



**6<sup>th</sup> Petrochemical Conclave**

# Development of Petrochemical Clusters in India – Success Factors & Agenda

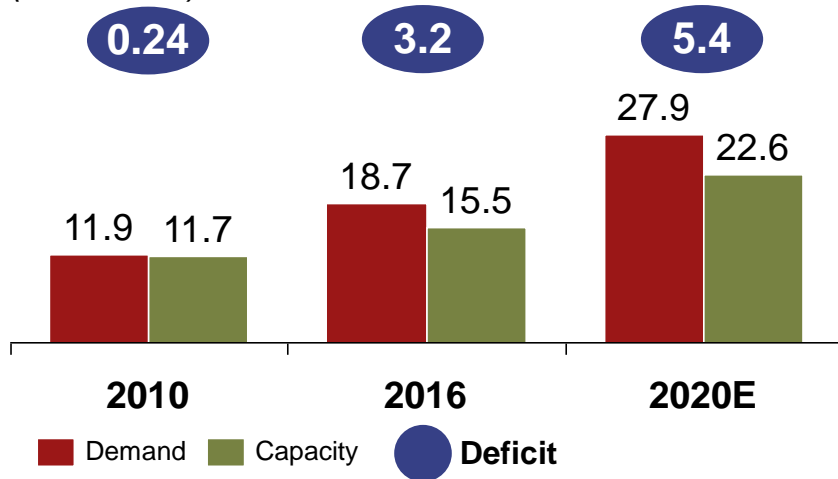
July, 2017

**Anshuman Maheshwary**  
Partner & Lead, Chemicals and Oil & Gas  
India

# Petrochemical industry in India provides significant opportunities – though challenges persist

## Growing deficit provides tremendous opportunity for domestic petrochemical sector

Petrochemicals<sup>1</sup> supply demand in India (in MM MT)



## However, several challenges are impeding rapid growth

- 1 High feedstock prices compared to global peers
- 2 Logistics and infrastructure challenges
- 3 Under developed downstream sector (*intermediates, specialties*)
- 4 Regulatory and policy issues (*e.g. inverted duty structures*)

**Indian petrochemical industry has seen asymmetric growth of industry in regions with feedstock and/or infrastructure capabilities**

1. Includes major derivatives of Ethylene, Propylene, Aromatics and Butadiene  
Source: A.T. Kearney, Nexant

To spur manufacturing in India PCPIRs were conceptualized - several factors have impeded the implementation

### Concept and implementation of PCPIR policy

#### Salient features of PCPIR

##### Feedstock accessibility

- Refinery / feedstock company as anchor investor

##### Best in class infrastructure

- Rail, road, airport connectivity
- Utilities and other services

##### Chemical cluster

- Value chain coverage
- Ancillary and support sectors



#### However, several challenges are impeding rapid growth

1

**Lack of investment**  
(investors concern about financial risk)

2

**Infrastructure bottlenecks**  
(e.g. power/water in Vizag)

3

**Land acquisition and related regulatory issues**  
(e.g., land in Dahej; single window)

4

**Limited planning and focus**  
(e.g., limited pre-feasibility studies)

Multiple examples of large chemical/petrochemical hubs exist globally

## Select examples of successful chemical hubs

1

Rotterdam,  
Europe

- **120+ integrated companies** including 5 refineries and 45 chemical companies; **35% of European cracker capacity**
- Efficient **inland and international transport** via pipelines, rail, barge, road and sea

2

Jurong  
Island,  
Singapore

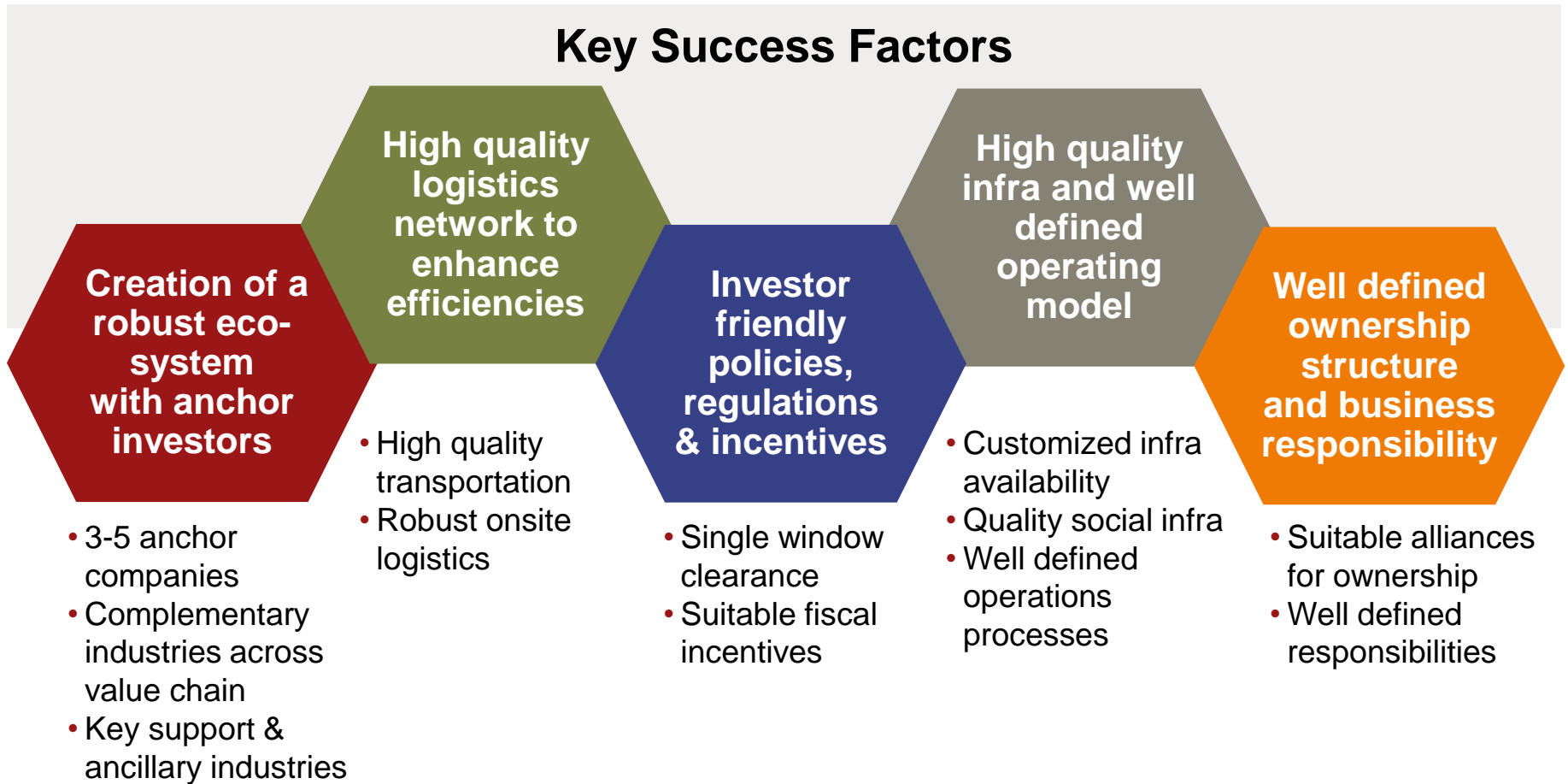
- **95+ leading petroleum, chemical** and supporting companies with investments exceeding **\$20 bn.**
- Significant **scale despite no natural source of oil & gas** - Yearly output of **\$85+ bn.**

2

Fujian,  
China

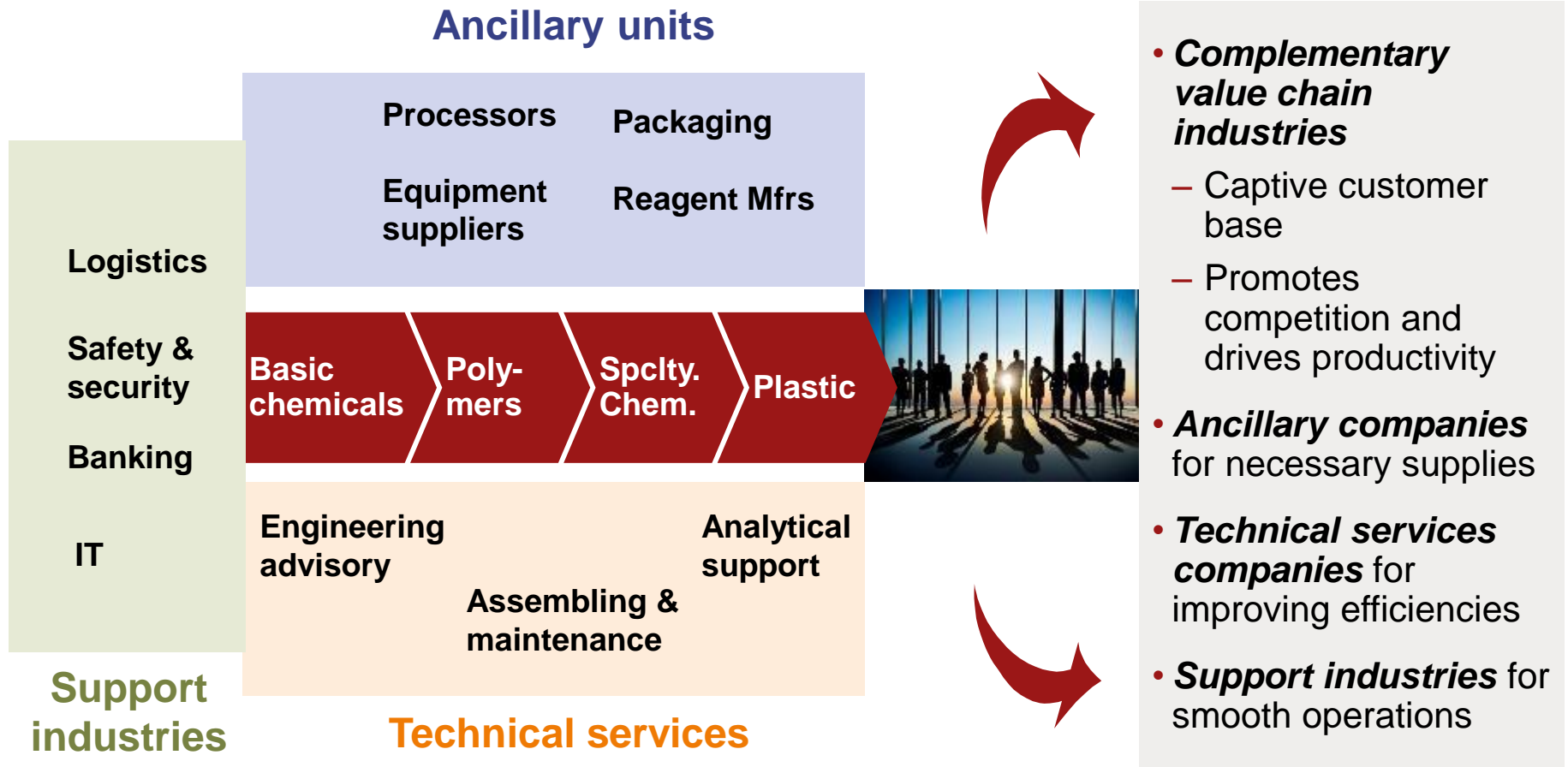
- Over **\$30 bn. in yearly production output**
- **Excellent port network, advanced inter provincial rail system and highway network**

# Five key factors are essential to drive success of a petrochemical hub



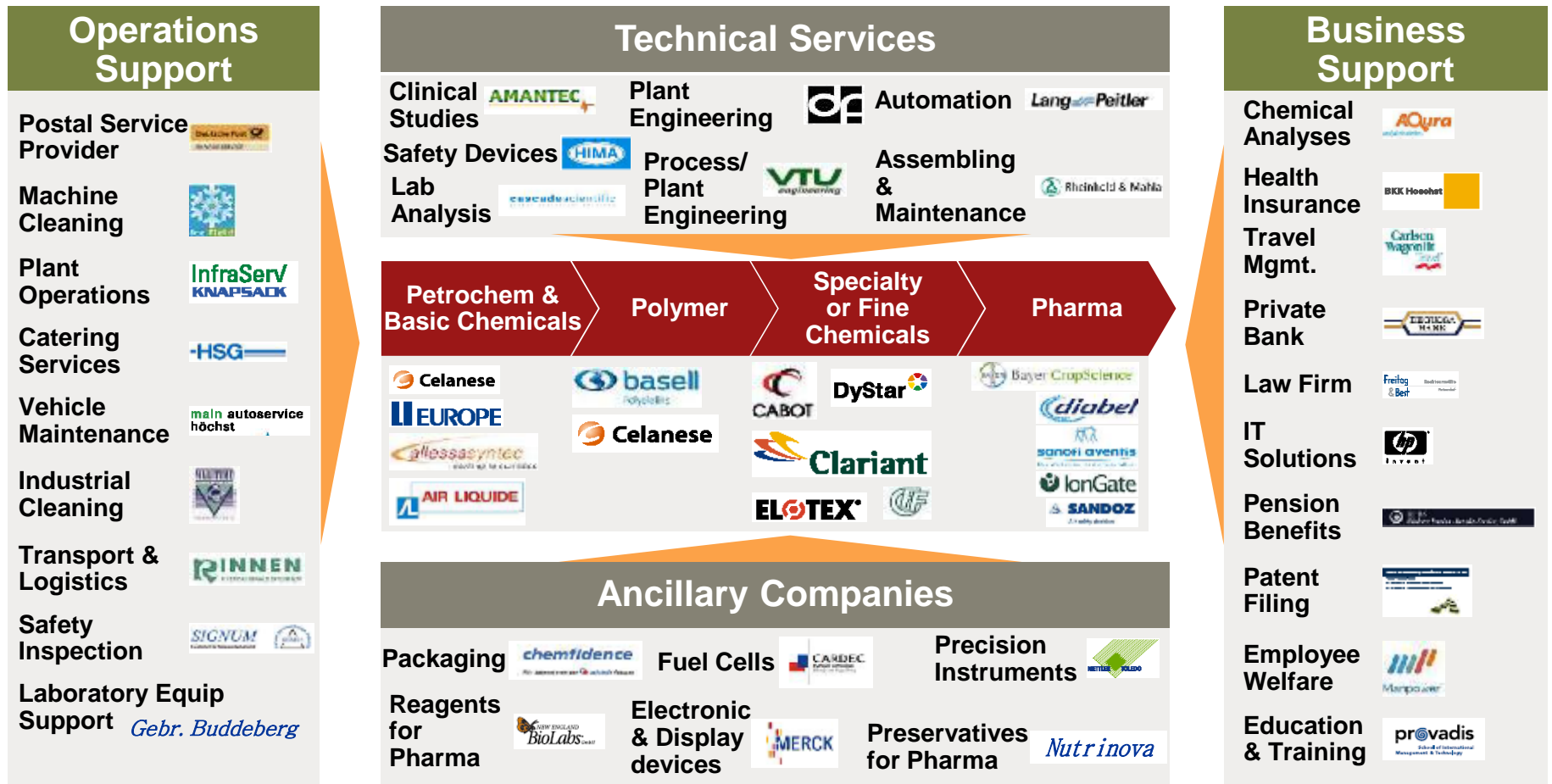
**1** A robust eco-system with anchor investors & complimentary industries is key for an efficient petrochemical hub

**Schematic representation of an eco-system**



# 1 Frankfurt Hoechst provides a robust ecosystem – *integrated chemical chain, ancillary and support industries*

## Case Example – Frankfurt Hoechst Chemical Hub Ecosystem



**1** Most successful hubs have been “anchored” by few large investors who are typically leaders in their respective fields

**Case Example – Shanghai Chemical Industrial Park (SCIP)**

Wave 1	
Anchor Investments	
Investor	Project
SECCO (JV of BP with SPC and SINOPEC)	Ethylene cracker
Bayer	Integrated chemicals
BASF (JV with Hunstman, GPCC, SHYG)	MDI / TDI
BASF	PTHF
Lucite	MMA

Wave 2	
Follow-up Investments	
Investor	Project
GPCC	Phenol and Acetone
Shanghai based companies	Caustic soda and PVC
Degussa	Organic Peroxide
Lambertti	Fine Chemicals
Mitsubishi Gas	Hydrogen
Bayer	Polyurethene
Shanghai Mitsui	Bisphenol





- **BP, Bayer, BASF as anchor investors** – investing over \$7 bn in first stage
- **Support industry & infra investments** (~\$1.5 Bn)
- Anchor investors further attracted **subsequent investments in wave 2**
  - Degussa
  - Another 5-6 domestic & international players



## 2 A high quality logistics network is critical for smooth inward and outward movement

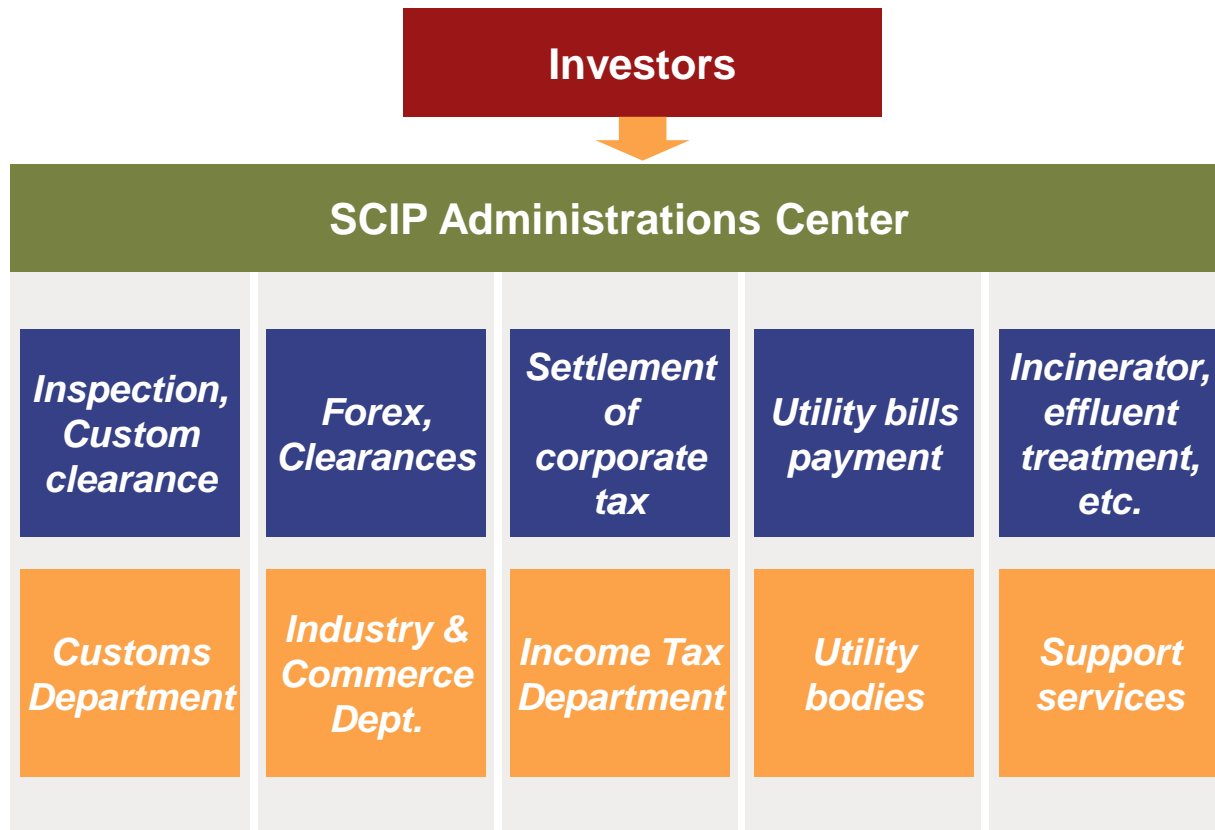
### Case Example – Land-locked Frankfurt-Hoechst hub

#### Frankfurt – Hoechst Hub

<b>Tri Model gateway</b>		<ul style="list-style-type: none"><li>• Optimally combines rail, road and inland water transport</li></ul>
<b>Excellent cargo handling</b>		<ul style="list-style-type: none"><li>• Capability to handle 40,000 TEUs per year</li><li>• Houses 3 gantry cranes (40 MT each)</li></ul>
<b>Loading facility for trucks and trains</b>		<ul style="list-style-type: none"><li>• Loading facilities for trucks and a total of 6 tracks &amp; siding capacity of 230 TEUs</li></ul>
<b>Storage and ware-housing</b>		<ul style="list-style-type: none"><li>• Provides ~280 locations each for hazmat and empty containers</li></ul>

**3** Investor friendly processes are critical – e.g. ‘single window’ access for all procedural requirements

**Case Example – Shanghai Chemical Industrial Park (SCIP)**



- **Administration center within park for single window clearances**
  - Authorized by Shanghai municipal committee
  - Liaisons with government, public bodies for clearances
  - Collects income taxes on behalf of govt.
  - Acts as a one stop shop for all payments related to utilities and support services

### 3 Most successful hubs provide strong fiscal and other incentives to attract investments

#### Case Examples

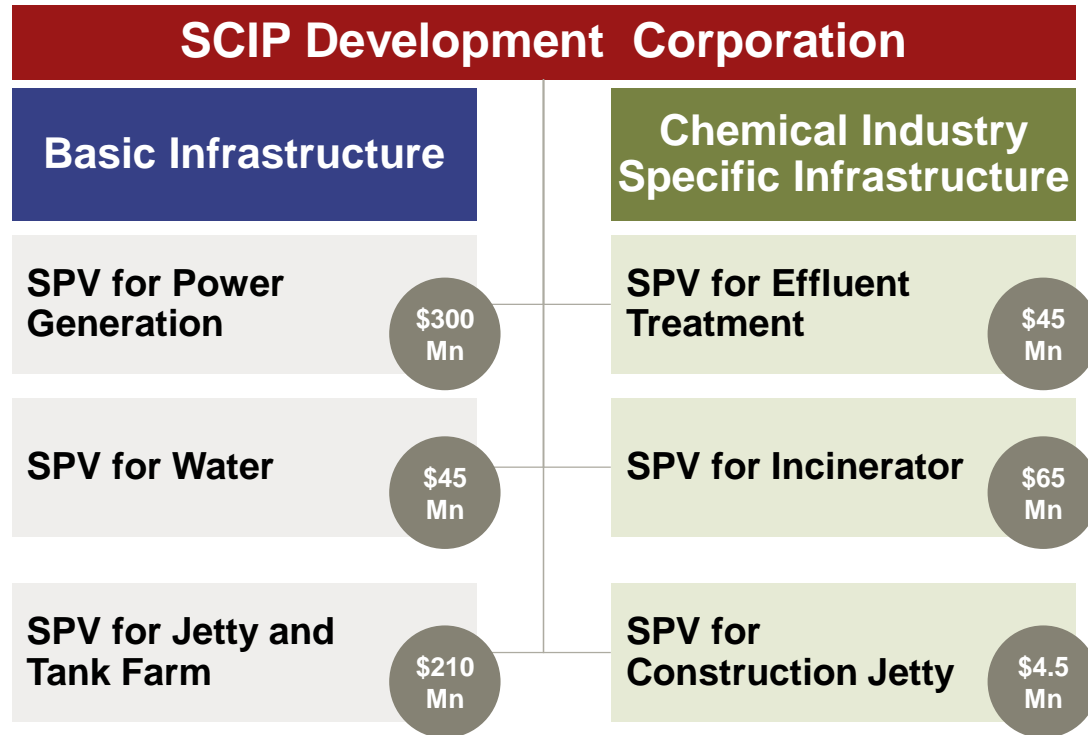
	Shanghai chemical park	Kabinburi industrial park	Bayport industrial complex
Corporate tax exemptions	<ul style="list-style-type: none"> <li>• <b>2 year tax holiday</b> beginning first profit making year</li> <li>• <b>Low corporate tax rates</b> of 14% for overseas companies</li> </ul>	<ul style="list-style-type: none"> <li>• <b>8 year corporate tax exemption</b> followed by 50% exemption for next 5 years</li> </ul>	<ul style="list-style-type: none"> <li>• N/A</li> </ul>
Duty allowances & other deductions	<ul style="list-style-type: none"> <li>• <b>Import duty exemption</b> for foreign invested companies on technologies and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• <b>75% reduction of import duty and tax on RM</b></li> <li>• Higher tax deductions</li> <li>• No export obligation</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Lower ad valorem taxes</b></li> <li>• Up to 100% property tax abatements</li> </ul>
Other incentives	<ul style="list-style-type: none"> <li>• <b>Dividends exempted</b> from withholding taxes</li> <li>• <b>Discounted interest rates</b> on debt</li> </ul>	<ul style="list-style-type: none"> <li>• <b>100% foreign ownership</b> allowed</li> <li>• <b>Remittance of foreign currency</b> allowed</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Financial grants</b> for projects in areas of emission reductions</li> </ul>

# 4 Infrastructural facilities provided through alliances & partnerships can be a strong incentive

## Case Example – Shanghai Chemical Industrial Park (SCIP)

### Key Highlights

- \$1bn+ investment in **basic and chemical industry specific infrastructures**
- **JVs / SPVs for infrastructural development** in collaboration with foreign partners
- Two separate companies for **road corridor and pipe rack development**



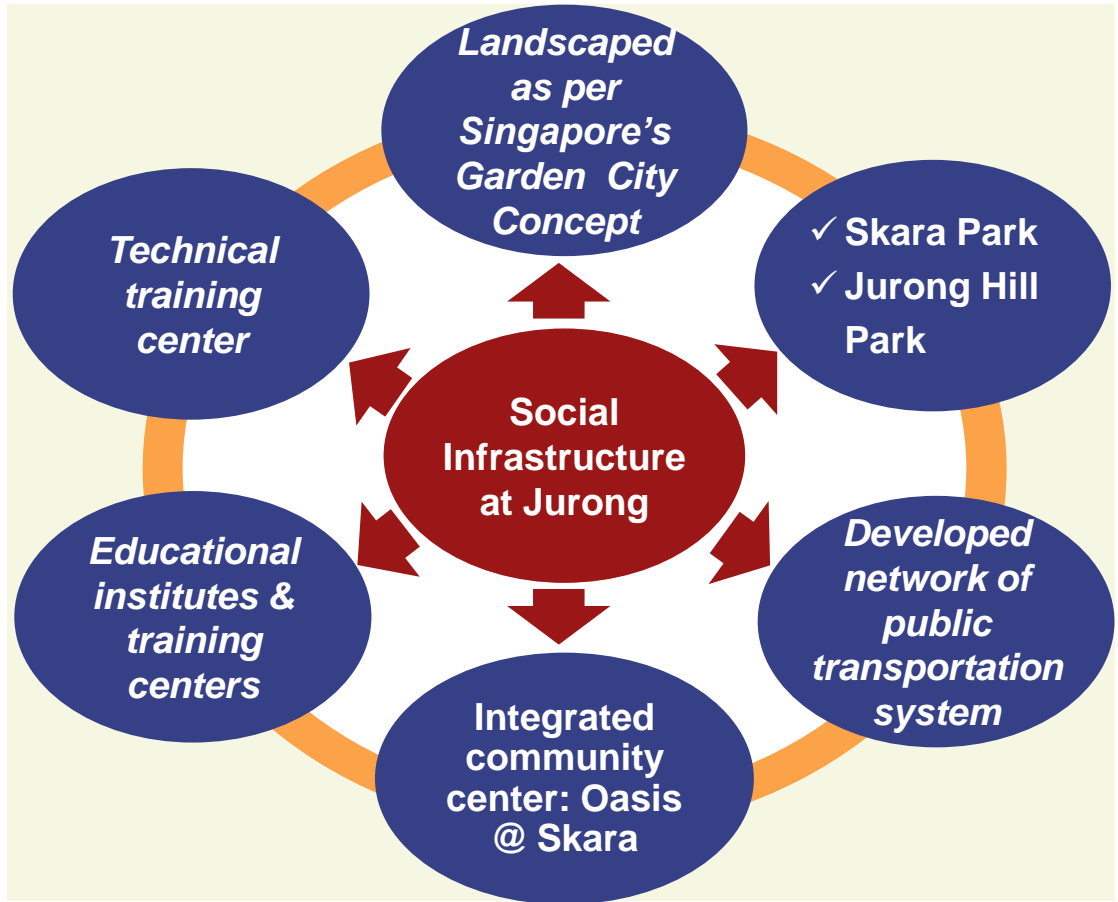
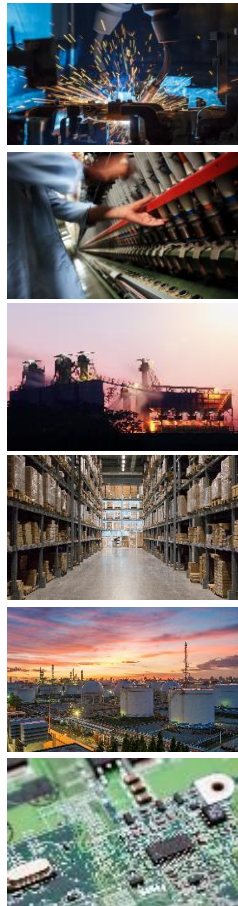
**Comprehensive infrastructural facilities are operated by individual SPVs created as JVs between SCIPDC and foreign collaborators**

1. SCIPDC : Shanghai Chemical Industry Park Development Company; 2. SCIPIC : Shanghai Chemical Industry Park Investment  
 Source: A.T. Kearney

**4** A well nurtured social infrastructure at Jurong Islands enables easy access and retention of skilled employees

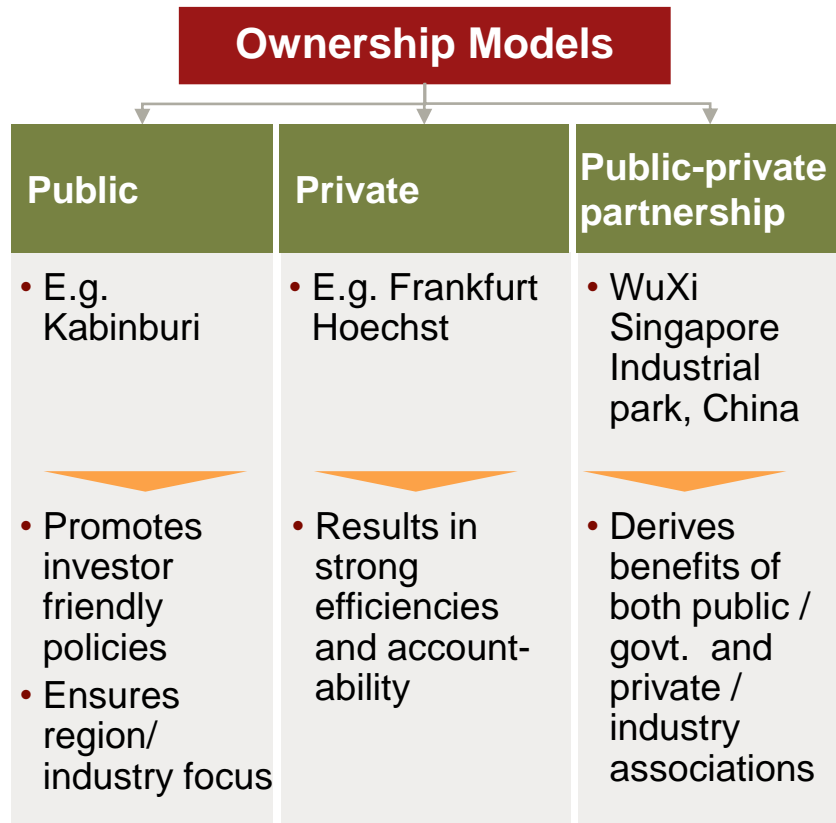
**Key Highlights**

- **High rise housing blocks** as well as leisure spaces
- Facilities built with **open space and green facilities**
- Provided for **educational institutes and medical facilities**



# 5 Suitable ownership model can become a key facilitator

## Ownership model options



## Different types of promoters / owners

- ### 1 Petrochemical / Chemical Co's

**Drivers**

  - Assured product off-take
  - Opportunity to develop downstream capabilities via JV
- ### 2 Govt. Industrial Promotion Bodies

**Drivers**

  - Promote industrial, economic and social developments
- ### 3 Infrastructure Development Co's

**Drivers**

  - Financial gains as hub developer and captive activities
- ### 4 Financial Institutions

**Drivers**

  - Pure financial gains through equity participation

## 5-prong action agenda is required to bring the hubs to fruition

**1**

***Develop comprehensive roadmap*** for ‘showcase hub’ – in line with global benchmarks

**2**

***Provide fiscal incentives*** to ensure competitive business case for investment

**3**

***Build core infrastructure*** such as multi modal logistics linkage, utilities, other services via suitable SPVs to improve attractiveness for investors

**4**

***Establish investor friendly processes*** such as ‘single window’ access for all procedural requirements and policy support for land acquisition

**5**

***Establish a dedicated steering team*** with center and state government, and industry representation to bring implementation focus

**Critically, the above agenda needs to be executed in a time-bound manner**

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