

A photograph of an industrial refinery or chemical plant at sunset. The scene is dominated by a complex network of pipes, towers, and structural steel. The lighting is a warm, golden orange, creating a strong silhouette effect on the structures. In the foreground, several large, horizontal pipes are visible, some wrapped in insulation. The background shows more industrial buildings and towers against a clear, orange sky.

Draft National Capital Goods Policy of India

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PREAMBLE

- P.1. India is currently the third largest economy of the world with respect to Gross Domestic Product (GDP) on Purchasing Power Parity (PPP) basis. India's growth has been fueled by the services sector, which contributes ~53% of the Gross Value Added (GVA). Manufacturing, on the other hand, contributes only 17%¹ of India's GVA. India's manufacturing value added is less than a tenth compared to that of China and India's share of global manufacturing value added is ~2%. In other countries such as South Korea and Germany, contribution of manufacturing value added currently ranges between 20-30%. A strong manufacturing sector is critical to sustained growth of the economy as it generates employment potential - exploiting India's 'demographic dividend' and builds strategic self-reliance in key industries thereby promoting a favorable trade balance. Recognizing this, the Government of India announced the '*National Manufacturing Policy*' in 2011 with the vision to increase the share of manufacturing in Gross Value Added (GVA) to 25% and create 100 million jobs.
- P.2. The Capital Goods industry is one of the key contributors to value added manufacturing and is significant for overall economic development of India. The Prime Minister's Group constituted under the Chairman of the National Manufacturing Competitiveness Council (NMCC) identified Capital Goods as one of the strategic sectors for strengthening national capabilities in the long-term.

¹ World Bank national accounts data, and OECD National Accounts data files, 2014 data. Manufacturing refers to industries belonging to ISIC divisions 15-37. Value added is the net output of a sector after adding up all outputs and subtracting intermediate inputs.

- P.3. Capital goods consist of plant machinery, equipment and accessories required, either directly or indirectly, for manufacture or production of goods or for rendering services, including those required for replacement, modernization, technological upgradation and expansion of manufacturing facilities.
- P.4. Capital goods sector is a key contributor to manufacturing; currently contributing ~12% which translates to ~2% of GDP. Importantly, the sector has a significant multiplier effect on overall economic growth as it provides the foundational building blocks for a large number of user industries by providing critical inputs, that is, machinery and equipment, necessary for manufacturing. Further, the development of domestic capabilities in capital goods sector is essential to ensure national self reliance, as the sector directly or indirectly influences core infrastructure development within India. Moreover, a globally competitive and dynamic capital goods sector will induce the same characteristics into Indian manufacturing.
- P.5. Capital Goods sector is also a major employment driver, with ~15,00,000 people employed across various sub-sectors. It also indirectly creates employment for a large number of people in a variety of user industries. A strong capital goods sector has the potential to generate significant employment opportunities across a variety of sub-sectors and user industries.
- P.6. The sector can also play an important role in improving India's trade balance. India currently has an overall trade deficit of US\$ 138 Bn (2014-15)² and has large negative trade balance with countries including China, Saudi Arabia, Switzerland, Iraq and Iran. The Capital Goods sector imports are substantial at ~US\$20 Bn. An increase in high value capital goods exports and reduction of imports can play a pivotal role in improving India's trade balance with such countries and reducing the country's current account deficit.

² Export Import Databank, Ministry of Commerce and Industry

P.7. However, in recent years, production of capital goods sector has not grown fast enough. The Planning Commission targeted a growth rate of 16.8% p.a. for production of capital goods during the 12th Five Year Plan period, but the actual growth rate in the sector over the last 3 years is only 0.3% p.a. Coupled with increased imports, this presents a threat to India's self-reliance. Further, in a globalised world, where manufacturers are increasingly multinational, not all Indian capital goods manufacturers have been able to effectively tap the global opportunity. India's share of global capital goods exports remains much lower than several other leading countries, despite a well developed domestic capital goods sector. The sector still faces a variety of issues and challenges (detailed in subsequent sections) which are inhibiting growth. Achieving high growth would need focused collective efforts by all concerned stakeholders – government, industry, end user segments alike; supported by an enabling policy for the capital goods industry.

P.8. The growth and development of capital goods is critical for India to achieve the vision of "Make in India" by increasing share of manufacturing to 25% of Gross Value Added. This in turn will help generate additional jobs, improve India's trade balance and increase domestic self-reliance. The National Policy on Capital Goods is envisaged to unlock the potential of this promising sector and establish India as a global manufacturing powerhouse.

CHAPTER 1: ASSESSMENT OF CURRENT STATE OF INDIAN CAPITAL GOODS INDUSTRY

1.1 **Capital goods is a large sector but growth is lagging:** Capital goods is a large sector with a market size of ~ INR 283,000 Cr and total production of ~INR 220,000 Cr in 2014–15. However, the growth of the sector has been lagging, with domestic market size de-growing at 4.1% per annum and total production increasing by only 0.3% per annum over the last 3 years respectively. Capital goods can be divided into ten broad sub-sectors as shown in Table 1.1a and Table 1.1b below. Heavy electrical and power plant equipment is the largest sub-sector followed by process plant equipment and earthmoving and mining machinery.

Table 1.1a: Capital Goods Market Size³ (Rs. Cr)

Sub-sector	Market size (2014-15)	5 yr CAGR (%)	3 yr CAGR (%)
Machine Tools	13,429	7.2%	-5.8%
Textile Machinery	16,488	9.9%	5.9%
Earthmoving & Mining Machinery	21,671	0.4%	-7.1%
Heavy Electrical Equipment	150,350	7.6%	-7.3%
Plastic Machinery	2,658	5.5%	-5.9%
Process Plant equipment	24,149	12.3%	-0.2%
Dies, Moulds & Press Tools	15,100	5.2%	-0.3%
Printing Machinery	18,057	51.8%	15.1%
Metallurgical Machinery	2,749	-6.3%	-12.4%
Food Processing machinery	15,600	5.0%	4.4%
Total	280,251	8.0%	-4.1%

³Department of Heavy Industry data for all sub-sectors except food processing; AFTPAI data for food processing industry, 2014-15 and growth data

Table 1.1b: Capital Goods Total Production⁴ (Rs. Cr)

Sub-sector	Total production (2014-15)	5 yr CAGR (%)	3 yr CAGR (%)
Machine Tools	4,230	5.4%	-0.5%
Textile Machinery	6,960	10.4%	9.6%
Earthmoving & Mining Machinery	17,000	0.6%	-1.9%
Heavy Electrical Equipment	129,782	6.8%	-1.5%
Plastic Machinery	1,976	5.4%	-1.4%
Process Plant equipment	18,900	3.4%	-1.6%
Dies, Moulds & Press Tools	14,647	5.7%	3.0%
Printing Machinery	13,740	18.5%	17.6%
Metallurgical Machinery	1,260	5.0%	-1.0%
Food Processing machinery	12,180	6.2%	5.4%
Total	220,675	7.2%	0.3%

- 1.2 **Growing exports, but significantly sub-scale global share:** The capital goods sector contributed ~Rs. 62,500 Cr to exports in 2014-15. The growth rate of exports has been ~20% per annum over the past 5 years, which has decelerated to ~14.7% per annum in the last 3 years. However, India's share in global exports of capital goods is still significantly sub-scale at ~0.8%⁵ only.

⁴Department of Heavy Industry data for all sub-sectors except food processing; AFTPAI data for food processing industry, 2014-15 and growth data

⁵Engineering Export Promotion Council (EEPC) data for 2014

Table 1.2: Capital Goods exports by sub-sector⁶ (Rs. Cr)

Sub-sector	Exports (2014-15)	5 yr CAGR (%)	3 yr CAGR (%)
Machine Tools	1,762	9.5%	8.4%
Textile Machinery	2,822	32.4%	16.9%
Earthmoving & Mining Machinery	7,385	55.3%	17.8%
Heavy Electrical Equipment	35,419	19.4%	16.1%
Plastic Machinery	901	17.9%	14.8%
Process Plant equipment	7,684	23.3%	14.8%
Dies, Moulds & Press Tools	2,869	-1.5%	-0.3%
Printing Machinery	495	11.8%	8.2%
Metallurgical Machinery	1,104	20.1%	15.5%
Food Processing machinery	2,080	15.8%	14.0%
Total	62,521	20.0%	14.7%

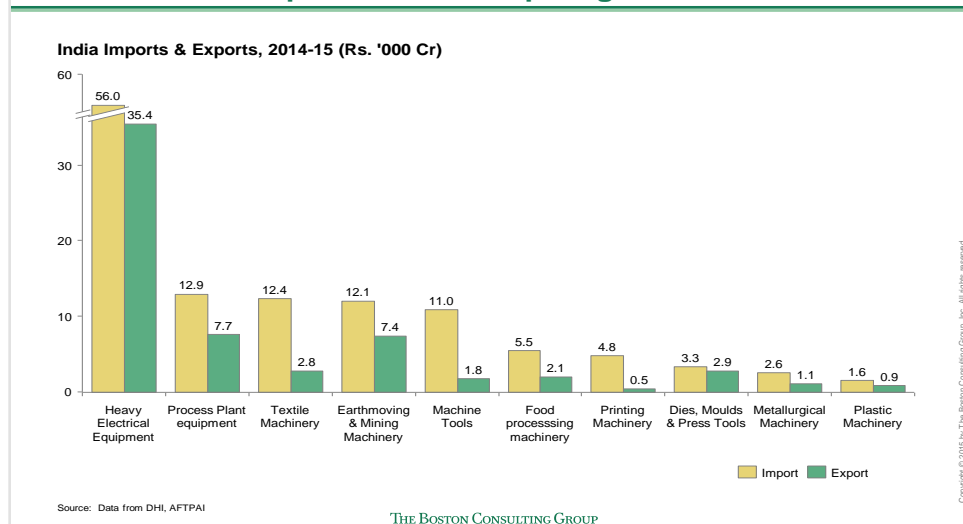
- 1.3 **High imports, net importer across sub-sectors:** India is a net importer of capital goods across sub-sectors. Around ~Rs. 122,000 Cr worth of capital goods were imported in to India in 2014-15. Imports have grown at ~15% per annum over 5 years, signifying consistent demand in the market but from sources outside India.

⁶Department of Heavy Industry data for all sub-sectors except food processing; AFTPAI data for food processing industry, 2014-15 and growth data

Table 1.3: Capital Goods imports by sub-sector⁷ (Rs. Cr)

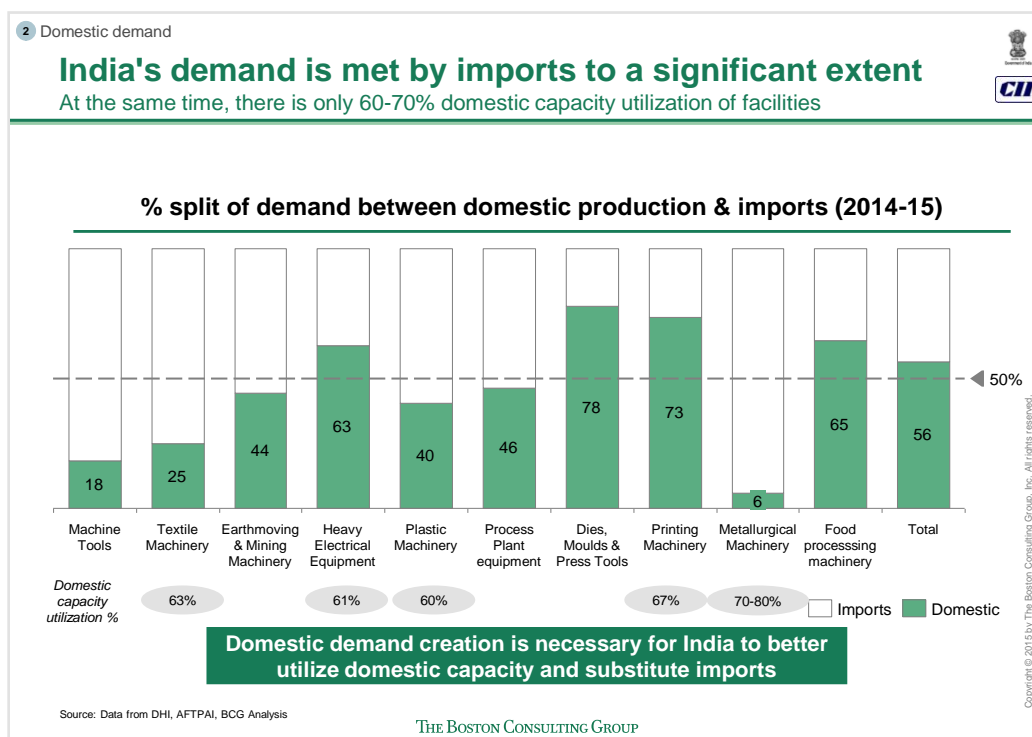
Sub-sector	Imports (2014-15)	5 yr CAGR (%)
Machine Tools	10,961	8.4%
Textile Machinery	12,350	12.9%
Earthmoving & Mining Machinery	12,056	16.4%
Heavy Electrical Equipment	55,987	17.0%
Plastic Machinery	1,583	11.6%
Process Plant equipment	12,933	120.9%
Dies, Moulds & Press Tools	3,322	-2.4%
Printing Machinery	4,812	13.8%
Metallurgical Machinery	2,593	-4.4%
Food Processing machinery	5,500	5.5%
Total	122,097	15.2%

① Trade & Exports

India is a net importer across capital goods sub-sectors

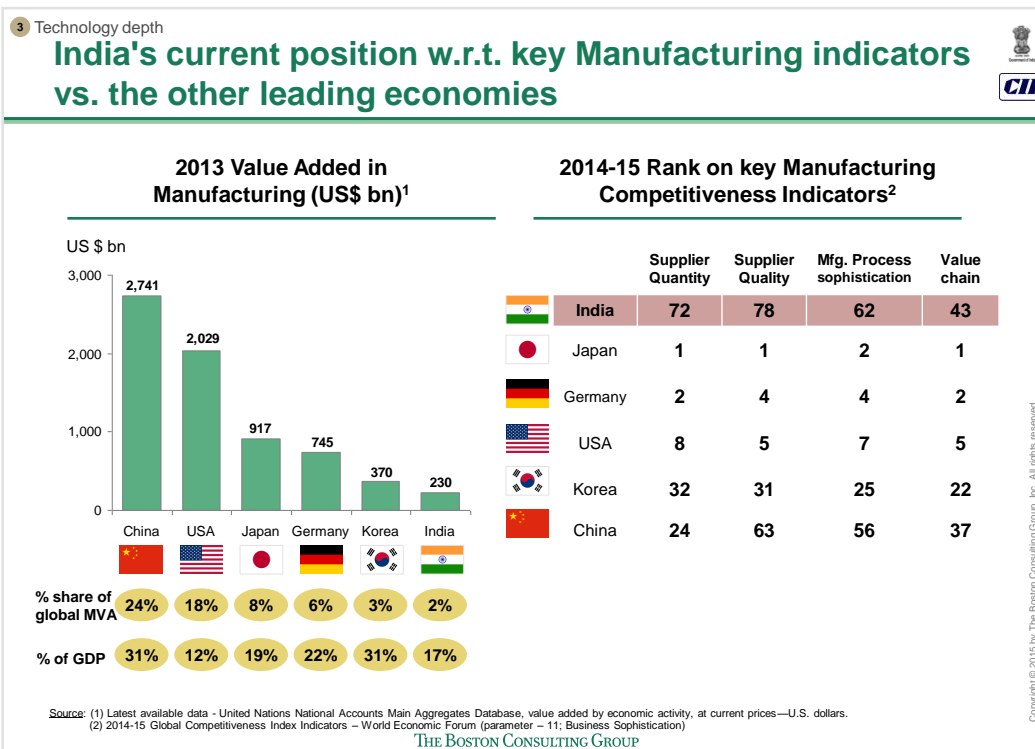
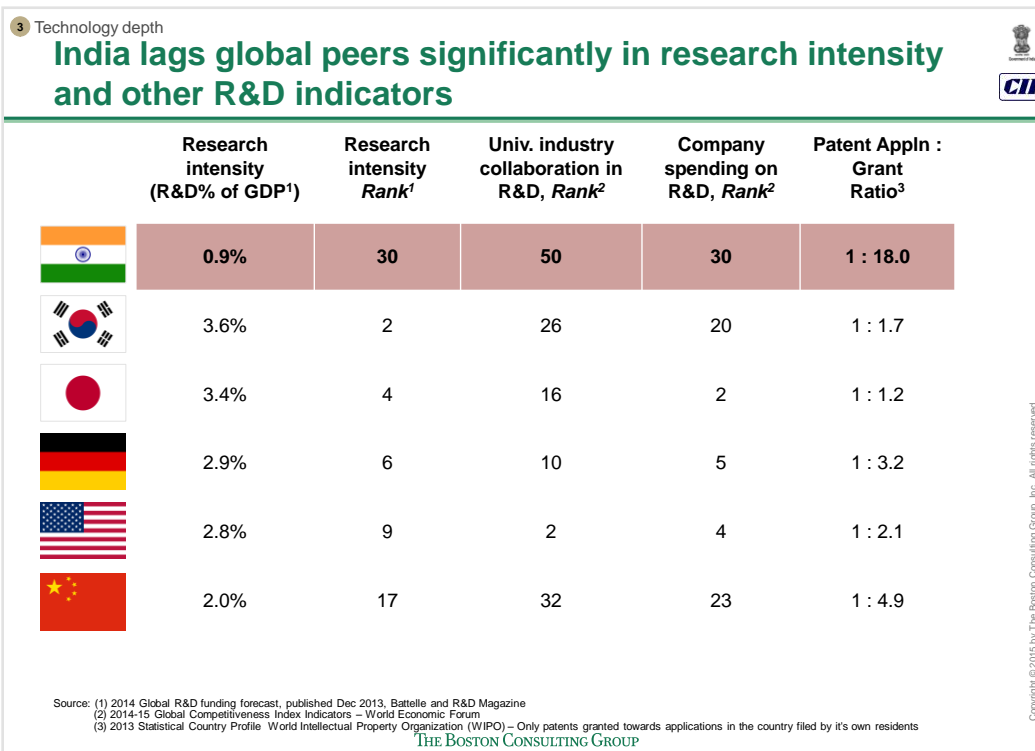
⁷Department of Heavy Industry data for all sub-sectors except food processing; AFTPAI data for food processing industry, 2014-15 and growth data

- 1.4 **40-45% demand met by imports, despite capacity underutilization:** Imports currently address 40-45% of India's demand for capital goods showing low self reliance. At the same time, capacity utilization is only about 60-70% across sub-sectors indicating an imminent need for creation for demand from domestic sources and import substitution.



- 1.5 **Low technology depth:** India's current level of technology depth ranges from basic to intermediate, indicating limited ability in fundamental research on materials and components and low absorption of product technologies. India currently ranks⁸ 30th worldwide on research intensity, with 0.9% of GDP spent in the form of R&D. This is low compared to advanced countries like South Korea (3.6%) and Japan (3.4%). Low technology depth results in relatively poor manufacturing competitiveness for India reflected in inferior supply base (quantity, quality) and value chain capabilities.

⁸ Ranks indicated basis Global Competitiveness Indicators for 2014-15, World Economic Forum



- 1.6 **Highly fragmented sector with large number of MSMEs:** The capital goods market is fragmented with majority of operational units in the Small and Medium Enterprise (SME) sector, beyond few large players. These cater to small segments of a sub-sector, often serving domestic demand only and are significantly challenged vis-à-vis large foreign competitors due to low operating scale.

CHAPTER 2: SUMMARY OF KEY ISSUES & CHALLENGES

2.1 The capital goods component in industrial production has lagged in recent years due to slow domestic demand leading to growing dependence on imports and following slow growth in the world economy. Further, as the global economy has opened up, not all capital goods manufacturers have been able to tap the global opportunity.

Key issues impacting Indian capital goods industry have been segmented as below;

- 1) Issues affecting domestic demand creation and expansion,
- 2) Issues affecting exports,
- 3) Issues affecting technology depth,
- 4) Issues affecting cost competitiveness, and
- 5) Issues related to sub-scale units.

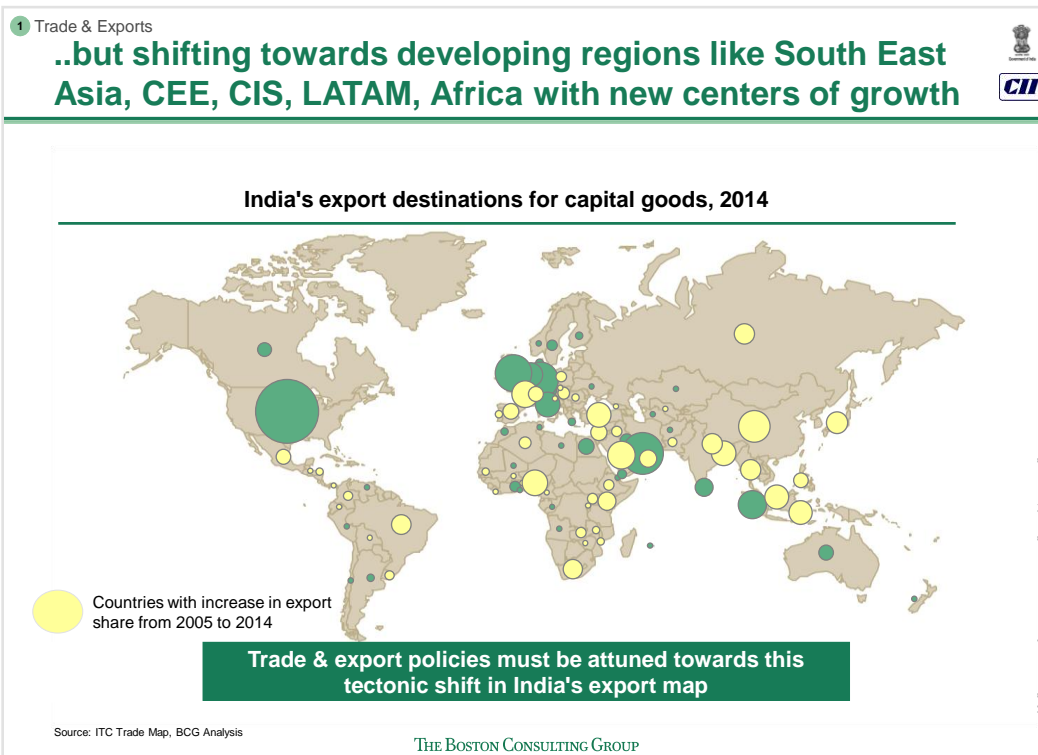
2.2 ISSUES AFFECTING DOMESTIC DEMAND CREATION & EXPANSION

- 2.2.1 **Capacity underutilization:** The domestic industry had invested in capacity based on the projections for the capital goods sector but the built up capacity is currently under-utilized at ~60-70% in most sub-sectors due to sluggish domestic demand.
- 2.2.2 **Issues with public procurement policy:** Key contractual clauses, viz, General Contract Conditions/ Special Contract Conditions (GCC/ SCC) of Public Sector Enterprises (PSEs) inhibit domestic demand creation. Also, limited positive bias is given for domestic value addition in any capital goods sub-sector. There is a need for parity of conditions with imports.

- 2.2.3 **Imports of second hand machinery:** Second-hand import of machinery comprises 15-20% of domestic production and hurts both domestic manufacturers and users in the long run. Persistent use of aged and old machinery in end user industry is observed and there is no incentive for replacement of such machines.
- 2.2.4 **Zero duty import under “Project Imports”:** Several goods can be imported under 'Project Imports' at zero duty which places Indian manufacturers at a disadvantage.
- 2.2.5 **Delays in project implementation:** Delays in implementation of approved projects in end user industry, most critically in infrastructure and power, are a key concern limiting domestic production of capital goods.
- 2.2.6 **Need for inter-ministerial coordination:** There is need for coordinated approach across ministries at an Apex level as needs of the capital goods industry needs to be balanced vis-à-vis requirements of other end user industries.

2.3 ISSUES AFFECTING EXPORTS

- 2.3.1 **Trade policies not aligned to shift in India's export map:** Trends over the last decade suggest that India's capital goods exports which were historically led by developed countries like USA, UAE, UK, Germany and Singapore are now fast shifting towards developing regions such as South East Asia, Central and Eastern Europe, CIS, South America and Africa which are the new growth centers of the world. However, trade policies are not aligned with this fundamental shift in target export territories. The current set of trade agreements are with several countries who have comparative advantage over India vs. where India has strong export potential. It is critical to ensure that policy actions increase focus on the new destinations with high export potential to bolster India's overall exports.



- 2.3.2 **Non trade barriers faced in export markets:** Indian capital goods industry faces several non-tariff barriers in export markets which deny market access including among others, insistence on overseas experience, biased qualification clauses, insistence on local participation and requirement of testing outside India.
- 2.3.3 **Limited understanding of international market requirements:** Domestic manufacturers need to have better understanding of international products and market requirements. In addition, there is limited market intelligence and understanding of vendor registration and other processes which inhibits smooth entry to focus markets.
- 2.3.4 **Inadequate availability of short and long-term financing:** Inadequate availability of financing in focus export countries at competitive rates, e.g. availability of lines of credit is an issue in regions such as CIS countries, Latin America, Bangladesh and Indonesia. Further, rates offered are not internationally competitive. Long-term financing for projects with long gestation periods is also an issue. The tenure offered in India is 7 years vs. 15 years globally.

2.4 ISSUES AFFECTING TECHNOLOGY DEPTH

- 2.4.1 **Significant technology gaps across sub-sectors:** Significant challenges and gaps exist in high-end, heavy-duty, high-productivity and high precision technologies across sub-sectors. Also, there is relatively low ability in advanced metallurgy and development of special materials, and lack of research funds to facilitate the same.

Exhibit: List of technology gaps in different sub-sectors



Plastic machinery

- **Injection moulding machinery**
 - Thin-walled packaging container moulding under 3 seconds cycle time
 - High volume PET Pre-form moulding
 - Thin-walled technical moulding such as Mobile Phone shells
 - Vertical Injection Moulding machines suitable for insert moulding
 - Micro Injection Moulding for Medical parts
 - Metal Injection Moulding (MIM) for Laptop Body parts
 - Polyurethane Reaction Injection Moulding Machines for Automotive moulding
- **Extrusion machinery**
 - Extruding Wood-Plastic Composite sections (WPC)
 - Bi-axially oriented polypropylene film (BOPP) for packaging
 - Polyester film lines for producing electrical insulating materials and packaging materials
 - Thick sheet lines (PP/PS/ABS/PC) for producing automotive components and luggage
- **Blow moulding machinery**
 - Machinery for general purpose containers are produced in SME sector through home grown technology development. Need to encourage leading technology brands to invest for domestic production.
 - Machinery for automotive ducting and fuel tank.
 - Machinery for milk-packaging containers and retortable bottles

Earthmoving and construction equipment

- Hybrid wheel loader and Excavator
- Electronically controlled Compliant Engine for next emission norms
- Advanced Electronic controls systems, Components, attachments, HVAC system, automatic transmission and axles
- Remote operating machinery
- Ready mix Concrete equipments
- Underground mining equipments & attachments
- Large Crawler cranes, tower cranes and mobile cranes
- Modern mining machinery safety practice and machinery development to suit Indian mines.
- Global Positioning System

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Exhibit: List of technology gaps in different sub-sectors



Textile machinery

Weaving:

- Shuttleless looms (rapier >400 rpm; air jet > 800 rpm; water jet > 800 rpm)

Knitting

- High speed circular knitting machinery (Micro-processors)
- Warp knitting

Processing

- Environmentally sustainable processing,
- High speed wide width processing and
- Special purpose processing and finishing machinery (e.g. plasma-finishing)

Industrial stitching

- Hi-tech industrial stitching/sewing machinery (lockstitch, over-lock, Cover stitch, bar tacking, pocket set, button holes, etc.)

Foundry – metal casting

- Green sand reclamation
- New metallurgy & processes for UPP e.g. cobalt bearing steel, high Ni alloy steel

Electrical equipment

- Industry 4.0 (or Internet of Things)
- Material science
- Electromagnetic analysis
- Electric field analysis
- Dielectrics
- Simulation studies

Others

- Software tools for design, analysis and simulation

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Exhibit: List of technology gaps in Machine Tools

<p style="text-align: center; background-color: #e0f0e0; margin: 0;">Metal-cutting machine tool technologies</p> <ul style="list-style-type: none"> Multi-axes machining centres – five-axes machining centres; six-axes machining centres; and components requiring five-axes machining. Multi-tasking machines – turning centres with mill-grind-gear cut application; machining centres with turning capability; and vertical turning centres with machining-milling-grinding capability. High-precision machines – precision production grinder with 100 nano-micron (nm) accuracy. Large-sized machine – floor-boring machines; large-gantry machining centres; and vertical turning lathes. Gear-cutting and grinding centres – dry gear-hobbing machine; multiple diameter gear-shaping machine. Electrical and micro-machining – electro-discharge machines (EDMs); wire-EDMs; and electro-chemical machines. 	<p style="text-align: center; background-color: #e0f0e0; margin: 0;">Metal-forming machine tool technologies</p> <ul style="list-style-type: none"> Higher press automation and transfer systems. Servo presses. Sheet-working machines – laser; and waterjet heads. Hydro-forming machines. Hot forming technology. Fine blanking. Precision forging. Flow-forming machine and components. Hot-forming press lines. Hydraulic forging presses. Explosive forming. Magnetic pulse forming
<p style="text-align: center; background-color: #e0f0e0; margin: 0;">Supporting technologies for machine tools and manufacturing</p> <ul style="list-style-type: none"> Cutting tool technologies. Metrology and measuring technology. Alternate materials – epoxy granite casting. Thermally-stable welded structures. Hydrostatic spindles, guideways. Motorised and high frequency spindles. Smart machines and embedded sensors. 	<p style="text-align: center; background-color: #e0f0e0; margin: 0;">Critical component-technologies for CNC machines</p> <ul style="list-style-type: none"> CNC controls / systems. Anti-friction linear guideways. Ball-screws. Precision spindle and ball-screw support bearings. Spindle & axes servo motors with drive controllers – motors & drives; integral motor spindles; & linear motors for feed drives Feedback measurement systems – 3-coordinate measuring machines; digital metrology; precision gauging instruments and optics; open & closed linear measuring systems; and encoders & angle measuring transducers.
<p style="background-color: #e0f0e0; margin: 0;">Automation Encompassing technologies from pneumatic, hydraulic and electro-based systems.</p>	

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- 2.4.2 **Lack of end user acceptance of new Indian technology:** A cautious approach is adopted by end user industry in accepting new technology or product developed by Indian manufacturers, with purchase cost still being the key criterion as opposed to lifecycle cost.
- 2.4.3 **Lack of skill availability:** The capital goods sector also suffers from major challenges in human resource development. Skilled manpower and support facilities continue to lag behind global standards as shown by India' rank of 45 on the availability of scientists and engineers and 130 on quality of scientific research institutions. Industry and sub-sector specific skill development and training institutes with appropriate capability development agenda & curriculum are lacking. This is a key contributing factor towards low technology depth.
- 2.4.4 **Weak support infrastructure:** Support infrastructure including skill availability, design standards, testing & certification infrastructure lags global standards which inhibits technology development.

- 2.4.5 **Long lead time from patent application to grant:** There is a long lead time from stage of patent applications to patent grant. The process from filing to grant of a patent takes ~6 years in India compared to ~3.5 years in the US.
- 2.4.6 **Inadequate fiscal incentives:** The prevailing incentive structure for research and development is not generating sufficient pull for industries to participate vigorously in R&D activities. There is a need to evaluate options for incentivizing R&D through new tax instruments and improve the qualifying conditions on existing schemes.
- 2.4.7 **Need to improve Indian standards:** There is a need to improve India's participation in international standard development conferences. Adequate resource and skills needs to be made available to Standards Developing Organizations (SDOs) to ensure their smooth functioning.

2.5 ISSUES AFFECTING COST COMPETITIVENESS

- 2.5.1 **Cost disabilities due to skewed tax and duty structure:** Indian manufacturers face skewed and state-wise variation in tax and duty structure which significantly affects cost competitiveness.
- 2.5.2 **Inverted duty structure still prevalent:** For several sub-sectors, import duty on finished products is lower than that on raw materials. For example,
- 2.5.2.1 Boilers (HS codes 8402 and 8404) can be imported at 0-5% customs duty under Project Imports and 7.5% otherwise. On the other hand, the raw materials used, including Seamless Alloy Steel Tubes (HS Code 73045110), Seamless Carbon Steel Cold Drawn Tubes (HS Code 73045110), Pipes & Tubes (HS Code 73049000), Structural Steel (HS Code 73089090) are subjected to customs duty of 10% and BQ Plates (Carbon Steel Plates) (HS Code 7208) to 12.5%.
- 2.5.2.2 Similarly, Turbines (HS Codes 8406, 8410, 8411) can be imported at 0-5% customs duty under Project Imports and 7.5% otherwise, whereas the raw material Carbon Steel is subjected to customs duty of 7.5%.

2.5.2.3 Electrical Transformer (HS Code 8504) faces customs duty of 7.5% whereas the raw materials, viz, Kraft paper (HS Code 48041100/ 900), Press Board (HS code 48239090) and Transformer Oil (HS Code 27109090) face duty of 10%.

2.5.2.4 Inverted duty structures also result from FTA/ CEPA, for instance, under India-Japan CEPA, preferential duty on input materials for plastic machinery is 4.8% to 6.4%. However, preferential duty of 2.5% is applied on injection moulding machines (raw material) and 4.8% on other machines for working plastic. Similarly, under the South Korea FTA, import duty is NIL for finished goods like Pressure Vessels/Reactors imported from South Korea for domestic projects but 5-10% import duty is applicable on raw materials and components for the same.

2.5.3 **Higher infrastructure and logistics costs reducing cost competitiveness:** Indian manufacturers face higher power, infrastructure, logistics and transaction costs which further reduce their global competitiveness. India currently ranks 90 globally on the quality of infrastructure.

2.6 ISSUES RELATED TO SUB-SCALE UNITS

2.6.1 **Limited ability of MSMEs to develop new products & processes:** The small operating scale of MSMEs inhibits capacities to acquire technology or develop new products and processes and the units get caught in a self-feeding and vicious cycle. Further, there is an absence of institutional mechanisms in public/ private sector to support MSMEs in product/ process development.

2.6.2 **Low awareness of standards:** Awareness and compliance to international standards in export destinations is low for SMEs, which limits their export competitiveness.

2.6.3 **Inadequate access to capital:** SMEs also have limited access to capital due to their low scale and need infrastructure and other support to modernize and increase capacity.

2.7 It is critical to nurture the growth of the capital goods sector, spur domestic demand through enhanced utilization of domestic production capacity and carve out a greater share of the

exports market. The current ecosystem of policies on the supply as well as demand side for capital goods is limited. The National Policy on Capital Goods aims to proactively address the issues and challenges and facilitate creation of an enabling environment for the growth and development of the capital goods sector which would go a long way in driving the manufacturing sector and overall Indian economy.

CHAPTER 3: GLOBAL POLICY FRAMEWORKS

3.1 Global policy frameworks and best practices in countries such as South Korea, China, Singapore, Germany, Canada, Australia, Brazil, which are relevant to the Capital Goods sectors have been referred to develop the National Capital Goods Policy of India. Several such frameworks have been studied in detail and a few are potentially applicable to the Indian context after suitable adaptation. Some of these policies and practices are enlisted below.

3.2 Policies related to public procurement and domestic sourcing

3.2.1 **Chinese Government Procurement Law (2002):** As per Article 10 of the law, the government shall procure domestic goods, construction and services, except in one of the following situations: (i) where the goods, construction or services needed are not available within the territory of the People's Republic of China or, though available, cannot be acquired on reasonable commercial terms; (ii) where the items to be procured are for use abroad; and (iii) where otherwise provided for by other laws and administrative regulations.

3.2.2 Australia's procurement practices

3.2.2.1 **Commonwealth Procurement Rules (2012):** These rules state that the Australian Government is committed to non-corporate Commonwealth entities sourcing at least 10 per cent of procurement by value from SMEs.

3.2.2.2 **Indigenous Procurement Policy (2015):** This policy which just took effect from July 1 2015, requires Commonwealth entities to award three per cent of Commonwealth contracts to indigenous businesses by 2020, with interim targets applying each year from 2015-16. In addition, it also requires that certain contracts be set aside for indigenous businesses and that some other contracts include mandatory indigenous employment or supplier use requirements.

3.2.3 **Brazil's procurement and domestic sourcing practices**

3.2.3.1 **Constitutional guidance for Domestic Sourcing:** As per Article 170(IX) of the Constitution, preferential treatment is to be provided to small companies organized under Brazilian law that have their headquarters and management in the country.

3.2.3.2 **Brazil Government Procurement Law and Policy:** As per the Preference clause of the policy, in case of a tie between bidders in identical conditions during the public tender process, preference will be given, successively, to goods and services that are produced or rendered by Brazilian companies of national capital; produced in the country; produced or rendered by Brazilian companies; and produced or provided by companies that invest in research and technology development in Brazil.

3.2.4 **Malaysia's Government Procurement Policy** states the intent to encourage and support the evolvement of Bumiputera (indigenous) entrepreneurs. It states that international tenders will be invited for supplies and services if there are no locally produced supplies or services available. For specific works, if local contractors do not have the expertise and capability, tenders may be called on a joint venture basis between local and foreign contractors to encourage the transfer of technology. International tenders for works would only be called when local contractors do not have the expertise and capability, and a joint venture is not possible.

3.3 **Policies related to promotion of exports**

3.3.1 **South Korea's policies for export promotion**

3.3.1.1 **Overseas project support centers** are set up in key markets and managed by Korea Trade Promotion Corporation (KOTRA) and Korea Association of Machinery Industry (KOAMI) to (i) create friendly environment for local vendor registration and (ii) carry out other market intelligence activities.

3.3.1.2 **Easier financing and insurance terms** are provided by Korea Trade Insurance Corporation (K-Sure) and Korea Eximbank in the form of (i) Extended support for

export financing (ii) Higher limit on guarantee insurance (iii) Interest rate subsidy / commission fee (iv) Extended network loans.

3.3.2 Australia's initiatives for export promotion

3.3.2.1 **TradeStart** is an initiative by the Australian Trade Commission (Austrade) that provides training to SMEs for export, links to Austrade's global network, local assistance and strategy support.

3.3.2.2 **Export Market Development Grant (EMDG):** Under this scheme, financial assistance is provided to exporters through export market development grants, which is a co-funding system structured to cover a wide range of costs. This provides grants up to 50% of eligible export promotion expenditures over a threshold of AU\$15,000. Any company with an income of less than AU\$50 million can apply for these grants. Each applicant can receive up to 8 grants.

3.3.2.3 **Opportunity Matching:** A unique 'Business Matching Tool' has been provided by the Australian Chamber of Commerce and Industry (ACCI) to connect exporters with foreign buyers through an online directory of exporters on its websites.

3.3.3 Canada's initiatives for export promotion

3.3.3.1 **Canadian Trade Commissioner Service (TCS)** is a free service offered by trade commissioners in different countries to help exporters prepare for world markets, assess market potential, find qualified contacts and resolve problems.

3.3.3.2 **Specialized Export Training** is provided by the Forum for International Trade Training (FITT) including (i) Going Global workshops online, (ii) Courses called FITTskills that are accredited with the International Association of Trade Training Organizations (IATTO), and (iii) FITT diploma which entitles the graduate to use the Certified International Trade Professional (C.I.T.P.) designation.

3.4 Policies related to technology development

3.4.1 Germany's institutions promoting academia- industry collaboration

3.4.1.1 **Fraunhofer Society (1973):** Fraunhofer is Europe's largest application oriented research organization with 67 institutes over Germany. It is an integrated network of intermediate research institutions in Germany that support industry and technology transfer as part of a national innovation ecosystem. Fraunhofer Institutes develop and exploit new technologies by creating an infrastructure bridging the needs of applied research with those of technology commercialization. 70% of income for Fraunhofer is generated via industry contracts and government projects and only 30% by government funding.

3.4.1.2 **Steinbeis Foundation (1971)** is an institute set up for know-how sharing and technology transfer of academic research. It has around 1000 “transfer enterprises”, with 800+ professors, 10,000 projects/ year and 5000 collaborators. It operates through Steinbeis Transfer Centers, Steinbeis Research and Innovation Centers, Steinbeis Consulting Centers, Steinbeis Transfer Institutes or companies of an independent legal nature.

3.4.2 Korea's policies promoting research and innovation

3.4.2.1 **Korea Research & Innovation Center – Europe (2013)** is a network between Korea and the EU established in Brussels to support Korea – EU Research & Innovation (R&I) collaboration, develop suitable policies and provide consulting to Korean start ups and entrepreneurs to enter the European market etc.

3.4.2.2 **Korea Institute of Industrial Technology (KITECH) (1989)** is a government research institute that helps to develop technologies for domestic industry, with a focus on SMEs. In 2014, it had a total budget of US\$ 291 million, of which 84.5% was provided by the government directly or indirectly.

3.5 Select elements from these global policy frameworks amongst others have been leveraged and some relevant practices have been incorporated as policy actions under the National Capital Goods Policy of India after suitable adaptation to the Indian context in line with the overall vision, mission and objectives of the policy.

CHAPTER 4: VISION, MISSION AND OBJECTIVES OF NATIONAL CAPITAL GOODS POLICY

4.1 Vision

The National Capital Goods Policy is formulated with the vision to increase the share of capital goods contribution from present 12% to 20% of total manufacturing activity by 2025.

4.2 Mission

The policy is envisaged to achieve the following missions:

- 4.2.1 To become one of the top capital goods producing nations of the world by raising the total production to over twice the current level;
- 4.2.2 To raise exports to a significant level of at least 40% of total production and thus gain substantial share in global exports of capital goods; and
- 4.2.3 To improve technology depth in Indian capital goods from the current basic and intermediate levels to advanced levels.

4.3 Objectives

The objectives of the National Capital Goods Policy are to:

- 4.3.1 **Increase total production:** To create an ecosystem for a globally competitive capital goods sector to achieve total production in excess of ~Rs. 500,000 Cr by 2025 from the current ~Rs. 220,000 Cr.
- 4.3.2 **Increase employment:** To increase domestic employment from the current 15,00,000 to at least 50,00,000 by 2025 thus providing additional employment to over 35,00,000 people.

- 4.3.3 **Increase domestic market share:** To increase the share of domestic production in India's capital goods demand from 56% to 80% by 2025 and in the process improve domestic capacity utilization to 80-90%.
- 4.3.4 **Increase exports:** To increase exports to 40% of total production (from Rs 62,000 Cr to ~Rs 200,000 Cr) by 2025, enabling India's share of global exports in capital goods to increase to ~2.5%.
- 4.3.5 **Improve skill availability:** To significantly enhance availability of skilled manpower with higher productivity in the capital goods sector by training ~50 lakh people by 2025, and create institutions to deliver the human resources with the skills, knowledge and capabilities to fuel growth and profitability.
- 4.3.6 **Improve technology depth:** To improve 'technology depth' in capital goods sub-sectors by increasing research intensity in India from 0.9% to at least 2.8% of GDP to rank amongst the Top-10 countries in research intensity and achieve global benchmarks for intellectual property in the capital goods sector.
- 4.3.7 **Promote standards:** To curb inflow of sub-standard capital goods by mandating technical and safety standards which conform to international standards and ensuring compliance to the same.
- 4.3.8 **Promote SMEs:** To promote growth and build capacity of SMEs to compete with established domestic and international firms and become national and global champions of capital goods in the future.

CHAPTER 5: LIST OF EXISTING INSTITUTIONAL FRAMEWORKS FOR INDIAN CAPITAL GOODS INDUSTRY

The existing institutional frameworks and schemes applicable to the Indian Capital Goods industry are covered under Table 5.1. The scheme on Enhancement of Competitiveness is specific to the Capital Goods sector. The remaining are broader schemes which include among others, some or all sub-sectors of capital goods.

Table 5.1: Existing Institutional Frameworks

Ministry/ Department	Scheme/ Initiative	Key features/ scope of scheme
Department of Heavy Industry (DHI)	Scheme on Enhancement of Competitiveness in the Indian Capital Goods Sector	<ul style="list-style-type: none"> i. Technology development through Advanced Centers of Excellence by signing MoU between DHI & Academia/ Institute or SPV to be formed between Academia/Institute, Industry & DHI ii. Integrated Industrial Infrastructure Centre (IIIC) particularly for machine tool sector through SPV to be formed between industry association, institute, local industry, financial institute, State Govt. & DHI iii. Common Engineering Facility Centers (CEFC) to facilitate value added services in manufacturing through SPV to be formed between industry association, institute, local industry, financial institute, State Govt. & DHI. iv. Establishing Test & Certification Centre for Earth Moving, Construction & Mining machinery through SPV created by DHI. v. Technology Acquisition Fund Programme (TAFP) for technology acquisition or transfer for advanced machinery or its components; support to be given to capital goods manufacturing unit, individual or in consortium form.

Ministry/ Department	Scheme/ Initiative	Key features/ scope of scheme
Department of Industrial Policy & Promotion (DIPP), Global Innovation & Technology Alliance (GITA)	Technology Acquisition & Development Fund (TADF)- <i>not specific to Capital goods sector</i>	<p>Indian MSME's to be provided the following assistance for "Green Manufacturing"</p> <ol style="list-style-type: none"> i. Direct funding support for Technology Acquisitions ii. Indirect funding support through Patent pools iii. Subsidy for manufacturing EE/ Water Conservation/ Pollution Control equipment iv. Incentives for Energy, Environment & Water Audits v. Incentives for construction of Green Buildings vi. Subsidy for implementing Waste Water Treatment facilities
Department of Commerce	Revised Market Access Initiative (MAI)- <i>not specific to Capital goods sector</i>	<p>Assistance to Export Promotion Organizations/ Trade Promotion Organizations/ National Level Institutions/ Research Institutions/ Universities/ Laboratories, Exporters, etc under focus market-focus country approach for</p> <ol style="list-style-type: none"> i. Marketing projects abroad – specific activities funded under the scheme ii. Capacity Building for training, upgradation of institutions and support infrastructure iii. Support for Statutory Compliances in buyer countries iv. Studies/ surveys to further objectives of scheme v. Project Development leading to substantial improvement in market access vi. Others- developing trade facilitation portal etc

Ministry/ Department	Scheme/ Initiative	Key features/ scope of scheme
Department of Commerce – Directorate General of Foreign Trade (DGFT)	Merchandise Exports from India Scheme (MEIS)- <i>not specific to Capital goods sector</i>	Grant of Duty Credit Scrips as reward to exporters on export of notified goods, which can be used for <ol style="list-style-type: none"> i. Payment of customs duties on imports of inputs/ goods, with some exceptions ii. Excise duty on domestic procurement of inputs/ goods including capital goods iii. Service tax on procurement of services iv. Payment of customs duty and fee as applicable
Ministry of Micro, Small and Medium Enterprises	Credit Linked Capital Subsidy Scheme (CLCSS)- <i>not specific to Capital goods sector</i>	Technology upgradation of Micro and Small Enterprises (MSEs) to be facilitated by providing 15% capital subsidy (limited to maximum Rs.15 lakhs) for purchase of Plant & Machinery. Maximum limit of eligible loan for calculation of subsidy under the scheme is Rs.100 lakhs
Initiated by Department of Heavy Industry (DHI)	Capital Goods Skill Council (CCSC)	Initiative to create a vibrant eco-system for quality training and skill development for the Capital Goods sector <ol style="list-style-type: none"> i. Identification of skill development needs ii. Developing sector skill development plan and maintaining skill inventory iii. Determining skills/competency standards and qualifications iv. Standardizing affiliation and accreditation process v. Participating in affiliation, accreditation, examination, and certification vi. Planning and executing Training of Trainers vii. Promotion of academies of excellence viii. Establishment of Labour Market Information System (LMIS)

CHAPTER 6: POLICY ACTIONS FOR ISSUES COMMON ACROSS CAPITAL GOODS SECTORS

6.1 Creating an ecosystem for globally competitive Capital Goods sector

6.1.1 To devise a long term, stable and rationalized tax and duty structure

6.1.1.1 To adopt uniform Goods and Services Tax (GST) regime ensuring effective GST rate across all capital goods sub-sectors competitive with import duty after set-off with a view to ensure level playing field.

6.1.1.2 To ensure parity of import duty structure with domestic duties, for example, equalize Countervailing Duty (CVD) and Excise duty; and Special Additional Duty (SAD) with Sales tax/ VAT or GST (as applicable).

6.1.1.3 To correct existing inverted duty structure anomalies.

6.1.1.4 To consider uniform customs duty on imports of all capital goods related products (finished products, intermediaries and raw materials) and allow up to 50% CENVAT credit to manufacturers using such products as raw material or intermediates for further processing or using such goods in the manufacturing of finished goods.

6.1.1.5 To create transparent and participative mechanism between Department of Revenue, Tariff Commission and Department of Heavy Industry (DHI) to periodically review duty structure (especially inverted duty) and recommend changes to ensure that raw material import is consistently taxed lower than finished goods import.

6.1.2 To provide incentives for domestic and global mergers & acquisitions.

6.1.3 To provide incentives for venture funding/ risk capital to start-ups.

6.1.4 To support availability of Industrial Financing

6.1.4.1 To provide subvention fund for setting up Capital Goods units in India.

6.1.4.2 To ensure project financing terms match the life cycle of the project.

- 6.1.5 To allow External Commercial Borrowings (ECB) under automatic route for all capital goods.
- 6.1.6 To provide schemes for cluster development, including
 - 6.1.6.1 To encourage formation of an SPV by a group of Anchor Machinery Units and assisting all their common vendors to set up units in the Cluster.
 - 6.1.6.2 To set up Common Facility Centers and providing these services to users on chargeable basis.
 - 6.1.6.3 To establish common R&D, Product development, Design & Testing facilities in these clusters.
 - 6.1.6.4 To provide skill development and Enterprise management development through a common training centre.
 - 6.1.6.5 To create and foster recognition of capacity building efforts through industry associations.

6.2 Creation and expansion of Market for Capital Goods sector

- 6.2.1 To draft comprehensive public procurement policy across all government departments, PSUs and other government agencies sourcing capital goods.
- 6.2.2 To monitor domestic share in public procurement across government departments and public enterprises, understand gaps and trigger domestic capabilities.
- 6.2.3 To simplify terms in General Conditions of Contract and Special Conditions of Contract in procurement contracts including public procurement
 - 6.2.3.1 To eliminate "No deviation" clause.
 - 6.2.3.2 To provide interest free Mobilization Advance Payment of 10% of contract value against Bank Guarantees.
 - 6.2.3.3 To incorporate price variation clause especially to address issues from change in law, taxes, duties, foreign exchange, externalities.

- 6.2.3.4 To incorporate clause on limitation of liability of the Contractors.
- 6.2.3.5 To provide favorable payment terms for Contractors via staged release of retained payments and penal interest on PSUs for delayed payments.
- 6.2.3.6 To reduce skew of terms and conditions towards PSUs by lowering liquidated damages, ensuring IP protection and providing fair arbitration.
- 6.2.3.7 To exercise discretion to address genuine concerns of bidders.
- 6.2.3.8 To ensure time-bound redressal of disputes through 'High Powered Committees'.
- 6.2.4 To amend key qualification criteria in public procurement contracts
 - 6.2.4.1 To provide for capabilities evaluation as an alternative to past experience.
 - 6.2.4.2 To ensure evaluation on the basis of "Lifecycle cost" vs. only purchase cost.
 - 6.2.4.3 To define specific Indian standards and local certification for foreign players to participate in Indian bids.
- 6.2.5 To introduce special provisions in contracts to promote indigenously manufactured products, that is, "purchase preference policy"
 - 6.2.5.1 To consider 30-40% domestic value addition by sub-sector, varied by contract size, to be phased in annually.
- 6.2.6 In case of a tie between bidders, to give successive preference to goods produced in the order of (i) by an Indian firm, (ii) by JV with Indian firm, (iii) by firm with manufacturing facility in India, (iv) by firm investing in R&D in India.
- 6.2.7 To provide end user mandates, incentives and schemes.
 - 6.2.7.1 To introduce "Technology Transfer" requirement and specify "Minimum Domestic Value Addition" threshold for high-value and high-technology imports.
 - 6.2.7.2 To consider power equipment and other high value added capital goods as part of the offset policy.

- 6.2.8 To increase the budgetary allocation for the present Scheme on 'Enhancement of Competitiveness of Capital Goods' and upscale it by adding components for (i) Technology (ii) Skills (iii) CFCs and Industrial Parks (iv) Cluster development (v) Employment (vi) Exports (vii) User promotional activities (viii) International cooperation (ix) Special steps for start-ups/ Incubation Centers/ Venture fund (x) Techno-economic knowledge impartation (xi) Green engineering and energy (xii) Advanced manufacturing (xiii) National projects.
- 6.2.9 To create schemes across capital goods sub-sectors such as Technology Upgradation Fund Support (TUFS) to promote equipment replacement, which may be included under the Scheme on 'Enhancement of Competitiveness of Capital Goods.'
- 6.2.10 To draft policy for allowing second hand imports by specifying terms & conditions as follows:
- a) To allow imports through only two designated ports.
 - b) To insist on actual user license, Make of equipment and Country of origin certification.
 - c) To impose elevated customs duty for second hand machinery along with separate tariff classification.
 - d) To ensure no preferential treatment under FTA with partner countries.
 - e) To exclude second hand capital goods from the purview of duty concession under project imports.
- 6.2.11 To eliminate "Zero duty" clause for capital goods under Project Imports in the Taxation Policy, except if the goods are not manufactured in India.
- 6.2.11.1 To consider "Physical export" status for domestic manufacturers using such imports to avail duty drawback.
- 6.2.11.2 To exclude second hand capital goods from the purview of duty concession under project import.

6.2.12 To form Government-to-Government-to-Business (G2G2B) coordination groups with end user sectors to debottleneck and speed up projects in user industry:

6.2.12.1 To institute active monitoring of large project status for timely implementation of funds allocated to States.

6.2.12.2 To optimize length of tendering process keeping the pre-qualification phase time-bound.

6.2.12.3 To provide incentives for large and mega infrastructure projects with high domestic sourcing of capital goods.

6.3 Promotion of Exports

6.3.1 To formulate comprehensive export policy for the Capital Goods sector for specified markets and specified products for 5 years.

6.3.2 To influence equipment purchase in "indirect barter" and/or "Indian Rupee" form while negotiating trade agreements with countries with whom the trade balance is negative.

6.3.3 To enhance commercial diplomacy to promote exports:

6.3.3.1 To train diplomats for sustained engagement in India and export markets for networking and advocacy for Indian business.

6.3.3.2 To facilitate higher industry involvement in commercial diplomacy by appointing corporate professionals as consular attaches for trade/export promotion for 2-3 years and delegating seats for industry in Indian diplomatic missions.

6.3.4 To initiate trade agreements with countries where India has good export potential, such as South East Asian countries, Africa and Middle East, CIS, Central & Latin American countries.

6.3.4.1 To commission studies to:

- a) Dynamically update Red, Orange, Green list using industry inputs and guide negotiations in FTA/ PTA/ RCEP.

- b) Guide negotiations on country-wise lists by identifying (i) products which India does not make/ has no plans to make where import concessions can be allowed (ii) products for which we should not give any import concessions (iii) exportable items where import concessions are needed.

6.3.5 To facilitate improved access to focus export markets:

- 6.3.5.1 To constitute sub-sector specific committees to assess non-tariff barriers and take up for removal through Ministry of External Affairs/ Ministry of Commerce while ensuring consistency with WTO norms.
 - 6.3.5.2 To institute project to fund compliance/ testing costs for exporters for next 5 years under Market Access Initiative (MAI) scheme.
 - 6.3.5.3 To create facilitation agency (or extend role of existing agency) for key export markets to help with market intelligence (trade data, business contacts) and with information on vendor registration process and local laws.
 - 6.3.5.4 To create incubation centers, showrooms and promotion centers for capital goods with display area in focus markets.
 - 6.3.5.5 To develop calendar of international trade related events on a long term basis.
 - 6.3.5.6 To extend financial support to SMEs for participation in international delegations, routed via industry associations.
 - 6.3.5.7 To promote Indian trade shows and road shows abroad for capital goods.
 - 6.3.5.8 To create virtual trade places on the internet and provide a mechanism/ tool to identify potential business partners in export countries and vice-versa.
- 6.3.6 To integrate capital goods in 'Make in India' and support India Brand Equity Foundation (IBEF) with comprehensive branding plan for the sector.
- 6.3.7 To support availability of short and long term financing for exporters:

- 6.3.7.1 To open focused line of credit with EXIM Bank, ensure credit availability for key export markets (e.g. buyer's credit in Bangladesh, Indonesia, CIS, Iran) at rates at par with LIBOR/ international rates.
- 6.3.7.2 To restore original guidelines on Government of India supported line of credit to entities with 51% Indian ownership.
- 6.3.7.3 To providing interest equalization support and/or Government of India guarantees for Independent Power Producer (IPP) with 51% Indian ownership.
- 6.3.7.4 To provide cheaper working capital loans to bigger exporters (Three Star/Four Star/Five Star) in the capital goods sector.
- 6.3.7.5 To strengthen EXIM Bank by increasing its capital base.
- 6.3.7.6 To provide dedicated fund to EXIM Bank to support exporters with buyer's credit at rates of interest at par with LIBOR/ international rates with a repayment period of at least 10 years in addition to the moratorium/grace period equal to the project construction period against Project Agreements.
- 6.3.7.7 To defray part of borrowing cost of EXIM Bank or provide refinancing to EXIM at soft rates via the Government / Central Bank.
- 6.3.7.8 To provide wider banking options beyond SIDBI and EXIM, for capital goods manufacturers, especially SMEs.
- 6.3.7.9 To provide government guarantees/ enhanced equity to Export Credit Guarantee Corporation (ECGC) to cover high value project risks.
- 6.3.7.10 To subsidize Buyer's credit premium charges of ECGC to make these competitive.
- 6.3.7.11 To consider replacing Sovereign Guarantee for export project bids with Project Recourse guarantee or Corporate Guarantee accompanied by Bank Guarantee from local banker.

6.3.7.12 To extend project-tied credits as priority to certain infrastructure projects like power projects, which fulfill specific conditions including a life of 25-30 years during which it is a regular foreign exchange earner.

6.3.8 To provide excise duty exemption on final exportable goods, and CVD exemption on imports meant to be used for production of exportable goods.

6.4 Human Resource Development

6.4.1 To set up sub-sector specific Skill Council with regional network under the umbrella of Capital Goods Skills Council (CGSC), through collaboration between National Skill Development Council (NSDC) and specific sectoral industry association and/or trade institute, e.g. Indian Institute of Welding. For instance, the Infrastructure Equipment Skill Council (IESC) set up by Indian Construction Equipment Manufacturers Association (ICEMA) in collaboration with NSDC in Bangalore for training of operators and skill development.

6.4.1.1 To aggressively promote sub-sector specific Skill Councils in all User Ministries and at the State level, and where feasible dovetail/ piggyback onto ongoing initiatives.

6.4.2 To support the creation and use of infrastructure for skill development:

6.4.2.1 To build capacity of trainers, assessors, content writers and standard developers.

6.4.2.2 To build capacity of existing training facilities in both public and private domain through PPP model and appropriate funding support anchored around the Sector Skill Councils.

6.4.3 To develop linkages with local Special Economic Zones (SEZs), Export Promotion Zones (EPZs), knowledge parks, polytechnic, industry chambers to develop skill development clusters.

- 6.4.4 To encourage industry to get their existing uncertified workforce certified through Recognition of Prior Learning (RPL)⁹ against which prior learning through formal / informal channels would be assessed and certified.
- 6.4.5 To support and nurture an eco-system for skilled workers.
 - 6.4.5.1 To encourage companies to indicate the percentage of certified skilled workforce in their units as part of their Annual Report.
 - 6.4.5.2 To create and foster recognition of capacity building efforts through industry associations
 - 6.4.5.3 To provide skill development and Enterprise management development through a common training centre.
- 6.4.6 To update curriculum of Industrial Training Institutes (ITI), Polytechnics and other technical institutes to match skill requirements of industry.
- 6.4.7 To fund the set up of Academies of Excellence in a phased manner pan India.
- 6.4.8 To facilitate global partnerships and international collaborations to leverage best practices in skilling from across the world.
- 6.4.9 To design programmes for exchange and capacity building of trainers and administrators.
- 6.4.10 To utilize or merge Pradhan Mantri Kaushal Vikas Yojana (PMKVY) funds with State Funds for skill development to meet operational expenses.

6.5 Technology and IPR

- 6.5.1 To organize industrial investments through 'National Projects' model for specified high technology.

⁹ Framework of outcome based qualifications developed by Sector Skill Councils linked to National Skills Qualification Framework (NSQF)

- 6.5.2 To incentivize Foreign Direct Investment (FDI) on a long term basis in high technology manufacturing.
 - 6.5.2.1 To introduce 5 year policy to increase investment allowance from 15% to 25%.
- 6.5.3 To refine fiscal incentives to promote R&D and technology development.
 - 6.5.3.1 To extend the definition of industrial R&D till the point of commercial production to avail tax benefits under the provisions of 0% tax deduction under sections 35 (2AA) and 35 (2AB) of IT Act.
 - 6.5.3.2 To allocate sector-specific research funds (e.g. steel, advanced material research etc) and for strategic industry sectors; Additional segments may be defined under annual review mechanism.
 - 6.5.3.3 To provide 2-year income tax holiday on sales of products emanating from a defined "new technology" list by capital goods sub-sector.
- 6.5.4 To promote technology development and acquisition support, especially to SMEs, through existing mechanisms such as,
 - 6.5.4.1 Technology Acquisition Fund created under the Technology Acquisition Fund Programme (TAFP) through the "Scheme on Enhancement of Competitiveness in the Indian Capital Goods sector" released by Department of Heavy Industry.
 - 6.5.4.2 Industry-academia collaboration model available through mechanisms such as CSIR Tech Private Limited.
 - 6.5.4.3 To set up academia-industry interface agency similar to Biotechnology Industry Research Assistance Council (BIRAC) to focus on capital goods and initiate networks and platforms to bridge existing technology gaps.
- 6.5.5 To launch a Technology Development Fund for Rs. 10,000 Cr under PPP model to fund technology development and commercialization in capital goods, managed by a professional institution such as Global Innovation & Technology Alliance (GITA).

- 6.5.6 To review and optimize cycle time from patent application to patent grant:
 - 6.5.6.1 To introduce quick iteration pre-step for Initial Patent Examination.
 - 6.5.6.2 To enhance capacity in Patent Office for processing applications.
- 6.5.7 To promote development of new technology through indigenous sources.
 - 6.5.7.1 To set up insurance fund and take up with IRDA to develop an insurance product to cover risk of failure of locally developed technology.
 - 6.5.7.2 To encourage 5-10% spend on "development orders" with domestic sources.
- 6.5.8 To encourage incentives by employers on grant and commercialization of patents for researchers in the corporate sector.
- 6.5.9 To upgrade testing and certification infrastructure such as Central Manufacturing Technology Institute (CMTI), Central Power Research Institute (CPRI) and set up 10 more CMTI like institutes.
- 6.5.10 To set up Technology Development Institutes for implementation of proposals by CMTI.
- 6.5.11 To increase international cooperative R&D via exploring collaboration with Fraunhofer Institute, UK Catapults Center and other similar agencies.
- 6.5.12 To provide 100% funding under scheme on 'Enhancement of Competitiveness in the Indian Capital Goods sector' to selected premier research institutions carrying out applied R&D activities.

6.6 Introduction of Mandatory Standards

- 6.6.1 To evolve a standards policy ensuring that standards are at par with global benchmarks and based on performance.
 - 6.6.1.1 International Organization for Standardization (ISO) standards should apply in the absence of other standards.
- 6.6.2 To enhance capacity and capability for world class standard creation:

- 6.6.2.1 To significantly enhance the capacity, capability and infrastructure of the standards ecosystem.
 - 6.6.2.2 To hire experts in regulatory bodies, Standards Developing Organizations (SDOs) and certification bodies with specialist skill set to design best-in-class standards.
 - 6.6.2.3 To promote skill enhancement programs for development of standards through industry associations.
- 6.6.3 To ensure greater participation and influence in international standard forums on behalf of Indian manufacturers, for example, collaboration with National Institute of Standards and Technology (NIST) in USA.
- 6.6.3.1 To conduct regular programs with industry associations to create and upgrade existing standards.
 - 6.6.3.2 To facilitate and support promotional programs with industry associations to enhance awareness and acceptance of industrial standards.
- 6.6.4 To formulate formal program for promoting Standards Developing Organizations (SDOs) and industry stakeholders' interaction with international standard bodies, with scope to:
- 6.6.4.1 Propose new areas of standards where national standards exist but international standards do not exist.
 - 6.6.4.2 Become champions among developing countries in international forums.
 - 6.6.4.3 Increase participation in standard creation in the International Organization for Standardization (ISO).
 - 6.6.4.4 Lobby in regional standard bodies for acceptance of Indian Standards.
- 6.6.5 To develop support system for improving compliance to standards:
- 6.6.5.1 To set up umbrella association to drive compliance to global standards.
 - 6.6.5.2 To develop test facilities for mandatory/ global standards while enhancing capacity, capability and infrastructure.

6.6.5.3 To appoint nodal agency for SMEs to get international standard approvals, e.g. CE certification.

6.6.6 To define minimum acceptable standards for machinery:

6.6.6.1 To prohibit usage above threshold level of years since purchase, based on depreciation norms and lifecycle of machinery.

6.6.7 To provide special thrust for Green Manufacturing through R&D and product and process innovation and encourage companies that adopt sustainability based codes like the CII Code for Ecologically Sustainable Business Growth.

6.7 Focus on SME development

6.7.1 **To set up Advisory Group for Ministry of Micro Small and Medium Enterprises (MSMEs).**

6.7.2 To promote modernization of SMEs through interest subvention scheme like Technology Upgradation Fund Scheme (TUFS) and concessional rate of interest at 2-4%.

6.7.3 To incorporate all capital goods sub-sectors under Credit Linked Capital Subsidy Scheme (CLCSS) and enhance usage to SMEs by expanding geographical reach to all regions.

6.7.4 To develop and promote supplier clusters, common manufacturing clusters for SMEs around large manufacturers.

6.7.5 To consider elimination of requirements such as Bank Guarantees or Standby LCs or money deposits for MSMEs.

6.7.6 To incentivize large industries and corporates for hand holding micro & small industries, and help in bringing them up to Global Standards.

6.7.6.1 To institutionalize annual awards for "Pride of Promoting Indian MSME" in various categories for Large Corporates/ PSUs.

6.7.7 To provide MSME tax allowance to Corporates and Public sector companies to purchase a certain percentage from MSMEs and function as "Anchor Industry" to them.

- 6.7.8 To set the criteria for MSMEs to get qualified for various initiatives under National Capital Goods Policy as Employment Generation apart from the monetary definition given in MSMED Act 2006.

6.8 Support services

- 6.8.1 To build up data base of production through suitable reporting system.
- 6.8.2 To computerize port to port collection of all import and export data of capital goods with capital goods marked with a separate code.
- 6.8.3 Work on ITC (HS) codes with a view to increase coverage of description of machinery and update codes to reflect realities.
- 6.8.4 To improve the reporting system of imports of second-hand machinery at customs by creating a separate HS code for second hand machinery and indicating year of manufacture.

CHAPTER 7: SUB-SECTOR SPECIFIC ISSUES & POLICY ACTIONS

7.1 MACHINE TOOLS

7.1.1 **Current status:** Current market size for machine tools sub-sector is Rs 13,429 Cr. The sector has been struggling over last 3 years with negative growth rate of 5.8% p.a. Production, currently at Rs 4,230 Cr has also reduced by 0.5% p.a. Import constitutes a significant portion of total demand at 82%; also 42% of total production is exported.

7.1.2 Key issues

7.1.2.1 **Large technology gaps to be closed to meet user needs:** Technology capabilities and demands from customers have a serious mismatch discouraging fresh investments, in the absence of technology flow into the industry.

7.1.2.2 **High cost discourages investment in R&D:** Although the industry does invest in product development, there is no significant investment in technology development through R&D due to two reasons: lack of academic/R&D support institutions to undertake R&D and the high cost of R&D especially in modern technology machine tools.

7.1.2.3 **Lack of capacity creation through expansion and new units:** While there have been new investments in machine tool units in the last ten years, these are not on a scale required to meet rapidly increasing domestic demand, or make India a significant global player.

7.1.2.4 **High interest rate makes industry non-competitive:** The prevailing interest rates of 14% and more makes the industry non-competitive due to the long gestation period and high capital investment required to set up units.

7.1.2.5 **Industry dispersed, no cohesive development:** The industry is widely dispersed across the country, with regional variations in the product ranges, quality of products and scales of production. There has been no cohesive development of the industry.

- 7.1.2.6 **Reducing/Zero duty imports under FTAs/PTAs:** During recent years a number of FTAs/PTAs have been signed with foreign countries whereby the import duty on machine tools imported from these countries is gradually reduced to zero.
- a) Despite stipulations of local value addition in the partner countries to qualify under FTA/PTA, there is likelihood of machines manufactured in other countries being diverted via these countries to take advantage of the lower duty.
 - b) Free import does not encourage Transfer of Technology and local manufacturing/value addition stunting growth and development of the industry.
- 7.1.2.7 **High cost of inputs make Indian machines costly to users, especially SMEs:** The price of machine tools is high due to higher input costs and local factors such as Excise Duty, VAT, and Entry Tax/Octroi, service tax etc. Some financial measures to reduce price to end users will help spur demand and enable more SMEs to adopt the latest CNC machines.
- 7.1.2.8 **Export efforts are constrained by high cost** of maintaining a presence in foreign markets through Showrooms/Tech Centers and stationing technical personnel for marketing, sales and service.
- 7.1.2.9 **Government tender terms** place Indian manufacturers at a major disadvantage against imports.
- 7.1.2.10 **Capacities in PSUs not optimally utilized:** While earlier the machine tool PSUs (esp. HMT) led technology development and production, at present these capacities are not optimally utilized.
- 7.1.2.11 **Skill erosion** in machine tools is a serious constraint: With the development of IT and other employment avenues, it is becoming difficult to recruit persons to the machine tool industry. Migration of skilled persons is also a constraint faced by the industry. The education system has no stream for machine tools at any level, except in isolated institutions. This is a constraint in getting persons with the special skills

required for the machine tool production shop besides design, research and development functions.

7.1.3 Key technology gaps

- 7.1.3.1 The most important technology gap is in critical mechanical and electronic elements for metalworking machine tools, viz, CNC systems, anti-friction linear guideways, ball-screws, spindle & axes servo motors with drive controllers.
- 7.1.3.2 Significant technology gap also exists in high-productivity, multi-spindle, high-precision with five and more axes; heavy-duty machine tools; and metal-forming machines of modern design leading to prevalence of import in this sub-sector.
- 7.1.3.3 Indigenous industry is dependent on imports for software tools for design, analysis and simulation and the development of new materials for machine tool manufacture. A range of attachments, accessories, sub-systems and parts also need to be developed within the country.
- 7.1.3.4 The industry is subject to technology denials on critical elements as well as for the higher technology machine tools. This is a potentially-serious weakness that needs to be overcome.

7.1.4 Key policy actions

- 7.1.4.1 To support the industry to develop and manufacture:
 - a) Higher axes (five and more) technologies as also machines with multi-spindle, high precision and heavy-duty;
 - b) Higher-productive, multi-spindle, high-precision machine tools; heavy-duty machine tools; and metal-forming machines of modern design; and
 - c) Critical raw materials and components.
- 7.1.4.2 To encourage acquisition of potential overseas companies in key technologically-competitive countries such as European Union, with the intent of acquiring technology know-how as well as manufacturing competencies.

- 7.1.4.3 To omit machine tools from trade agreements, specifically with strong countries such as Japan, Korea, Taiwan, EU and include in agreements with countries in South East Asia which do not have a strong machine tool industry.
- 7.1.4.4 To develop 'Technology Centers' in key markets of Thailand, Turkey, Brazil and Mexico.
- 7.1.4.5 In view of the inclusion of machine tools in specific categories under the Merchandise Exports from India Scheme (MEIS), to encourage:
- a) 'Group participation' in all major global exhibitions on metalworking machine tools.
 - b) Inward mission under the 'Reverse Buyer - Seller Meet' comprising dealers and distributors of all potential machine tool markets in India's premier trade fairs on metalworking machine tools.
- 7.1.4.6 To provide greater incentives for promoting technology development by SMEs and encourage SMEs to avail of 200 per cent weighted deduction on R&D initiatives.
- 7.1.4.7 To enhance Depreciation Allowance to around 25 per cent for purchase of indigenous capital goods.
- 7.1.4.8 To extend 'investment allowance' measure for a period of five years, as also reducing the permissible limit from Rs. 100 Cr to say, Rs. 25 Cr to enable reaping of benefits by SMEs.

7.2 TEXTILE MACHINERY

7.2.1 **Current status:** Current market size for textile machinery sub-sector is Rs 16,488 Cr. The sector has been growing at 5.9% p.a over last 3 years. Production, currently at Rs 6,960 Cr has grown by 9.6% p.a. Import constitutes a significant portion of total demand at 75%; also 41% of total production is exported.

7.2.2 Key issues

- 7.2.2.1 **Lack of R&D:** Textile machinery industry is dependent on borrowed technology. There has been no or insufficient in-house R&D.
- 7.2.2.2 **Lack of capacity:** Inadequate capacity (quantity and quality) in most segments except spinning and ginning. There is absence of large foreign/domestic players in weaving, processing, knitting and garmenting.
- 7.2.2.3 **Dispersed industry:** The manufacturing units are located at different parts of the country.
- 7.2.2.4 **Lack of domestic demand:** There has been lack of sustained demand for machinery from the domestic textile industry.
- 7.2.2.5 **Obsolete technology:** The weaving, Jute & knitting machinery produced in the country, in general, are of old and outdated technology. In processing & finishing sector, the latest technology is not available for all categories of machines. Complete range of latest processing machinery is not available. The technological obsolescence in the large decentralized sectors of Textile Industry also has adversely affected the industry.
- 7.2.2.6 **Lack of fiscal support:** There is lack of adequate fiscal support from the Government for the development of the textile machinery. No support from Government like corpus fund for modernization, capacity expansion and for greenfield projects.
- 7.2.2.7 **Absence of level playing field vis-à-vis imports:** There is no level playing field for textile machinery industry to compete with the imported new as well as second hand machinery due to lopsided duty structure. There has been reduction in order booking position due to import of cheap second hand looms and other textile machinery.
- 7.2.2.8 **Low investment:** Absence of large domestic investment and FDI in textile machinery industry.
- 7.2.2.9 **Lack of infrastructure,** common facility centers etc.

7.2.2.10 **Low skill development** in the industry.

7.2.3 **Key technology gaps**

7.2.3.1 The most significant technology gap is in Hi-tech Shuttleless Cam Beat-up Rapier Looms. Hi-speed rapier loom technology requires very good metallurgy of machine frame, equipment and microprocessor based control system and software algorithm which domestic manufacturers are currently lacking.

7.2.4 **Key policy actions**

7.2.4.1 To amend Re-Revised Technology Up-gradation (RRTUF) scheme:

- a) To announce revised user friendly and stable TUF scheme with no change for next 10 years.
- b) To allocate funds in Central Budget in consultation with Textile Industry.
- c) To enable online and time-bound procedures for application, approval and disbursement.
- d) To extend TUFs support but withdraw after 3 years if import equivalent equipment is developed via investments by FDI/ local route within this timeframe.
- e) To ensure TUFs is not extended for imported second hand machinery.

7.2.4.2 To restrict imports of low technology shuttle-less rapier looms.

7.2.4.3 To impose zero import duty on specific critical components till the same are produced in India.

7.3 **EARTHMOVING & MINING MACHINERY**

7.3.1 **Current status:** Current market size for earthmoving and mining machinery sub-sector is Rs 21,671 Cr. The sector has been struggling over last 3 years with negative growth rate of 7.1% p.a. Production, currently at Rs 17,000 Cr has also reduced by 1.9% p.a. Import constitutes 56% of total demand; also 43% of total production is exported.

7.3.2 Key issues

- 7.3.2.1 **Delay in clearances:** Many mining projects are not taking off due to delays in environment and forest clearances.
- 7.3.2.2 **Need to expand capacity:** The Earthmoving & Construction equipment industry in India has matured substantially and almost 40 world class equipment manufacturers have their manufacturing base in India. With the projected increase in demand of equipment in the future, the industry would need to be able to expand the capacity to meet the emergent requirements.
- 7.3.2.3 **Need for quality checks:** Regulations are needed to stop usage of spurious spare parts, which drastically reduce the life of equipment. There is a need for stricter laws to regulate import of second hand equipment in India and ensure that imported second hand equipment, should meet norms of age and comply with the emission norms and other regulations governing domestic equipment.
- 7.3.2.4 **Complex taxation structures:** While the equipment manufactured and supplied is vital to building world class infrastructure, the industry suffers from complex taxation structures, state led restrictions / taxes in the form of permits, entry taxes etc., which prohibit easy movement of equipment and spare parts thereof across various states in the country.
- 7.3.2.5 **Unfriendly tax clearance mechanism:** Construction equipment manufacturers, who have Foreign Principals, are affected by non-acceptance of Transfer pricing and the Tax and Penalty imposed by the IT Department. Further, the manufacturers are held responsible for collection of 'C' Forms from the customers and submission to Tax Authorities, which they are often unable to do due to customer-related issues and are penalized.
- 7.3.2.6 **Issues with skill development:** It is exceedingly difficult to get Training Partners interested other than OEMs and their select dealers without diluting standards, due to a minimum investment of Rs. 50 lakh excluding cost of land and building. Further,

Operator & Mechanic jobs are not aspirational. Since impartment of skills training involves practical handling of machines the minimum cost of training to include certification fees is in excess of Rs. 20,000 per student.

7.3.3 Key technology gaps

7.3.3.1 Telematics System for CEMM Equipments is a key technology gap affecting the construction equipment sector. These are Electronic Control and instrumentation systems for communication/data transfer to track & record equipment status. Such equipment could improve equipment productivity and efficiency, equipment availability, operator comfort and convenience, troubleshooting failure analysis and resolution. They could also help to centrally track and record equipment usage and production across sites and improve fleet tracking & management by customers.

7.3.4 Key policy actions

7.3.4.1 To introduce friendlier tax structure:

- a) To facilitate acceptance and fast clearance (within 6 months) of Advanced Pricing Agreement (APA) for Transfer Pricing.
- b) To create laws to make buyers bear penalty from tax authorities for non-submission of 'C' Form if buyer is responsible for the delay.
- c) To simplify taxation norms for Equipment Leasing.
- d) To allow higher depreciation (40% from present 15%) on construction equipment.

7.3.4.2 To introduce separate regulatory framework and Act (similar to Central Motor Vehicle Rules) for off-highway equipment.

7.3.4.3 To allow use of External Commercial Borrowing (ECB) to finance domestic equipment.

7.3.4.4 To exclude construction equipment in future FTA agreements.

- 7.3.4.5 To include locally produced construction equipment in export market access incentives.
- 7.3.4.6 To consider tax exemption of ~20% to shipyards for money spent by shipyards on vendors/ OEM development, by way of transfer of technical know-how and commercial support.
- 7.3.4.7 To develop dedicated R&D and advanced test facility for construction equipment industry with modern validation grounds.
- 7.3.4.8 To create regulations to stop usage of spurious spare parts which reduce equipment life.
- 7.3.4.9 To simplify environment and forest clearance procedures by initiating dialogue with stakeholders including industry, on reforestation and afforestation.
- 7.3.4.10 To implement safety standards in end user industries like Construction, Real estate, Roads and Highways, Mining etc.
 - a) To especially focus on mining machinery safety, both open cast mine and underground mine, and increase usage of latest technology in Indian mines.
- 7.3.4.11 To subsidize construction equipment used for rural applications, promoting rural entrepreneurship.
- 7.3.4.12 To emphasize on employing manpower certified by the Sector Skill Council (SSC) concerned, for road and civil constructions contracts.
- 7.3.4.13 To make essential infrastructure facilities of Industrial Training Institutes (ITIs), like classrooms and ground) available to Infrastructure Equipment Skill Council (IESC) certified Training Partners in a phased manner.
- 7.3.4.14 To increase reward money for the students to encourage Skill Training.

7.4 HEAVY ELECTRICAL AND POWER EQUIPMENT

7.4.1 **Current Status:** Current market size for heavy electrical and power equipment sub-sector is Rs 150,350 Cr. The sector has been struggling over last 3 years with negative growth rate of 7.3% p.a. Production, currently at Rs 129,782 Cr has also reduced by 1.5% p.a. Import constitutes 37% of total demand; and 27% of total production is exported.

7.4.2 Key issues

7.4.2.1 **Capacity not fully utilized:** Based on the projections of the government for capacity enhancement in power generation, transmission and distribution in the 10th, 11th and 12th Plans, the domestic electrical equipment manufacturing industry has made huge investments in doubling or tripling its production capacity. However, this built-up capacity currently stands under-utilized across several products due to sluggish domestic demand on account of the slowdown in the power sector and a surge in imports of electrical equipment in recent years. This is significantly impacting the commercial viability of the domestic electrical equipment industry and impacting both the top-line and bottom-lines of the manufacturers.

7.4.2.2 Reliance on imported equipment:

- a) Reliance on imported power equipment, with uncertain quality and lifecycle, and with no domestic manufacturing facility to provide emergency repairs, spares, replacements, etc, especially for heavy equipment, is fraught with long term risks. With integration of automation and communication technology into the T&D network, there is also a possibility of a major security concern.
- b) **Lack of Level Playing Field in the Domestic Market:** Domestic electrical equipment manufacturing industry suffers a significant disadvantage vis-à-vis imports due to sales tax / VAT, entry tax / octroi; higher financing cost; lack of quality infrastructure; dependence on foreign sources for critical raw material and components, etc. In addition, Chinese manufacturers of electrical equipment are given export subsidies as high as 17% of the export value, social security

subsidies, lower income tax rate (15%) and access to financing at low rates of interest by their Government, which gives Chinese companies over 24% unfair pricing advantage and allows them to price their products very competitively.

- c) Further, China is also offering credit to foreign buyers on very soft terms to finance their imports. As a result, imports from China are escalating every year. All this makes Indian industry non-competitive in its own country.

7.4.2.3 Low import duties: Import duties on electrical equipment are quite low. There are 273 finished electrical equipment products at 8 digit HS Code, out of which 13 products (under ITA) are at 0% basic customs duty (BCD), 5 products are at 5% BCD, 223 are at 7.5% BCD, and 32 are at 10% BCD. Import duties are further being lowered under the different free trade agreements (FTAs) signed by India. The interests of the domestic electrical equipment industry are not being safeguarded under different FTAs being signed.

7.4.2.4 Lack of Domestic Availability of Critical Inputs / Raw Material: There are several critical inputs / raw material used in the manufacture of electrical equipment which are not readily available domestically. Concerted action needs to be taken to secure supplies of these. CRGO is a prime example. CRGO is a critical raw material for large generators / transformers, manufactured by 14 companies (no Indian manufacturer) in the world, and totally imported. The ambitious power development projects of the government necessitate setting up of a domestic CRGO manufacturing facility.

7.4.2.5 Lack of a Culture of Innovation in the Industry: There is slow pace of absorption of new technology by domestic manufacturers of electrical equipment, and also user industries, and low investment in R&D. The prime customers / buyers of the electrical equipment industry are the utilities in generation, transmission and distribution of power. Presently, most of these utilities are either owned by the Central Government or different State Governments. Their buying practices do not encourage innovations and R&D.

7.4.2.6 **Issues with public procurement policies:** Most of the State utilities (1) have non-uniform procurement policies and qualifying criteria for vendors for similar products, (2) out-dated tendering procedures and contract awarding based on L1 bidder and negotiations, (3) lack of standardization of product specifications, design parameters and ratings for T&D equipment across the country, (4) are driven by prices rather than quality (low qualifying criteria), and (5) provide no encouragement for field trials of innovative products / technologies. As a result, main focus of the manufacturers of electrical equipment is on cutting costs and not on innovative technologies, on piecemeal short-term tactical measures rather than evolving any strategic action plan for their growth and development.

7.4.2.7 **Looming Shortage of Skilled Manpower:** The electrical equipment industry is facing a major problem in getting skilled and employable manpower which is technically competent, equipped with skills and ready to be deployed. The industry is facing a looming skill gap, which is widening every year. Due to lack of skilled manpower, electrical equipment industry is suffering as it is affecting critical functions like R&D, consultancy, design and detailed engineering work. The technical education system in our country does not promote innovative thinking. The misalignment between education and employment in technical education is on account of:

- a) out-dated syllabi and reluctance to go for a thorough revision of syllabi, resulting in lack of appropriate skills in students,
- b) disillusioned faculty, due to lack of change or improvement in facilities,
- c) no innovative educational techniques,
- d) no practical training / on-job training and therefore, no exposure to industry,
- e) low knowledge of industry / actual products of both teachers and students with no exposure to latest technologies.

7.4.3 Key technology gaps

- 7.4.3.1 The most significant technology gap is Cold Rolled Grain Oriented Electrical Steel (CRGO). CRGO is the most critical raw material for transformers. There are only 14 manufacturers of CRGO electrical steel worldwide, who create scarcity & high prices. We have a CRGO domestic requirement of ~ 13,50,000 MT in 2017-22 which may need to be entirely imported.
- 7.4.3.2 Another key gap is material for Porcelain Insulators. Mining of clay undertaken by small miners using obsolete technology and clay produced is not up to industry standards. Large insulator manufacturers are importing clay from US, Australia etc.

7.4.4 Key policy actions

- 7.4.4.1 To make procurement of equipment under local competitive bidding and not under Internationally Competitive Bidding (ICB) in domestically funded projects under Ministry of Power, Ministry of Steel and Ministry of Non Conventional Energy, CPSUs and in projects funded by Power Finance Corporation (PFC) and Rural Electrification Corporation (REC).
- 7.4.4.2 To direct REC/ PFC to ensure that utilities follow a transparent two-part bidding process / e-tendering in procurement in central schemes and in projects funded by REC/ PFC.
- 7.4.4.3 To mandate testing of equipment of foreign suppliers in Indian laboratories, like Central Power Research Institute (CPRI) and Electrical Research & Development Association (ERDA) wherever test certificate is a prerequisite.
- 7.4.4.4 To mandate requirement of service center in India in tender specifications.
- 7.4.4.5 To upgrade testing and calibrating infrastructure in the country, especially for high voltage equipment, on a high priority basis under PPP mode and also by providing funding support to the existing testing facilities like CPRI.

- 7.4.4.6 To foster collaborative R&D with application across the sector backed by the government or a government owned agency or by partly financing a consortium of companies.
- 7.4.4.7 To promote international cooperation between R&D institutes and emphasize technology transfer, especially in hydro power.
- 7.4.4.8 To cover higher percentage of incentives to electrical and mechanical power generation equipment under Merchandise Exports from India Scheme (MEIS).
- a) To provide special incentives for steam turbines using green fuels like bio mass under MEIS or other such schemes.
- 7.4.4.9 To incentivize Indian steel manufacturers to manufacture Cold Rolled Grain Oriented Electrical Steel (CRGO) for domestic supply and exports.
- 7.4.4.10 To exclude CRGO Steel in 'Steel and Steel Products (Second) Quality Control Order' as it is only used to manufacture Electrical Transformers for which Electrical Transformers Quality Control Order is applicable.
- 7.4.4.11 To review emission norms for power generation sets, especially for >800kW sets.
- 7.4.4.12 To extend Phased Manufacturing Programme (PMP) for another 3 years beyond current validity of October 2015 for all State and Central Power Projects.

7.5 PLASTICS PROCESSING MACHINERY

7.5.1 **Current Status:** Current market size for plastic machinery sub-sector is Rs 2,658 Cr. The sector has been struggling over last 3 years with negative growth rate of 5.9% p.a. Production, currently at Rs 1,976 Cr has also reduced by 1.4% p.a. Import constitutes 60% of total demand; also 46% of total production is exported.

7.5.2 Key issues

7.5.2.1 **Competition from cheaper imports:** Domestic manufacturers meet 95% of processing industry needs on technology and product range. Product technology

remains at par with leading brands of developed world. However, machinery import from China and Far East countries enters the Indian market due to price considerations.

- 7.5.2.2 **Lack of skilled manpower:** Skilled manpower is in short supply in associate and supervisory category for processing industry as well as in machinery manufacturing. The education system in current form and curriculum prevalent at institutes and universities does not create industry employable manpower, with exception of diploma and degree in plastics stream conducted by some of the institutions.
- 7.5.2.3 **Need to establish efficient supply chain:**Quality and reliability of the product is decided by the quality of components put into its construction and the cost of the product is decided by cost of parts from supplier. Industry needs to pay attention to develop efficient supply chain for cost-quality–delivery leveraging the cluster approach.
- 7.5.2.4 **Need to create efficient infrastructure.**
- 7.5.2.5 **Financial assistance for further expansion:**Imports are mainly from Far East on account of low price and shorter delivery. To serve the growing demand for machinery all the major machinery manufacturers have undertaken capacity expansion with high investment in plant & machinery and up gradation in technology. Further investments are necessary to raise the production volumes and technology to global scales as volumes will give price competitiveness.
- 7.5.2.6 **High cost of capital:**Due to the high cost of capital, processors in small scale sectors tend to decide on machinery selection primarily based on price. They end up choosing low to medium technology machines and sometimes opting for used machinery. However it soon proves to be a bad investment as these processors incur high operating cost as well as lose on productivity and also consume higher energy.
- 7.5.2.7 **Cost disadvantage due to duty structure in FTAs:** Duty reductions to 5% for Extrusion and Zero for Injection Moulding Machines (IMM) in FTAs with South

Korea and ASEAN have put domestic machinery at disadvantage on price. IMM imports below 1000T from China were stopped by imposing anti dumping duty since May 2009. Now manufacturers from China are routing the machines through ASEAN. The biggest manufacturer of China has set up plant in Vietnam to find legitimate route to export machinery to India. This is detrimental to Indian manufacturing industry.

7.5.2.8 **Used machinery imports from developed countries:** Advancement in processing machinery for enhancing the energy efficiency and productivity has happened in the recent past. Under the compulsions to reduce the carbon footprint, processors in the developed world are replacing older machines with new technology machines. Thus used machinery from developed world is entering the developing world at cheap rates.

7.5.2.9 **High Input Costs:** Most components are imported from Europe, USA and Japan and attract 7.5% customs duty.

7.5.3 **Key technology gaps**

7.5.3.1 Screws of plasticizing units are a key industry requirement. Fast advancing developments have been experienced in polymers, additives, reinforcement fillers. Knowledge of polymer behavior throughout processing cycle and required screw profile are essential to keep machinery at par with industry needs.

7.5.3.2 Metal Injection Moulding (MIM), Micro Injection moulding for Medical parts, Polyurethane Reaction Injection Moulding Machines, Machinery for milk-packaging containers and retortable bottles are the immediate next candidates for domestic production based on market volumes.

7.5.4 **Key policy actions**

7.5.4.1 To ensure Basic Customs duty on Plastics Machinery imports of at least 7.5% in new FTA/PTAs under negotiation or planned for negotiation.

- 7.5.4.2 To create technology development fund for processing sector (user industry) for plant modernization with new energy efficient machines.
- 7.5.4.3 To encourage indigenization of Technology parts through Joint ventures with technology partner using infrastructure of existing weak/Sick PSUs.
- 7.5.4.4 To facilitate Skill Development amongst operatives, engineers and managers.
- 7.5.4.5 To form association to collaborate with international universities or facilitate association of international universities with IIT/NIT with proficiency in polymer technology.
- 7.5.4.6 To encourage leading manufacturers of wear resistant materials and coating technologies used in Plasticizing Barrels and Screws to set up manufacturing facilities in India.
- 7.5.4.7 To form association to engage a proficient polymer technology institute to develop polymeric material & seal profile and manufacture indigenously.

7.6 PROCESS PLANT EQUIPMENT

7.6.1 **Current Status:** Current market size for process plant equipment sub-sector is Rs. 24,149 Cr. The sector has not changed significantly in size over last 3 years with negative growth rate of 0.2% p.a. Production, currently at Rs 18,900 Cr has reduced by 1.6% p.a. Import constitutes 54% of total demand; also 41% of total production is exported.

7.6.2 Key issues

7.6.2.1 **FTA and protectionism related issues:** Indian companies have been losing market share to companies in Korea, more so since the FTA with Korea. Korean raw material and component manufacturers give preferential prices to domestic capital goods manufacturers. China and Malaysia are also protecting local industries.

7.6.2.2 **High taxes and Duties:** Government has given preferential treatment / exemptions to certain industries and has reduced the custom duty from 85% to Zero / 5% / 7.5%.

There is Zero duty for some project imports. Special Additional Duty / Special Countervailing Duty was exempted for import of some goods but local manufacturers pay CST / VAT. The domestic manufacturers suffer not only on account of cheap imports but have inherent cost disadvantages. All domestic manufacturers of equipment are rendered uncompetitive due to additional burden of Sales Tax, Entry Tax, Octroi, VAT, and other local duties and levies etc.

- 7.6.2.3 **Import of second hand machinery:** As per the present policy, old machinery can be imported without any restriction of age, resulting into huge import of second hand machinery into India. This is affecting the domestic capital goods industry adversely. Old machinery is also being imported to various SEZs without payment of tax and duties. This machinery is refurbished later for use. This is adversely affecting the domestic capital goods industry.
- 7.6.2.4 **Export Credit Agency funding:** There is a tendency for mega projects to be funded on limited re-course basis, supported by funding from ECAs. Indian ECAs are however not mature enough to support large size projects, and hence are unable to service the funding needs of the promoter, trying to set up process plants. Once the project is funded by ECA, in general, there is a clause which supports sourcing of equipment only from the donor country/countries. This leads Indian companies to lose their market share. Currently majority of funding is done from EU, USA, China, Japan etc. Moreover, spares and equipment replacement scope also comes under scope of these ECA countries.
- 7.6.2.5 **High financial costs:** Typical lead time for supply of Process plant equipment is 12-18 months. The differential interest rate between LIBOR and Indian prime lending rate is higher than the import duty. Considering many of Indian manufacturers are SMEs, this by itself can dramatically reduce our competitiveness and hence, the market share. Further, this interest differential inhibits stocking of material and thereby further increases the delivery cycle time.

- 7.6.2.6 **Logistics issues:** Infrastructure constraints make it risky to move large size equipment. Need for global competitiveness demands setting up of process plant of large capacity. This necessitates large size equipment. It takes far less time to import goods from Middle East & Europe than to move the equipment over 200 kms in Indian roads.
- 7.6.2.7 **Need for focused manufacturing:** Constraints of paper work related to taxation hinder development of model involving integrator and component manufacturers – a model followed by in Korea. This offers significant competitiveness by having focused manufacturing. Further in order to avail VAT/Tax credit, there exists extensive paper work which is a deterrent towards principle focused manufacturing for completing the equipment on time.
- 7.6.2.8 **Lack of mass manufacturing:** Several companies are not able to scale up due to unavailability of mass manufacturing. The government could consider nil duty for machinery for automation and targets to be achieved by beneficiary firm in terms of cost, quality, delivery and productivity should be specified. In house development for up-gradation of technology or productivity should be considered as R&D expense.
- 7.6.3 **Key policy actions**
- 7.6.3.1 To develop strong coordination between Ministry of Heavy Industry and Ministry of Petrochemical / Chemicals while framing policies.
- 7.6.3.2 To make the Export Obligation Period clause applicable to 'individual' equipment also and not restricted to completion of 'turnkey' supplies.
- 7.6.3.3 To set up a raw material bank for special materials (Imported High alloys) under Metals and Minerals Trading Corporation (MMTC) or State Trading Corporation (STC) so that this nodal entity stocks / imports such specific materials and sells in small quantities/ need based which will enable MSMEs to meet time schedules for delivery.

7.7 DIES, MOULDS & PRESS TOOLS

7.7.1 **Current Status:** Current market size for dies, moulds and press tools sub-sector is Rs. 15,100 Cr. The sector has not changed significantly in size over last 3 years with negative growth rate of 0.3% p.a. Production, currently at Rs 14,647 Cr has increased by 3% p.a. Import constitutes 22% of total demand; and 20% of total production is exported.

7.7.2 Key issues

7.7.2.1 **Frequent technology obsolescence:** Technology gets frequently outdated in the sector creating the want for better return on investment. Lead time also needs to be reduced by adding equipment of latest technology. New technology is required not just for the operational aspect but also for overall general management system.

7.7.2.2 **Need to improve quality of services** such as committed delivery period, assistance in component design and development.

7.7.2.3 **Lack of skill availability for changing industry:** Skill set of manpower needs to be enhanced by training as the requirements of the tool room industry keep changing.

7.7.2.4 **Need to upgrade manufacturing** set up to improve quality and costs.

7.7.3 Key policy actions

7.7.3.1 To provide special depreciation rates spread over 3 years for better Return on Investment (ROI) due to frequent technology obsolescence.

7.7.3.2 To set up centers for growth at four locations for specific needs, including testing trials and on-job training.

7.7.3.3 To initiate Skills Development Certification Program, a short duration focused training to sponsored employees for upgrading their skills.

7.8 PRINTING MACHINERY

7.8.1 **Current Status:** Current market size for printing machinery sub-sector is Rs. 18,057 Cr. The sector has grown at 15.1% p.a. over last 3 years. Production, currently at Rs 13,740

Cr has also grown by 17.6% p.a. Import constitutes 27% of total demand. Only 4% of total production is exported.

7.8.2 Key issues

7.8.2.1 **Import of sub-standard machinery:** Import of second hand printing, packaging and allied machinery under OGL Scheme without even proper verification and restriction on the age of machinery. The CIF price of the machinery is also under-invoiced and shown much less than its existing value in the overseas market.

7.8.2.2 **Need for better infrastructure:** Need ready to move Infrastructure for Promoting SMEs, Research & Development Centre and Testing Labs for Printing and Packaging Sector.

7.8.3 Key technology gaps

7.8.3.1 The most significant gap is in Digital Printing Technology & Pre- Press Computer to Plate (CTP) technology. These are currently 99.99% imported, with no local manufacturing despite bright future prospects of the technology.

7.8.4 Key policy actions

7.8.4.1 To set up R&D Centre and Testing Labs for Printing and Packaging Sector.

7.8.4.2 To provide ready to move infrastructure on lease.

7.9 METALLURGICAL MACHINERY

7.9.1 **Current Status:** Current market size for metallurgical machinery sub-sector is Rs. 2,749 Cr. The sector has been struggling over last 3 years with negative growth rate of 12.4% p.a. Production, currently at Rs 1,260 Cr has reduced by 1% p.a. Import constitutes a very significant portion of total demand at 94%; also 88% of total production is exported.

7.9.2 Key issues

- 7.9.2.1 **High cost of capital:** A substantial amount of Working Capital is required by a Machinery Manufacturer as the cycle time is long, running sometimes into a few years. The Indian Capital Goods industry suffers a major disadvantage on interest rates when compared with foreign manufacturers. In addition, foreign manufacturers are offered deferred LC payments of 1-2 years placing Indian manufacturers at a major disadvantage.
- 7.9.2.2 **Condition of “evidence of previous supply”** imposed by customers inhibits indigenous development of new machinery. Domestic manufacturers are not inclined to develop new machinery with additional features as they will not even be eligible to quote for the new product because of this clause by customer.
- 7.9.2.3 **Foreign Competition Factor:** Markets like China, Malaysia protect local industry. Korean and Chinese component manufacturers preferentially support capital goods manufacturers in Korea and China. There is also a tendency of foreign process licensors / EPC contractors to source equipment from their country. European market is also getting to be protective due to lack of growth in their countries.
- 7.9.2.4 **Lack of research & development.**
- 7.9.2.5 **Technology gaps and obsolescence.**
- 7.9.2.6 **Skill gaps** and shortage of skilled manpower for manufacturing sector and R&D.
- 7.9.2.7 **Lack of coordination** between Metallurgical machinery and user sector on payment terms, demand outlook and technology up gradation.
- 7.9.3 **Key policy actions**
- 7.9.3.1 To fund R&D Projects via direct government aid, aid from Steel Development Fund or cess on Metallurgical industries for R&D Fund.
- 7.9.3.2 To initiate and spearhead bilateral technology alliances with select countries for steel plant equipment.

- 7.9.3.3 To set up centre of excellence / design institute in coordination with user industries and machinery manufacturers.

7.10 FOOD PROCESSING MACHINERY

7.10.1 **Current Status:** Current market size for food processing machinery sub-sector is Rs. 15,600 Cr. The sector has grown at 4.4% p.a. over last 3 years. Production, currently at Rs 12,180 Cr has also grown by 5.4% p.a. Import constitutes 35% of total demand. Only 17% of total production is exported.

7.10.2 Key issues

7.10.2.1 **Need for incubation center:** There is an acute need of an incubation center for food processing and packaging machinery in India which will provide a platform for the Indian manufacturers to innovate, experiment and discover better technologies.

7.10.2.2 **High import duties on components:** Some of the critical equipments are not manufactured in India and machinery manufacturers need to import them. In some cases duties on these vital equipments reach upto 30%.

7.10.2.3 **Direct financial help for export promotion** is needed for participation in global events.

7.10.2.4 **Infrastructure related disabilities:** Infrastructure related hurdles in roads, airports, railways, power, skilled man power, etc increase cost of the production by at least 10 percent for several sectors, including food processing.

7.10.3 Key policy actions

7.10.3.1 To set up good incubation centers to develop better machinery with the assistance of Agro & Food Processing Equipment & Technology Providers Association of India (AFTPAI).

- 7.10.3.2 To impose Zero Duty on equipments and components vital for making final machinery, especially those which are not manufactured in India.
- 7.10.3.3 To provide training facilities for workforce and institute Scholarship Programs.
- 7.10.3.4 To provide export incentives similar to those provided to processed food products manufacturers from Agricultural and Processed Food Products Export Development Authority (APEDA).

CHAPTER 8: GOVERNANCE MECHANISM FOR POLICY INITIATIVE

8.1 The National Capital Goods Policy requires the cooperation of a variety of stakeholders for smooth implementation including Central and State governments, Ministry of Finance, Ministry of Commerce, DGFT, Ministry of Heavy Industries & Public Enterprises (HI&PE) and ministries of user industries like the Ministry of Defense, Ministry of Railways, Ministry of Power, Ministry of Oil & Gas, Ministry of Steel, Ministry of Fertilizer, Ministry of Mines, Ministry of Chemicals & Petrochemical etc, industry associations, manufacturing firms and end user firms. Ensuring that the views of all stakeholders including impacted ministries and users are considered and needs are addressed with assessment of trade-offs, a periodic review of the policy at the senior most level is recommended. To this end, the following institutional arrangements are proposed to govern this important policy initiative and potential roles and responsibilities of key stakeholders have been defined.

8.2 Institutional Arrangements

8.2.1 **Inter-ministerial and inter-departmental committee at Government of India level:**

Constitute an inter-ministerial committee coordinated by Ministry of Heavy Industries & Public Enterprises (HI&PE) with Secretariat participation. The key functions of the committee will be:

- 8.2.1.1 To assess and monitor progress on domestic market share status vis-à-vis targets for capital goods sub-sectors on an annual basis.
- 8.2.1.2 To drive coordinated action across departments and ministries to achieve desired competitive domestic capabilities leading to increased market share in the sector.
- 8.2.1.3 To monitor and evaluate effectiveness of the actions through appropriate reporting and communication mechanisms.

8.2.2 Inter-ministerial Capital Goods Technology Committee: Set up Inter Ministerial Capital Goods Technology Committee comprising of Principal Scientific Advisor and representatives from industry including key associations and CEOs of leading corporations, Department of Scientific and Industrial Research (DSIR), select academia, Confederation of Indian Industry. Key sub sectoral associations could include the Indian Machine Tools Manufacturers Association (IMTMA), Textile Machinery Manufacturers Association (TMMAI), Indian Construction Equipment Manufacturers Association (ICEMA), Indian Electrical and Electronics Manufacturers Association (IEEMA), Process Plant & Machinery Association of India (PPMAI), Plastics Machinery Manufacturers Association of India (PMMAI), Indian Printing Packaging and Allied Machinery Manufacturers Association (IPAMA), Tool & Gauge Manufacturers Association of India (TAGMA) and Agro & Food Processing Equipment & Technology Providers Association of India (AFTPAI). The key function of the committee will be:

8.2.2.1 To assess technology gaps highlighted by industry leveraging a framework on an annual basis.

8.2.2.2 To recommend prioritized actions to steer a technology development roadmap for each sub-sector.

8.2.3 Joint implementation mechanism with State Governments: Form a group which will work with State Governments for development and implementation of Capital Goods policies and formation of cluster units in the state. The key task of such group would be to actively monitor the status of implementation of projects in the end user industry segments for capital goods and ensuring utilization of allocated funds.

8.3 Roles and responsibilities of stakeholders

8.3.1 Roles and responsibilities of Central Government

8.3.1.1 Ensuring coordination across government departments and ministries to further the objectives of the Capital Goods policy and managing conflict.

8.3.1.2 Providing regulatory framework and schemes to support the capital goods sector as per this policy and providing an enabling environment for all stakeholders.

8.3.1.3 Considering modifications in policies, guidelines and practices in procurement, taxation, foreign investment, foreign trade and international relations to support the capital goods sector.

8.3.1.4 Providing financing for key initiatives highlighted in the policy.

8.3.1.5 Setting up of monitoring, evaluation and dissemination of information.

8.3.2 **Roles and responsibilities of State/ local Government**

8.3.2.1 Working closely with the Central government to ensure implementation of capital goods policies in the state and highlight any challenges faced.

8.3.2.2 Promoting investor friendly policies in the state and aiding speedy implementation of projects.

8.3.2.3 Actively working towards cluster development in the state.

8.3.3 **Roles and responsibilities of Industry associations**

8.3.3.1 Actively contributing in government forums and committees (including the Technology Committee) to highlight key industry concerns, technology gaps and suggestions from the industry.

8.3.3.2 Providing regular and accurate data on key performance indicators for respective sub-sectors and other data as required to facilitate tracking, goal setting and periodic review of policy initiatives.

8.3.3.3 Working closely with Central and State governments to aid in implementation of key policy and capacity building initiatives.

8.3.3.4 Highlighting industry and sub-sector specific issues with proposed solutions to facilitate industry growth.

8.3.4 **Roles and responsibilities of manufacturing industries/ companies**

- 8.3.4.1 Actively leveraging available government schemes, incentives and support mechanisms to improve performance outcomes and increasing awareness of the same.
- 8.3.4.2 Contributing to improving India's brand image in international markets by delivering high quality products and complying with standards.
- 8.3.4.3 Creating an enabling environment promoting and rewarding innovation.
- 8.3.4.4 Investing in skill development activities.
- 8.3.4.5 Participating in forums of industry associations and government to highlighting key challenges and suggestions.

CHAPTER 9: CONCLUSION

- 9.1 The Capital Goods sector is a very large and important sector and a key contributor to manufacturing activity in India. The growth of the sector has been lagging in recent years and the sector is facing a variety of issues and challenges. The National Capital Goods Policy is envisaged to immediately address the needs of the sector and proactively facilitate growth and development of the sector. The policy has laid out a vision and mission for the sector for the coming decade and proposed a comprehensive set of policy actions which would enable the achievement of the objectives for the sector.
- 9.2 The Government of India has recognized the importance of the sector in the past and introduced the 'Scheme for Enhancement of Competitiveness for the Indian Capital Goods Sector.' This scheme and other government initiatives and schemes not specific to, but also serving the capital goods have been studied and mechanisms to leverage the same and further strengthen them have been proposed. In addition, a set of new initiatives and policy actions have been recommended. Nine key policy actions are summarized below:
- 9.2.1 Devising a long term, stable and rationalized tax and duty structure to ensure cost competitiveness of the sector.
 - 9.2.2 Drafting a comprehensive public procurement policy with amended qualifying criteria and introducing special provisions in contracts for domestic value addition.
 - 9.2.3 Promoting development of new technology through indigenous sources.
 - 9.2.4 Providing Technology Upgrade Fund Support across all capital goods sub-sectors.
 - 9.2.5 Creating a level playing field vis-à-vis imports by restricting imports of second hand machinery and mitigating duty disadvantages.
 - 9.2.6 Supporting availability of short and long term of financing at competitive rates to capital goods manufacturers.

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- 9.2.7 Enabling skill development by setting up sub-sector specific Skill Councils.
 - 9.2.8 Enabling higher participation of India in standard creation and developing support system to improve compliance.
 - 9.2.9 Developing manufacturing clusters with shared facilities especially for SMEs.
- 9.3 The smooth implementation and effectiveness of the policy will require alignment and joint action of several ministries and departments and have implications on multiple stakeholders and user industries. To this end, a governance mechanism has been proposed in the form of inter-ministerial and inter-departmental committees at the highest level to ensure due consideration of the interests of all stakeholders. The committees will be tasked with driving coordinated action and monitoring the progress and effectiveness of policy on an annual basis.
- 9.4 The capital goods sector operates in a dynamic local and global environment and it is imperative for the policy to undergo a periodic review and revision to maintain its relevance. The National Capital Goods Policy will be reviewed every five years and revised appropriately to take account of progress in implementation and emerging trends in the national and international environment.
- 9.5 The National Capital Goods Policy is a major step to unleash the potential of this promising sector and is envisaged to contribute significantly to achieving the overall vision for manufacturing and “Make in India” as laid out by the Government of India.

