to which foreign MNEs and their linkages with domestic firms, enable productivity growth and enhance innovation capacity in SEZs.

b **Employment & job quality**
How FDI relates to employment and job quality in SEZs, and to what extent the relationship is positive or negative

c **Skills**
Extent to which foreign MNEs invest in human capital and skills.

d **Gender equality**
How FDI is associated with gender equality in SEZs.

e **Carbon footprint**
Extent to which FDI relates to carbon footprint, and how FDI is contributing to the low carbon energy transition.

Source: OECD report on 'FDI quality Indicators'.

a) Productivity and innovation- *FDI supports productivity and innovation gains in Indian SEZs*

The first indicator measures how FDI relates to productivity and innovation. It examines the extent to which foreign MNEs and their linkages with domestic firms, including SMEs, enable productivity growth and enhance innovation capacity in SEZs through knowledge and technology transfer. SEZs in India have been able to attract FDI in hi-tech sectors such as defense, aerospace, automotive, etc. Investments in SEZs have been critical in the development of these sectors in India. Several companies in Indian SEZs have entered in a Joint Venture (JV) partnership with foreign companies which has resulted in the transfer of knowledge and technology, installation of cutting-edge machines and equipment, among others.

40 FDI in India and its linkages. National Council of Applied Economic research. https://dipp.gov.in/sites/default/files/FDI_NCAER_0.pdf; Evolution of Special Economic Zones and some Issues: The Indian Experience. RBI report. https://m.rbi.org.in/scripts/PublicationReportDetails.aspx?UrlPage=&ID=558; NSDL database, PwC analysis.
41 NSDL database.
42 FDI Quality Indicators. OECD report. https://www.oecd.org/investment/FDI-Qualities-Indicators-Highlights.pdf (accessed on 5th March 2021).

For example, L&T MBDA Missile Systems Limited (located in Aspen SEZ ,Coimbatore) is a JV between Larsen & Toubro (L&T) and European company MBDA. The firm manufactures highly advanced missile systems in India and has also given a push to the Government of India's Make in India initiative for the defense sector. MBDA has provided all the machinery and proprietary tools (including their installation, commissioning and calibration), used in production and functional testing, most of which are not available in the open market. Also, the manufacturing facility was constructed based on detailed specifications provided by MBDA group. Similarly, Tata Boeing Aerospace Limited (an equity JV between Tata Advanced Systems and Boeing Group) manufactures advanced aerostructures for Boeing helicopters. Boeing Group established a Centre of Excellence to produce aerostructures for the AH 64 Apache helicopters and has introduced use of robotics and automation in manufacturing. This marks a major step towards co-development of integrated systems in aerospace and defense in India. Another such example is of Mahindra World City Auto SEZ in Chennai. The SEZ is a joint venture between Mahindra Ltd and Sumitomo Corporation, Japan, which mainly operates in engineering, tool-making, plastics, and metal fabrication. The JV has resulted in the transfer of technology from Sumitomo Corporation to the joint venture facility in India.[43]

b) Employment and job quality- ***FDI in Indian SEZs has created jobs and enhanced job quality***

The second indicator examines how FDI relates to employment and job quality in SEZs, and to what extent the relationship is positive or negative. Job quality is essential to ensure that employees can work productively. The Government of India has provided ample fiscal incentives to attract FDI in SEZs with the hope that it will create new employment opportunities. In this prospect, SEZs in India have come out on top and have created a large number of quality jobs. Indian SEZs have provided several monetary and non-monetary benefits, occupational safety standards, insurances, transportation facilities, amended labor laws, etc.

For example, the Brandix SEZ has hired more than 21,000 workers. The SEZ is equipped with several facilities such as creches, transportation, a 24/7 command & control center (coordination and safety for transportation services), etc. which provides an enabling environment for the workers.[44] Besides these, the workers are also entitled to several benefits such as gift vouchers based on performance, house rent assistance, health related counselling programs, educational kits for their families, etc. Similarly, Apache and the Sri City SEZs, which have received a significant proportion of FDI, have created employment for over 14,000 and 10,000 people respectively in high value-added jobs.[45]

c) Skills- ***FDI in Indian SEZs has enhanced the skill development ecosystem***

The third indicator examines the extent to which foreign MNEs in SEZs invest in human capital and skills, directly through in-house worker and manager training, and indirectly through knowledge transfers to domestic firms. FDI inflows in Indian SEZs have led to innovation, technology transfers, knowledge transfers etc. which have enhanced the overall skill ecosystem in SEZs. In Indian SEZs, the FDI-attracting sectors such as defense, apparel, aerospace, automotive, etc. have supported skill development by offering training opportunities to employees for technical and managerial skills.

For example, L&T MBDA sends all their employees to their headquarters in France for training. Apart from proprietary technology and machinery, MBDA also sends the Indian facility training material and test kits for training and skilling of their employees. L&T MBDA team. Regular review meetings are held with the French MBDA team to track progress and help resolve any issues faced by employees of L&T MBDA. A Skill Matrix of all L&T MBDA employees is also maintained and tracked to ensure that all employees are upskilled regularly and assess training requirements if any. Similarly, in Brandix Apparel City SEZ all workers are made to undertake intensive training modules to enhance their skill set regularly. The training for workers revolve around many areas including technical skills, behavioral skills, health & safety, wellness, financial literacy etc. In FY 2019-20, each employee of Brandix attended an average of 132 training hours through the year.[46]

d) Gender equality- ***FDI has improved gender equality in some of the SEZs in India***

The fourth indicator examines how FDI is associated with gender equality in SEZs. Effective participation of women in the workforce and equal opportunities at all work levels are not only desirable from a social perspective but can unlock economic opportunities.

FDI inflow in SEZs in India have been impactful for promoting women employment and gender equal employment opportunities. The Salcomp SEZ near Chennai hires more than 10,000 workers of which 90% are women. Brandix Apparel City SEZ employs ~16,000 female workers (76% of their total employment).[47] Additionally, several facilities such as creche, transportation options, counselling facilities, skilling and training opportunities etc. have not only provided employment opportunities for women but have also empowered women in other aspects.

43 34 Mahindra World City SEZ database. https://www.mahindraworldcity.com/wp-content/themes/mwc/brochures/MWC-Combined-Brochure-2020.pdf. (accessed on 5th March 2021).
44 Stakeholder consultations; Brandix Group Annual report 2019-20.
45 NSDL database.
46 Stakeholder consultations; Brandix Group Annual report 2019-20.
47 Stakeholder consultations; Brandix Group Annual report 2019-20.

e) Carbon footprint- *FDI supports decarbonization in some of the Indian SEZs*

The last indicator examines the extent to which FDI in SEZs relates to carbon footprint, and how FDI is contributing to the low carbon energy transition. The transition towards low carbon energy/ electricity production is at the essence of the Paris Agreement and efforts to fight global warming under the SDGs.

In India, Brandix Apparel City SEZ has undertaken measures towards driving a more sustainable future. As a leading apparel manufacturing SEZ, Brandix has developed a sustainability framework across the pillars of Air, Water and Earth and supported it by investment in robust infrastructure. In June 2019 Brandix joined the Net Zero Carbon Buildings Commitment led by the World Green Building Council (WGBC), advocating for companies to reach Net Zero operating emissions by 2030. Understanding that investment in the right infrastructure can greatly enhance energy performance, Brandix has been actively engaged in seeking out new technology and innovative solutions to support the achievement of its targets, including machinery upgrades and ongoing system improvements.[48]

Job creation

What has been the scale of creation of direct employment opportunities by SEZs?

Another primary goal of SEZs is to generate employment. In India, an estimated 2.35 million people are directly employed in SEZs. Further SEZs have been successful in generating indirect employment in the range from 0.2 million to 0.3 million jobs. SEZs have played a major role in employment creation in India. In India, the rate of job creation in SEZs has significantly outpaced employment growth in the country as a whole. Job creation in the SEZ programme in India has averaged over 21 percent per year, compared to less than 4 percent for the wider economy. Also, SEZs have witnessed a 9-fold increase in share in India's overall employment, starting from 3 percent in FY2006 to 27 percent in FY2020.[49]

Out of the seven SEZ zones in India, Santacruz Electronics EPZ (~ 40 percent) occupied the largest share in employment generation, followed by Madras SEZ (~18 percent), Noida SEZ (~17 percent) and Kandla SEZ (~ 11 percent). Among the SEZs, DLF Infocity, Milestone SEZ, Cheyyar SEZ, Brandix Apparel Clty and SIPCOT Ltd, have been able to generate nearly 1/3rd of the total employment in SEZs, with a higher proportion of jobs going to women.[50]

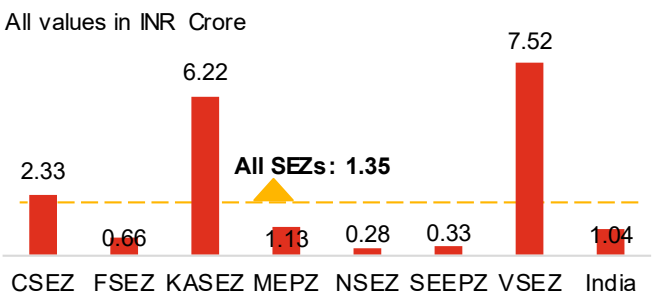
What has been the impact of job creation in increasing labor productivity and in enhancing workforce participation of female workers?

Labour productivity

It is defined as the ratio of real economic output per unit of labour. According to figure 19, the results suggest that SEZs have performed better in terms of labor productivity vis-a-vis the rest of India. Labour productivity in SEZs has averaged over INR 1.5 Crore compared to INR 1 Crore in rest of India. Out of the seven SEZ zones in India, Visakhapatnam SEZ (~INR 7.5 Crore) is associated with the highest labour productivity, followed by Kandla SEZ (~INR 6.2 Crore).[51]

For instance, Pranavam Aerospace SEZ has imparted virtual trainings imparted to employees by experts from UK on new technologies. Similarly, GMR Aero-technic SEZ has developed specialized school for in-house training of engineers in aircraft MRO services.

Figure 19: SEZ zone wise labor productivity



PRANAVAM — Virtual trainings imparted to employees by experts from UK on new technologies

GMR Aero Technic — Specialized school for in-house training of engineers in aircraft MRO services

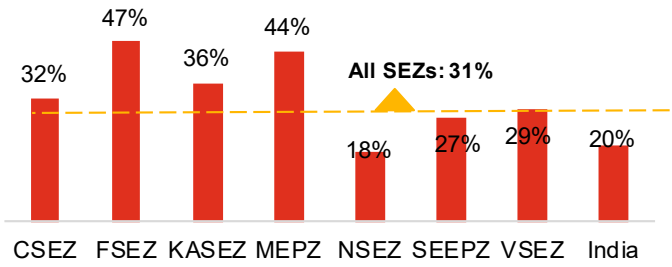
48 Brandix Group Annual report 2019-20.
49 EPCES, NSDL database, Annual Survey of Industries.
50 NSDL database, PwC analysis.
51 NSDL database, Annual Survey of Industries 2017-18, PwC analysis.
52 NSDL database, PwC analysis.

Female employment ratio

It is defined as the share of females in overall direct employment. According to figure 20, it can be seen that SEZs have performed better in generating employment opportunities for women, compared to the rest of India. Employment ratio of women in SEZs has averaged over 31 percent compared to less than 20 percent in rest of India.[53]

For instance, Brandix Apparel City in Visakhapatnam SEZ, employs around 18,000 women, constituting about 80 percent of the workforce, to manufacture some of the finest intimate apparel for the top global brands.[54] Another prominent example where women are employed in high skill high wage jobs is of AEQUS Aerospace SEZ. AEQUS Aerospace SEZ is located in Belgaum district in Karnataka. The SEZ has developed several opportunities to empower women. The SEZ employs about 3,000 women, provides them a safe environment and imparts them training (free of cost) along with a salary of INR 10,000 - 20,000 per month.[55]

Figure 20: SEZ zone wise female employment ratio



brandix

Employs around 18,000 women (about 82%) to manufacture some of the finest intimate apparel for top global brands.

AEQUS

Employed 3000 women employees, earning up to INR10,000-12,000 per month and imparted free trainings.

Source: Annual Survey of Industries 2017-18, NSDL database, PwC analysis.

53 NSDL database, Annual Survey of Industries 2017-18, PwC analysis.
54 Stakeholder interactions.
55 Refer footnote 40.

4

Success case studies

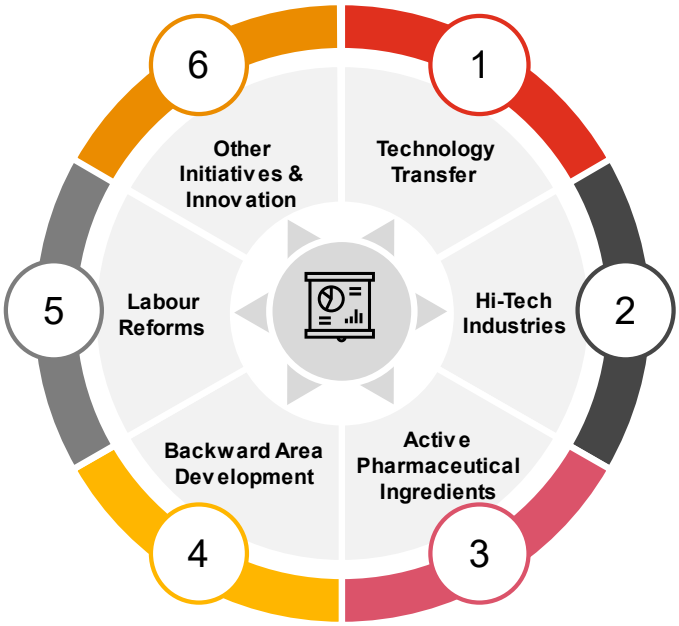
Success case studies

Which are some of the success stories which reflect these successes of India SEZs?

How has the SEZ framework of India enabled their success?

Special Economic Zones have been considered as effective tools for promoting economic development, job creation, enhancing export performance etc. In the previous sections of this report, the empirical analysis showed that SEZs in India have been successful in helping Indian exports move up the value chain, attracting quality FDI in terms of job creation and labour productivity and increasing the participation of women in the workforce. Additionally, the analysis also pointed out that SEZs in India have enabled production of more 'complex products' indicating that SEZs have accumulated more sophisticated productive capabilities in India.

This chapter is aimed at building upon the argument of positive impact of SEZs by gauging at success stories of some of the SEZs and tenants and how they have been impacted by the SEZ policy. These have been detailed out in the form of case studies across six themes technology transfer, hi-tech industries, APIs, backward area development, labor reforms and other initiatives and innovation.



Technology Transfer

Technology transfer is "the process by which technology is disseminated. Technology may include knowledge or methods that are necessary to carry on or to improve the existing production and distribution of goods and services, but also entrepreneurial expertise and professional know-how[56]."

Since SEZs are focused on exports, extensive technological interactions with leading global players across the glove has facilitated in technology transfers within SEZs.

Technology transfer can happen through a number of ways including FDI inflows, arms' length licensing, capital assets acquisition, joint ventures, partnerships etc. As many leading global manufacturers are looking at India as a manufacturing hub, particularly within SEZs, there has been a significant amount of technology transfer within SEZs in India. This has facilitated the development of technological capabilities in the production systems within SEZs.

Hi-Tech Manufacturing

The US Bureau of Labor Statistics (BLS) defines hi-tech industries as "industries having high concentration of workers in STEM (Science, Technology, Engineering and Mathematics)[57]." Generally hi-tech industries may include industries that use advanced technologies. Although there is no universally accepted list of hi-tech industries, the US Bureau of Labor Statistic has identified 33 industries as hi-tech industries. Out of these, 16 were manufacturing industries

- Petroleum and coal products
- Basic chemical
- Resin, synthetic rubber, & artificial synthetic fibers & filaments
- Pharmaceutical & medicine
- Industrial machinery
- Commercial and service industry machinery manufacturing
- Engine, turbine, and power transmission equipment
- Other general-purpose machinery
- Computer and peripheral equipment manufacturing
- Communications equipment
- Audio and video equipment
- Semiconductor and other electronic component
- Navigational, measuring, electromedical, & control instruments
- Manufacturing & reproducing magnetic and optical media
- Electrical equipment manufacturing
- Aerospace product & parts

56 United Nations Conference on Trade and Development (UNCTAD), Transfer of Technology (2001), pp.6
57 https://www.bls.gov/opub/btn/volume-5/pdf/the-high-tech-industry-what-is-it-and-why-it-matters-to-our-economic-future.pdf

Active Pharmaceutical Ingredients (APIs)

APIs are the biologically active component of a drug product (tablet, capsule, cream, injectable etc.) that produces the intended effects. APIs find applications in high quality drugs that are used in treatment of diseases including cardiology, oncology, CNS and neurology, pulmonology, orthopedic, nephrology, ophthalmology, endocrinology gastroenterology etc.[58] APIs are an important segment of the Indian pharma industry contributing to about 35% of the market. The global API industry has touched $182.2 billion in 2019 and is expected to reach $245.2 billion by 2024, growing at a CAGR of 6.1%[59].

Backward Area Development

SEZs have been closely related with area development. The economic activity spurred by industrial development in the region has positive impacts on the lives of the people in the area in terms of job creation, skill development, infrastructure and connectivity development around the SEZ etc. A study conducted by the International Monetary Fund (IMF) found that development of SEZs had several positive socio-economic spillovers including reduction in income inequality, increasing female employment rates and increase in land values. By 2019, there was a direct employment of 2,28,037 jobs within the SEZs[60].
In 2018-19, the female labour force participation rate was 31%[6] compared to the national average of 26%[61]. This indicates that there has been more female employment generated by SEZs thereby empowering women through livelihood generation. SEZ development also has a positive impact on the land values. In 2007, once SEZ started to be established, IT SEZ projects across the country resulted in a 25%-35% increase in the land prices around the development[62].

Labour Reforms

While employment generation has been one of the most significant impacts of SEZ development, in many zones across India, employment generation has been accompanied by various other labour market outcomes such as skill upgradation, improvements in the quality of life for workers etc. Many units within SEZs have taken several initiatives to improve the lives and working conditions of their workers. Examples include provision of residential facilities, women empowerment initiatives, skilling and education initiatives etc. Such initiatives have had a qualitative impact on the lives of the workers beyond the provision of a source of livelihood. Such initiatives have been documented in this chapter.

Other Initiatives and Innovation

Apart from the themes mentioned above, there were some other areas where units within SEZs undertook certain innovative measures or other initiatives which have had positive developmental outcomes such as addressing skill gaps or entry into new sectors. The case studies describe how Special Economic Zones have contributed to such initiatives.

This chapter documents 12 case studies across the themes mentioned above. Some SEZs/tenants within SEZs have been successful across more than one theme. The table in the next page shows subjects that have been chosen for the case studies and the themes they fall into. The methodology used to identify the interviewees has been placed in Annexure II.

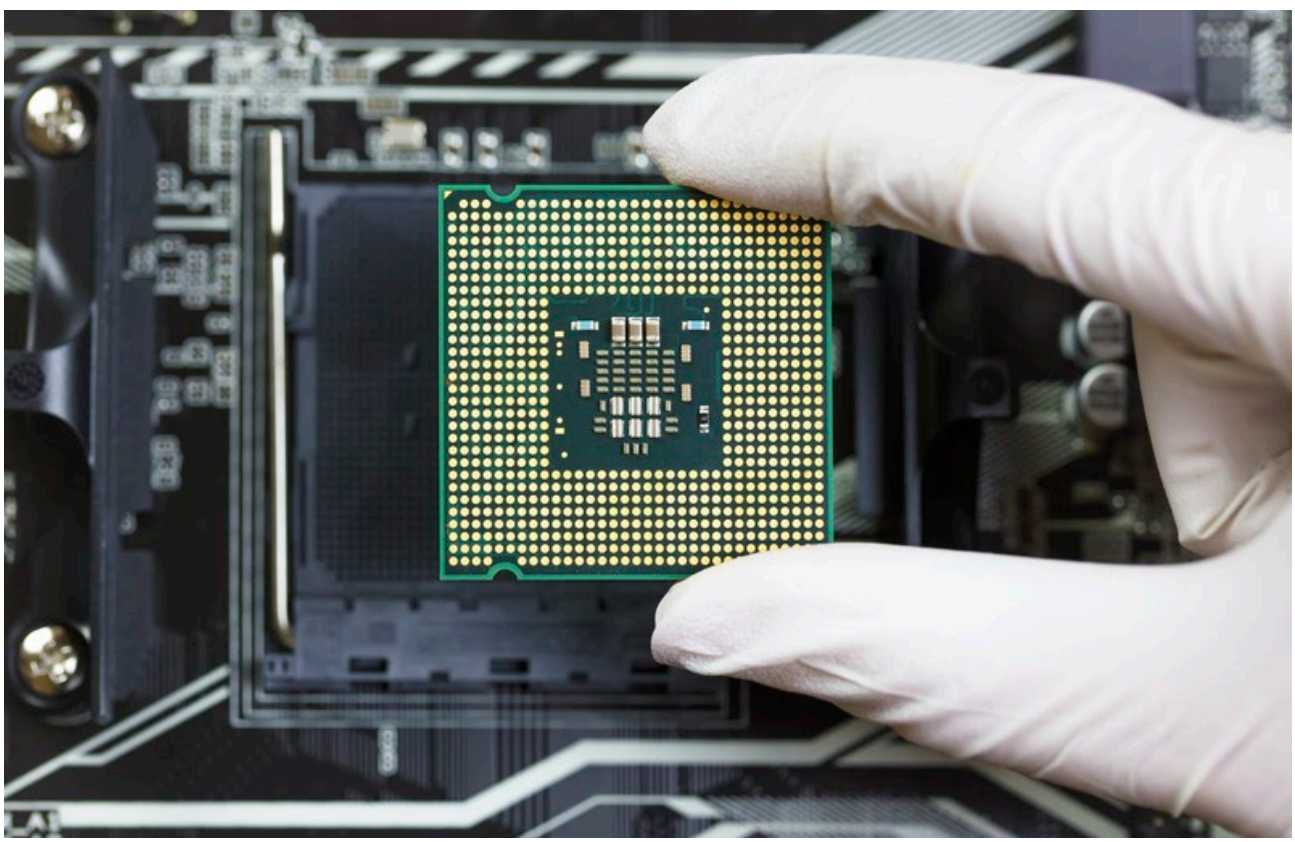
58 https://www.biocon.com/businesses/generics/api-overview/
59 https://www.europeanpharmaceuticalreview.com/news/82781/global-api-market-growth
60 NSDL Data
61 https://www.thehindu.com/business/female-labour-force-participation-in-india-fell-to-26-in-2018-report/article26467857.ece
62 https://economictimes.indiatimes.com/property/it-sezs-results-35-rise-in-land-prices/articleshow/1719998.cms?from=mdr

Case study subjects

Case Study Subject	SEZ	Theme	Rationale for Case Study
Tata Boeing Aerospace Limited	Aerospace SEZ Adibatla	Transfer of Technology Hi-Tech	Boeing's first equity venture in India, TBAL manufactures aero-structures for Boeing's AH-64 Apache helicopter, major step towards co-development of integrated systems in aerospace and defense sector in India
Brandix India Apparel City- SEZ	Brandix India Apparel City- SEZ	Labour reforms Backward area development	The BIAC facility houses almost the entire value chain for textiles and has created jobs for more than 16,000 women (76%). It has also created an enabling environment to sustain it with creche facilities, transportation and educational assistance for children and training programs, full time counsellors & free legal aid support etc.
L&T MBDA Missile Systems Limited	Coimbatore SEZ	Technology Transfer Hi-Tech	Manufacturing and supply of advanced missile systems including testing facility & launch systems, JV between Larsen & Toubro and french company MBDA, JV has resulted in technology transfer including access to proprietary machinery, calibration support, technical trainings etc. Company is in the process of obtaining contracts for direct supply to Government of India.
Serum Institute of India	Serum Biopharma Park	Hi-Tech	First biotechnology park in India, established with the aim of manufacturing and supplying immuno biologicals, largest manufacturer of vaccinations globally, substantial focus on R&D, manufacture of vaccines and exporting anti-cancer products to the US and EU markets, have entered into new partnership with GAVI and BMGF to escalate the production of up to 100 million doses of COVID-19 vaccines for India and for 65 other countries.
Biocon SEZ	Biocon SEZ	Hi-Tech API	An innovation led biopharmaceutical company that develops biosimilars, API & generics, novel biologics and research services and exports to 126 countries
Pranavam Aerospace Pvt. Ltd.	KIADB Aerospace SEZ	Transfer of Technology Hi-Tech	A UK-based company has invested in enabling acquisition of technology and machinery (not available in open market) for Pranavam. Their team of experts is also helping Pranavam's employees learn how to implement the technology.
Divi's Laboratories	Divi's Laboratories Pharma SEZ	Hi-Tech API Backward Area Development	Divi's laboratories is one of the top 2 manufacturers globally for 18 APIs. Divi's Laboratories alone caters to 80% of the world's demand for naproxen. Divi's exports its products to 95 countries. Divi's has also undertaken several initiatives for area development around its plant facilities including village development, education, women empowerment and skill development etc.
GMR Aero Technic	GMR Aerospace SEZ	Hi-Tech Other Initiatives & Innovation	GMR Aero Technic is the first and largest MRO facility in India. The group is opening a specialized school with programs in aircraft maintenance for reducing skill gap in the country within aviation sector. It has deployed state-of-the-art training equipment with collaboration with leading foreign companies.

Case study subjects

Case Study Subject	SEZ	Theme	Rationale for Case Study
CIM Tools Pvt. Ltd.	KIADB Aerospace SEZ	Hi-Tech	CIM tools Pvt. Ltd. is an aerospace company specializing in manufacture of aero-structural parts, machined parts and sub-assemblies. It is a tier 1 supplier to Boeing. CIM tools has successfully adopted several hi-tech manufacturing techniques with industry 4.0 components including IoT & robotics. CIM Tools is the first private aerospace firm in India to adopt Flexible Manufacturing Systems
Aequs SEZ (Belgaum)	Aequs SEZ (Belgaum)	Backward area development	The establishment of Aequs SEZ has transformed a barren and dry area into an industrial hub for aerospace, automotive, tools and IT & ITeS sectors. SEZ development in Belgaum has led to overall area development including employment generation, skilling, women empowerment and land value enhancement. More than 8000 new jobs were created
Sri City	Sri City SEZ	Backward area development	SEZ development has transformed the socio-economic landscape of the region with development of industries, social infrastructure, educational facilities etc. ~85% of the people in the villages of Sri City, started receiving good earnings within 4 years of setting up of Sri City.
IFSC, GIFT City	IFSC, GIFT City	Other Initiatives & Innovation	One of a kind financial services centre in India which permits activities that are currently carried on outside India by overseas financial institutions and overseas branches /subsidiaries of Indian financial institutions. Simplified regulatory procedures within the SEZ for financial services. More than 10,000 jobs created.



Tata Boeing Aerospace Limited: Integrated systems in aerospace & defense

Theme: Hi-Tech industry

Overview:

In 2016, Tata Boeing Aerospace Limited (TBAL) was formed as a joint venture between Tata Advanced Systems and Boeing group. *TBAL is Boeing's first equity joint venture in India.* The joint venture was established to produce Boeing AH-64 Apache helicopter fuselages and other aerostructures, as well as to pursue integrated systems in aerospace. *TBAL was set up with the aim of eventually becoming the sole producer of AH-64 fuselages globally.*

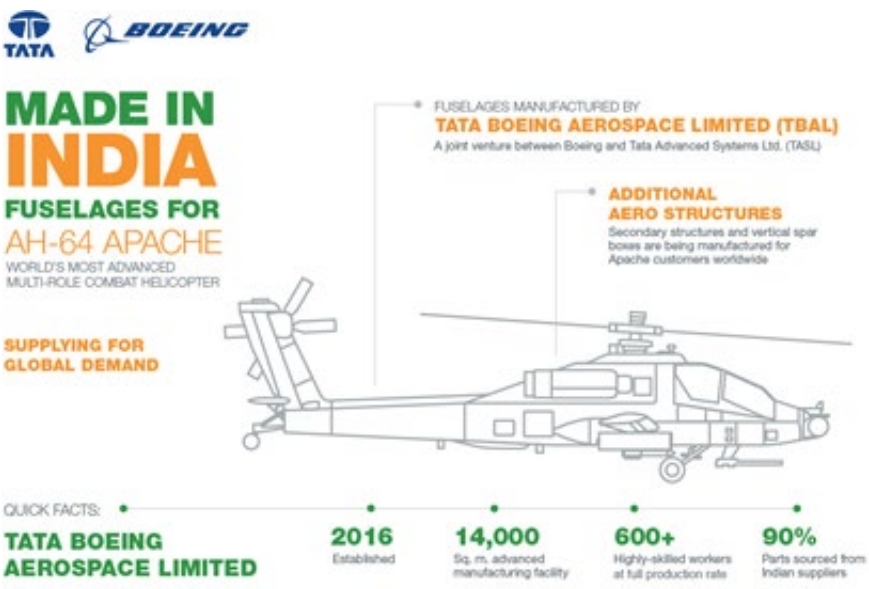
Located in Hyderabad, TBAL employs more than 600 highly skilled workers. A Centre of Excellence was created to produce aerostructures for the AH-64 Apache and provide affordable manufacturing capabilities to the global aerospace industry.

Hi-Tech Manufacturing:

The AH-64 Apache helicopter accounts for ~34% of Boeing's total revenue in 2019[63]. Boeing has delivered more than 2300 apache helicopters to customers around the world[64]. The Apache has been fielded or selected by armed forces across 16 countries including USA and India. TBAL will eventually become the sole producer of fuselages for AH-64 Apache helicopters delivered by Boeing across the globe. The facility uses build to print processes for manufacturing.

TBAL marks a major step towards co-development of integrated systems in aerospace and defense in India and helps to fulfil the goals of the 'Make in India' initiative. It will also lead to the creation of a skilled workforce in the aerospace & defense sector.

In February 2021, Boeing added a new production line to their TBAL facility for manufacturing of complex vertical fin structures for the 737 family of airplanes. As of December 2019, Boeing received 14,969 orders for their 737 family from more than 100 airlines and leasing customers globally[65]. The new production line set up for the manufacture vertical fins will use robotics and automation in manufacturing. The expansion is expected to create additional jobs and skill development.



Advantage SEZ:

- **Easy and cheap imports**: operations of TBAL are heavily dependent on the import of raw materials and export of the finished products/parts, being located in the SEZ helps TBAL carry out their operations efficiently due to timely clearances and easy import of raw materials
- **Fiscal incentives and tax benefits:** cost efficiencies due to fiscal benefits such as import duty exemption and income tax exemption.
- **Ease of doing business:** one of the key factors why Boeing decided to expand its manufacturing to include a new production line for commercial airlines segment in the SEZ plant in Hyderabad. Tata Advanced Systems Managing Director and CEO, Sukaran Singh had mentioned that "skilled talent, robust infrastructure, ease of doing business and a highly responsive government administration" make the SEZ in Hyderabad an ideal location for their expansion.[66]

63 The Boeing Company Annual Report (2019)
64 https://www.boeing.co.in/boeing-in-india/tata-boeing-aerospace.page 39 NSDL database, Annual Survey of Industries 2017-18, PwC analysis
65 The Boeing Company Annual Report (2019)
66 https://www.business-standard.com/article/companies/tata-boeing-aerospace-to-make-737-vertical-fin-structures-in-hyderabad-121020500616_1.html

Brandix India Apparel City: Empowering women

Theme: Labour Reforms, Backward Area Development

Overview:

Brandix is a leading apparel manufacturing company founded in 1969 from Sri Lanka. The main activities carried out by the firm include fabric knitting, apparel manufacturing, apparel washing & dyeing, fabric printing and apparel design. Its product portfolio includes activewear, casual wear, intimate wear, sleep and loungewear. BIAC is established on the 'fibre to store' concept- ensuring that all needs from raw material sourcing to shipping of final products are met in one place.

Labour Reforms:

The Brandix SEZ has generated employment for more than 21,000 workers, out of which about 76% are women. The SEZ is equipped with several facilities such as creches, transportation etc. which provides an enabling environment for women workers. A 24/7 Command & Control Centre overlooks the coordination and safety for transportation services provided by the company. More than 200 buses ply six times daily to bring workers to the site from several pickup points for different shifts throughout the day.

Brandix also has various additional welfare schemes for its workers. For its women workers, Brandix provides an INR 10,000 cash gift on the occasion of their weddings in addition to a vehicle for the day. Each year, Brandix distributes an educational kit including uniforms, stationary etc. for employees' children. Employees whose children are in intermediate, are reimbursed for the intermediate registration fee up to INR 2000. Brandix also provides its employees with house rent assistance. The wage level at Brandix is above the minimum wage level. For new joinees with no experience, the wage level is INR 1500 more than the minimum wage.

Brandix also provides several trainings for its employees to encourage technical and life skills development. The trainings for workers revolve around many areas including technical skills, behavioral skills, health & safety, wellness, financial literacy etc. In 2019-20, each employee of Brandix attended an average of 132 training hours through the year.[67]

Realizing the importance of mental health and to provide support to their workers, Brandix organizes free counselling programs for their employees. Full time counsellors are available on site to support their associates with any requirements.

In addition to counsellors, Brandix realized that many of their female employees suffered from various issues at home including problems with family etc. To provide support to their employees, Brandix started a free legal aid clinic to provide legal solutions to the problems faced by their workers. Post the pandemic, the legal aid clinic has been operating telephonically.

Backward Area Development:

The Brandix SEZ was a completely greenfield rural project and has transformed the entire region. Prior to SEZ development, most of the villages surrounding the SEZ had thatched houses. Now the villages have mostly pucca houses. The area has also seen the development of shopping malls, retail outlets etc. Empowering women has led to several spillover effects and development of the entire society. Several families are now able to send their children to schools. Several of the awareness programs undertaken for the Brandix employees such as creating awareness around proper use of toilets, sanitary napkins etc. have had positive impacts on the entire society, since the women employees of Brandix were able to take these lessons home to their entire communities.

Brandix has been undertaking several initiatives for development of the local area including organizes free eye camps and health camps. Between 2017-20, the company had conducted about 76 eye camps (29,242 participants) and 54 health camps (9352 participants)[68]. Brandix supports two drinking water plants in the nearby villages and runs a program called Brandix Shilpa for capacity development of their associates and youth from the local areas.

Advantage SEZ:

- **Easy imports**: Brandix supplies to several leading global apparel brands such as Calvin Klein, Victoria Secret, Uniqlo, PVH Corporation, Marks & Spencer etc. Since majority of their production is exported, being located in a SEZ is advantageous in terms of ease of exports
- **Fiscal incentives and tax benefits:** fiscal benefits provided in SEZs was an attractive factor for setting up their facility in a SEZ and has led to cost reductions for the firm.

67 Brandix Group Annual Report 2019-20
68 Brandix Group Annual Report 2019-20.

L&T MBDA: Advanced missiles and missile systems manufacturing

Theme: Technology Transfer, Hi-Tech industry

Overview:

L&T MBDA Missile Systems Limited is a joint venture between Larsen & Toubro (L&T) and European company MBDA. L&T MBDA is into the manufacturing and supply of highly advanced missiles and missile systems including Assembly inert integration & testing facility for missile subsystems & missile launch systems. The main products manufactured by the company include ATGM5, Exocet Missile System, VL MICA Missile System and Sea Ceptor Missile system.

The joint venture was established in 2017 and commercial production commenced in 2019. 51% of the stake in the joint venture is owned by L&T and 49% by MBDA[69]. The unit is located in the Aspen Special Economic Zone in Coimbatore. The facility is spread over an area of 4 acres. Currently, all the production of L&T MBDA is sent back to MBDA facility in France from where it is distributed to various clients of MBDA. However, the company is in the process of obtaining contracts for direct supply to Government of India.

Technology Transfer:

The joint venture has resulted in the transfer of technology from MBDA to the joint venture facility in India. To start with, the manufacturing facility was constructed based on detailed specifications provided by MBDA group including height of ceiling, type of floors, layout plans etc.

MBDA has provided all the machinery and proprietary tools used in production, most of which are not available in the open market. MBDA also provided all the equipment required for functional testing including a fully-automated, proprietary test bench and a climatic chamber which can rage temperature from -50°C to 70°C. The manufacturing process sheets which detail out the manufacturing processes and methods were also provided by MBDA. In addition to provision of proprietary tools such as manufacturing workbench, specialized screwing tools, jigs and fixtures, MBDA provided support in the installation, commissioning and calibration of all the machines & technologies.

All workers of L&T MBDA are sent to the headquarters of MBDA in France for training on technical skills related to use of machinery, tools & equipment, testing etc. To enable the L&T MBDA employees to practice on how to operate the equipment, MBDA sends a 'golden kit' to the L&T MBDA facility for helping the employees practice testing and assembly skills.

A fully assembled product, with detailed instructions is sent to help the employees practice with testing equipment. A kit containing all the components is sent with detailed instructions to enable them to practice use of machines and assembly of the products. Once a new product is manufactured in the L&T MBDA facility, it is sent to the MBDA facility in France where it is completely dismantled to check for any errors in production. The products are also put through a vibration test, for which the equipment is only available in the MBDA France facility. The French team provides detailed feedback on technical and non-technical aspects such as packaging etc. to the L&T MBDA team. Additionally, regular review meetings are held with the French MBDA team to track progress and help resolve any issues faced by employees of L&T MBDA. A Skill Matrix of all L&T MBDA employees is also maintained and tracked to ensure that all employees are upskilled regularly and assess training requirements if any.

Advantage SEZ:

- **Easy imports and exports**: since the company is heavily dependent on imports for raw materials and also for sending equipment back and forth with the French MBDA facility, being located within the SEZ enabled cheaper and easier imports. Moreover, since most of the production in exported (currently 100% output is exported), easy clearances have enabled operational efficiencies. Fiscal incentives provided in SEZs have helped the company in bringing about cost efficiencies.
- **Secure Environment** in **SEZs:** since missile manufacturing is an extremely sensitive industry, SEZs provide a safe and secure environment, free from any disruptions such as trade union activity etc.
- **Ease of doing business:** SEZs also provide more ease of doing business, including a user-friendly online portal for all documentation related to import/exports.

69 https://economictimes.indiatimes.com/news/defence/lt-mbda-missile-systems-sets-up-missile-integration-facility-in-tamil-nadu/articleshow/73894144.cms

Serum Institute of India: World's largest vaccine manufacturer

Theme: Hi-Tech industry

Overview:

Serum Institute of India (SII) Pvt. Ltd. is the world's largest vaccine manufacturer by number of doses produced and sold globally[84]. In a year, SII produces and sells more than 1.5 billion doses of Polio, Diphtheria, Tetanus, Pertussis, r-Hepatitis B, Measles, Mumps and Rubella vaccines[85].

In 2006, SII set up a Serum BioPharma Park, India's first biotech SEZ. The $165 million project is spread across 31 acres in Hadapsar, Pune. The SEZ is adjoining SII's existing manufacturing unit and is a sector-specific SEZ meant for biotechnology and pharmaceutical products. Currently, SII has six units in the SEZ, mainly to facilitate R&D, manufacture of vaccines and exporting anti-cancer products to the US and EU markets. The SEZ is well equipped with world class production and infrastructure facilities and products comply with US FDA and MHRA requirements with the assurance of consistent quality, efficacy and safety.

Hi-Tech Manufacturing:

SII has marked a major step towards manufacturing life saving immuno - biologicals at price affordable to common man and in abundance to reduce import dependence. Serum Biopharma Park has the most modern laboratories with high-tech machinery and computerized equipment for the production and testing of its life saving biologicals.

The SEZ has undergone many technological advancements by installing advanced machinery such as robotic arm for virus handling, cell factory and cell cube for growing cells, facilities for the manufacture of recombinant vaccines and for monoclonal antibodies, high speed vial washing, among others. The SEZ also has the latest technology screeners to inspect its products for any minute particulate matter undetectable to the normal human eye, thus reducing the margins of human errors. The production facilities are in compliance with cGMP regulations and have been accredited by the World Health Organization (WHO).

The entire facility in the SEZ is built to comply with the highest international standards. With a view to enter new markets and to expand its product portfolio, SEZ has been successful in getting US FDA compliance for its plant manufacturing. The US FDA approval confirms the high level of standards infused into the manufacturing infrastructure, quality systems, training of staff and the overall standard maintained by the SEZ for its entire facility.

The SEZ's quality control laboratories are equipped with a wide array of sophisticated analytical equipment such as HPLC with PDA detector, Fourier Transform Infra-Red Spectrophotometer, Gas Chromatograph, Atomic Absorption Spectrophotometer, Bio-Plex and several other state-of-the-art instruments. *Their vaccines are accredited by the WHO and are being used in more than 170 countries across the globe*[87].

SII has taken steps to contain the COVID-19 virus by developing and distributing the vaccine in India and 65 other developing countries. It has entered into a new landmark partnerships with GAVI and the Bill & Melinda Gates Foundation to escalate the production of up to 100 million doses of COVID-19 vaccines for India and other low - and middle-income countries.

Advantage SEZ:

- **Fiscal incentives and tax benefits:** SII was able to import hi-tech and advanced machinery at zero duty within the SEZ, helping in cost reductions compared to DTA. The SEZ status accorded to Serum Biopharma park allowed it to avail various tax benefits including 100% income tax exemption, zero IGST and import duty on capital goods. This has not only helped in cost reductions but has also encouraged a lot of foreign companies (such as GAVI, Bilthoven Biologicals, etc.) to partner with SII to avail and share these benefits.
- **Ease of doing business:** Quick custom clearances and single window mechanism in SEZs have resulted in seamless operations and delivery of goods for SII. SII is one of the few manufacturers globally for the COVID-19 vaccine and is supplying the vaccination to several countries. Quick clearances and exports in SEZs has been critical for catering to the global vaccination demand to help countries cope with the COVID-19 pandemic.

84 Serum Institute of India Pvt Ltd. 2020. https://www.seruminstitute.com/about_us.php (accessed on 3 February 2021)
85 Refer to footnote 84
86 Refer to footnote 84

Biocon Limited: An innovation led biopharmaceutical company

Theme: APIs, Hi-Tech industry

Overview:

Biocon was incorporated in 1978 and by 1979 was the first Indian company to manufacture and export enzymes to USA and Europe. Biocon is an innovation led biopharmaceutical company that develops biosimilars, generics, novel biologics and research services. The group has registered more than 1220 patents and 900 registered trademarks. The group exports products to 126 countries.

Active Pharmaceutical Ingredients:

Biocon's global portfolio in APIs caters to over 1200 pharmaceutical companies in more than 100 countries. The 'Small Molecules API and Generic Formulations' business segment of Biocon is the largest segment of the company and contributed to 32% of the consolidated revenues from operations in FY20[58]. The API business is the major contributor to the Small Molecules API & Generic Formulations business segment. A few APIs produced by the group include Statins basket (Simvastatin, Pravastatin, Atorvastatin, Rosuvastatin, & Fluvastatin), Immunosuppressant Basket (acrolimus, Sirolimus, Everolimus, Mycophenolate Mofetil & Mycophenolate Sodium) and other key products such as Orlistat, Fidaxomicin.

In FY 2020, Biocon started work on a greenfield fermentation-based manufacturing facility in Visakhapatnam to further expand their API production capacity. The facility is expected to be operational by 2023.

Awards and recognitions:

- In 2020, Biocon's Small Molecules API manufacturing facility in Hyderabad won the 'Annual Greentech Environment Award 2019' for 'Outstanding Achievements in Environment Management in the Pharmaceutical Sector'.
- The API manufacturing facility in Visakhapatnam was awarded 'Outstanding Achievements in Safety Management' by 'Annual Greentech Environment Award' program.

Other Business Segments:

Apart from the API business segment, Biocon is also a pioneer for many other biotechnology products including biosimilars and novel biologics.

- In the biosimilars segment, Biocon developed the first biosimilar Trastuzumab to be approved anywhere in the world. *It was also the first company in India to launch a biosimilar in USA, EU and Japan.*
- In the novel biologics segment, Biocon is developing several assets in the areas of diabetes, immune-oncology and inflammation. *In 2006, Biocon developed India's first indigenously produced novel monoclonal antibody for the treatment of head and neck cancer. In 2013, Biocon launched the world's first novel anti-CD6 monoclonal antibody, for psoriasis.*
- Biocon provides contract research services through it's subsidiary Syngene. Established in 1993, Syngene is an innovation-led contract research organization providing integrated solutions including discovery, development and manufacturing for small and large molecules, antibody drug conjugates, and oligonucleotides.

Other Initiatives:

- Biocon operates 'Biocon Academy' to address skill shortages in the biotechnology sector. In FY20, 120 students graduated from the academy with 100% placement.

Advantage SEZ:

- **Sector-focus infrastructure & clusters**: Production of pharmaceutical and biopharma products requires an extremely sanitized environment with clean rooms and infrastructural facilities such as Effluent Treatment Plant. Hence, pharmaceutical industry has very low compatibility to be clustered with other industries which may be more polluting especially in terms of emissions. In this regard, product specific SEZs for pharma provide a safe area which is bonded and secure (in terms of visitor visits etc.), and helps the units maintain standards.
- **Fiscal incentives and tax benefits:** Pharmaceutical industry is a capital-intensive sector with high investment required in equipment and machinery, which are usually imported. In this light, fiscal incentives and tax benefits provided in SEZs have been critical in subsidizing the investments.
- **Ease of doing business:** SEZs provided ease of doing business, especially in terms of single window clearances which helped in quick import and export of products. Two officers are available full time in the SEZ facility to ensure quick clearances, which helps the group in carrying out their activities seamlessly.

58 Biocon Annual Report 2020

Pranavam Aerospace: Beneficiary of technology transfer through UK customer

Theme: Technology Transfer, Hi-Tech industry

Overview:

Pranavam Aerospace is located in the KIADB Aerospace SEZ in Bengaluru. Incorporated in 2016, the company began commercial operations in 2018. Pranavam Aerospace specializes in the manufacture of aircraft detailed parts and sub-assemblies. The company exports 100% of their production and achieved a turnover of ~INR 15 Crores in their first year of operation.

Technology Transfer:

Pranavam has been a beneficiary of technology transfer from one of their clients for aircraft engineering parts (tier 1 supplier to Rolls Royce) in UK. *Pranavam was supplied with machinery by the customer which was otherwise not available in the open market.* While Pranavam invested ~INR 3 crores in procuring the machinery, the costs of training and training materials were borne by the UK customer.

The main area of focus for the training was to train the employees of Pranavam on use of new technologies related to material melting techniques and around operation, finishing side, reporting, quality control. To impart the training, a team of experts from UK were to visit the Pranavam facility to hold in-person training sessions for a period of one month. However, due to the COVID-19 pandemic, the in-person training sessions had to be postponed and the company in UK held multiple training sessions through virtual mode. The UK company not only provided the training but also supplied all the relevant training material and resources at their cost. Employees at the operator and manager level from Pranavam Aerospace received the training.

Source: Stakeholder consultations

Hi-Tech Manufacturing:

Pranavam Aerospace is equipped with state-of-the-art facilities and hi-tech plant and machinery:

- Three 5-axes machining centers and two 3-axes machining centers imported from Japan.
- The plant is also equipped with a turn mill centre, CNC standalone routers (imported from Canada).
- CNC press brake, assembly equipment, Coordinate Measuring Machines (CMM), profile projector, full scale ERP with live scanning, Computer Aided Design & Computer Aided Manufacturing (CAD CAM) software
- Fully integrated tool management system.
- AS 9100 D certified.

Advantage SEZ:

- **Superior Brand Position in SEZ**: The SEZ is well known globally as a global hub for aerospace activity with many leading players like the Thyssenkrupp (Fortune 500) etc. The reputable brand position of the SEZ enables several opportunities for co-investments, joint ventures, partnerships etc. Pranavam Aerospace has received three offers for joint ventures since their establishment. Being located within the SEZ has also helped in bagging work orders and contracts due to the high brand image of the SEZ.
- **Ecosystem development in SEZs:** dedicated aerospace SEZ which has been enabled due to the right set of incentives and infrastructure (the KIADB Aerospace SEZ is connected on two sides through 4-lane roads, additionally the government provides good quality power etc.) provided by the government, has created a facilitating ecosystem for the sector. The SEZ houses many activities related to the aerospace industry which allows for forward and backward linkages to become operational within the SEZ.

Divi's Laboratories: Top global supplier for 18 APIs

Theme: APIs, Backward Area Development

Overview:

Divi's Laboratories was established in 1990 and is engaged in the production and export of Active Pharmaceutical Ingredients (APIs), intermediates and nutraceutical ingredients. Additionally, Divi's laboratories also supports innovator pharma companies with clinical trials, launch and life cycle management for their patented products through its customs synthesis business.

Active Pharmaceutical Ingredients:

Divi's Laboratories is one of the leading players for large volume generic APIs. *Their product list comprises of a list of about 30 selective APIs that are manufactured commercially* including Capecitabine, Gabapentin, Naproxen etc. Their products have applications as antineoplastic, anti-Parkinson, anti-hypersensitive, anti-tussive, analgesic, anticonvulsant / neuropathic pain, contrast medium, anti-inflammatory, antipyretic, anti-hyperlipidemic, prophylactic antimalarial, anti-psychotic, antihistamine, anti-viral and antidepressant[62]. In addition to these, Divi's Laboratories is also developing about 10 other APIs which are currently in R&D/pilot scale development process. *Divi's Laboratories is one of the top 2 manufacturers in the world for 18 out of the 30 molecules[63]. Divi's Laboratories alone caters to 80% of the world's demand for naproxen. Divi's exports its products to 95 countries.*

Backward Area Development:

- *Capacity Development for Local Youth:* As a firm policy, recruit majority of their employees between the age group of 19-25 years.. 65% of the workers come from the local areas of the surrounding villages. All the workers are provided with in-house training which helps in skill development of the local population. All workers are provided with free hostel, recreation facilities and subsidized food which is procured from local farmers.
- *Promoting Education:* Since 2002, Divi's has been providing free notebooks woand annual health checkups for students. Divi's has invested in digital classrooms, furniture, libraries etc. in local schools. Divi's also distributes ~20,000 Horlicks sachets daily to children in the nearby villages. It has also contributed INR 7.1 Crores in the last three years to provide food in school canteens along with Akshay Patra Foundation.
- *Skill Development Centre:* Trainings for local men in the areas of sewing, hospital administration, hospitality and computer trainings. The initiative has resulted in livelihood generation for local people. Several of them have opened stitching centers, grocery stores, restaurants etc.
- *Impact:* In 2019-20, the impact of the social welfare activities undertaken by Divi's includes 33 villages, ~80,000 people for village development initiatives; 47 villages, ~40,000 people for preventive healthcare initiatives; ~7,50,000 trees planted under the afforestation and plantation drive; 227 schools, ~21,000 students for promoting education; provision of safe drinking water in 80 locations to ~2,10,000 people; 15,000 women empowered; and animal welfare & dairy development in 24 villages, ~25,000 beneficiaries[64].

Advantage SEZ:

- **Fiscal incentives and tax benefits:** helped Divi's in reducing their costs and in turn has enabled them to make more investments in other areas such as backward area development, sustainable equipment (e.g. the company has invested in a INR 25 crores membrane vapor system for separating solvents which helps in recovery of 90% of the solvents and reduction of wastes).Divi's has received a total of ~INR 1000-1600 crores of tax benefit from 2 SEZ units, ~INR 250 Crores of merchant export benefits and ~INR 5-6 crores of duty drawback benefits till date.
- **Ease of doing business:** Operational efficiencies due to EoDB. A dedicated customs officer is available in the plant premises full time who ensures quick processing of clearances. Additionally, since SEZs are protected from trade union activities, it ensures smooth functioning of business activities without any interruptions.

62 https://www.divislabs.com/api-manufacturer-world/active-pharmaceutical-ingredients/generic-api-products/
63 https://www.divislabs.com/api-manufacturer-world/active-pharmaceutical-ingredients/
64 Divi's Laboratories Annual Report 2019-20

GMR Aero-Technic: First and largest MRO facility in India

Theme: Other Initiatives and Innovation

Overview:

GMR Aero Technic is a third-party Airframe Maintenance, Repair and Overhaul (MRO) facility. Spread over 25 acres, GAT was the anchor unit in the GMR aerospace SEZ. Established in 2009, GAT is a public-private joint venture between GMR group (63%), Malaysia Airport Holdings Berhad (11%), Government of Telangana (13%) and Airports Authority of India (11%)[66]. *GAT is the first facility in India to provide complete MRO services.*

GAT provides complete technical support to aircraft operators. Their facility is equipped with wide body hanger, narrow body hanger, paint hanger and workshops for airframe maintenance including cable fabrication, composite workshop, battery shop, flight controls workshop, heat treatment workshop, welding workshop, aircraft placard shop, upholstery shop, gallery workshop, sheet metal shop, nondestructive testing (NDT), cabin equipment & appearance, seat bay and oxygen workshop.

Prior to the establishment of GAT, empty aircrafts were taken to countries such as Singapore, Malaysia etc. for MRO services. This led to huge foreign exchange outflow from Indian airline companies. Today, GAT provides MRO services for all major airline companies in India as well as airline carriers from SAARC and middle-eastern countries including Nepal, Bangladesh, Oman etc. The entire business of GAT is conducted through foreign exchange leading to huge inflows of forex in the country. In 2020, the total business of GAT amounted to ~$35 million. GAT has created 700 direct and ~1500 indirect jobs.'

Other Initiatives - Development of Training Centre

To increase the skill supply of aircraft maintenance engineers, GMR Aero Technic is under the process of opening a specialized school for training engineers in aircraft maintenance services. *Currently, there are no courses in India which provide on the job training to students, making Indian students less equipped to carry out such services on completion of their courses. The specialized school will be the first such institution in India.* The proposed school for training aircraft maintenance engineers will float a four-year program which will include 2 years of theoretical training and 2 years of on-the-job training which will be carried out in the SEZ premises.

The program has the objective to reduce the skill gap in the sector and also train professionals who are equipped with the know-how of the entire system of MRO operations.

Apart from the employment opportunities that would be available to the professionals on completion of their training, it is expected that their knowledge of MRO systems may give rise to new linkages bringing efficiencies in the servicing processes. GAT has invested INR 30 Crores for setting up the school.

Advantage SEZ:

- **Fiscal incentives and tax benefits:** provided in the SEZs greatly helped GAT in reducing their costs and was one of the major factors why it chose to be located in the SEZ. In the aerospace sector, ~99% of the raw materials are imported and hence being located outside the SEZ would mean paying large import duties. Additionally, the availability of a dedicated customs officer within the SEZ helps in quick clearances and enables GAT to provide their services to their customers in a quick, efficient and time bound manner. Since SEZs have the advantage of a green channel clearance, GAT is able to quickly import parts it requires for servicing of aircrafts at zero import duty, enabling them to provide their services with a quick turnaround time. This is especially critical for the aviation sector where timely delivery of aircrafts after servicing is crucial.
- **Ease of doing business:** establishment of GAT was the first MRO facility in India, a lot of effort went into the consolidation of processes and procedures which required close coordination with several stakeholders. The SEZ authorities were helpful in ensuring the coordination which enabled for the project to take off without major hurdles.

66 https://www.mroglobal-online.com/companies/gmr-aero-technic/.

CIM Tools: Successful adoption of Industry 4.0 measures

Theme: Hi-Tech industry

Overview:

CIM tools Pvt. Ltd. is a Bengaluru based aerospace company specializing in manufacture of aero-structural parts, machined parts and sub-assemblies. The group supplies core structural parts to various leading aviation players including Boeing (tier 1 supplier), Airbus (tier 2 supplier), SAAB, GKN group, Magellan, Spirit, Triump etc.

Hi-Tech Manufacturing:

The main operations in the SEZ unit include Build to Print services. The company is equipped with in house engineering services and state of the art machinery imported from Japan. The SEZ plant uses several types of hi-tech equipment including Flexible Manufacturing Systems (FMS) technologies. *CIM Tools was the first private aerospace firm in India to adopt FMS systems in their SEZ plant in 2016.*

The SEZ plant is also equipped with robots for loading and unloading high volume parts and for pick and place assembly. Additionally, the machines are connected with Overall Equipment Effectiveness (OEE) systems to track utilization and efficiency of machines. Live workload data for all departments are tracked through enterprise resource planning (ERP) workflow technology. Coordinate Measuring Machines (CMM) are used for precision manufacturing. The company utilizes Statistical Process Controls (SPC) technologies and Computer Numerical Control (CNC) machines to enable data driven decision making. The plant also uses a number of Internet of Things (IoT) driven machines. *CIM tools has successfully incorporated several components of Industry 4.0 and implementation of lean manufacturing.*

In addition to the above, the plant maintains 100% paperless documentation and utilizes approved Model Based Definition (MBD)/Digital Product Definition (DPD) practices. The plant also utilizes several quality assurance resources including six sigma green belts, General Requirements for Aerostructure Manufacturing Specifications (GRAMS), CMMs and shadow graphs, surface and hardness testers, digital height gauges and air gauges.

The company is AS 9100 Rev D approved, DPD & MBD approved, NADCP-CMM and has OEM approval for manufacturing parts of Airbus and Boeing. Established in 1997,

Advantage SEZ:

- **Easy and Quick Imports**: manufacturing aero-structural parts is heavily dependent on import of raw materials, being located within a SEZ allows for easy imports and clearances. CIM tools procures raw materials from several countries including USA, UK, France. It also imports various consumables such as screws, nuts and bolts from Singapore. Due to quick clearances provided in the SEZ, the company is able to easily import raw materials and carry out timely production
- **Ease of transactions between SEZs:** Several products manufactured in the SEZ unit for CIM tools need to be sent to the industrial units in Belgaum SEZ for treatment. Post treatment, the products are sent back to the CIM tool facility in Bengaluru for further use and processing. Since SEZ to SEZ transactions are easier, the turnaround of the materials between CIM tools facility to Belgaum and back to Bengaluru is quick and easy, allowing for greater efficiency in operations of CIM Tools.
- **Fiscal incentives and tax benefits:** income tax and duty exemptions have also allowed for cost efficiencies and savings for CIM Tools.

Source: Stakeholder consultations

37 NSDL database, Annual Survey of Industries 2017-18, PwC analysis.
38 NSDL database, PwC analysis.
39 NSDL database, Annual Survey of Industries 2017-18, PwC analysis.
40 Stakeholder interactions.
41 Refer footnote 40.

Aequs SEZ Belgaum: Job creation, skilling, women empowerment through SEZ

Theme: Backward Area Development

Overview:

The Aequs SEZ in Belagavi district was established in 2009 and is spread over an area of ~300 acres. The SEZ is located at Hattaragi, which is 32 Km from Belgavi. Initially set up as a dedicated aerospace SEZ, since 2017, the SEZ has been converted into a multi-product SEZ and houses companies from the aerospace, automotive, tools and IT & ITeS sectors.

Backward Area Development:

Belagavi district is located in the north region of Karnataka which is relatively less developed compared to other parts of the state. The gross district development product of Belagavi is INR 51040 crores (~4.4% of Karnataka's GSDP). The per capita income in the district is INR 92,249 as compared to the state average of INR 161922. In terms of developmental indicators, Belagavi district ranks 18th in Karnataka in terms of Human Development Index amongst all the 30 districts in Karnataka, 20th in Gender Equality Index, 19th in Child Development Index and 16th in District Composite Development Index. Out of the 49 taluks in Belagavi district, 14 have been classified as 'backward', 12 as 'more backward' and 5 as 'most backward'[67].

- *Job Creation:* The SEZ was set up in a barren and dry area, which was largely unfit for agricultural activity. Prior to the establishment of the SEZ, there was almost no industrial activity in the region. With the establishment of the SEZ, *almost 8000 jobs were created in the SEZ.*
- *Women Empowerment:* Due to the lack of availability of jobs in the region prior to SEZ development, many women in the region were forced to engage in prostitution activities to earn a livelihood. With the establishment of the SEZ and creation of jobs, the women had opportunities for respectable work. Today, women workers in the region earn an average of INR 10,000-12,000 per month which enables them to support themselves and their families. Additionally, the SEZ provides a safe work environment for women workers. Cameras installed around the SEZ and factories, ensure safety for women workers.
- *Land Value Appreciation:* While the cost of land was ~INR 8 lakhs per acre pre-establishment of the SEZ, it has shot up to ~INR 25 lakhs per acre, witnessing ~200% appreciation in land value.
- *Skill Development:* The Aerospace Knowledge Centre was set up by Aequs group within the SEZ to provide industrial trainings to workers. The trainings are offered free of cost along with a stipend of INR 22,000 per month. The trainings cover technical, behavioral and on the job trainings. Given the poor quality of education available in the region, it was typically found that for successful skill development, the training modules which could be covered in a period of 12 months in more developed districts such as Bengaluru Urban, took about 30 months in Belagavi. The training modules offered by the academy span over a 30-month period. The skill development initiatives not only provide for skilled labour within the SEZ, but successful candidates have managed to find jobs in larger companies in cities such as Bengaluru and Pune post the training.

Advantage SEZ:

- **Easy Imports and Exports**: Aerospace industry is heavily dependent on the import of raw materials. Moreover, most of the production is exported since major OEM players such as Airbus and Boeing are located abroad. Being located in the SEZ was advantageous in terms of ease of exports and imports.
- **Fiscal incentives and tax benefits:** The fiscal incentives provided in SEZs helped the group make additional investments into employee training and skill development which has contributed to the development of the entire region.
- **Ease of doing business:** The representatives from Aequs group discussed how support from the SEZ administration officers has helped in seamless functioning of the units. The group representatives mentioned that the presence of dedicated officers has also enabled an effective grievance mechanism, and any issues brought to the notice of the officers are resolved in a short time span. The representative from Aequs group recalled an incident when there was an untimely death of the customs officer. Given the urgency of shipments, a new officer was positioned within 12 hours. Even during the COVID crisis lockdown, due to some urgencies in shipments, special permissions were provided to the units for seamless functioning of the business.

67 Economic Survey of Karnataka 2018-19.

Sri City SEZ: Improved living standards due to SEZ development

Theme: Backward Area Development

Overview:

Sri City, which is spread over the Chittoor and Nellore districts in Andhra Pradesh was set up in 2008. An integrated township, Sri City is well connected to three ports- Chennai (65 Km), Ennore port (45 Km) and Krishnapatnam port (65 Km).. It has attracted about USD 4 billion worth of investments and generated exports of over USD 500 million[70]. Spread over 7500 acres, Sri City includes a multi-product SEZ area spread over an area 2700 acres.

Sri City is home to several leading MNCs including Alstom, Isuzu, Kellogg's, Colgate-Palmolive, Kobelco, Pepsico, Mondelez, ZTT, Foxconn and Lavazza. It hosts the production units of 187 companies from 27 countries. Sri City has the highest density of MNCs in the country[71]. A Japanese industrial township is also being planned in the SEZ area[72]. More than 50,000 people are employed within Sri City.

Sri City has been built on the concept of 'Work, Live, Learn and Play' IT is equipped with state-of-the-art infrastructure facilities including plug and play infrastructure and social infrastructure facilities such as hospitals, schools, temples, shopping area, theaters etc.

Backward Area Development:

- *Improved Standard of Living:* Before the development of Sri City, most of the people in the area were largely poor. Over 98% of the people did not own a refrigerator and about 66% of the people did not even own a bicycle. The average household income was INR 36,000 per annum[73]. As per some estimates, ~85% of the people in the villages of Sri City, started receiving good earnings within 4 years of setting up of Sri City[74]. After SEZ development ~50% of the villagers own two-wheelers and ~40% own heavy vehicles. Sri City has successfully created employment opportunities for the people in the region, including for women. ~40% of the women from nearby villages are employed in Sri City. The land acquisition process carried out for the development of Sri City ensured that all the people who gave away their land for development of the SEZ were well compensated. At the time, a mango orchard would on an average earn INR 12,000 an acre per annum while the bank interest on the resettlement amount (INR 4,50,000 per acre) amounted to ~INR 45,000 per annum[75].
- *Employment Generation & Industrial Development:* Before development of SEZ, ~ 68% of the people in the area were marginal farmers, 20% were small farmers, 5% were medium farmers and big farmers and landlords comprised about 7% of the population. Agricultural wages were lower than casual work wages in towns and agriculture provided only 90-120 days of employment a year. Industrial activity provided workers with year-round employment opportunities.
- *Improved Educational Facilities:* Prior to the development of Sri City, a large portion of the people in the area were uneducated. There were no English medium schools till class 10. ~41% of the population had primary education and only 29% of the population had passed high school. There was no degree college in the region. However, within one decade post the development of Sri City, prestigious institutions such as Indian Institute of Information Technology and Institute for Financial Management and Research have opened campuses in the region[76]. The total number of school classrooms have increased form 36 in 2010 to 53 in 2020. Moreover, about 61% of the families in the area are sending their children to schools within the Sri City SEZ limits.
- *Skilling:* Sri City Human Resource Academy was set up to train people in various skills. The trainings were provided across several areas including plumbing, masonry, electrical work, software, tailoring, embroidery driving etc. The trainings helped in enhancing the skills and employability of the people in the area
- *Healthcare:* The development of SEZ has also led to provision of better healthcare facilities in the region. The foundation has set up a modern medical clinic which is managed by SRM Institute of Medical Sciences which provides quality healthcare for people in the region. Moreover, the foundation organizes six medical camps in all the nearby villages annually. It also organizes free dental camps in schools, free eye tests for students, free medical camps in the medical Centre and organize programs for promoting health and hygiene.
- *Infrastructure Development:* The foundation has also undertaken drainage work, street lighting, road development initiatives in the nearby villages. It also ensures free and safe drinking water to all workers within the SEZ and to children in all the local schools. The foundation also plans to lay drinking water pipelines in all the nearby villages.

70 http://www.sricity.in/en/why-sri-city/
71 https://www.thehindubusinessline.com/opinion/sri-city-turning-a-barren-landscape-into-a-thriving-industrial-hub/article23763154.ece
72 https://government.economictimes.indiatimes.com/news/economy/andhra-pradesh-japanese-industrial-township-to-be-developed-within-sricity/76212491
73 Institute of South Asian Studies & National University of Singapore, Special Economic Zones in India (2008)
74 Refer footnote 71
75 Refer footnote 73
76 https://www.thehindu.com/news/cities/Vijayawada/sri-city-transforms-face-of-the-region/article26163122.ece

GIFT City: One of a kind financial services centre in India

Theme: Other Initiatives and Innovation

Overview:

The Gujarat International Finance Tec (GIFT) city located between Gandhinagar and Ahmedabad is home to India's first International Financial Services Centre (IFSC). Spread across 886 acres, GIFT city has been built with state-of-the-art infrastructure including smart infrastructure facilities. *In 2018, GIFT was ranked third in the 'emerging business hubs' category in the Global Financial Centers Index (GFCI)*[77].

International Financial Services Centre:

A multi service SEZ with IFSC status was established within GIFT city. Spread across 261 acres, the GIFT SEZ is divided into a well-defined processing and non-processing zone. *Due to its SEZ status, a salient feature of the GIFT SEZ is that it aims to bring those financial services transactions to India that are currently carried out outside India by overseas financial institutions and overseas branches /subsidiaries of Indian financial institutions*[78].The target business segments for the SEZ include offshore banking, offshore asset management, capital markets, offshore insurance, other ancillary services and IT/ITeS services.

There are 144 operational units within the SEZ employing more than 10,000 employees. The SEZ operates 22 hours a day and generates an average daily turnover of USD 4 billion[79]. The IFSC banking business as on March 2020 was a cumulative of US$ 28 billion and the IFSC insurance business had insured a total sum of US$ 30 billion[80].

In 2019, the International Financial Services Centres Authority Act was passed through which a unified authority for regulating all financial services in the IFSC was created to simplify procedures and enhance EoDB. Prior to this, the insurance, banking and capital markets sectors were regulated by multiple regulators such as Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI) and Insurance and Regulatory Development Authority of India (IRDAI).

The exports from IFSC GIFT SEZ have been steadily increasing over the years. In 2019-20, the exports from IFSC GIFT SEZ amounted to INR 4298 crores exhibiting a CAGR of ~260% between 2015-20. In February 2021, the GIFT SEZ released a new framework for attracting legal services into the SEZ. As per the guideline issued on 10 February 2021, any Indian or foreign incorporated entity can offer legal, compliance and secretarial services[81].

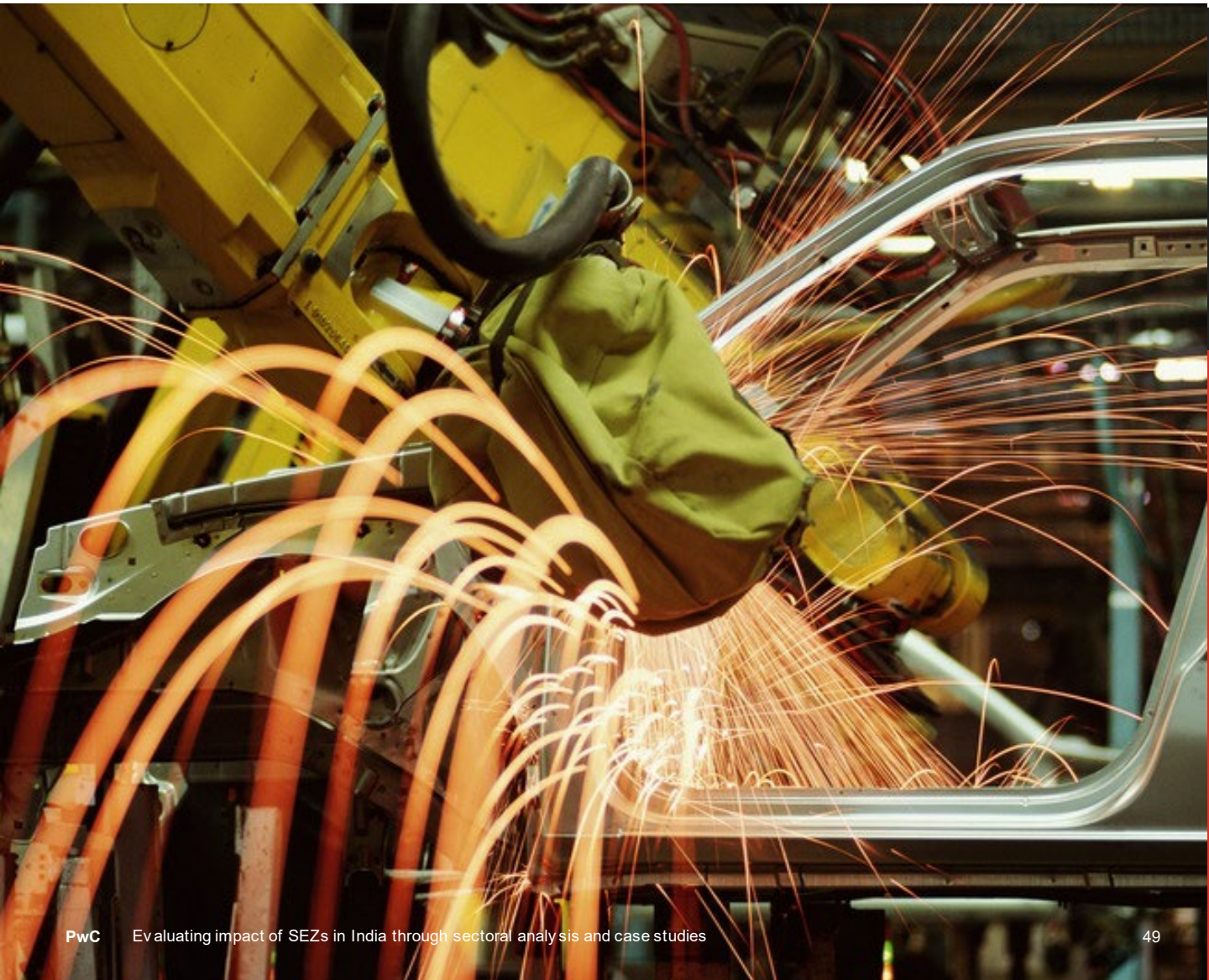
Advantage SEZ:

- **Fiscal incentives and tax benefits:** Fiscal incentives in GIFT SEZ include Tax Holidays (100% deduction from its gross total income from business for a period of 10 consecutive years within 15 years from commencement of operations), Reduced Minimum Alternate Tax (MAT) rate to 9% from standard 15%, Reduced corporate tax rates, 100% tax exemption on distributed income, Concessional rate on capital gains tax, Exemption from Commodities Transaction Tax, Stamp duty exemption for transactions in RSE and depositories established in IFSC, Customs duty exemption for all imports, Exemptions from Central Sales Tax and Central Excise Duty, Exemption from Securities Transaction Tax in case taxable securities transactions are entered by non-residents through IFSC. In the latest budget 2021, the Finance Minister has proposed additional incentives for IFSC units under GIFT SEZ including tax holidays for capital gains for aircraft leasing companies, tax exemption for aircraft lease rentals paid to foreign lessors; tax incentive for relocating foreign funds in the IFSC and tax exemptions for investment divisions of foreign banks located in IFSC.
- **Permissible Activities (currently not carried out in DTA):** Commercial banks are permitted to open offshore banking units within the SEZ, which are deemed as overseas branches. Offshore banking units have the flexibility to trade in foreign currencies in the overseas market, raise funds in foreign currencies as deposits and borrowings from non-residents and can provide liability products and loans to clients.
- **Ease of doing business:** The IFSC Authority has played a significant role in simplifying the regulations and enhancing ease of doing business for units with the GIFT SEZ, enabling efficiencies in the operations of the SEZ units. Ease of doing business has been a primary area of concern for the GIFT SEZ. Even during the pandemic, the SEZ authorities provided approvals to 28 companies through virtual mode. These entities are expected to generate over 2000 jobs[82].

77 https://www.outlookindia.com/newsscroll/gujarats-financial-services-centre-gift-city-makes-global-cut/1382579
78 Nishith Desai Associates, Opportunities in GIFT City (2020)
79 Refer footnote 78
80 http://giftsez.com/
81 https://www.legallyindia.com/lawfirms/gujarat-sez-hints-foreign-entities-can-open-branches-for-legal-work-jsa-did-not-renew-gift-office-during-covid-20210211-11927
82 https://economictimes.indiatimes.com/news/economy/infrastructure/gift-sez-provides-approval-to-28-entities/articleshow/76822108.cms?from=mdr

5

International best practices



International best practises

What are some of the international best practices which have enabled successes of some of the zones?

In previous chapters we saw the impacts of SEZ development in India. Globally SEZs have been effective policy instruments in delivering outcomes such as employment generation, promotion of exports, FDI inflows, regional development, among others. SEZs in East Asia and Middle East countries have been prominently known for their contribution in industrial development, for instance. Given the success of SEZs worldwide, this chapter outlines some of the best practices adopted by international SEZ growth models, among others, China, Dubai, Abu Dhabi and other middle east countries and Philippines. These SEZs are identified based on an analytical framework which comprises several parameters such as characteristic factors, contextual factors, regulatory factors, etc. After selection of SEZs, we have identified some of the key challenges faced by Indian SEZs and mapped the success factors of the shortlisted SEZs to draw learnings for SEZ development in India.

We have adopted a 3-dimensional approach to identify some of the successful SEZs in the world

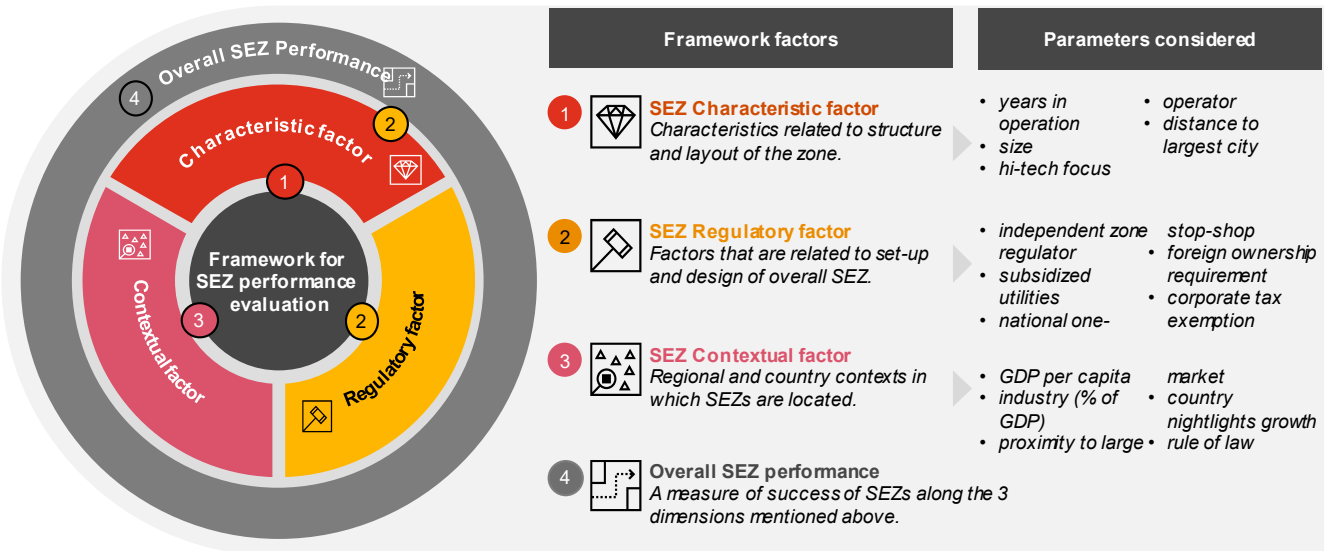
SEZs differ along many dimensions. Factors internal and external to SEZs are likely to affect its ability to entice investors, create employment, and facilitate firm performance and economic growth. The success and failure of an SEZ is highly dependent on what happens both with and outside it. According to the World Bank (WB) study, three factors commonly influence the SEZ performance.87 These factors are, 1) SEZ characteristics, 2) SEZ regulatory factor and 3) SEZ contextual factor (Figure 21).

The first set of factors linked to the SEZ performance comprises characteristics of the zone, i.e., characteristics that are related particularly to structure and layout of the zone. SEZ characteristics are widely linked to the dimension of the zone, the sectors targeted, its location, and services and infrastructure provided within the SEZ. A number of key characteristics such as size of the SEZ, focus for hi-tech industry, nature of operator, among others are taken into account to evaluate the efficacy of zone related factors in SEZ performance.

The second set of factors are related to set-up and design of overall SEZ. The set-up and design include the incentives package, and organizational set-up of the SEZ. Fiscal incentives have been at the core of any SEZ policy, which vary from country to country and zone to zone. These incentives include a mix of exemptions from import duties and various types of taxes such as corporate tax, value added tax, etc. The organizational set-up of the SEZ also has correlated positively with the success of the policies.

Finally, the regional and country contexts in which SEZs are located also matter for the success of the zone. The aim of many SEZ programs is to help overcome the local challenges that companies face. However, SEZs do not operate in a vacuum so are likely to be heavily influenced by the socioeconomic characteristics, market potential, and general business climate of their host countries. The detailed methodology and econometric model has been placed in Annexure III.

Figure 21: Framework to identify some of the top performing SEZs of the world



Source: Special Economic Zones: An Operational Review of Their Impacts. World Bank Group and CIIP.

87 Special Economic Zones: An Operational Review of Their Impacts. World Bank Group and Competitive Industries and Innovation Program.

International best practises

What are some of the international best practices which have enabled successes of some of the zones?

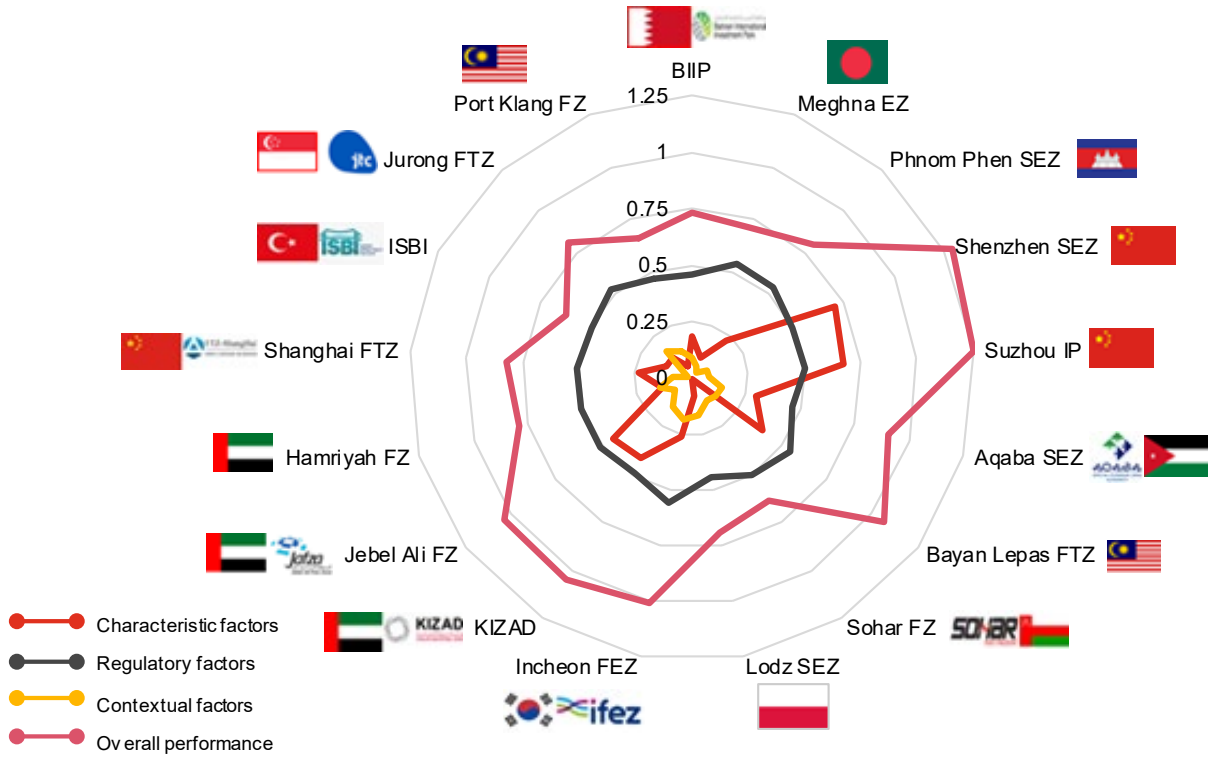
We have identified 8 zones across China, UAE, Malaysia, South Korea, Jordan and Singapore to identify best practices with respect to SEZs

International trade profile and geography serve as a starting point for shortlisting SEZs across the world. We have identified a long list of 17, mostly port based SEZs and free zones across 5 regions, South Asia, Middle East and North America, Eastern and Central Asia, East Asia and Pacific and Sub-Saharan Africa.88 The long list contains SEZs which are amongst the major SEZs in the world in terms of exports and are strategically located to serve the global market.

Apropos the WB study, the long list was refined by analyzing the SEZs along the 3 dimensions, a) characteristic factors, b) regulatory factors and c) contextual factors. This framework enabled us to arrive at a shortlist of 8 SEZs for further analysis (Figure 22).89 The shortlisted SEZs include, Khalifa Industrial Zone Abu Dhabi (KIZAD, UAE), Suzhou Industrial Park (China), Bayan Lepas Free Trade Zone (Malaysia), Jebel Ali Free Zone (JAFZA, UAE), Incheon Free Economic Zone (South Korea), Aqaba Special Economic Zone (Jordan), Jurong Free Trade Zone (JTC, Singapore) and Shanghai Free Trade Zone (China).

To get a closer insight in the results of the analysis, we have identified some of the success trends of the shortlisted SEZs along the 3 dimensions of the analytical framework. For instance, Incheon Free Economic Zone is ranked highest in terms of contextual factors because it is well served by capacious and efficient port and airport facilities with excellent connections to major markets. Regulatory factors are better targeted in Jurong Free Trade Zone and Jebel Ali Free Trade Zone, mainly due to presence of well defined institutional structure along with a facilitating business environment with multiple options for investors. Promoting the development of hi-tech industries through development of equity funds and fiscal packages led to the success of Shenzhen SEZ, resulting in high efficacy across characteristic factors. Attracting anchor investors in the electronics and electrical sector played a critical role in positioning Bayan Lepas Free Trade Zone, as one of the leading hubs for electrical and electronics manufacturing in Malaysia.

Figure 22: Snapshot of Performance of some of the major SEZs around the world



Source: PwC analysis

88 Special Economic Zones: An Operational Review of Their Impacts. World Bank Group and Competitive Industries and Innovation Program.
89 refer to footnote 88.

International best practises

What are some of the international best practices which have enabled successes of some of the zones?

Establishing a well-defined institutional structure with effective one stop shop for SEZ development	• Aqaba SEZ is governed by two authorities- Aqaba SEZ Authority & Aqaba Development Corporation. Clearly defined roles, financial & regulatory autonomy and endowments along with a strong management team enable efficient governance. • JAFZA one stop shop with information provided in English, with minimum red tapes and utmost transparency. Licenses provided in one day. • IEFZ one stop shop provides various services including investment consultation, advice, and approval of business etc.
Attracting anchor investors for ecosystem development and incentivizing hi-tech sectors	• SEZs across the world incentivize anchor investors for ecosystem development: - Bayan Lepas SEZ: aggressive investment promotion to attract 8 electronics MNCs. - KIZAD: 25-50% discount on rentals fees. - DAFZA: one-year rental grace period. - Dubai Internet City: discounted lease rate of 25-40% - ADAFZ: 10-30% discount • Shenzhen SEZ has provided incentives for establishment of hi-tech industries and securities & equity market for hi-tech firms.
Developing SEZs which are in proximity & well connected to major markets & gateways	• Incheon Free Zone has on-site port & airport, proximity to capital, 3-hour flight to 61 mega cities • JAFZA- on-site airport, Dubai Logistics Corridor • Shanghai FTZ-On-site airport and port
Creating a facilitating business environment with multiple options for investors	• JAFZA provides 100% foreign ownership, no restriction on capital repatriation, no currency restrictions, no restrictions on foreign talent, 7 types of licenses offered, several types of company formation types • Sohar Free Zone provides 5-25 years lease length, no currency restrictions, sub-leasing permitted • In Philippines approvals granted in 12-17 days, exit in 15-20 days • In Indonesia temporary license provided in 3 hours
Providing high value services related to quality of life & business services in SEZs	SEZs with Value Added Services: • Recreation Centre & Sports Complex: JAFZA, Dubai Airport Free Zone, JAFZA, Dubai Multi Commodities Centre • MICE: Port Klang Free Zone, Sohar Free Zone, KIZAD, Antalya Free Zone • School- KIZAD, Dubai Multi Commodities Centre, Dubai Internet City, Sohar Free Zone • Talent Services- Dubai Multi Commodities Centre • Green Utilities- Sei Mangkei, Kalundborg Eco-industrial Park in Denmark • Data Centre- Dubai International Financial Centre
Lessons for joint SEZ development for addressing capital & knowledge constraints	China-Singapore Suzhou Industrial Park is one of the most successful cases for joint SEZ development. Lessons for joint SEZ development: • Effective alignment of incentives between key partners: • Active Commitment from Political Leadership • Establishing a strong institutional structure for project governance • Ensuring a strong two-way commitment to learning and knowledge sharing

Source: PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019).

Establishing a well-defined institutional structure with effective one stop shop for SEZ development

Although the single window mechanism has been implemented in SEZs in India, stakeholder consultations reveal that the single window mechanism has not been implemented efficiently. In practice, manufacturers often need to go to other departments for approvals such as DGFT code, environmental clearances etc.

A well-defined institutional structure is critical for enabling the success of SEZs. The Aqaba SEZ (ASEZ) in Jordan provides one such example of an effective institutional structure & single window mechanism. The development and management of ASEZ was assigned to two very strong institutions- the Aqaba Special Economic Zone Authority and the Aqaba Development Corporation[90]. Both the institutions were designed with a clear mandate for SEZ development and with support from the highest authorities and political leadership of Jordan. A clear vision, well-defined organization structure with clear roles enabled effective governance of the zones. A strong legal framework which granted financial & regulatory autonomy and power to these institutions was a critical aspect. In the case of Aqaba Development Corporation, it was also endowed with resources (ownership of land, infrastructure assets) which enabled them to carry out their responsibilities effectively.

The effectiveness of the institutions was also pushed through the recruitment of a strong management team. For example, the Aqaba SEZ Authority in Jordan had its own tax and custom officials, who were better trained than their ministerial counterparts. In addition to an effective institutional mechanism, a well-functioning 'one stop shop' is a critical factor for enabling ease of doing business[91].

One stop shops have been effectively implemented in several SEZs across the world. The Jebel Ali Free Zone (JAFZA) in UAE has successfully created a one stop shop to help investors with all their needs- in English and in a reader friendly manner, removing any information asymmetries. The application procedure was reformed to keep it very simple with minimal red tape and utmost transparency. The procedure is as easy as submitting the online application, selecting the desired product, fee payment and receiving your license and the selected product. The process is as quick as one day for obtaining the licenses[92]. Incheon Free Trade Zone in South Korea also successfully able to simplify administrative processes by providing multiple services including investment consultation, advice, and approval of business—through a one stop shop[93]. The figure on the right lists out some zones where one stop shops have been effectively implemented.

Relevance for Indian SEZs

Institutional framework of BoA and UAC confined to grant approvals for authorized operations only, resulting in inordinate time for seeking approvals[94]

Inefficient implementation of EoDB framework[95]

SEZs with One Stop Shops

Jebel Ali Free Zone	✓
Aqaba SEZ	✓
Abu Dhabi Airport Free Zone	✓
Bahrain Int. Investment Park	✓
Shenzhen SEZ	✓
Incheon Free Economic Zone	✓
Sohar Free Zone	✓
Khalifa Industrial Zone	✓
Jurong Port Free Trade Zone	✓
Shanghai Free Trade Zone	✓
Bayan Lepas	✓
Dubai Airport Free Zone	✓
Istanbul Ataturk Airport Free Zone	✓
Lodz SEZ	✓
Port Klang Free Zone	✓
Antalya Free Zone	✓
Dubai Multi Commodities Centre	✓

90. https://oxfordbusinessgroup.com/overview/growing-coastal-city-continues-attract-investment-forward-momentum
91. https://sbb.gov.tr/wp-content/uploads/2018/11/Special_Economic_Zones_in_the_OIC-Region.pdf
92.https://gulfnews.com/business/get-your-business-licence-in-one-day-at-jebel-ali-free-zone-jafza-say-investors-1.1577177306188#:~:text=Yes!,and%20chairman%20of%20Danube%20Group
93. Korea Institute for International Economic Policy. *Promoting Dynamic and Innovative Growth in Asia: Case of Special Economic Zones & Business Hubs (2016)*
94 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)
95 Stakeholder consultations

Attracting anchor investors for ecosystem development and incentivizing hi-tech sectors

Large volumes of vacant land in SEZs signal an underutilization of the resources allocated for SEZ development. ~23,779 hectares of SEZ land lies vacant in India96. The Baba Kalyani report on SEZs in India recommends ecosystem development for SEZs in India97. Anchor tenants can play a critical role for creating an ecosystem in industrial zones. Anchor tenants are typically large investors who serve as market makers, pulling with them demand for inputs or building inputs into downstream industries. Industrial zones across the world typically offer exceptionally low rental rates and/or other incentives to anchor tenants. For e.g., KIZAD offered a 25-50% discount on rentals for their anchor and mega tenants. Dubai Airport Free Zone offered its anchor tenants a one-year rental grace period. In Dubai Internet City, a discounted lease rate of 25-40% and in ADAFZ a 10-30% discount rate is given for anchor tenants.

In the Bayan Lepas Free Industrial Zone in Malaysia, the government chased investments from eight foreign electronics companies through aggressive investment promotion measures including National Semiconductors, AMD, Intel, Osram, Hewlett Packard, Robert Bosch, Hitachi Semiconductors and Clarion. The presence of these MNC subsidiaries resulted in the emergence of support industries in order to meet the MNCs' requirements: stamped metal components, molding parts, automation equipment, machine tools etc. The expansion of the related industries resulted in the hub and spoke model in the SEZ98.

Incentivising anchor tenants is a successful way to develop an ecosystem for industrial development within SEZs. Additionally, anchor tenants can play a critical role for transitioning into new sectors. For example, to promote Shenzhen SEZ as a hub for hi-tech industries, various incentives are provided for hi-tech industries. These are detailed out in the illustration.

Relevance for Indian SEZs

Absence of investment promotion activities and financial benefits to attract anchor investors[100]

Anchor Tenants in Selected SEZs

Investments from 8 foreign electronics companies known as the "Eight Samurai" created ecosystem for electronics in Bayan Lepas SEZ

Incentives in Shenzhen SEZ to attract Hi-Tech Industries[99]

- 100% income tax deduction for 2 years, 50% for 8 years
- 100% income tax deduction on profits for 3 years
- 50% reimbursement of VAT for high tech projects with foreign investments
- 100% exemption of land use fee, 50% exemption for 5 years for firms updating technology
- 100% property tax exemption for 5 years
- Visa flexibility for forign professionals/students wanting to start technology intensive entities
- Option of payment of registered capital in instalments within 2 years
- Tax holidays & incentives for Venture investment bodies which have an investment ratio of 70% in hi-tech industries

96 https://www.business-standard.com/article/pti-stories/23-779-hectares-of-land-marked-for-sez-development-lying-vacant-prabhu-119021100687_1.html
97 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)
98 Asia & The Pacific Policy Studies, Global Productions Sharing and Local Entrepreneurship in Developing Countries: Evidence from Penang Export Hub, Malaysia (2017)
99 https://www.bycpa.com/html/news/20076/753.html
100 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)

Developing Special Economic Zones which are in proximity/ well connected to major markets and gateways

Good connectivity to gateways and key markets is a critical factor to enable success of SEZs. The Baba Kalyani report on SEZs recommends to increase competitiveness of the zones by enabling link infrastructure by funding high speed multi modal connectivity. The report identifies that various SEZs in India face last mile connectivity issues which result in delayed deliveries and added logistics costs. Poor connectivity issues also result in difficulties for developers in attracting manufacturing units101.

Several SEZs across the world have chosen strategic locations in proximity to gateways which have enabled logistical efficiencies in terms of time and cost savings. Incheon Free Economic Zone (IFEZ) is one such example where the success of the zone has been largely due to its location and connectivity to major markets. IFEZ is situated at the heart of north-east Asia- the world's third largest trading region. It is equipped with both port and airport facilities and is within a 3 hour flight to 61 mega cities with more than 1 million population. It is adjacent to Seoul and is close to several other major economic and financial centers such as Shanghai, Beijing, Tokyo and Hong Kong. One of the USP's used by the IFEZ authorities to market the zone has been "3.5 hours to 1/3rd of the world's population102"

Apart from proximity to port and airport, it was also ensured that good connectivity is maintained within the zone and with neighboring cities such as Seoul. The Incheon bridge (12.3 km) was constructed to reduce the travel time from Songdo city with Yeongjong area from 1 hour to 20 minutes.

JAFZA is another success story for good connectivity. Dubai's location offers a distinct advantage to the JAFZA by providing a significant catchment area, being within a four hour time zone to billions of people. Additionally, the availability of world-class logistics infrastructure including the Jabel Ali port, Dubai Logistics corridor and airport, make JAFZA an attractive destination for investments103.

Many zones across the world have been built at the same site of airport (e.g. Abu Dhabi Airport Free Zone) or port (e.g. Jurong Port FTZ) facilities. The table below shows the gateway proximity of some of the major SEZs globally. The table below we see that several of these zones have an airport/port on site or are near gateways.

Zone		Distance to Port	Distance to Airport
ifez	Incheon Free Economic Zone	On-Site	On-Site
ISBI	Istanbul Ataturk Airport Free Zone - ISBI	19 km	On-Site
	Shanghai FTZ	On-Site	On-Site
DUBAI IRPC FREI Dubai Airport Freezone	Dubai Airport Free Zone	60 Km	On-Site
ADAFZ	Abu Dhabi Airport Free Zone	57 Km	On-Site
Bahrain International Investment Park	Bahrain International Investment Park	7 Km	11 Km
Jurong Port	Jurong Port FTZ	On-Site	40 Km

Relevance for Indian SEZs

Availability and quality of link is not meeting expectations in SEZ[104].

101 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)
102 https://www.npr.org/sections/parallels/2015/10/01/444749534/a-south-korean-city-designed-for-the-future-takes-on-a-life-of-its-own
103 Korea Institute for International Economic Policy. Promoting Dynamic and Innovative Growth in Asia: Case of Special Economic Zones & Business Hubs (2016)
104 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)

Creating a facilitating business environment with multiple options for investors (licensing options, company formation types, products etc.)

A facilitating business environment is a critical factor for enabling the success of an industrial zone. SEZs across the world have implemented a simplified and time bound approval process in SEZs. In Philippines, all SEZs are granted approvals within a period of 12-17 days. The entry processes for units in SEZs are completed in less than 30 days and exit in 15-20 days. Indonesia provides approval mechanism in three hours for setting up business in SEZ by providing a temporary investment license until the formal approval process is completed.

The Jebel Ali Free Zone (JAFZA) in UAE offers several benefits for investors including 100% foreign ownership, 0% corporate tax for 50 years (renewable concession), no restriction on capital repatriation, 0% import & re-import duties, 0% personal income tax, no currency restrictions, no restrictions on foreign talent or employees, ability to mortgage premises and on site customs105. The zone offers around 7 different kinds of licenses for carrying out business activity- Trading License, General Trading License, Service License, Industrial License, National Industrial License, Logistics License and E-commerce License. The process is as quick as one day for obtaining the licenses[106].

JAFZA also allows for several formation types that enable investors to establish their companies as per specific requirements. The various formation types include- Free Zone Establishment, Free Zone Company, Public Listed Company and Branch of Company107. Free zones across the world provide various kinds of services which create a facilitating business environment including innovative lease structuring, options for subleasing, flexibility in renewal/ termination terms, rent free periods etc. The table below illustrates some of these across several special economic zones.

Relevance for Indian SEZs

There are several issues within Indian SEZs which reduce the ease of doing business for investors. Some of these include a restricting lease structure (current practice of 30 year lease period in SEZs), restrictions on subcontracting (SEZ cannot accept sub contracting work from DTA for domestic sales), cumbersome entry-exit processes (time consuming and involves multiple authorities and requirement of several approvals from different authorities- local and state), difficult exit clause (exit subject to penalty in case unit has not achieved positive net foreign exchange) etc.[108]

Terms	Jafza	ADAFZ	ASBAS	SOHAR	AQABA	Jurong Port	KIZAD
Lease Length	20 years	15 years	License Period	5-25 years	5-50 years	30 years	1-3 years (upto 25+)
Renewal Terms	Every 5 years, max 15%	Every 3 years, max 5%	Max 10% hike	Yearly basis	4% inflation rate	Every year, max 5.5%	Up to 5% annually
Termination Terms	6 months notice	-	1 month notice	-	3 month notice	-	6 month notice
Currency	No restriction	-	USD or TRY	No restriction	No restriction	SDG	-
Sub-Leasing	Permitted	-	Permitted	Permitted subject to approval	-	Permitted for long term tenants	-

105 https://jafza.ae/why-jafza/
106 https://jafza.ae/content/files/2020/03/Jafza-Investor-Guide-New-1.2.pdf
107 https://gulfnews.com/business/get-your-business-licence-in-one-day-at-jebel-ali-free-zone-jafza-say-investors 1.1577177306188#:~:text=Yes!,and%20chairman%20of%20Danube%20Group.
108 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)

Providing high value services related to quality of life and business services in Special Economic Zones

To create a facilitating business environment in special economic zones, several zones across the world provide services that help in enhancing ease of doing business, operational efficiencies and improve the quality of life of workers. Commonly provided services in SEZs across the globe include banking facilities, business licensing & registration, courier and postage, customs services, utilities, security services, restaurant & canteen.

For example, several zones within UAE such as Dubai Airport Free Zone, Jebel Ali Free Zone, Dubai Multi Commodities Center, KIZAD, Abu Dhabi Airport Free Zone provide various utilities such as electricity, gas, waste disposal, water, ICT and district cooling. The Bangladesh Economic Zone Authority (BEZA) purchases power from the national grid and sells it to units within the SEZs at subsidized rates than the regular tariffs. Companies are also allowed to produce power inside the zone[109].

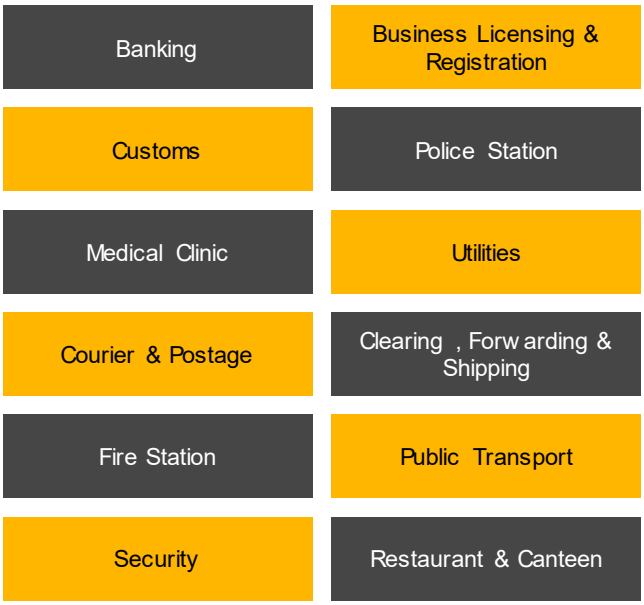
In addition to utilities, several business and administrative services are provided in several zones including banking services, business licensing & registration, security services etc. The commonly provided services in SEZs in several SEZs in middle east (KIZAD, JAFZA, Aqaba, Sohar etc.) and Asia (e.g. Shanghai Free Trade Zone, Port Klang Free Zone etc.) are shown in the figure below.

In addition to the commonly available services provided in SEZs across the globe, some SEZs also provide additional value added services. For example, Dubai Multi Commodities Centre also provides facilities for commercial card, talent services (for direct access to talent pool), an integrated business apps to access services in the zone, MICE facilities, health & spa facilities, vaults and lifestyle facilities including fitness and beauty centres, outdoor galleries and community carnivals. Dubai Silicon Oasis provides several smart solutions and IoT facilities including CCTV, Wi-Fi, news feed and environmental sensors. The figure below details out some of the value added services in SEZs globally.

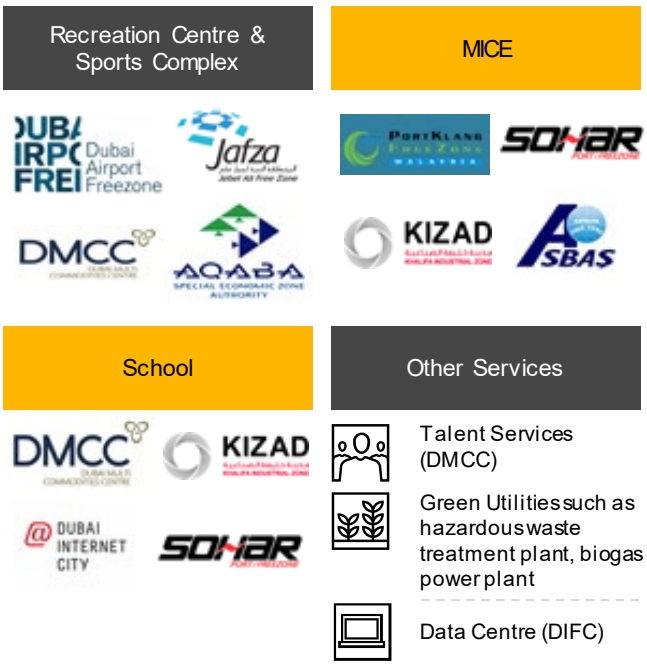
Relevance for Indian SEZs

As per the Baba Kalyani Report on SEZ, internal infrastructure facilities are not meeting the expectations of the SEZ units in many SEZs within India[110].

Commonly Provided Services in SEZs



Value Added Services Provided in SEZs



109 Arpita Mukherjee, SEZ in India: Perception versus Reality (2015)
110 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)

Joint development for Special Economic Zones is an effective way of addressing capital and knowledge constraints

Capital constraints for SEZ development is one of the main issues which results in poor provision of utilities/infrastructure facilities. The Baba Kalyani report recommends infrastructure status to improve access to finance and enable long term borrowing[111].

Another way to address the capital constraint is through joint SEZ development. Joint SEZ development can not only bring investments, but also expertise and experience in SEZ development and management. In the early years of SEZ development, China collaborated with Singapore for the development of Suzhou Industrial Park (SIP). India too can benefit from joint SEZ development to address the capital constraints for SEZ development. Some of the best practices for joint SEZ development are detailed below.

Case Study: China-Singapore Suzhou Industrial Park

SIP was established in 1994 and was the first joint cooperation projects between Governments of China and Singapore. By 2014, SIP had attracted $ 73.7 billion of foreign investment which included 5276 foreign investment projects (including 92 Fortune 500 companies). Exports from the SIP touched $41.9 billion and a total employment of 717,108 jobs was generated by 2014. The per capita income of the residents in SIP rose from $800 in 1994 to $39,000 in 2014, which was almost double than the average per capita income of $20,000 in the surrounding Suzhou municipality[112].

Key Lessons for Joint Park Development

Effective alignment of incentives between key partners: The alignment of incentives between the partners was critical for ensuring that all stakeholders were committed to the development of SIP and that the balance between commercial and political objectives of the development are achieved. From 1994 to 2000, the Singaporean consortium controlled 65% of the CSSD stake and the Chinese consortium held the rest 35%. Singapore not only provided the initial capital for zone development, but also played a critical role in terms of facilitating improved governance and technical know-how, especially since the Chinese officials lacked such expertise at the time. In 2001, equity stake of the two sides was flipped and the management responsibility of the SIP also shifted to the Chinese side. This allowed for the local authorities to take more responsibility in management and operations of the zone which led to improved governance.

Active Commitment from Political Leadership: Both the Chinese and Singaporean governments attributed top level political commitment to ensure the success of the project. The Singaporean government appointed their best officials to spearhead the project and committed resources from several government ministries and agencies for undertaking several critical aspects of the project such as urban planning, community infrastructure, social security and knowledge sharing. The Chinese government also extended complete support to the project. In addition to the administrative support such as implementing 24/7 green lane customs desk for the SEZ, the Chinese government also provided several incentives which made the SIP competitive compared to competing industrial areas.

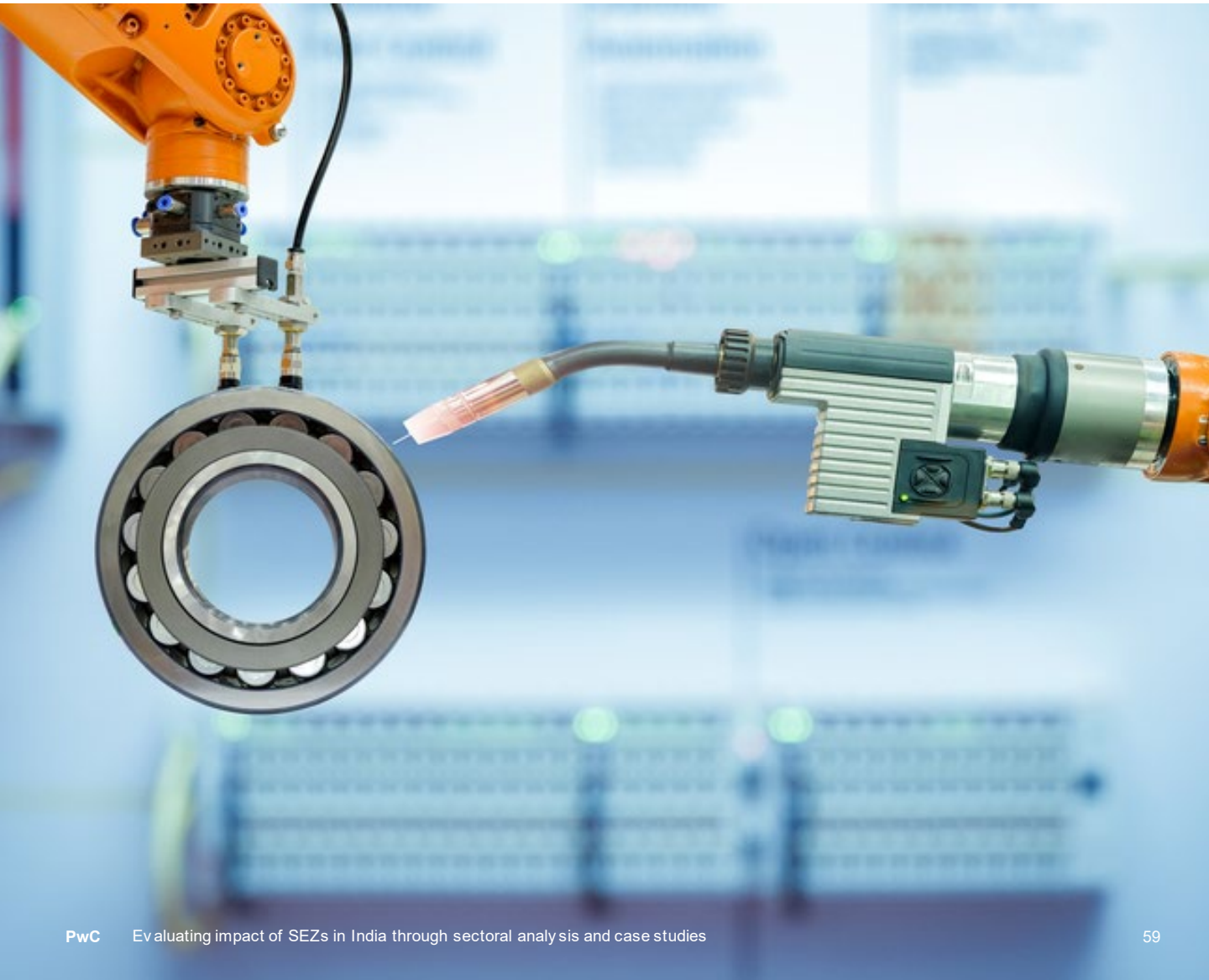
Establishing a strong institutional structure for project governance: A multi-layered governance structure with clearly defined roles and responsibilities for both the sides enabled effective governance and development of SIP. The institutional structure ensured that both sides share cost, risk and returns from the zone development.

Ensuring a strong two-way commitment to learning and knowledge sharing: One of the most critical success factors of the partnership was the focus on knowledge sharing. A formal structure that institutionalized learning was put into place. The formal knowledge-sharing and learning process mainly happened through two ways: (i) transfer of skilled professionals from Singapore to China and (ii) structured trainings which were conducted either in Singapore or China. Singapore committed some of its senior most officials in charge for its "software transfer" program over the years. Between 1994 and 2002, over 120 Singaporean civil servants and managers were rotated in CSSD. Over 20 years since its establishment, more than 2,700 SIP personnel were trained in Singapore through 150 trainings on a range of topics including planning, utilities management etc.[113]

111 PHD Chamber of Commerce and Industry, Baba Kalyani Report on SEZs: An Analysis (2019)
112 World Bank, Building a Competitive City through Innovation and Global Knowledge: The Case of Sino-Singapore Suzhou Industrial Park (2016)
113 World Bank, Special Economic Zones: Progress, Emerging Challenges and Future Directions (2011)

6

Conclusion



Conclusion

Developing SEZs has been one of the key strategies adopted by the Government of India for promoting economic growth and investment in the country. The Government of India announced the SEZ concept and policy in April 2000, as part of EXIM policy. This was followed by a comprehensive legislation, SEZ Act, which came into effect from February 2006. Since then, India has 243 operational SEZs, in addition to 19 existing zones established before the enactment of SEZ Act, 2005. Given that SEZs have the innate benefit of enhancing exports, attracting greater foreign investment and generating employment opportunities in the country. The analysis of direct and indirect economic outcomes of SEZs presented in this report are in line with these objectives.

Objective 1: Export generation and diversification

1 With 35% share in India's exports, SEZs' exports profile largely aligns with that of India with Pharma, Chemicals & Electronics sectors forming the half of it

- There has been a consistent increase in manufacturing exports of SEZs, since the enactment of the SEZ Act in 2005. The share of exports from SEZs in the overall manufacturing exports from India has witnessed a 6-fold increase, starting from 6 percent in FY2006 to 35 percent in FY2020.
- Within the manufacturing sector (excluding petrochemicals and gems & jewelry), Pharmaceuticals, Chemicals and Electronics sectors comprise about 50% of the exports from the manufacturing sectors.
- Also, there seems to be a similarity between the share profile of sectoral exports from SEZs and rest of India. For example, top 5 sectors in terms of exports (Pharmaceutical, Chemicals, Electronics, Metal-based, Engineering goods) from SEZs are also significant for the rest of India.

2 In terms of market presence, SEZs have supported further penetration of Indian exports

- In FY2020, about half of the exports from SEZs went to the markets of the US, China, UAE and Malaysia. These countries also, contribute over 56 percent to the country's export basket.
- SEZs have supported to diversify the exports of India in these countries. For example, in the automotive sector, in large markets such as Germany, Japan, France and Spain, SEZs account for a higher share in exports vis-a-vis the rest of India.

3 SEZs have enabled higher value-addition in some of the sectors which has translated into higher share of 'complex products' in manufacturing output

- In the pharmaceutical sector, out of the total pharmaceutical exports from SEZs, more than 85 percent comprise complex products. Majority of the anchor tenants present in SEZs have been involved in manufacturing of these complex products vis-a-vis the rest of India with minimal imports.
- In the automotive sector, out of the total auto exports from SEZs, more than 94 percent comprise complex auto components and accessories. This has enabled Auto SEZs to successfully collaborate with foreign players to tap into the global supply chain.
- Despite catering to the upstream value chain, SEZs have performed adequately in terms of value addition vis-à-vis the rest of India in electronics sector. This is majorly due to the fact that rest of India largely imports more complex electronics products vis-a-vis SEZs.

Objective 2: Investment promotion tool and attracting FDI

The share of FDI flows going to SEZs witnessed a four-fold increase from FY2006 to FY2020.

4 FDI attracted by SEZs has been more productive as visible through trends in quality of FDI

- Several companies in Indian SEZs have entered in a JV partnership with foreign companies which has resulted in the transfer of knowledge and technology, installation of cutting-edge machines and equipment, among others.
- SEZs in India have created a large number of quality jobs. They have provided several monetary and non-monetary benefits, occupational safety standards, etc.
- Indian SEZs have supported skill development by offering training opportunities to employees for technical and managerial skills.
- FDI inflow in SEZs in India have been impactful for promoting women employment and gender equal employment opportunities. Prominent examples include Salcomp SEZ and Brandix Apparel City SEZ.
- In India, Brandix Apparel City SEZ has developed a sustainability framework across the pillars of Air, Water and Earth and supported it by investment in robust infrastructure

Conclusion

Objective 3: Generating direct and indirect employment opportunities

- SEZs in India have generated around 2.2 million direct jobs and 0.2 - 0.3 million indirect jobs by FY2020.
- The rate of job creation in SEZs (21 percent/ year) has significantly outpaced employment growth in the country as a whole (4 percent per year).

5 **SEZs have also been successful in increasing labour productivity and enhancing workforce participation of female workers**

- Labour productivity in SEZs has averaged over INR 1.5 Crore compared to INR 1 Crore in rest of India. Prominent examples: Pranavam and GMR Aerotechnic.
- Employment ratio of women in SEZs has averaged over 31 percent compared to less than 20 percent in rest of India. Prominent examples: Brandix Apparel City and Aequs Aerospace SEZ.

SEZs' flexible policy and regulatory framework has provided a fertile ground for the SEZs/ tenants within SEZs to flourish

Availability of state-of-the-art infrastructure, easy and cheap imports, fiscal incentives and tax benefits, ease of doing business, superior brand positioning, etc. have enabled some SEZs/ tenants within SEZs (across themes such as technology transfer, hi-tech industry and APIs and also supported the development of adjoining areas by creating ample employment opportunities) become successful. The figure below highlights the case of 12 such SEZs/ tenants within SEZs.

Case Study Subject	SEZ	Theme	Rationale for Case Study	Advantage SEZ
1 Tata Boeing Aerospace Limited	Aerospace SEZ Adibatla	*Transfer of Technology Hi-Tech*	• Boeing's first equity venture in India, TBAL manufactures aero-structures for Boeing's AH-64 Apache helicopter, major step towards co-development of integrated systems in aerospace and defence in India	• **Easy and cheaper imports.** • Cost efficiencies due to **fiscal incentives and tax benefits.** • Being in SEZ helped TABL to **expand its mfg. into a new production line** for commercial airlines segment.
2 Brandix India Apparel City- SEZ	Brandix India Apparel City- SEZ	*Labour reforms Backward area development*	• BIAC facility houses almost the entire value chain for textiles and has created jobs for more than 16,000 women (76%). • Created an enabling environment to sustain it with creche facilities, transportation and educational assistance for children and training programs, etc.	• **Ease of exports.** • Fiscal benefits facilitated cost reductions.
3 Serum Institute of India	Serum Biopharma Park	*Hi-Tech*	• First biotechnology park in India, established with the aim of manufacturing and supplying immuno biologicals, largest manufacturer of vaccinations globally, focus on R&D, • Entered into new partnership with GAVI and BMGF to escalate the production of up to 100 million doses of COVID-19 vaccines	• Easy imports of hi-tech and advanced machinery. • Fiscal incentives and tax benefits **encouraged collaboration between foreign companies**. • **Quick custom clearances and single window mechanism** have resulted in seamless operations.
4 L&T MBDA Missile Systems Limited	Coimbatore SEZ	*Technology Transfer Hi-Tech*	• Manufacturing and supply of advanced missile systems including testing facility & launch systems, JV between Larsen & Toubro and French company MBDA, has resulted in technology transfer including access to proprietary machinery, calibration support, technical trainings etc.	• Easy imports and exports, easy clearance. • **Safe and secure environment**, for extremely sensitive missile manufacturing industry. • Ease of doing business, including a user-friendly online portal for all documentation related to import/ exports.
5 Biocon SEZ	Biocon SEZ	*Hi-Tech API*	• An innovation led biopharmaceutical company that develops biosimilars, API & generics, novel biologics and research services and exports to 126 countries	• Provided **a safe area which is bonded and secure**, and helped the units **maintain standards**. • Fiscal incentives and tax benefits critical in subsidizing the investments • Provided ease of doing business, in terms of single window clearances which helped in quick import and export of products
6 Pranavam Aerospace Pvt. Ltd.	KIADB Aerospace SEZ	*Transfer of Technology Hi-Tech*	• A UK-based company has invested in enabling acquisition of technology and machinery (not available in open market) • Their team of experts is also helping Pranavam's employees learn how to implement the technology.	• **Superior brand position** in SEZ enabled several opportunities for co-investments, joint ventures, partnerships etc. • Right set of incentives and infrastructure, has created **a facilitating ecosystem for forward and backward linkages** of the sector.
7 Divi's Laboratories Pharma SEZ	Divi's Laboratories Pharma SEZ	*Hi-Tech API*	One of the top 2 manufacturers globally for 18 APIs. Several initiatives for social welfare including education, skill dev etc.	• Fiscal incentives and tax benefits enabled them to make **more investments in other areas such as backward area development, sustainable equipment**. • Operational efficiencies due to ease of doing business.
8 GMR Aero Technic	GMR Aerospace SEZ	*Hi-Tech Other Initiatives & Innovation*	GMR is opening a specialized school with programs in aircraft maintenance for reducing skill gap in the country within aviation sector. It has deployed state-of-the-art training equipment's with collaboration with leading foreign companies	• Fiscal incentives and tax benefits facilitated cost reductions. • Ensuring coordination with stakeholder (consolidation of processes and procedures) for consolidation of processes and procedures

Conclusion

Case Study Subject	SEZ	Theme	Rationale for Case Study	Advantage SEZ
9 **CIM Tools Pvt. Ltd.**	KIADB Aerospace SEZ	*Hi-Tech*	Hi-tech manufacturing with industry 4.0 components including IoT & robotics	• Fiscal incentives and tax benefits have also allowed for cost efficiencies and savings for CIM Tools. • Easy and quick imports. • **Ease of transactions between SEZs** (turnaround of materials for treatment between SEZs is quick and easy).
10 **Aequs SEZ (Belgaum)**	Aequs SEZ (Belgaum)	*Backward area development*	SEZ has helped in generation of jobs, women empowerment & land value appreciation in the region	• Easy imports and exports. • Fiscal incentives and tax benefits provided in SEZs helped the group make **additional investments into employee training and skill development** • Presence of dedicated officers has enabled an effective grievance mechanism.
11 **GIFT City**	IFSC, GIFT City	*Other Initiatives & Innovation*	One of a kind financial centre in India. Activities not permitted in rest of India are allowed in the SEZ.	• Allowed commercial banks to **open offshore banking units within SEZ** (currently not carried out in Domestic Tariff Area) • Fiscal incentives and tax benefits facilitated cost reductions • Simplifying the regulations and enhancing EoDB for units with the GIFT SEZ.
12 **Sri City** (Everton Tea, Vermeiren. West Pharma)	Sri City SEZ	*Backward Area Development*	Post SEZ development,85% of people had increased income in surrounding villages, area saw development of industries, education institutes etc.	• Enhanced EoDB and quick clearances have facilitated easy imports and exports, **enabling foreign companies to link their supply chains with units in Sri City**

Indian SEZs' need to draw learnings from successful global economic zones to unlock their true potential and facilitate economic development

From the performance evaluation perspective SEZs in India have performed decently in absolute terms of employment generation, contribution to total exports and investments garnered (both size and quality). However, there are several challenges which have hindered the performance of SEZs in India over the years, to realize their true potential. These challenges vary from process inefficiencies such as lack of single window mechanisms, inefficient institutional framework and; regulatory draw backs such as inefficient implementation of EoDB framework, inflexibility in usage of non-processing area, lack of export benefits on DTA exports by FTWZ units, absence of fiscal and non-fiscal incentives based on employment, investment, technology, value addition and other activities, etc.; and infrastructure bottlenecks such as lack of quality link infrastructure within SEZs to name a few.

The existing SEZ policy framework of India requires consideration of best practices from successful global experiences of economic zone development across economies such as China, UAE, Malaysia, South Korea, Jordan and Singapore, to identify relevant policy measures suiting Indian context. Some of the relevant learnings for Indian SEZs are as follows:

- *Establishing a well-defined institutional structure with effective one stop shop for SEZ development*
- *Attracting anchor investors for ecosystem development and incentivizing hi-tech sectors*
- *Developing SEZs which are in proximity & well connected to major markets & gateways*
- *Creating a facilitating business environment with multiple options for investors*
- *Providing high value services related to quality of life & business services in SEZs*
- *Joint SEZ development for addressing capital & knowledge constraints*

Some of the perspectives of Indian SEZs	Relevant Best Practice	Relevant Case Study
• Institutional framework of BoA and UAC confined to grant approvals for authorized operations only, resulting in inordinate time for seeking approvals • Inefficient implementation of EoDB framework	**Establishing a well-defined institutional structure with effective one stop shop for SEZ development**	Aqaba, BIIP, JAFZA, ADAFZ
• Absence of investment promotion activities to attract anchor investor and other hi-tech sectors • Absence of fiscal and non-fiscal incentives based on employment, investment, technology, value addition and other activities	**Attracting anchor investors for ecosystem development and incentivizing hi-tech sectors**	KIZAD, DAFZ, Shenzhen SEZ, Bayan Lepas

Conclusion

Some of the perspectives of Indian SEZs	Relevant Best Practice	Relevant Case Study
• Availability and quality of transport connectivity is not meeting the need and expectations of SEZ tenants.	**Developing SEZs which are in proximity & well connected to major markets & gateways**	Incheon; Jurong Port FTZ; JAFZA
• Rigid lease structure for developers and tenants	**Creating a facilitating business environment with multiple options for investors**	JAFZA; Antalya FZ; Jurong Port FTZ; Aqaba
• Absence of high value-added support services • Availability and quality of internal infrastructure is not meeting expectations in SEZ • Lack of enablers or facilitation measures to promote green technology and green energy.	**Providing high value services related to quality of life & business services in SEZs**	DIFC; Dubai Multi Comm Centre; Sohar
• Non availability of infrastructure status to some components of SEZs restricts access to concessional option of finance	**Lessons for joint SEZ development for addressing capital & knowledge constraints**	Suzhou Industrial Park

India looks forward to a brighter future of the SEZs given the special impetus on the manufacturing sector and also skill India programs. So as to maintain the momentum created by the SEZs in India, these learnings will help the decision makers with evidence-based policy advice to formulate policy strategies, create enabling infrastructure, organizational set-ups, etc. that could help Indian SEZs to improve their performance and minimize challenges.

7

Annexures

Annexure I

Sector-wise market penetration profile of SEZs and Rest of India.

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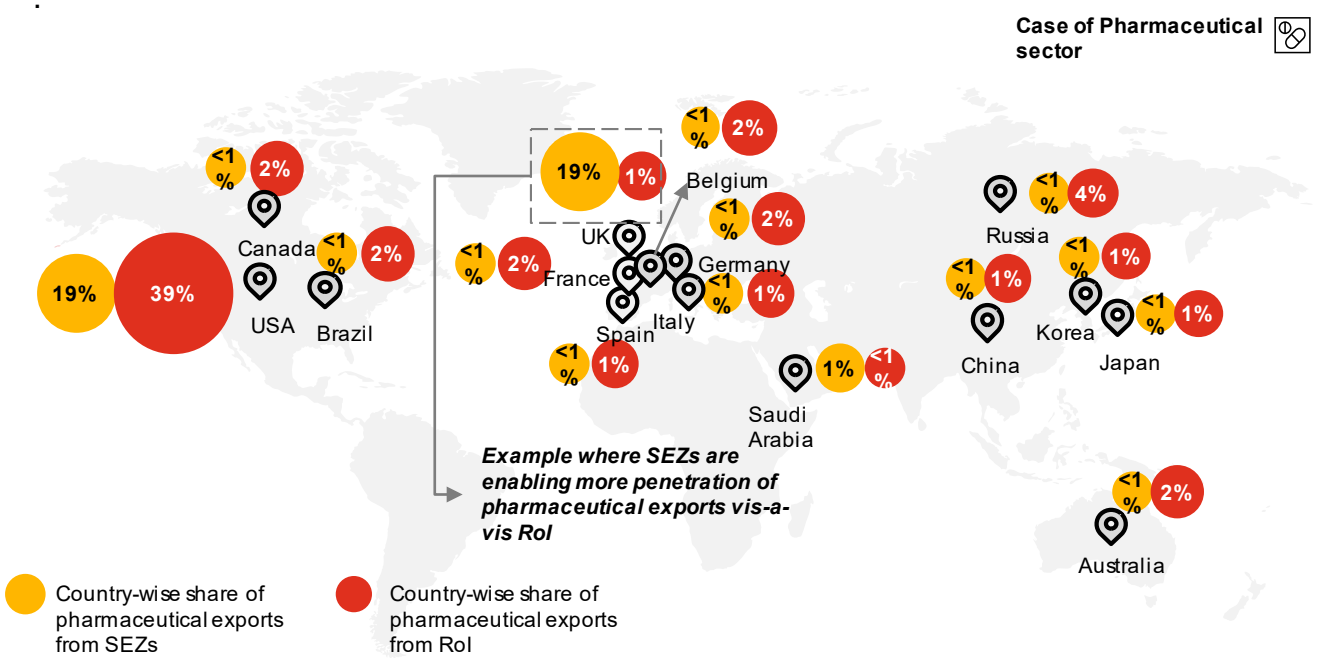
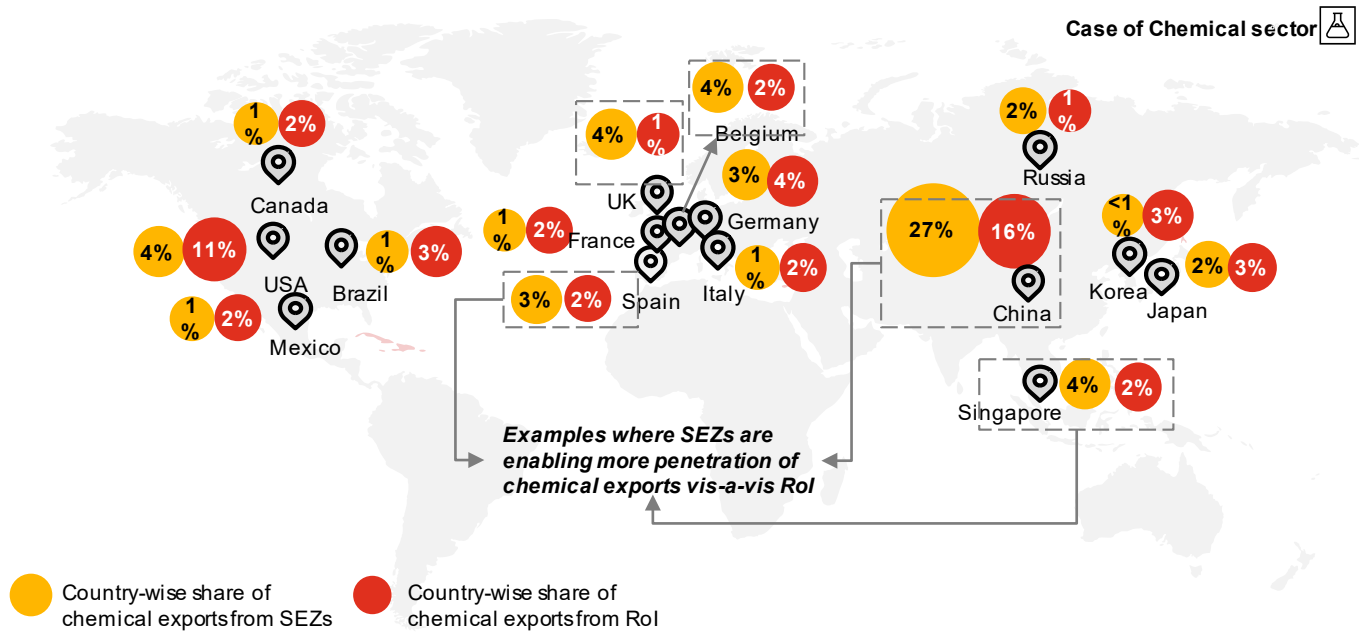


Note: Selected countries comprise 80% share in global imports of pharmaceutical products



Note: Selected countries comprise 80% share in global imports of chemical products

Annexure II

Methodology used to arrive at the list of interviewees.

To identify tenants for the case studies and understand the impact that special economic zones have had in India, we had reached out to the Development Commissioners from all the seven zones. The discussions revolved around the key aspects of SEZ development in each zone, performance of the SEZ in terms of exports, employment and key successes of the SEZ tenants. This was followed with a discussion to identify the best suited case study candidates that could fall in each of the six themes- technology transfer, hi-tech industry, active pharmaceutical ingredients, backward area development, labour reforms and other initiatives and innovation. The Development Commissioners were requested to support us in facilitating meetings with the SEZ tenants wherever necessary.

Subsequently, interactions, both physical (with some of them) and virtual were held with all the identified case study candidates. They were asked regarding their key success defining themes and how being located in a SEZ has impacted them. Based on the theme, the study team discussed with the candidates how technology transfers were enabled within their firm; what kind of hi-tech manufacturing techniques have been adopted by the firm and how did SEZ policy facilitate access to the same; how did SEZs play a role in the growth of the API segment in India, how development of the SEZ led to the transformation of the surrounding local areas; how SEZs have gone beyond employment generation to improve the lives and working conditions for labour; and how have SEZs enabled other initiatives and innovation by providing a facilitating economic and regulatory environment. The above information was further supplemented with some of the secondary research to document the case study.

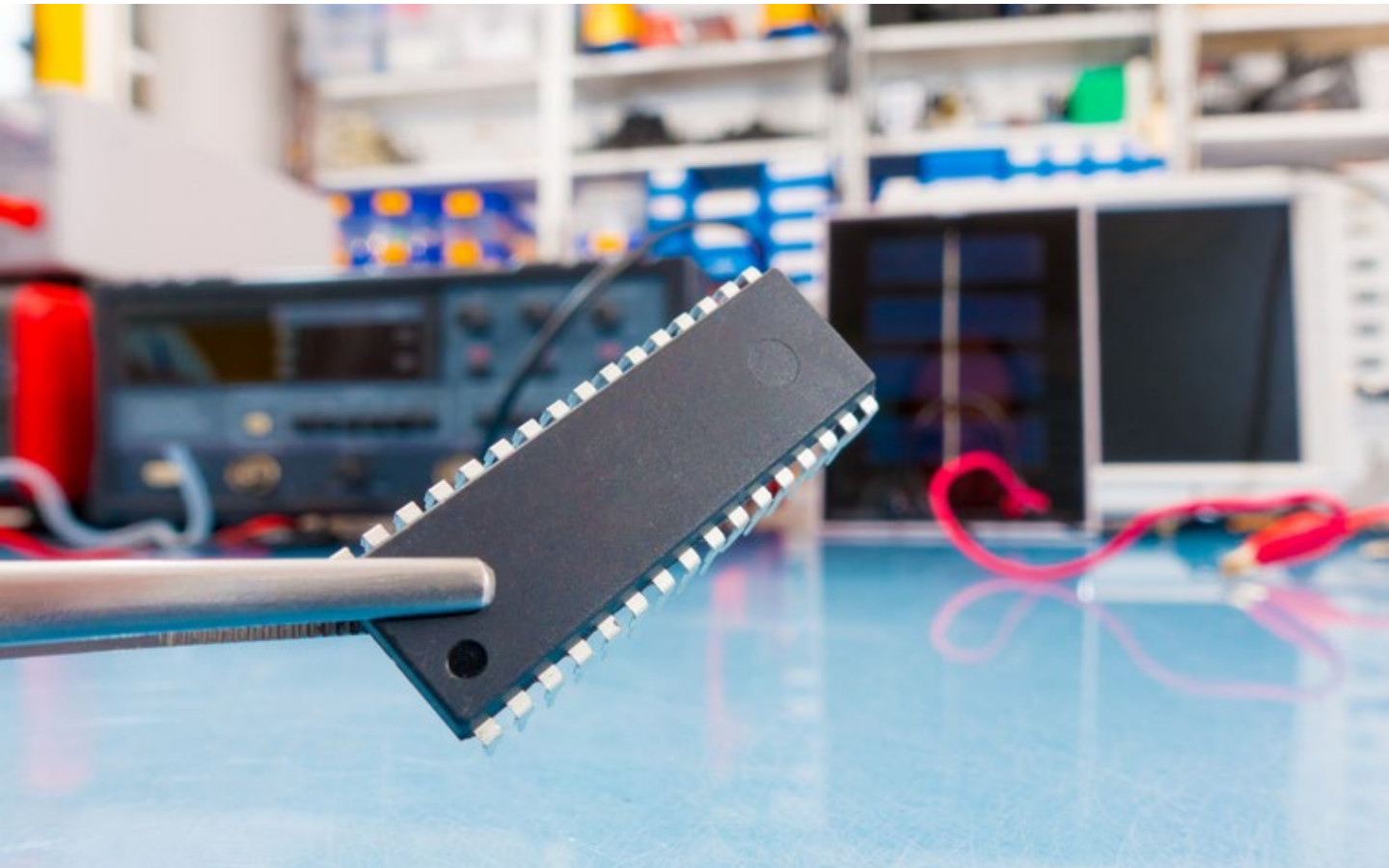
Annexure III

To assess the SEZ performance the following econometric model has been used.

$$\Delta y_{i,t} = \alpha_1 + \beta_1 SEZ\ related\ factors_{i,t0} + \beta_2\ SEZ\ \text{program factors}_{i,t0} + \beta_3 Country/regional\ level\ endowments_{i,t0} + \beta_4\ Structural\ nightlights\ controls + \epsilon_i$$

Where,

- Yit is the dependent variable, a measure of the success of an individual SEZ (i) at time t, using changes in nightlights intensity for the surface of the SEZ (sum of light intensity of all cells in the surface) during the period of analysis as a proxy;
- SEZ-related factors: Characterizing the dimension of the zone, location, types of sectors targeted, and services provided within the zones. These are zone-specific variables;
- SEZ regulatory variables: Linked to the incentives offered, requirements imposed, and organizational set-up of the program. These variables are either national level, or SEZ specific where multiple SEZ programs could exist within a country;
- Country/region-level endowments: Reflecting economic, social, political, and institutional factors at the country and region levels that may impact SEZ performance as well as proximity to markets;
- Structural nightlights controls: Controlling for potential nightlights "overflow" from neighboring areas into the SEZ to reduce the luminosity captured by the authors' SEZ performance proxy that is driven by "outside" activities," that is, activities taking place outside the physical boundaries of the SEZ.
- Ɛi is the robust standard error clustered at the within country/region level.



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