EXPORT-IMPORT BANK OF INDIA

OCCASIONAL PAPER NO. 169

INDIAN CAPITAL GOODS INDUSTRY: A SECTOR STUDY

CONTENTS

Project Team :
Mr. S. Prahalathan, Chief General Manager, Research and Analysis Group
Mr. Ashish Kumar, Assistant General Manager, Research and Analysis Group
Ms. Renuka Vijay, Chief Manager, Research and Analysis Group
Ms. Jahanwi, Manager, Research and Analysis Group

LIST OF TABLES

LIST OF BOXES

LIST OF EXHIBITS

EXECUTIVE SUMMARY

The capital goods sector is of strategic importance to the Indian economy. It has a multiplier effect on the overall economic growth as it facilitates development for a broad base of user industries by providing critical inputs, i.e. machinery and equipment necessary for manufacturing. Therefore, the development of domestic capabilities in the capital goods sector is essential to ensure self reliance, as the sector directly or indirectly influences core manufacturing development within India.

During 2010-11, the capital goods industry grew significantly by 15% compared to a near flat growth of 1% during 2009-10. However, this performance could not be sustained in 2011-12, when output of the capital goods industry actually registered a decline of (-) 4.1%. This frail performance worsened in 2012-13, when the capital goods industry recorded a steep y-o-y decline of (-) 6.1%. During 2013-14, capital goods declined by (-) 3.7%, as compared to the previous year.

While the demand for capital goods in the country has been witnessing a consistent increase, domestic capital goods manufacturers have not been able to keep up with the pace of demand, leading to increasing dependence on imports across market segments. This is reflected in the significant trade deficit that the country has in the capital goods sector with imports at US$ 45 bn, being thrice the exports at US$ 15 billion in 2012. The trade deficit has been growing consistently since the last five years with certain segments like electrical equipment and machinery recording a CAGR of 22% in trade deficit.

It is estimated that nearly one-third of the domestic demand for capital goods is being catered through imports. Cumulative, FDI inflows from April 2000 to May 2014 in the capital goods sector amounted to only around US$ 9 billion (about US$ 600 million per year) which was just 4.1% of total FDI inflows into the country during this period. Added to this, due to various reasons, including capacity

constraints, the delivery schedules of Indian capital goods suppliers are longer than their foreign counterparts. According to industry sources, delivery schedule of locally made capital goods in many cases is 1.5 to 2 times longer than in industrialized nations.

Some of the reasons that could be cited for growing imports and low capacity creation in domestic economy include inverted duty structure and ECB policies in favour of imports. Major inputs for production of the capital goods attract higher customs duty than finished products. Further, the zero duty EPCG scheme allows import of capital goods for pre-production, production and post-production at zero customs duty. The cost arbitrage between ECB funds and domestic funds works out to about 1% to 2%. As per the extant ECB guidelines, ECB funds could be used for procurement of domestic capital goods, but the borrower needs to declare in advance the amount required for such local sourcing at the time of applying for Loan Registration Number and has to repatriate the proceeds immediately to his Rupee account maintained with AD in India. On the other hand, ECBs meant for use in foreign currencies (or import of capital goods) can be parked abroad with stipulated agencies. Such policies leave the domestic capital goods industry in a disadvantageous position.

While the capital goods industry is fairly diverse, this study focuses on non-electrical (i.e. machine tools, textile machinery, construction and mining machinery and process plant, office equipment and parts) and electrical machinery. The total production of the Indian capital goods sector (as defined above) amounted to Rs 1,67,775 crore in FY2012, with a predominant share of 75% contributed by the electrical machinery segment. Being a large and growing economy, domestic demand for most segments of capital goods industry is greater than the production capacity, and thus, a major portion of the demand is met through imports.

CAPITAL GOODS: INTERNATIONAL TRADE SCENARIO

Globally, the largest exporter of capital goods during 2012 was China with a share of 19% in total world exports (US$ 2.62 trillion), followed by Germany (12%), USA (10%), Japan (8%), Italy (4%) and Hong Kong (4%). India stood at the 28th position, with a share of 0.6% in total world exports of capital goods. The major importers were USA (15%), China (10%), Germany (7%), Hong Kong (4%), UK (4%) and France (4%). India stood at the 17th position with a share of 2% in total world imports.

During 2012, India's exports of capital goods stood at US$ 15.0 billion, growing by 2.0% over the previous year. Imports of capital goods grew at a slower pace of 1.7% to reach US$ 45 billion in 2012. India's major export destinations were: USA (15%), UAE (7%), Germany (5%), UK (5%) and China (3%). The major import sources were China (29%), Germany (12%), Japan (10%), USA (8%) and South Korea (6%).

SEGMENT-WISE EXPORT ANALYSIS

Machine Tools

World exports of machine tools amounted to US$ 78.54 billion in 2012, recording a CAGR of 0.1%. The major exporters were Japan, with a share of 18.4%, followed by Germany (17.5%), China (13.7%), Italy (8.1%) and Taiwan (6.7%). India stood at the 28th position, with a share of 0.3% in total exports of machine tools.

As far as imports are concerned, China was the largest importer of machine tools in 2012, accounting for a share of 18% of world imports. Other major importers included USA (14%), Germany (6%), Russia (5%) and Thailand (4%). India was the sixth largest importer of machine tools, with a share of 3.3% of global imports.

India had a significant trade deficit in the machine tools sector with exports aggregating to US$ 235 million, while imports amounted to US $ 2.58 billion during 2012. This deficit has widened over the years, reflected in the variance in CAGRs with exports exhibiting a modest CAGR of 3.6%, as against a higher CAGR in imports of 4.2% during 2008-12. India's major export destinations of machine tools in 2012 were Belgium (8%), China (7%), USA (7%), Germany (6%) and UAE (5%), while major import source countries were Japan (24%), China (16%), Germany (13%), South Korea (10%) and Italy (8%).

Textile Machinery

With a share of 20% in total world exports of US$ 39.5 billion, China was the largest exporter of textile machinery in 2012, followed by Germany (15%), Italy (10%), South Korea (7%) and Japan (7%). India stood at the 20th position, with a share of 0.8% in world exports of textile machinery.

China was also the largest importer of textile machinery, accounting for a share of 12.1% of world imports. Other major importers included USA (10.4%), Germany (5.6%) and Turkey (5.4%). India was the fifth largest importer of textile machinery, with a share of 5.4% in total world imports in 2012.

Even in the case of textile machinery, India had a fairly wide trade deficit of around US$ 1.7 billion in 2012. Trade deficit narrowed somewhat in 2012 on the back of imports declining at a faster y-o-y rate (-15.0%) than exports (-6.9%). The share in world imports remained almost same as previous year, even after the decline. Major export destinations of textile machinery in 2012 were Bangladesh (12%), Germany (12%), Indonesia (7%), China (6%) and Turkey (6%), and major import source countries were China (36%), Germany (17%), Japan (12%), Italy (9%), and Switzerland (5%).

Construction and Mining Machinery

USA with a share of 15.4% in total world exports (amounting to US$ 39.7 billion) was the largest exporter of construction and mining machinery in 2012, followed by Germany (12.1%), China (11.8%), Japan (7.8%) and Italy (5.2%). India stood at the 26th position, with a share of 0.6% in global exports of construction and mining machinery.

USA was also the largest importer of construction and mining machinery, accounting for a share of 11.7% of global imports in 2012, followed by Russia (5.9%), Canada (5.8%), Germany (5.0%) and Australia (4.9%). India was the fifteenth largest importer of construction and mining machinery, with a share of 1.8% in total world imports.

India's export of construction machinery was valued at US$ 1.55 billion, while imports stood at US$ 4.22 billion in 2012. India's exports witnessed a strong y-o-y growth rate of 16.9%, increasing India's share in world exports to 0.6% in 2012 from 0.5% a year back. Imports on the other hand witnessed a y-o-y decline of -2.0%. UAE (12%), USA (9%), Singapore (7%), UK (7%) and Indonesia (3%) were the major export destinations, and China (28%), Germany (12%), USA (12%), South Korea (8%) and Japan (7%) were the main source countries for construction and mining machinery in 2012.

Process Plant, Office Equipment and Parts

China was the largest exporter of process plant, office equipment and parts in 2012, with a share of 20% in total world exports. Other major exporters included Germany (11.4%), USA (10.2%), Japan (7.3%) and Italy (4.5%). India stood at the 27th position, with a share of 0.5% in total world exports of process plant, office equipment and parts in 2012.

As far as imports are concerned, USA was the largest importer in 2012 accounting for a share of 16.9%, followed by China (9.2%), Germany (7.1%) and Hong Kong (4.1%). India was the sixteenth largest importer of process plant, office equipment and parts, with a share of 1.7% in the total world imports.

During 2012, India exported process plant/machinery worth US$ 8.8 billion (an increase of 1% over the previous year), and imported process plant/ machinery worth US$ 27.8 billion, (recording a y-o-y growth of 4.4%). USA (16%), UAE (6%), Germany (5%), UK (5%) and China (4%) were the major export destinations, while China (30%), Germany (12%), Japan (9%), USA (8%), and South Korea (5%) were the main source countries of process plant, office equipment and parts in 2012.

Electrical Equipment and Machinery

Global exports of electrical equipment and machinery amounted to US$ 589.3 billion in 2012, registering a growth of 0.8% over the previous year. China, with a share of 18.6% in total world exports, was the largest exporter of electrical equipment and machinery in 2012 followed by Germany (12.1%), USA (8.6%), Japan (8.3%) and Hong Kong (6.0%). India stood at the 28th position, with a share of 0.7% in total world exports of electrical equipment and machinery.

The largest importer of electrical equipment and machinery in 2012 was USA (13.6%), followed by China (11.9%), Germany (7.5%), Hong Kong (6.0%) and Mexico (4.1%). India was the eighteenth largest importer of electrical equipment and machinery, with a share of 1.5% in the total world imports.

India exported electrical equipment and machinery worth US$ 4.08 billion during 2012, while imports aggregated to US$ 8.33 billion. As compared to the previous year, exports and imports declined by -0.6% and -1.3%, respectively during 2012. India's major export destinations for electrical machinery were: USA (18%), UAE (6%), Germany (6%), UK (4%) and Saudi Arabia (3%), while the major source countries were: China (32%), Germany (13%), Japan (9%), USA (7%) and South Korea (5%).

TRADE DEFICIT IN CAPITAL GOODS: A SEGMENT-WISE ANALYSIS

Capital goods sector showed a negative trade balance in both the years 2008

and 2012. This was mainly due to the fact that the sector is predominantly dependent on imports. Segment-wise analysis in Table 1 below reveals that all the segments have shown negative trade balance in 2008 and 2012. Process plant, office equipment and parts showed the largest trade deficit (US$ 18.97 bn) followed by electrical equipment and machinery (US$ 4.24 bn), construction and mining machinery (US$ 2.67 bn), machine tools (US$ 2.35 bn) and textile machinery (US$ 1.73 bn).

The main contributors to trade deficit at HS-6 digit level under each of the segments are given below:

- Machine tools (US $ 2.35 bn): machining centres, for working metal (HS 845710), presses for working metal (HS 846299), bending/folding/straightening/ flattening machines (including presses) for working metal (HS 846229), forging or die-stamping machines (including presses) & hammers for working metal (HS 846210), and grinding machinery in which positioning of 1 axis can be set up to an accuracy of atleast 0.01mm (HS 846029).

- Textile machinery (US $ 1.73 bn): machines for weaving fabrics (HS 844630), textile winding (including weft-winding) or reeling

Table 1: India's Segment-wise International Trade in Capital Goods

Product Description with HS codes	India's Exports (US$ bn)		CAGR 2008-12 (%)	India's Imports (US$ bn)		CAGR 2008-12 (%)	Trade Balance (US$ bn)		CAGR 2008-12 (%)
	2008	2012		2008	2012		2008	2012	
Capital Goods	11.76	15.00	6.3	33.53	44.97	7.6	-21.77	-29.97	8.3
Machine Tools	0.20	0.24	3.6	2.20	2.59	4.2	-1.99	-2.35	4.2
Textile machinery	0.20	0.34	14.3	1.91	2.07	2.0	-1.72	-1.73	0.2
Construction & Mining machinery	0.90	1.55	14.5	4.65	4.22	-2.4	-3.75	-2.67	-8.1
Process plant, office equipment, parts	6.7	8.8	7.2	19.04	27.77	9.9	-12.37	-18.97	11.3
Electrical Equipment & machinery	3.79	4.08	1.9	5.74	8.33	9.8	-1.95	-4.24	21.5

Source: PCTAS, Exim India Analysis

machines (HS 844540), textile spinning machines (HS 844520), machines for making gimped yarn/tulle/lace/embroidery and the like (HS 844790), and machines for extruding, drawing, text or cutting man-made textile materials (HS 844400).

- Construction and mining machinery (US$ 2.67 bn): parts of cranes, work-trucks, shovels, and other construction machinery (HS 843149), transporter or bridge cranes (HS 842619), machines for agglomerating mineral fuels and foundry moulds of sand etc (HS 847480), derricks, cranes or work trucks fitted with a crane, self-propelled (HS 842649), and lifts and skip hoists (HS 842810).

- Process plant, office equipment and parts (US $ 18.97 bn): portable digital computers <10kg (HS 847130), parts & accessories of automatic data processing machines & units thereof (HS 847330), engines, diesel, for the vehicles of HS 87 (HS 840820), computer data storage units (HS 847170), and machines & mechanical appliances having individual functions (HS 847989).

- Electrical equipment and machinery (US $ 4.24 bn): electrical machines and apparatus (HS 854389), static converters (HS 850440), parts of electric motors, generators, generating sets & rotary converters (HS 850300), parts for use with the apparatus of switching or protecting electrical circuits, boards, panels, consoles, desks, cabinets (HS 853890) and electric accumulators (HS 850780).

PRODUCT & MARKET IDENTIFICATION OF CAPITAL GOODS

While India needs to further consolidate its share in the major import markets, there are countries where India already has an exposure but at relatively lower levels. These markets are the potential growth drivers for India's capital goods exports and need to be suitably targeted.

This study has attempted to draw out a products - market segmentation matrix by categorising the capital goods sector into four segments, based on growth dynamics, viz. 'Product Champions', 'Underachievers', 'Growth in declining world markets' and 'Losers in declining markets'.

The number of products identified under each of these segment is given in Table 2.

MAJOR CHALLENGES

Technological Competency

The technologies used for production, as also in assembly of some of the sub-segments of Indian capital goods sector, are not always updated in tune with the global technological trends. While there are some players who have technological competencies, especially in design capability, application innovation, and process innovation, the technological capabilities of large number of players, particularly the SME units, are limited. In addition, the technological competencies of SME players, who provide components or intermediates to original equipment manufacturers, are also limited. Transfer of technology from other developed countries has also not been significant despite liberalization of policies for technology transfer and foreign direct investments. Further, the products offered by indigenous manufacturers are not always cutting edge; often there exists a large technology gap between domestic and foreign manufacturers of capital goods, leaving user industries with little recourse other than importing them in some of the sub-segments of capital goods for several equipment categories. As demands of user industries evolve over time and the demand for next generation of products increases, this technology gap will be widening and crippling the sector.

Delivery Schedules

Most capital goods are not supplied off-the-shelves and are custom-made to suit the requirements of end users. Thus, the delivery schedule to cater to the order is longer than many other engineering products. However, due to various reasons, including capacity constraints, the delivery schedules of Indian capital goods suppliers are longer than their foreign counterparts. The quality of infrastructure (transport, communication and power) is inadequate, thus affecting competitive delivery schedules, and increasing the operating costs. The delivery time of locally made capital goods in many cases is 1.5 to 2 times longer than in industrialized nations[1]. Inland transport is slow, although the railroad density in India is amongst the highest in the world. The cost of electric power is comparable to that in other developing nations, but the reliability is uncertain. Many Indian capital goods firms have set up their own captive power plants to obviate the problem. This has added to the costs. Overall, according to industry sources, the infrastructure inadequacies are estimated to translate into 5% cost disadvantage for Indian capital goods manufacturers vis-a-vis foreign manufacturers.

[1]Report on Indian capital goods sector by PWC

Low R&D Intensity

Low spending on research and development by capital goods sector has increased India's dependence on capital goods imports which have been growing over the years. Analysis of gross domestic expenditure on R&D as percentage of GDP for select countries shows that India has very low share in the total expenditure on R&D compared to other countries. While India's share of R&D expenditure was 0.9% of GDP in 2014, China held twice the share at 2%. Israel was the country with the largest share in R&D expenditure with a share of 4.2%. While these data represents the overall trend in these economies, the encouraging point is that the R&D intensity of Indian capital goods industry has been increasing – from 0.45% in 2006-07 to 1.42% during 2012-13. Further, while this fares well when compared to other sectors, there is still a lot of room for increasing R&D expenditure so as to reduce import dependence.

Challenge of Inverted duty structure

Inverted duty structure refers to a situation where final product attracts less duty than inputs that go into manufacturing of that product. Indian capital goods sector, comprising Indian corporates in public and private sector and large number of small and medium enterprises, continue to be burdened with inverted duty structure and tax anomalies. Even though customs duty on capital goods (under HS Codes 84, 85, 90) was reduced to 7.5% from 12.5%, major inputs for production of the capital goods attract

Table 2: No. of Products Identified for Market Analysis

Product Category	Product Champions	Underachievers	Growth in declining world markets	Losers in declining markets
Machine tools	16	6	15	13
Construction and mining machinery	27	8	20	15
Process plant, office equipment and parts	85	37	81	46
Textile machinery	14	10	9	6
Electrical Machinery	37	9	53	19

Detailed analysis is given in Chapter 4.
Source: PCTAS, Exim Bank Research

higher customs duty than finished products. For instance, the customs duty on seamless tubes of alloy/ non-alloy steels that find usage in boilers and heat exchangers is 10%, while the customs duty on boilers and heat exchangers is 7.5%. Also, zero duty EPCG scheme allows import of capital goods (including CKD/SKD (completely-knocked-down/semi-knocked-down) as well as computer software systems) for pre-production, production and post-production at zero customs duty. This discourages local manufacturing and value addition, hence putting the domestic capital goods sector at a disadvantage. The government is planning to review this inverted duty structure to increase local manufacturing and reduce imports.

SELECT STRATEGIES

Encourage private sector investment in technology and innovation

One of the major reasons cited for low volume of domestic capital goods production is low greenfield FDI inflows and limited focus on R&D by Indian companies. Indian investment in R&D is largely government driven. Indian firms need to be encouraged to invest in R&D which will make them technologically strong. Corporate sector investment in R&D is less than 1% of sales in India as compared to about 5% in several developed countries. India is ranked at 66th position in global innovation index[2], with countries like South Korea (18), Malaysia (32), China (35), South Africa (58) and Thailand (57) well above in global rankings. Proactive policies are required that incentivize industry efforts to invest in innovation and develop new products. This needs to be supported through financial and fiscal incentives.

Countries like Brazil have been providing special financing package for the capital goods sector through the state development bank, BNDES, which lends at significantly low rates (about 400 bps lower than benchmark Selic rate – equivalent to Indian Repo rate) for upto 10 years to buy domestically manufactured capital goods. Some countries, such as Canada, are providing dual tax credit allowances system that rewards both incremental expenses in R&D, as well as the level of spending in R&D. While India may like to consider such measures, additional tax credits for SME units engaged in R&D activities could also be considered. Such enabling provisions would help promote greenfield FDI inflows into this sector,

[2]Global Innovation Report 2013

facilitating technology transfer and capacity development in the domestic manufacturing.

Another solution is to have strategic takeovers to acquire critical technologies, in order to bridge the technology gap, as also capacity gap. An example is that of South Korea, where capital goods manufacturers have been particularly aggressive in adopting this approach. Some have obtained access to the triad of BTG or Boiler-Turbine-Generator technologies entirely through strategic acquisitions, enabling them to enter the class of GE, Siemens and Alstom as companies capable of providing end to end solutions for fossil fuel based power plants. An example is that of Doosan Heavy Industries & Construction, a South Korean EPC contractor, which has signed an agreement to buy Czech power plant equipment maker, Skoda Power, under which Skoda Power will provide the rights to proprietary turbine technologies used in power plants. One of the benefits the acquisition brings is that Doosan will be able to build and supply turbines for EPC projects rather than purchasing from third-party suppliers. Another benefit is that Doosan will have a full BTG line-up, allowing it to pursue more profitable BTG package orders, a market segment open only to the top industry players.

Strengthening Technological Competencies

In order to enhance productivity, product quality and operating efficiency, the players in the sector need to constantly upgrade their technological competencies. The Department of Heavy Industry, Government of India, has proposed to undertake a comprehensive scheme for technology upgradation and R&D facilities, for modernization of capital goods industry. The proposed schemes could endeavour to help the players in the Indian capital goods industry in tracking global trends in product and process technologies, with specific objective of cost control, besides enhancing productivity, energy efficiency, eco-friendliness, product quality, operating flexibility and efficiency. The scheme could also help enhance the usage of information technology that provides convenience to the customers, and help enhance customer base and provide new avenues for profitability. The R&D Centres could also be conceived as training platforms for skill upgradation of the shop-floor technicians in the capital goods industry.

Redefining Investment Cap for SMEs

An important reason for low technology orientation of Indian SMEs is low level of ceiling on capital investment, especially for medium enterprises. SMEs are major players in capital goods & engineering sector; more than 80% of the units are SMEs[3]. Although MSMEs play an important role in India's economic growth, be it in terms of their contribution to manufacturing value-added, exports or employment generation, not many units have the ability to access technological expertise or mobilize resources for in-house innovation. Also, the cap on plant and machinery for the purpose of classifying the units as MSMEs does not encourage Indian MSMEs to move up the value chain. It may be mentioned that within the manufacturing sector, micro enterprises are classified as those with investment in plant and machinery not exceeding Rs 25 lakh. While investments in plant and machinery for a small enterprise has been kept in the range between Rs 25 lakh and Rs 5 crore, a medium enterprise is defined with investment in plant and machinery in the range between Rs 5 crore and Rs 10 crore. With such low level of investment ceiling, MSMEs in capital goods sector are either expanding laterally or engaging themselves in low-tech/low-value products. Since the manufacturing operations in capital goods industry are capital intensive, investment ceiling for treatment of medium enterprises may be raised at least in the capital goods sector, benchmarking with such ceiling on investment in other countries. Some countries (such as EU and China) have positioned the ceiling on investment for medium enterprises at high level, encouraging capital intensiveness, technology upgradation, quality improvement, export orientation and employment generation. The Hon'ble Finance Minister in his maiden Union Budget (2014-15) has indicated revisiting the existing capital investment ceiling of MSMEs in India. While this is a positive step, the revision of ceiling on capital investment for medium enterprises in India may be increased at least to an extent of US$ 10 million to US$ 12 million, to encourage higher investments for technology absorption, quality upgradation, and export orientation.

Transformation in Objective and Approach

Sale of capital goods is not a one time business but requires technical support in transportation, erection, staff training

[3]Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

(for operation and minor repairs), continuous service maintenance and periodical upgradation in technology. All over the world, the capital goods manufacturers are turning themselves as engineering services companies, offering turnkey solutions to retain the customers. Players in Indian capital goods industry could also reorient their approach to transform themselves into service based organizations. Such service orientation would help the industry in strengthening the competitive advantage.

Cluster Development Approach

Industrial clusters have been proven to have several advantages in promoting the growth of a particular sector or industry. It is recognized that enterprises can achieve high levels of competitiveness if they work in a cluster environment ensuring complementarities, common facilities, collective activities including collective sourcing and marketing. Since majority of the firms in the capital goods sector are SMEs, they would also benefit from working in a cluster. For instance, currently there are only a limited number of Common Facility Centres, which can offer heavy and high precision machining services to users on a chargeable basis and are equipped with advanced testing equipments. As a result, a lot of players have to invest independently in testing and machining facilities, raising overall manufacturing costs. Clusters can be useful in such situations by increasing supply chain responsiveness because of manufacturing consolidation near the suppliers.

A good example of how cluster development can strengthen an entire sector is the model of the Taiwanese CNC Machine Tool Industrial Park. Nanjing Taiwanese CNC Machine Tool Industrial Park was built in 2002 with a planning area of 5 square kilometers. At present, there are 52 enterprises settled in the park, including Boyang Mold, Ligang Casting, Jiuqing Machinery, Nante Precise Machinery, Gaoqing Machinery, Rongdong Machinery, Yingyuan Science & Technology, and Techomiller Machinery to form a industrial chain of moulding, casting, machining, thermal treatment, milling and production of precise CNC machine. At present, among these enterprises, three of them are engaged in casting, ten in machining, three in milling, two in sheet metal, three in tool magazine, two in screw rod, two in thermal treatment and ten in production of whole machine. In 2007, it was listed as one of the 100 key industrial clusters in Jiangsu Province and was granted with the reputation of Famous Town of CNC Machine Tool of Nanjing in 2008. Similar approach

could be adopted for development of machine tool clusters / industrial parks in India to develop the Indian machine tool industry.

Introducing New Product Lines

Over the years, players in the Indian capital goods industry have been diversifying the product lines offered with the objective of mitigating risks associated with business and cyclical trends. However, more focus needs to be given in building new generation machines that may be in demand in future. Such new generation machines should have greater flexibility to produce a variety of products and also create opportunities for offering engineering services that are less sensitive to business and cyclical fluctuations. This trend is already evident in developed markets which continue to be at the forefront of innovation and new technology. Greater automation is driving the development of the next generation of industrial machinery. While such technical innovation is absorbed first by the developed world, it is adopted later by the developing world as well. In order to become a global force, Indian capital goods sector needs to understand these changes and also evolve to serve user industries with the next generation products. For instance, a sector where technical innovation and automation is becoming ever more important in mature markets is mining equipment. Next generation mining is transforming operations that were once manual and local into those that are automated, remotely operated and integrated. Increasingly, a steep change in productivity is being delivered through integration of equipment with information technology. The usage of autonomous haulage or unmanned vehicles for earth moving is a step in that direction. These earth movers are equipped with GPS, CCTV cameras, inertial guidance systems and leverage dispatch route planning and guidance software for functioning. Several global mining players are already migrating towards such advanced means of autonomous haulage.

Leverage domestic demand for localization and technology transfer

India represents one of the fastest growing markets in the world. Local demand provides a unique opportunity for capital goods manufacturers to scale up. This fact needs to form the basis for developing a long term growth strategy for Indian capital goods sector. The government needs to ensure an environment that promotes investments in local manufacturing and enables the domestic players to compete on a level playing field. Examples of countries such as China

and South Korea, where this has been the basis for creating global giants, could be suitably adapted in the Indian context.

China has been extremely successful in building a world class manufacturing sector. Chinese value addition in manufacturing has shown a dramatic rise in the last decade, and is now approaching that of USA. Acquisition of technology and building self sufficiency in capital goods has played a major role in this rise. This has been accomplished through proactive policies, prominent amongst them being a strong procurement policy favouring goods produced within the country. China's public procurement policies clearly lay down a preference for domestic goods with extensive controls over purchase of imported products (requiring several approvals and special procedures). The Chinese government's procurement law spells out that the government shall procure goods, construction and services goods from outside only in the event that "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" or "where the items to be procured are for use abroad". There is also a clearly stated preference for domestic innovation. Such policies have led to localisation of several capital goods products. Foreign players eager to capture the Chinese market setup production facilities in China to locally manufacture the goods. At the same time manufacturers were also encouraged to think of ways in which they can acquire technology. India should also learn from such experiences and wherever feasible, public procurement should have preference for local manufacturers.

Promotion of Intelligent Manufacturing

Significant engineering skills, with the combination of hardware, software and system integration skills are required in the evolution stage of advanced technology products. This niche area is called intelligent manufacturing. These are usually high tech products which provide high value addition but low volumes in highly quality conscious capital goods sector. India has a competitive advantage in this sector where a large proportion of value addition is through software and system integration. According to a Strategy Paper on 'Doubling Exports in Next Three Years (2011-12 to 2013-14)', prepared by the Ministry of Commerce, Government of India, establishing joint ventures with Chinese

companies, which have manufacturing strengths and substantial market share in third world countries, would help in increasing high tech exports in the short term to developing countries in Africa and the Middle East.

Promoting Investments in Hi-tech Capital Goods Sector

Government could identify hi-tech zones in consultation with state governments, where investments may be encouraged through fiscal and financial instruments. Analysis of hi-tech zones like Chengdu (China) and Colorado (USA) reveals that these regions, despite being land-locked (away from ports by about 800 kms) have increased their exports, provided additional employment and generated higher tax revenues than neighbouring regions that have not adopted hi-tech manufacturing strategy. Hi-tech manufacturing is region-neutral and does not require large land area. Suitable geographies may be identified in various states to develop hi-tech zones. A conscious attempt is required to be made to attract foreign and domestic investment in these sectors by offering special incentives as is being offered by other countries.

Special incentives could include fiscal measures for setting up of manufacturing facilities, R&D Centres, world class logistics and infrastructure and easy to do business facilities, etc. There would be no adverse fiscal impact on the government, if provided with tax holidays, as it will be just a notional loss; however, the investments could potentially benefit in long term if the units are profitable through job creation, additional investments and eventually more revenues (through both direct and indirect taxes). There would also be spin-off benefits, viz. creation of ancillary segments supplying to the large hi-tech goods producing units.

Skill development

Skilled manpower is required in two different categories. The first relate to provision of skilled people to the immediate requirements of the economy such as ITI trained persons, skilled persons at polytechnic and graduates, while certain industries like chemicals, pharmaceuticals etc., need highly skilled persons like PhD holders. In terms of enrolment for PhD, the number in India is 5,000, which is very small compared to 1,20,000 scholars in China and 50,000 scholars for PhDs in USA. Only 375 PhDs were awarded in India, of which engineering disciplines contributed to about 100[4].

There is need to improve the turnout of PhDs, for which a long term plan needs to be drawn up. The second category of skill development is for the long term growth and strength of the knowledge economy. These are science & technology skills of a high order which can be developed only in the longer run. They include basic research and directed applied research. There is need to give high priority to this area of skill development not only from the point of view of strengthening competitiveness and economic growth, but also from the point of addressing the requirement of long-term national security.

OUTLOOK & SUMMING UP

The capital goods sector derives majority of its demand from the manufacturing sector. The sector performed only modestly over the last couple of years with most segments of the sector having trade deficit, which has only deteriorated of late. Further, the share of the manufacturing sector in India's GDP is still low when compared to other peer group countries. However, given the Government of India's focus and vision to increase the share of the manufacturing sector to 25% of GDP, there remains a significant upside going forward. This is further buttressed by the increased focus on infrastructure during the 12th Five Year Plan which has targeted an investment of US$ 1 trillion in infrastructure.

On the whole, the outlook for the capital goods industry in India remains bright, particularly over the medium and long-term. According to the Report of the Working Group on Capital Goods and Engineering Sector for the 12th Five Year Plan (2012-2017), production of capital goods and engineering goods sector is projected to cross Rs. 681,000 crore by 2016-17 from the level of Rs 312,557 crore in 2011-12, with adequate Government support, thereby recording an impressive CAGR of 16.9%.

It is felt that select strategies, covering steps such as encouragement of private sector in R&D and innovation, strategic takeovers, cluster development approach, redefining investment caps for SMEs and focussed investment in hi-tech capital goods sector, will go a long way in boosting the performance of capital goods sector and help it achieve the projected growth.

[4]Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

Table 3: Projected Production of Select Categories of Capital and Engineering goods in India (Rs. Cr)

	2011-12	2012-13*	2013-14*	2014-15*	2015-16*	2016-17*	CAGR (%)
Machine Tool	4530	5663	7078	8848	11060	13824	25.0
Plastic machinery	4650	5600	6850	8400	10300	12700	22.0
Earthmoving & Mining Machinery	10000	16826	22356	26633	30528	34924	28.4
Heavy Electrical	126312	145421	167521	193097	222719	257050	15.3
Metallurgical Machinery	1300	1600	2100	2800	3800	5800	34.9
Textile Machinery	7072	8000	9400	11000	13000	14300	15.1
Process Plant Equipment	19861	22244	24913	27902	31250	35000	12.0
Engineering Goods	124558	145551	170451	200059	235358	277526	17.4
Dies, mould & Press tools	14274	16686	19016	22235	25493	29878	15.9
Total	**312557**	**367591**	**429685**	**500974**	**583508**	**681002**	**16.9**

Note: * Projected
Source: Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

1. INTRODUCTION

Capital goods industry forms the backbone of the manufacturing activity. A vibrant capital goods industry is a prerequisite for propelling the growth of the manufacturing sector in any country, irrespective of its stage of economic development. India today has a strong and diverse base of capital goods, primarily an outcome of the country's import substitution policy followed during most part of the last century, particularly post-independence period. Some of the prominent capital goods produced in India include heavy electrical machinery, textile machinery, machine tools, earthmoving and construction equipment including mining equipment, road construction equipment, printing machinery, dairy machinery, industrial refrigeration, and industrial furnaces. All these are key inputs and have a strong bearing on the performance of the country's manufacturing sector.

While there is no set definition of capital goods, a study commissioned by the Government of India has described capital goods as plant machineries for agricultural, industrial and commercial segments of economic activities that have economic asset life of over three years. The Working Group on Capital Goods and Engineering Sector for the 12th Five Year Plan (2012-2017) defines capital goods as those comprising plant and machinery, equipment / accessories required for manufacture / production, either directly or indirectly, of goods or for rendering services, including those required for replacement, modernization, technological upgradation and expansion. It also includes packaging machinery and equipment, refrigeration equipment, power generating sets, equipment and instruments for testing, research and development, quality and pollution control.

United Nations' International Standard Industrial Classification (ISIC) of all economic activities (Revision - 3)[5]

[5] While the 4th revision of ISIC is already in place, cross-country data on manufacturing sector collated by UNIDO's International Yearbook of Industrial Statistics 2013 are still arranged as per Revision 3 of ISIC. Accordingly, this study is based on ISIC Revision 3.

classifies most of the capital goods items under three divisions (29, 30 and 31) with the following codes:

291 - Manufacture of General Purpose Machinery

292 - Manufacture of Special Purpose Machinery

293 - Manufacture of Domestic Appliances

300 - Manufacture of Office, Accounting and Computing Machinery

311 - Manufacture of Electric Motors, Generators, and Transformers

312 - Manufacture of Electricity Distribution and Control Apparatus

313 - Manufacture of Insulated Wires and Cables

314 - Manufacture of Accumulators, Primary Batteries

315 - Manufacture of Electric Lamps and Lighting Equipments

319 - Manufacture of Other Electric equipments

In addition, divisions 32 (Manufacture of radio, television and communication equipment and apparatus) and 33 (Manufacture of medical, precision and optical instruments) are also considered as capital goods. These are mainly used in electronics or services industries.

2. GLOBAL SCENARIO

According to the 2014 International Year Book of Industrial Statistics brought out by United Nations Industrial Development Organisation (UNIDO), China was the largest manufacturer[6] of machinery and equipment (ISIC Code 29), with a share of 27% in 2012. Machinery and equipment mainly consists of general purpose machinery (engines, turbines, pumps, compressors, taps, valves, bearings, gears, ovens, furnaces, lifting and handling equipments) and special purpose machinery (such as agricultural machinery, machine tools, metallurgical machinery, mining/ quarrying / construction machinery, textile / leather machinery, and food processing machinery). Other major producers were Japan (14.0%), Germany (13.5%), USA (10.3%), Italy (4.8%), and South Korea (2.9%). India stood at the twelfth rank holding a share of 1.3% of global production of machinery and equipment in 2012.

Within developing and emerging countries (other than China), India was the largest producer of machinery and equipment, with a share of 16.4% in cumulative production of emerging countries (excluding China)[7], followed by Poland (14.0%), Brazil (13.8%), Turkey (10.4%) and Mexico (9.5%). There has been a shift in production of machinery and equipment in the last decade, with many countries moving up in terms of market share. While India managed to increase its share from 13.0% in 2005 to 16.4% in 2012, share of Brazil and Mexico decreased from 16.0% and 10.6% in 2005, to 13.8% and 9.5% in 2012, respectively (Table:4).

In the case of Office, Accounting and Computing Machinery (ISIC 30), China was again the world's leading producer with a share of 42.1% in world production in 2012, followed by USA (22.2%), Japan (8.1%) and Germany (6.8%). Among emerging countries,

[6]In terms of world total value added at constant 2005 prices. All rankings in this study are based on total value added unless mentioned otherwise

[7]In terms of total value added of developing and emerging economies (excluding China) at constant 2005 prices. All references to developing countries for the purpose of rankings in this study are based on total value added of developing and emerging countries unless mentioned otherwise and exclude China.

Mexico was the main producer of Office, Accounting and Computing Machinery with a share of 29.4% in 2012. India was the fifth largest manufacturer with a share of 8.3% in the total production of developing and emerging countries (Table: 5).

In the case of Electrical Machinery and Apparatus (ISIC 31), China was yet again the world's leading producer with a share of 27.2% in world production in 2012, followed by Japan (15.4%), Germany (13.8%), USA (11.5%) and France (2.9%). Among developing countries, Mexico was the main producer of Electrical Machinery and Apparatus (ISIC 31) with a share of 16.7% in cumulative production of developing countries in 2012, followed by Turkey (10.6%), Brazil (10.6%) and Poland (10.0%) (Table: 6).

Table 4: World Leading producers of Machinery and Equipment, 2012 (ISIC 29)

Leading countries and their share in the World production		**Leading countries and their share in the developing and emerging regions' production (other than China)**	
Countries	**% share**	**Countries**	**% share**
China	27.0	India	16.4
Japan	14.0	Poland	14.0
Germany	13.5	Brazil	13.8
USA	10.3	Turkey	10.4
Italy	4.8	Mexico	9.5
South Korea	2.9	Thailand	6.8
France	2.6	South Africa	4.0
UK	2.3	Iran	3.4
Spain	1.6	Indonesia	2.6
Sweden	1.4	Argentina	2.3
Austria	1.4	Romania	2.1
India	1.3	Egypt	1.8
Switzerland	1.2	Venezuela	1.8
Poland	1.1	Bulgaria	1.2
Canada	1.1	Greece	1.2
Others	**13.5**	**Others**	**8.7**

Source: International Yearbook of Industrial Statistics, 2014, UNIDO.

Table 5: World Leading producers of Office, Accounting and Computing Machinery, 2012 (ISIC 30)

Leading countries and their share in the world production		Leading countries and their share in the developing and emerging regions' production (Other than China)	
Countries	**% share**	**Countries**	**% share**
China	42.1	Mexico	29.4
USA	22.2	Philippines	18.1
Japan	8.1	Brazil	10.9
Germany	6.8	Thailand	10.2
Taiwan	3.3	India	8.3
South Korea	2.6	Vietnam	8.3
Singapore	2.5	South Africa	3.1
Ireland	1.7	Poland	2.3
Mexico	1.4	Romania	1.8
France	1.0	Iran	1.0
Canada	1.0	Turkey	1.0
Philippines	0.8	Costa Rica	0.8
Malaysia	0.6	Algeria	0.8
Netherlands	0.5	Croatia	0.6
Brazil	0.5	Kazakhstan	0.5
Others	**4.9**	**Others**	**2.9**

Source: International Yearbook of Industrial Statistics, 2014, UNIDO.

Table 6: World Leading producers of Electrical Machinery and Apparatus, 2012 (ISIC 31)

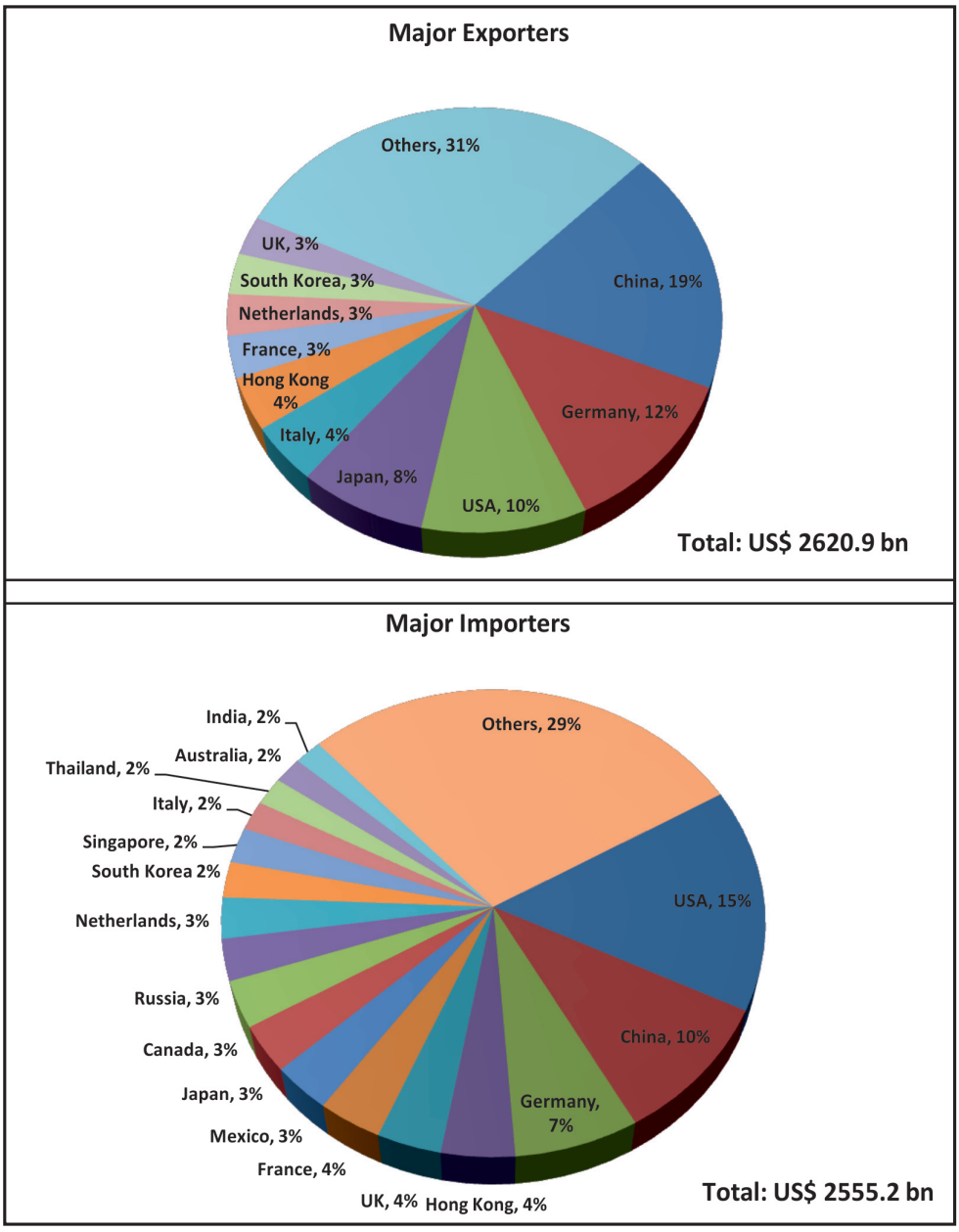
Leading countries and their share in the world production		Leading countries and their share in the developing and emerging regions' production	
Countries	**% share**	**Countries**	**% share**
China	27.2	Mexico	16.7
Japan	15.4	Turkey	10.6
Germany	13.8	Brazil	10.6
USA	11.5	Poland	10.0
France	2.9	Thailand	7.8
Italy	2.7	Indonesia	6.0
S. Korea	2.4	South Africa	5.7
Spain	2.0	Iran	3.9
UK	1.8	Philippines	3.3
Switzerland	1.4	Romania	2.9
Mexico	1.3	Argentina	2.1
Czech Republic	1.1	Ukraine	1.7
Austria	1.0	Venezuela	1.6
Canada	1.0	Vietnam	1.5
Hungary	0.9	Pakistan	1.4
Others	**13.6**	**Others**	**14.2**

Source: International Yearbook of Industrial Statistics, 2014, UNIDO.

Global Trade of Capital Goods

Global exports of capital goods stood at US $ 2.6 trillion and the largest exporter of capital goods in the year 2012 was China, with a share of 19% in total world exports, followed by Germany (12%), USA (10%), Japan (8%), Italy (4%) and Hong Kong (4%). India stood at the 28th position, with a share of 0.6% in total world exports of capital goods. The major importers were USA (15%), China (10%), Germany (7%), Hong Kong (4%), UK (4%) and France (4%). India stood at the 17th position, with a share of 1.8% in total world imports (Exhibit: 1, Table: 7).

Exhibit 1: Major Exporters and Importers of Capital Goods in the World, 2012



Source: PCTAS, Exim Bank Analysis

Table 7: Major Exporters and Importers of Capital Goods (US $ bn)

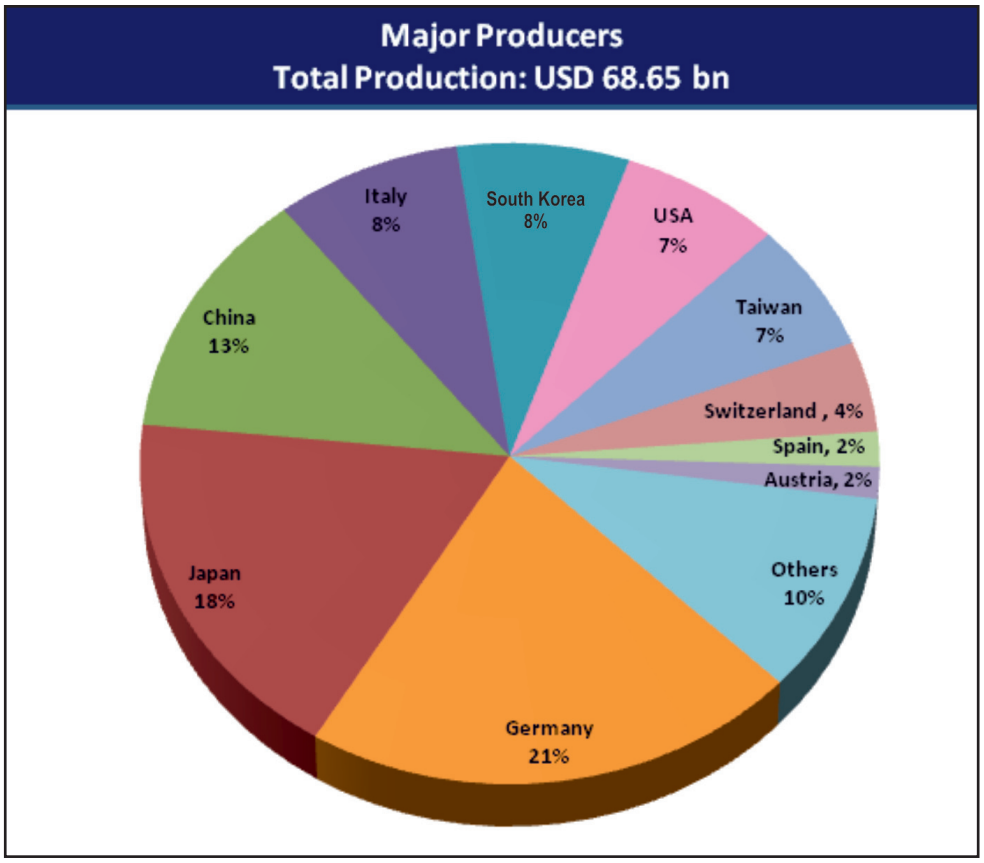
Rank	Exporters	2008	2012	CAGR	% share	Rank	Importers	2008	2012	CAGR	% share
	World	**2458.2**	**2620.9**	**1.6%**	**100.0%**		**World**	**2400.6**	**2555.2**	**1.6%**	**100.0%**
1	China	359.3	490.4	8.1%	18.7%	1	USA	326.0	395.2	4.9%	15.5%
2	Germany	331.5	311.3	-1.6%	11.9%	2	China	194.8	247.7	6.2%	9.7%
3	USA	254.3	265.6	1.1%	10.1%	3	Germany	182.9	178.0	-0.7%	7.0%
4	Japan	195.1	206.2	1.4%	7.9%	4	Hong Kong	78.4	104.7	7.5%	4.1%
5	Italy	132.7	115.4	-3.4%	4.4%	5	UK	95.8	92.2	-1.0%	3.6%
6	Hong Kong	79.2	105.0	7.3%	4.0%	6	France	104.0	91.5	-3.2%	3.6%
7	France	97.6	83.3	-3.9%	3.2%	7	Mexico	64.6	84.7	7.0%	3.3%
8	Netherlands	85.5	82.5	-0.9%	3.1%	8	Japan	76.9	84.2	2.3%	3.3%
9	South Korea	61.6	82.1	7.4%	3.1%	9	Canada	72.9	83.0	3.3%	3.2%
10	UK	81.8	78.4	-1.0%	3.0%	10	Russia	56.5	73.5	6.8%	2.9%
28	**India**	**11.8**	**15.0**	**6.3%**	**0.6%**	**17**	**India**	**33.5**	**45.0**	**7.6%**	**1.8%**

Source: PCTAS, Exim Bank Analysis

MACHINE TOOLS

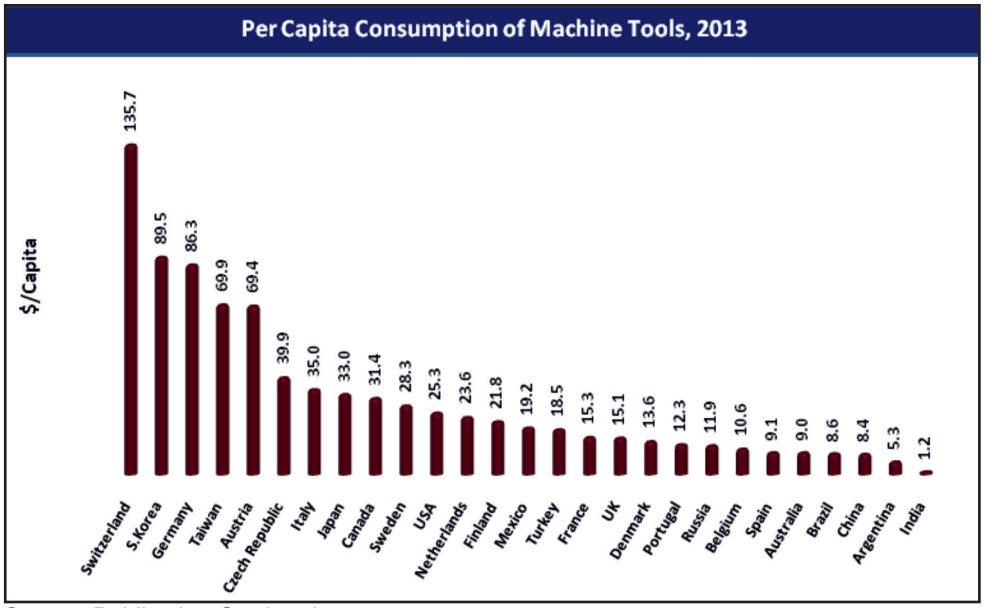
The total production of machine tools by the top global producers was US $ 68.65 billion in 2013, experiencing a decline of (-) 9% over the previous year. Germany was the largest producer of machine tools accounting for 21.4% of the world production. Other major producers were Japan (18.0%), China (12.7%), Italy (8.3%), South Korea (7.7%) and USA (7.2%) (Exhibit: 2). India was the 16th largest producer of machine tools in the world with production totalling to US $ 658 million, declining by (-)17.5% compared to previous year.

Exhibit 2: Major Producers of Machine Tools in the World, 2013



Source: Publication Gardner Inc.

Exhibit 3



Source: Publication Gardner Inc.

In terms of per-capita consumption[8] of machine tools, Switzerland tops the list with the per capita consumption valued at US $ 136 in 2013. Other major countries in terms of per capita consumption include South Korea (US $ 89.5), Germany (US $ 86.3), Taiwan (US $ 69.9) and Austria (US$ 69.4). India stood at the 27th position with a per capita consumption of US $ 1.2 (Exhibit: 3).

Trade

World exports of machine tools amounted to US$ 78.54 billion in 2012, recording a CAGR of 0.1% during the period between 2008 and 2012. The major exporters were Japan, with a share of 18.4% followed by Germany (17.5%), China (13.7%), Italy (8.1%) and Taiwan (6.7%). India stood at the 28th position with a share of 0.3% in total exports of machine tools (Table: 8, Exhibit: 4).

As far as imports are concerned, China was the largest importer of machine tools in 2012, accounting for a share of 18.1% of world imports. Other major importers included USA (14.0%), Germany (6.2%), Russia (4.7%) and Thailand (4.3%). India was the 6th largest importer of machine tools with a share of 3.3% of global imports in 2012 (Table: 8, Exhibit: 4).

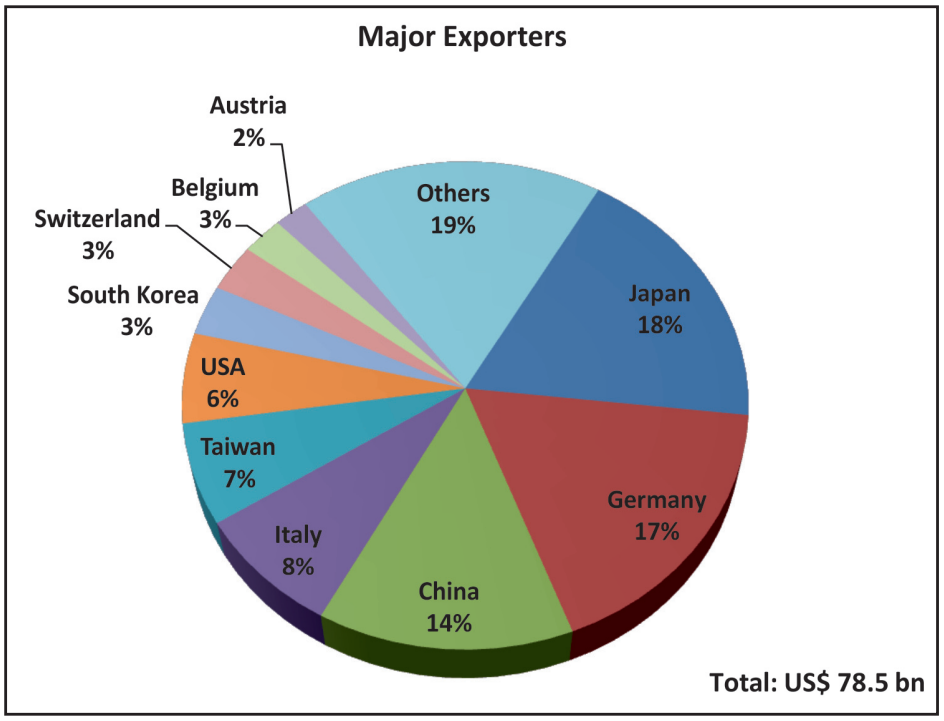
[8]Consumption weighted by population.

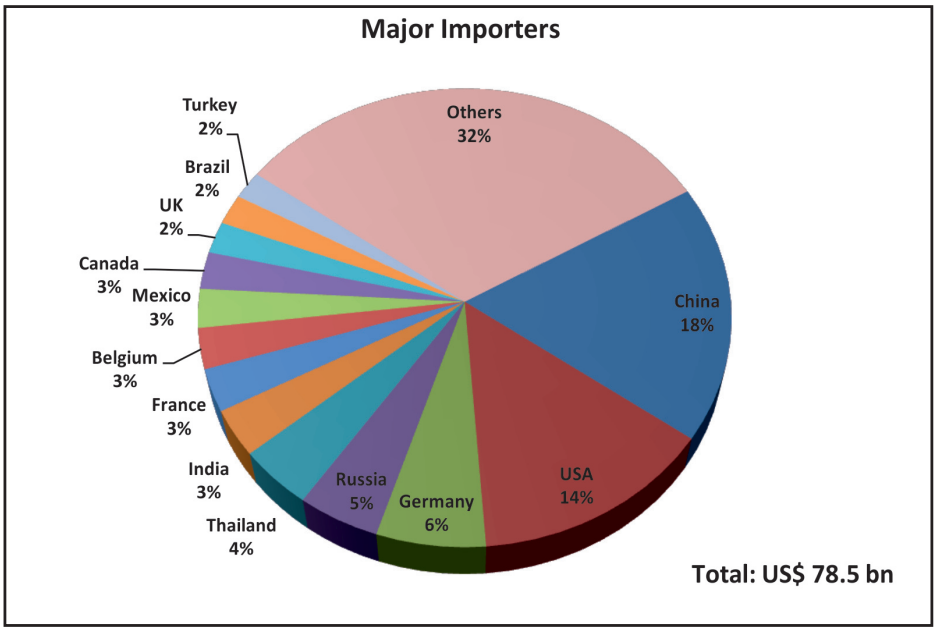
Table 8: Major Exporters and Importers of Machine Tools (US $ mn)

Rank	Exporters	2008	2012	CAGR	% share	Rank	Importers	2008	2012	CAGR	% share
	World	**78136**	**78539**	**0.1**	**100.0**		**World**	**76895**	**78537**	**0.5**	**100.0**
1	Japan	11411	14459	6.1	18.4	1	China	8314	14222	14.4	18.1
2	Germany	15660	13730	-3.2	17.5	2	USA	10147	11018	2.1	14.0
3	China	7929	10779	8.0	13.7	3	Germany	6049	4881	-5.2	6.2
4	Italy	7741	6343	-4.9	8.1	4	Russia	3097	3689	4.5	4.7
5	Taiwan	4742	5250	2.6	6.7	5	Thailand	1419	3381	24.2	4.3
6	USA	4329	4695	2.0	6.0	**6**	**India**	**2197**	**2587**	**4.2**	**3.3**
7	South Korea	1929	2621	8.0	3.3	7	France	3049	2351	-6.3	3.0
8	Switzerland	3999	2468	-11.4	3.1	8	Belgium	2921	2245	-6.4	2.9
9	Belgium	2744	1991	-7.7	2.5	9	Mexico	1877	2152	3.5	2.7
10	Austria	1869	1649	-3.1	2.1	10	Canada	1913	2054	1.8	2.6
28	**India**	**204**	**235**	**3.6**	**0.3**						

Source: PCTAS, Exim Bank Analysis

Exhibit 4: Major Exporters and Importers of Machine Tools, 2012





Source: PCTAS, Exim Bank Analysis

TEXTILE MACHINERY

Demand for textile machinery is directly dependent on growth in textile industry, and to some extent indirectly dependent on the demand in other sectors including housing and automobiles, as these sectors also consume textile products like upholstery and carpets. Production process of textile machinery is cyclical in nature and is dependent on capital investments by textile industry, which slows down during recession, and accelerates when the economic activity is vibrant. The rapid pace of technological innovations taking place in the textile machinery market has resulted in the production of more efficient machines at low prices. Complete automation at a reasonable cost, coupled with flexibility, has become the watchword of the industry.

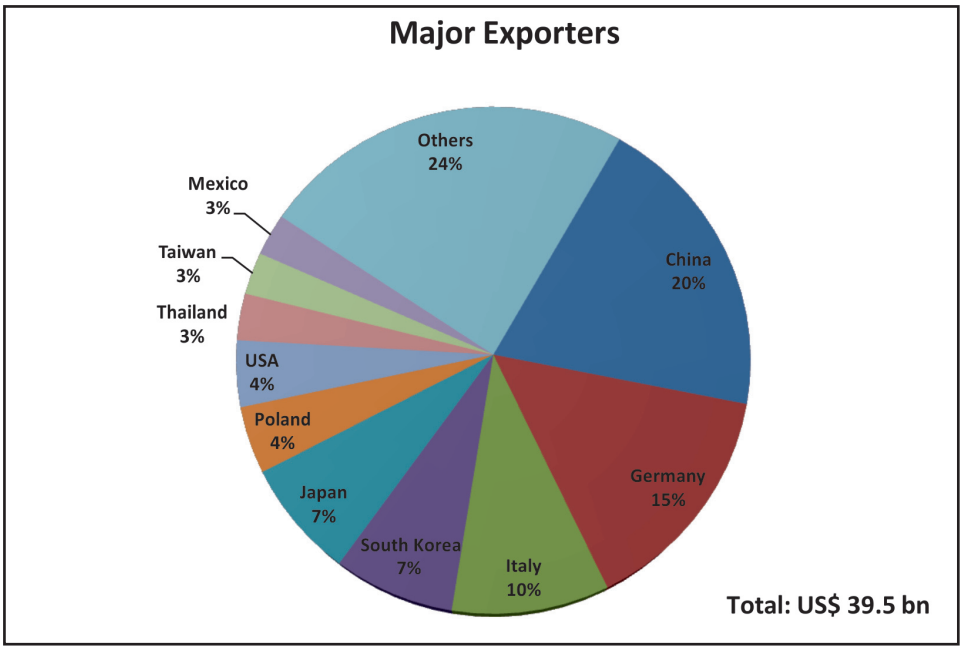
Textile machinery market is closely influenced by the policies impacting the textile industry. Global textile production and consumption trends have long been subjected to and governed by a set of trade regulations, prominent among them being the Agreement on Textile and Clothing (ATC), formerly known as Multifiber Arrangement (MFA). Despite the MFA quotas being phased out completely, there still exists tariffs and preferential agreements, which are expected to influence market trends in textile trade.

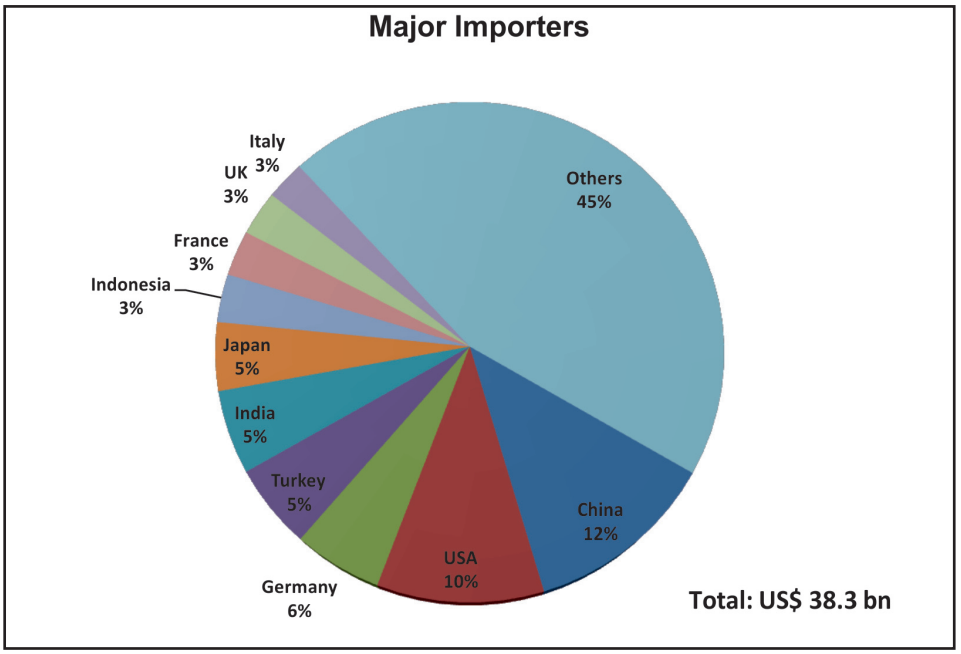
Trade

World exports of textile machinery stood at US $ 39.5 billion in 2012. With a share of 19.8% in total world exports, China was the largest exporter of textile machinery in 2012, followed by Germany (14.7%), Italy (9.7%), South Korea (7.5%) and Japan (7.4%). India stood at the 20th position with a share of 0.8% in total exports of textile machinery (Exhibit: 5, Table: 9).

China was also the largest importer of textile machinery accounting for a share of 12.1% of world imports. Other major importers included USA (10.4%), Germany (5.6%) and Turkey (5.4%). India was the fifth largest importer of textile machinery with a share of 5.4% in total world imports in 2012 (Exhibit: 5, Table: 9).

Exhibit 5: Major Exporters and Importers of Textile Machinery in the World, 2012





Source: PCTAS, Exim Bank Analysis

Table 9: Major Exporters and Importers of Textile Machinery (US $ mn)

Rank	Exporters	2008	2012	CAGR	% share	Rank	Importers	2008	2012	CAGR	% share
	World	**39512**	**39548**	**0.0**	**100.0**		**World**	**38147**	**38341**	**0.1**	**100.0**
1	China	5030	7822	11.7	19.8	1	China	4210	4621	2.4	12.1
2	Germany	7426	5824	-5.9	14.7	2	USA	3688	3991	2.0	10.4
3	Italy	4939	3836	-6.1	9.7	3	Germany	2305	2130	-2.0	5.6
4	South Korea	2368	2955	5.7	7.5	4	Turkey	1176	2073	15.2	5.4
5	Japan	2883	2930	0.4	7.4	**5**	**India**	**1913**	**2069**	**2.0**	**5.4**
6	Poland	1072	1684	12.0	4.3	6	Japan	1235	1693	8.2	4.4
7	USA	1996	1675	-4.3	4.2	7	Indonesia	0	1194	-	3.1
8	Thailand	1012	1179	3.9	3.0	8	France	1277	1127	-3.1	2.9
9	Taiwan	934	1068	3.4	2.7	9	UK	1200	1116	-1.8	2.9
10	Mexico	527	1067	19.3	2.7	10	Italy	1291	974	-6.8	2.5
20	**India**	**197**	**336**	**14.3**	**0.8**						

Source: PCTAS, Exim Bank Analysis

CONSTRUCTION, FARM AND MINING MACHINERY

Global construction and farm machinery industry is estimated to have generated total revenues of US$ 149 billion in 2011. The industry had experienced several years of decline in growth, since the beginning of the millennium, but has picked up momentum in recent years. During 2009, the market for global construction and farm machinery experienced a sharp decline of (-)25.5% compared to 2008 due to the economic slowdown. However, it recovered in the following years growing by 13.7% in 2010 and 23.5%in 2011, compared to the previous years. The CAGR for the industry during the period 2007-11 stood at 3.1%. During the period 2011-16, the industry is expected to grow at a CAGR of 4.7% to reach US $ 187 billion by 2016 (Exhibit: 6).

The upturn has been primarily due to the improved performance of major end-user industries like construction, agriculture and manufacturing after the slowdown. Construction sector witnessed growth both in developed and developing countries during this period. In the developed regions of USA and Europe, the growth in construction activity was fuelled by increased demand for new office space. In developing countries of Asia-Pacific and eastern European region, investment in infrastructure increased substantially, resulting in robust demand for construction machinery.

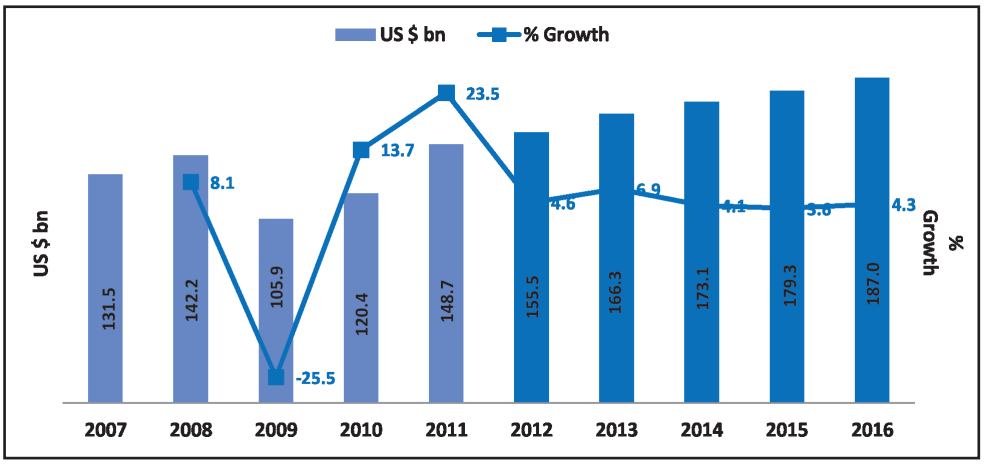
Geographically, Asia Pacific dominates the global construction and farm machinery market, accounting for almost 31% of the world market. Americas (29.4%) is the second largest region, followed by Europe (23.3%), in the market of construction and farm machinery.

Mining Equipment

The global mining equipment market generated total revenues of US$ 48.6 billion in 2011, representing a compound annual growth rate (CAGR) of 10.6% between 2007 and 2011. The performance of the market is forecast to accelerate, with an anticipated CAGR of 15.1% for the five-year period 2011 - 2016, thereby driving the market to a value of US $ 98.2 billion by the end of 2016 (Exhibit: 8).

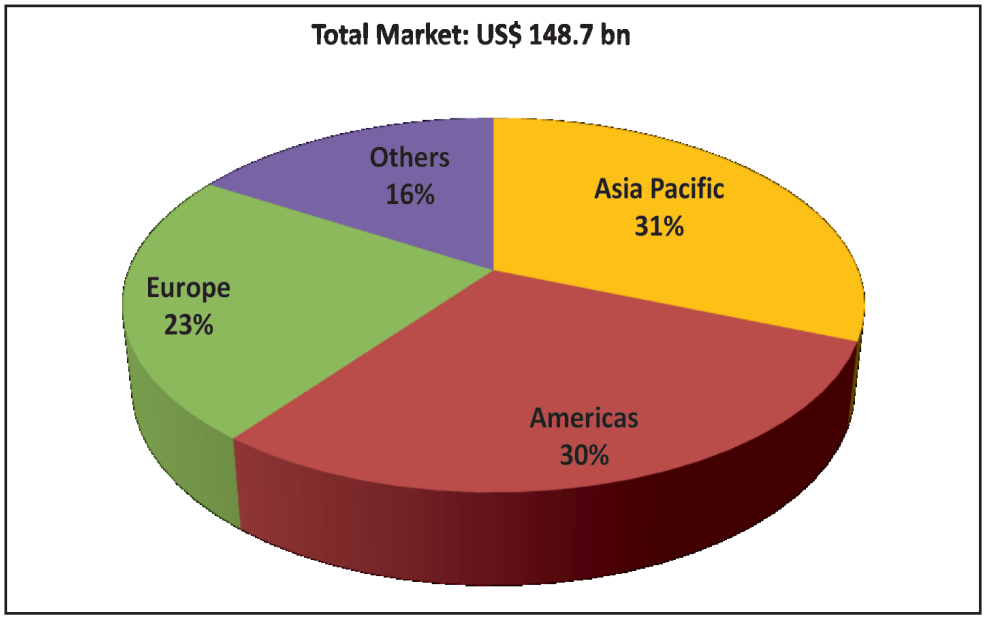
Geographically, Asia Pacific dominates the mining equipment industry, accounting for almost 63% of the world market. Americas (21.2%) is the second largest region, followed by Europe (12.2%) in the production of mining equipment. Mining equipment demand in China is expected to give momentum to the market, going forward. Strong demand will be encouraged by higher mining output growth. Demand will also be triggered by commodity prices which are expected to remain high as compared to historical values.

Exhibit 6: Global Production of Construction and Farm Machinery



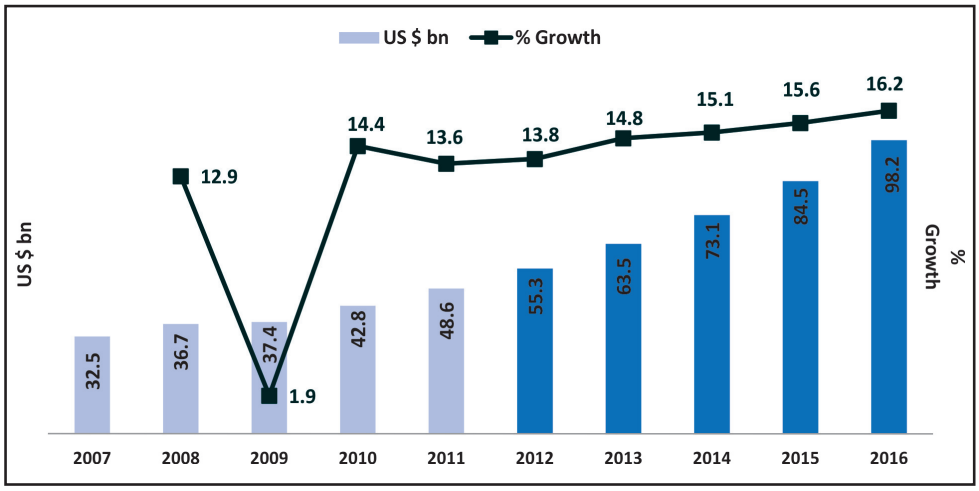
Source: Datamonitor, Note: 2012 – 2016 are forecasts

Exhibit 7: Region-wise Segmentation of Global Construction and Farm Machinery



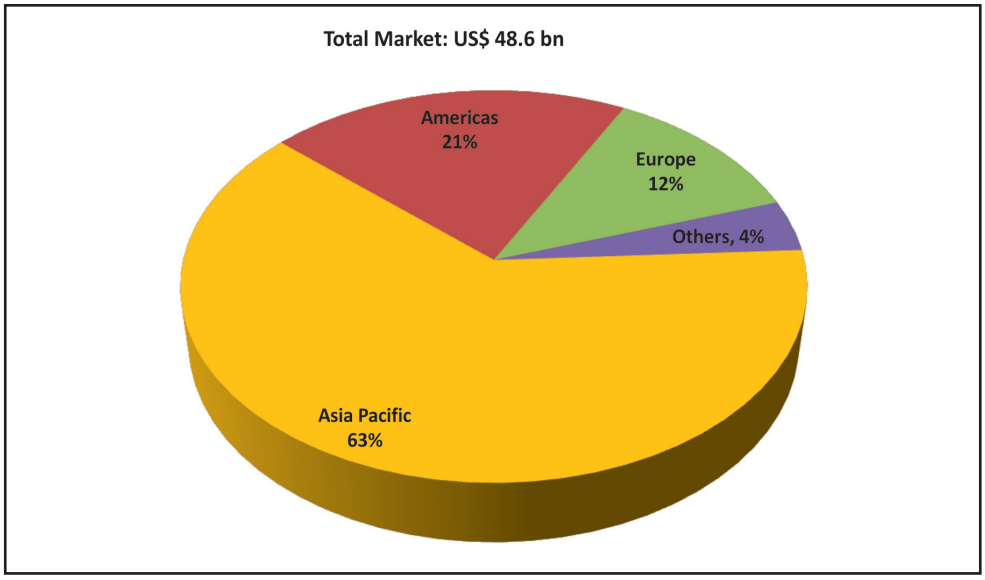
Source: Datamonitor

Exhibit 8: Global Production of Mining Equipments Industry



Source: Datamonitor, Note: 2012 – 2016 are forecasts

Exhibit 9: Region-wise Segmentation of Global Mining Equipments Industry



Source: Datamonitor

Trade

World exports of construction and mining machinery stood at US $ 257.1 billion in 2012. USA with a share of 15.4% in total world exports was the largest exporter of construction and mining machinery in 2012, followed by Germany (12.1%), China (11.8%), Japan (7.8%) and Italy (5.2%). India stood at the 26th position, with a share of 0.6% in global exports of construction and mining machinery (Table: 10, Exhibit: 10).

USA was also the largest importer of construction and mining machinery, accounting for a share of 11.7% of global imports in 2012, followed by Russia (5.9%), Canada (5.8%), Germany (5.0%) and Australia (4.9%). India was the 15th largest importer of construction and mining machinery with a share of 1.8% in total world imports in 2012 (Table: 10, Exhibit: 10).

PROCESS PLANT, OFFICE EQUIPMENT AND PARTS

World exports of process plant, office equipment and parts stood at US$ 1656.3 billion in 2012. China was the largest exporter of process plant, office equipment and parts in 2012 with a share of 20% in total world exports. Other major exporters included Germany (11.4%), USA (10.2%), Japan (7.3%) and Italy (4.5%). India stood at the 27th position with a share of 0.5% in total world exports of process plant, office equipment and parts in 2012 (Table: 11, Exhibit: 11).

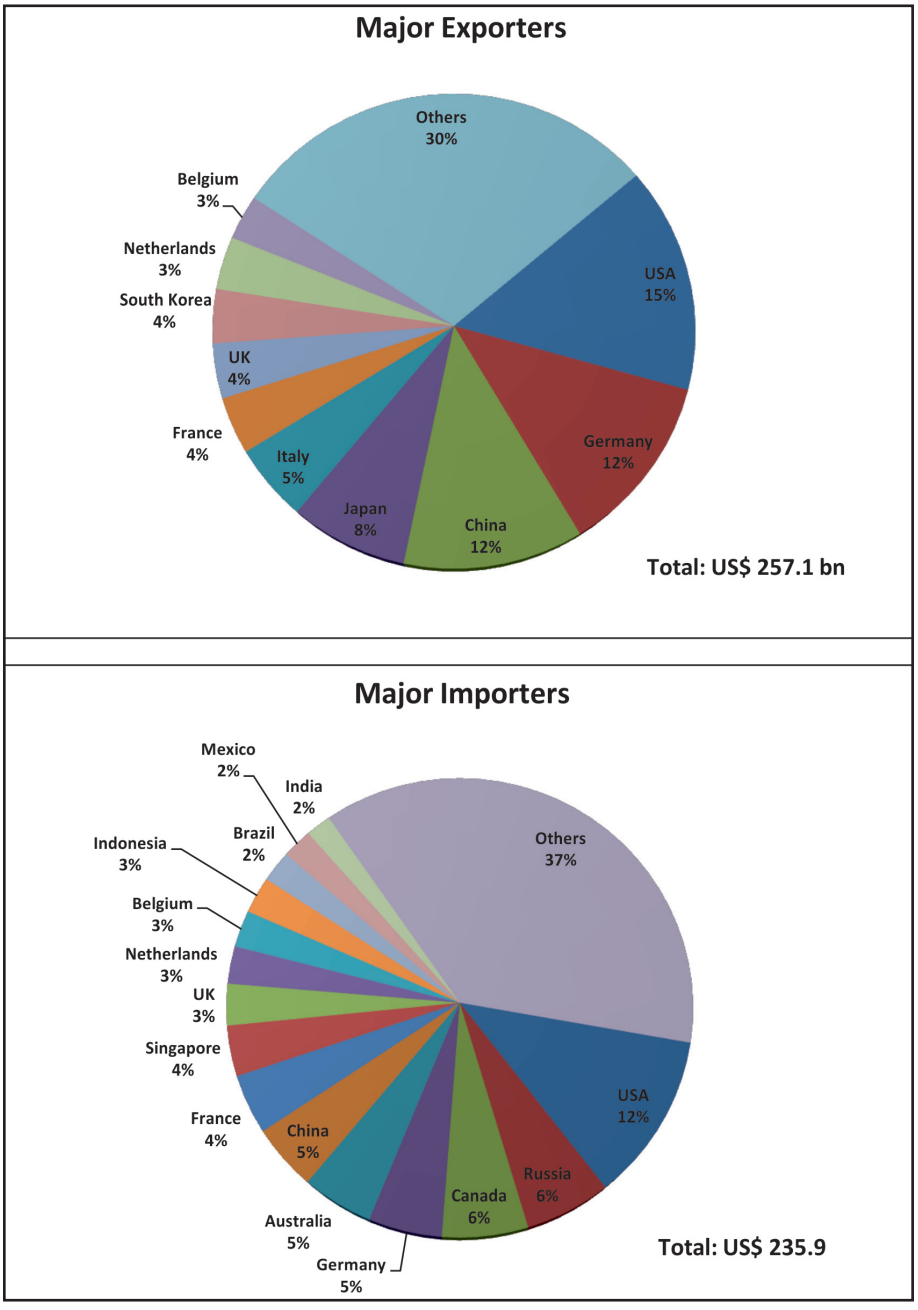
As far as imports are concerned, USA was the largest importer in 2012, accounting for a share of 16.9%, followed by China (9.2%), Germany (7.1%) and Hong Kong (4.1%). India was the 16th largest importer of process plant, office equipment and parts with a share of 1.7% in the total world imports during 2012 (Table: 11, Exhibit: 11).

Table 10: Major Exporters and Importers of Construction & Mining Machinery (US $ mn)

Rank	Exporters	2008	2012	CAGR	% share	Rank	Importers	2008	2012	CAGR	% share
	World	**267491**	**257132**	**-1.0**	**100.0**		**World**	**244548**	**235933**	**-0.9**	**100.0**
1	USA	39308	39671	0.2	15.4	1	USA	23336	27639	4.3	11.7
2	Germany	36445	31174	-3.8	12.1	2	Russia	13174	13853	1.3	5.9
3	China	23261	30425	6.9	11.8	3	Canada	10685	13766	6.5	5.8
4	Japan	22493	19942	-3.0	7.8	4	Germany	13134	11805	-2.6	5.0
5	Italy	17637	13357	-6.7	5.2	5	Australia	6582	11510	15.0	4.9
6	France	13055	9922	-6.6	3.9	6	China	9628	10829	3.0	4.6
7	UK	11807	9604	-5.0	3.7	7	France	12096	9868	-5.0	4.2
8	South Korea	7293	9475	6.8	3.7	8	Singapore	7907	8392	1.5	3.6
9	Netherlands	9703	9295	-1.1	3.6	9	UK	8668	6897	-5.6	2.9
10	Belgium	9740	7885	-5.1	3.1	10	Netherlands	7736	6218	-5.3	2.6
26	**India**	**900**	**1546**	**14.5**	**0.6**	**15**	**India**	**4647**	**4219**	**-2.4**	**1.8**

Source: PCTAS, Exim Bank Analysis

Exhibit 10: Major Exporters and Importers of Construction and Mining Machinery, 2012



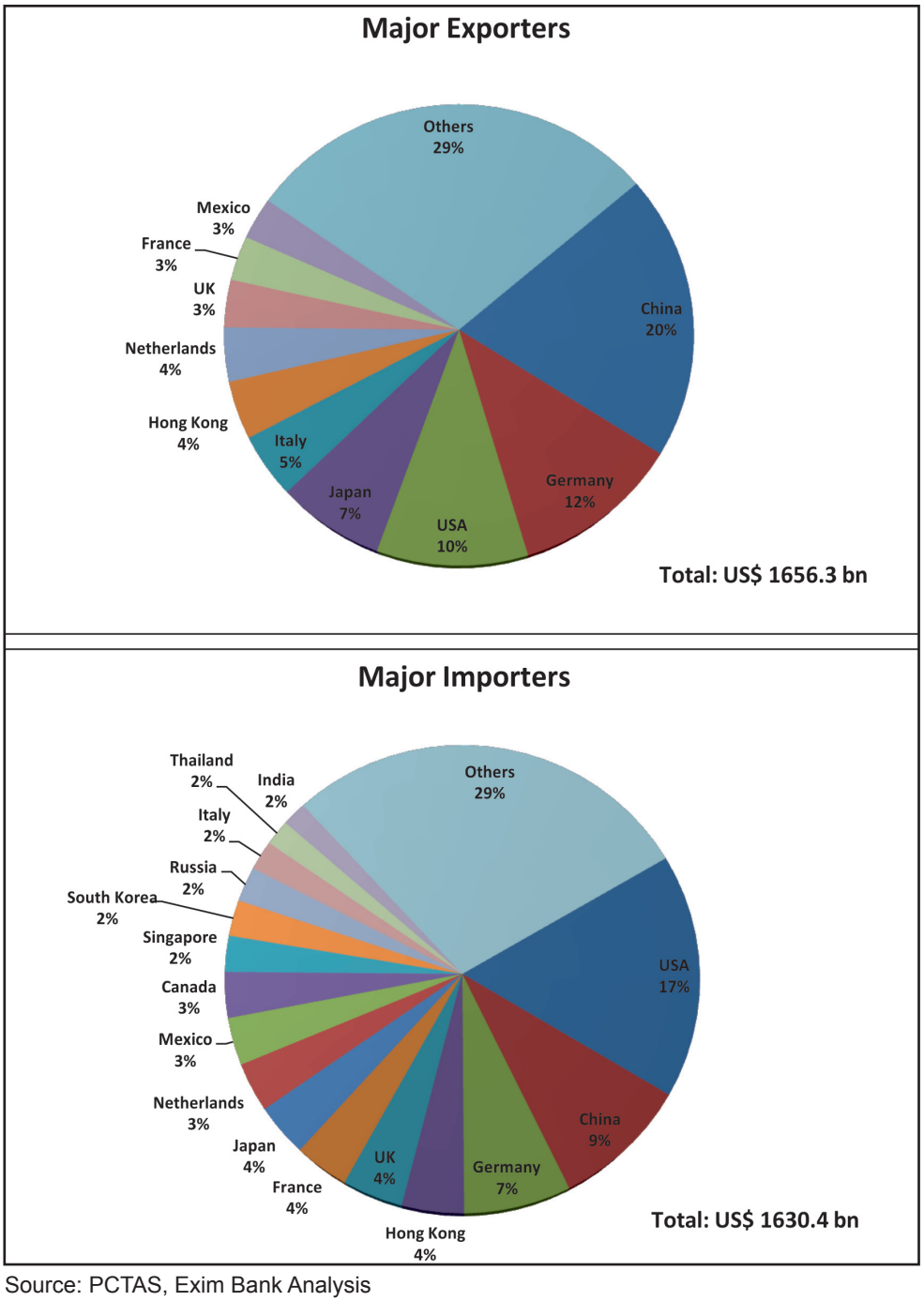
Source: PCTAS, Exim Bank Analysis

Table 11: Major Exporters and Importers of Process Plant, office equipment and parts (US $ mn)

Rank	Exporters	2008	2012	CAGR	% share	Rank	Importers	2008	2012	CAGR	% share
	World	**1566677**	**1656310**	**1.4**	**100.0**		**World**	**1535884**	**1630409**	**1.5**	**100.0**
1	China	248807	331678	7.5	20.0	1	USA	223992	274791	5.2	16.9
2	Germany	202671	189416	-1.7	11.4	2	China	117194	150119	6.4	9.2
3	USA	167244	169157	0.3	10.2	3	Germany	122573	116570	-1.2	7.1
4	Japan	114817	120168	1.1	7.3	4	Hong Kong	47260	67625	9.4	4.1
5	Italy	82775	74625	-2.6	4.5	5	UK	69295	66279	-1.1	4.1
6	Hong Kong	46879	67298	9.5	4.1	6	France	68825	59502	-3.6	3.6
7	Netherlands	66568	62587	-1.5	3.8	7	Japan	54814	58816	1.8	3.6
8	UK	54961	55285	0.1	3.3	8	Netherlands	57834	55020	-1.2	3.4
9	France	59964	51968	-3.5	3.1	9	Mexico	38135	53249	8.7	3.3
10	Mexico	30391	49195	12.8	3.0	10	Canada	47175	51329	2.1	3.1
27	**India**	**6668**	**8802**	**7.2**	**0.5**	**16**	**India**	**19036**	**27768**	**9.9**	**1.7**

Source: PCTAS, Exim Bank Analysis

Exhibit 11: Major Exporters and Importers of Process Plant, Office Equipment and Parts in the World, 2012



Source: PCTAS, Exim Bank Analysis

ELECTRICAL EQUIPMENTS

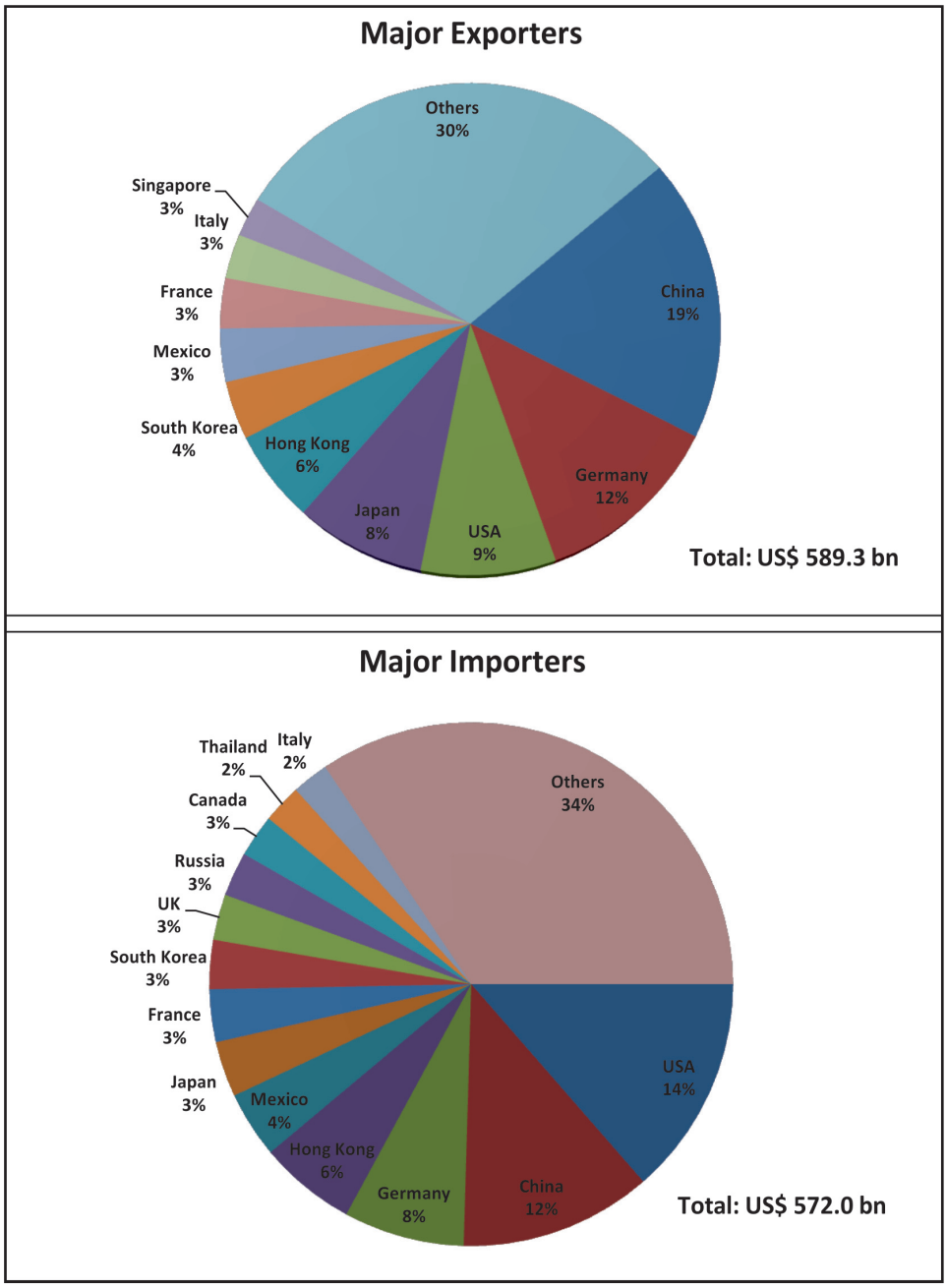
Global exports of electrical equipments and machinery amounted to US$ 589.3 billion in 2012, registering a growth of 0.8% over the previous year. China, with a share of 18.6% in total world exports, was the largest exporter of electrical equipments and machinery in 2012, followed by Germany (12.1%), USA (8.6%), Japan (8.3%) and Hong Kong (6.0%). India stood at the 28th position with a share of 0.7% in total world exports of electrical equipments and machinery (Exhibit: 12, Table: 12).

The largest importer of electrical equipments and machinery in 2012 was USA (13.6%), followed by China (11.9%), Germany (7.5%), Hong Kong (6.0%) and Mexico (4.1%). India was the 18th largest importer of electrical equipments and machinery with a share of 1.5% in the total world imports (Exhibit: 12, Table: 12).

The Asia Pacific region is home to more than 55% of the world's population and a sizeable portion of these people live in rural areas that currently have very limited access to electricity. This creates excellent growth opportunities for this segment. Furthermore, robust economic growth in emerging Asian countries such as China and India, combined with rapid urbanization and growth in fixed investment spending (especially in electricity generation), has boosted the demand for electric power equipment in the region.

Today, energy companies are increasingly viewing sustainability as a key driver of their business planning. Global push to change the way electricity is generated is forcing big electrical equipment makers, such as General Electric, Alstom and Siemens, to rethink their strategies. These companies view environmental responsibility as desirable, providing advantages through reduced costs and improved corporate image. Incumbents have therefore invested significant capital in renewable energy generation and this is evident in increased energy generation from such sources. For example, research conducted by the European Wind Energy Association estimates that 9,616 MW of new wind energy capacity was installed in the EU-27 in 2011 (2010 new wind energy installations stood at 9648 MW). This focus also presents opportunities for new entrants to the market. Power-

Exhibit 12: Major Exporters and Importers of Electrical Equipments in the World, 2012



Source: PCTAS, Exim Bank Analysis

Table 12: Major Exporters and Importers of Electrical Equipments (US $ mn)

Rank	Exporters	2008	2012	CAGR	% share	Rank	Importers	2008	2012	CAGR	% share
	World	506412	589335	3.9	100.0		World	505109	572023	3.2	100.0
1	China	74261	109720	10.3	18.6	1	USA	64791	77717	4.7	13.6
2	Germany	69306	71138	0.7	12.1	2	China	55399	67926	5.2	11.9
3	USA	41411	50400	5.0	8.6	3	Germany	38817	42643	2.4	7.5
4	Japan	43500	48695	2.9	8.3	4	Hong Kong	27807	34245	5.3	6.0
5	Hong Kong	29311	35386	4.8	6.0	5	Mexico	18666	23478	5.9	4.1
6	South Korea	12161	22369	16.5	3.8	6	Japan	17065	19612	3.5	3.4
7	Mexico	18798	20531	2.2	3.5	7	France	18734	18629	-0.1	3.3
8	France	22153	19509	-3.1	3.3	8	South Korea	13040	17346	7.4	3.0
9	Italy	19573	17272	-3.1	2.9	9	UK	14648	16151	2.5	2.8
10	Singapore	13014	15334	4.2	2.6	10	Russia	9703	15616	12.6	2.7
28	**India**	**3789**	**4082**	**1.9**	**0.7**	**18**	**India**	**5738**	**8325**	**9.8**	**1.5**

Source: PCTAS, Exim Bank Analysis

equipment makers that can find a new niche to thrive in may fare better than those too reliant on carbon intensive energy sources, such as coal. With further emphasis on reduction of carbon footprints and energy security, alternative energy generation is likely to continue to grow and will require investment in suitable generating infrastructure in the foreseeable future.

In Sum

The global capital goods industry is on a growth path and there have been many new countries emerging as key players, especially the Asian countries. With ample opportunities available, this industry is expected to witness a lot of changes in the future, along with greater scope for further growth and development.

3. INDIAN SCENARIO

Capital Goods: An Overall Perspective

The capital goods industry forms the backbone of India's manufacturing sector. India produces a wide range of capital goods, including machinery and machine tools. Some of the prominent capital goods produced in India include heavy electrical machinery, textile machinery, machine tools, earthmoving and construction equipment including mining equipment, road construction equipment, material handling equipment, oil and gas exploration equipment, sugar machinery, food processing and packaging machinery, railway equipment, metallurgical equipment, cement machinery, rubber machinery, process plants machinery and equipments, paper and pulp machinery, printing machinery, dairy machinery, industrial refrigeration and industrial furnaces.

Index of Industrial Production (IIP) data categorises various sectors based on the National Industrial Classification (NIC). Capital goods are grouped under the use-based classification of IIP. While capital goods include virtually all the products of NIC Codes 29 (machinery and equipment n.e.c.), 30 (office, accounting & computing machinery) and 31 (electrical machinery and apparatus n.e.c.), under some categorisation, even 'other transport equipment' (NIC Code 35) is also included as capital goods. However, since transport equipments are analysed by various industry associations and research institutions in India, for the purpose of this study, only industrial machinery

Industry Code	Description
29	Machinery and equipment n.e.c.
30	Office, accounting & computing machinery
31	Electrical machinery & apparatus n.e.c.

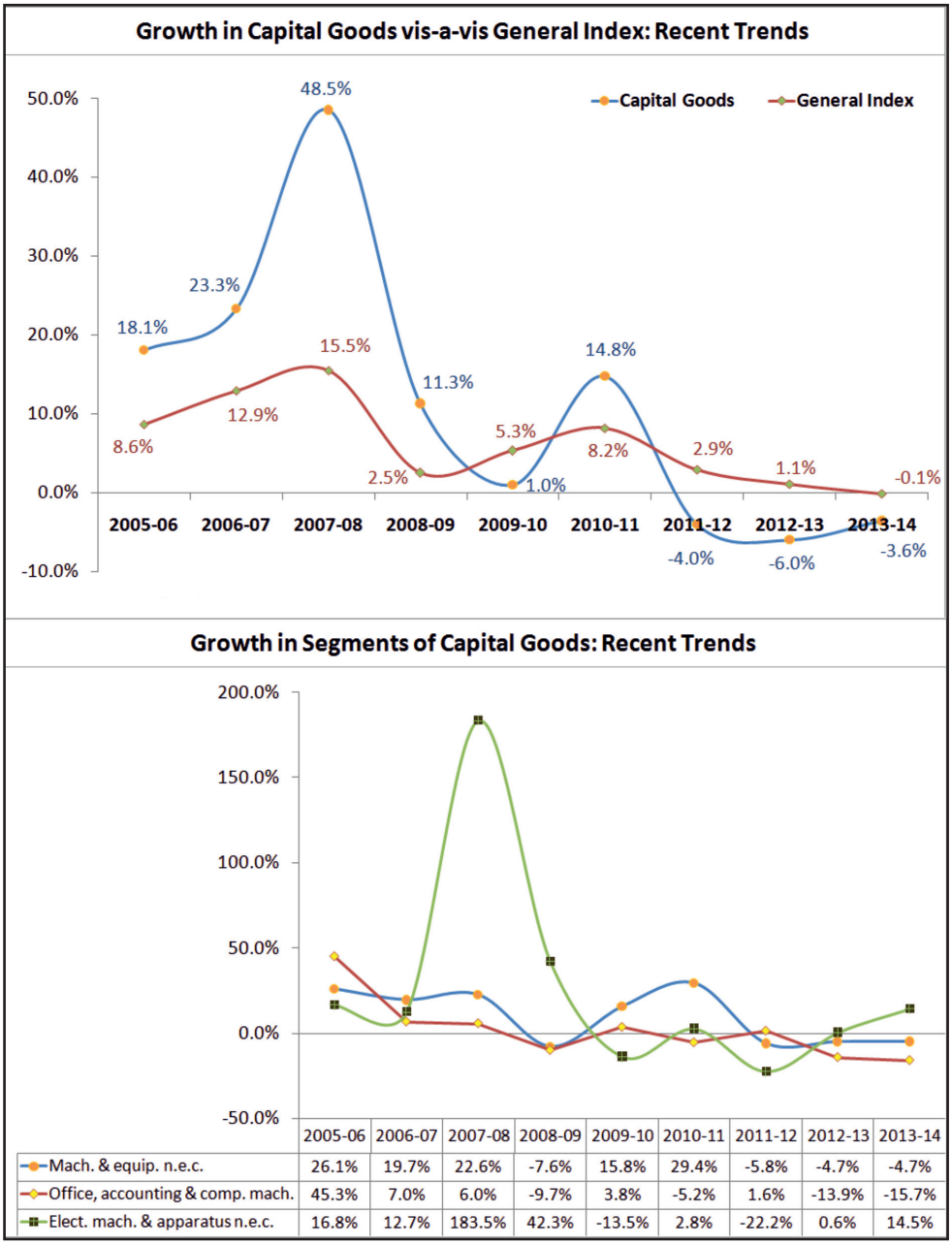
and equipments (NIC Codes 29-31) are considered.

While the overall trend in the capital goods industry during the period between 2004-05 and 2013-14 has been aligned to the trend in overall growth of the industrial activity (as represented by the IIP), the movements have been more pronounced – whether it was positive growth or negative. The capital goods industry has witnessed a period of decline during recent years after going through a period of strong dynamism during 2005-06 to 2010-11 (except 2009-10 when it grew by 1.0%). As against a growth of 14.8% over previous year in 2010-11, the industry witnessed a recessionary phase during 2011-12 to 2013-14, registering negative growths of (-) 4.0%, (-) 6.0% and (-) 3.6%, respectively. Within capital goods, both machinery and equipment (NIC Code 29) and office, accounting and computer machinery (NIC Code 30) acted as a drag to the growth, recording declines during the last two years (viz. 2012-13 and 2013-14). The performance of electrical machinery and apparatus (NIC Code 30) was better with a growth of 0.6% in 2012-13 and a reasonably healthy growth of 14.5% in 2013-14 (Exhibit 13).

Capacity creation in the Indian capital goods industry has been growing, especially since liberalization, and is in tune with the overall growth of the industry. This has been helped to an extent by foreign direct investments in the sector. Cumulative foreign direct investments (actual inflows) in the capital goods industry during April 2000 to May 2014 amounted to US$ 9 billion. This was equivalent to a share of 4.1% of the total FDI inflows into India during this period. Details of segment-wise FDI inflows in the capital goods sector are provided in Table: 13, while Exhibit 14 gives the sectoral break-up of total FDI inflows to the capital goods sector.

During 2012, India's exports of capital goods stood at US$ 15.0 billion, growing by 2.0% over the previous year. Imports of capital goods grew at a slower pace of 1.7% to reach US$ 45 billion in 2012. India's major export destinations were USA (15%), UAE (7%), Germany (5%), UK (5%) and China (3%). The major import sources were China (29%), Germany (12%), Japan (10%), USA (8%) and South Korea (6%) (Exhibit: 15).

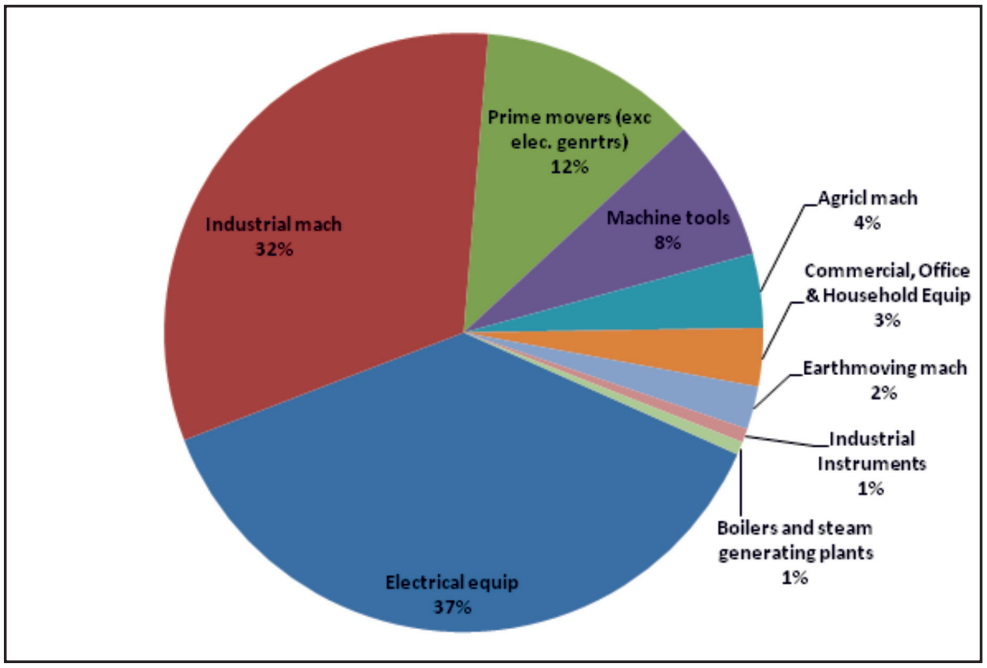
Exhibit 13: Growth in Capital Goods Sector



	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Mach. & equip. n.e.c.	26.1%	19.7%	22.6%	-7.6%	15.8%	29.4%	-5.8%	-4.7%	-4.7%
Office, accounting & comp. mach.	45.3%	7.0%	6.0%	-9.7%	3.8%	-5.2%	1.6%	-13.9%	-15.7%
Elect. mach. & apparatus n.e.c.	16.8%	12.7%	183.5%	42.3%	-13.5%	2.8%	-22.2%	0.6%	14.5%

Source: MOSPI, Exim Bank Analysis

Exhibit 14: FDI Inflows into the Capital Goods Sector: Segment-wise Share (Cumulative from April 2000 - May 2014: US$ 9 bn)



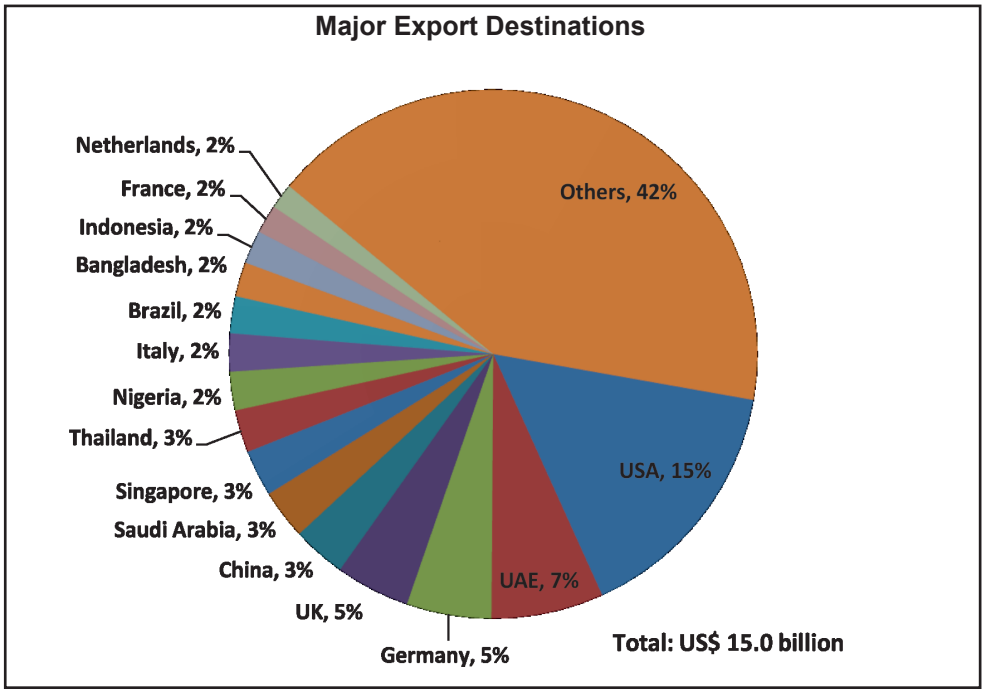
Source: Department of Industrial Policy and Promotion, Government of India

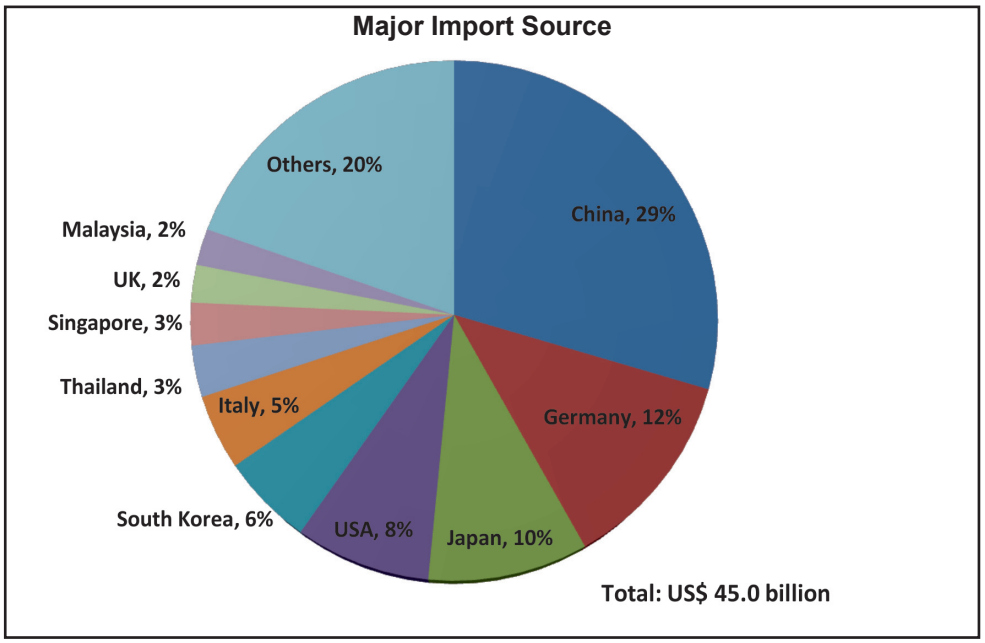
Table 13: FDI Inflows in Select Capital Goods Sector of India

Sub-segments	Total From April 2000 To February 2014		
	Rs. Million	**US$ Million**	**% share in total FDI inflows**
Electrical equipments	15,468.27	3315.14	1.55
Machine tools	3347.80	684.72	0.32
Industrial machinery	13,863.11	2,771.49	1.29
Agricultural machinery	1,668.16	338.65	0.16
Earthmoving machinery	927.25	200.18	0.09
Boilers and steam generating plants	306.75	62.00	0.03
Prime movers (other than electrical generators)	5,443.75	1,059.89	0.50
Industrial Instruments	310.56	67.06	0.03
Commercial, Office & Household Equipment	1,313.03	275.88	0.13
Total above	42648.68	8775.01	4.10
Total FDI inflows	**1,022,339.15**	**214,047.97**	**100.00**

Source: Department of Industrial Policy and Promotion, Government of India

Exhibit 15: India's Major Export Destinations & Import Sources of Capital Goods (2012)





Source: PCTAS, Exim Bank Analysis

Analysis of Sub-Segments

This study specifically focuses on the status of the following segments of capital goods industry in India, given their contribution to the sector as a whole.

a) Non-electrical machinery (machinery not used in electrical industry)

1. Machine tools
2. Textile machinery
3. Construction and mining machinery
4. Process plant machinery

b) Electrical machinery (machinery used in electrical industry)

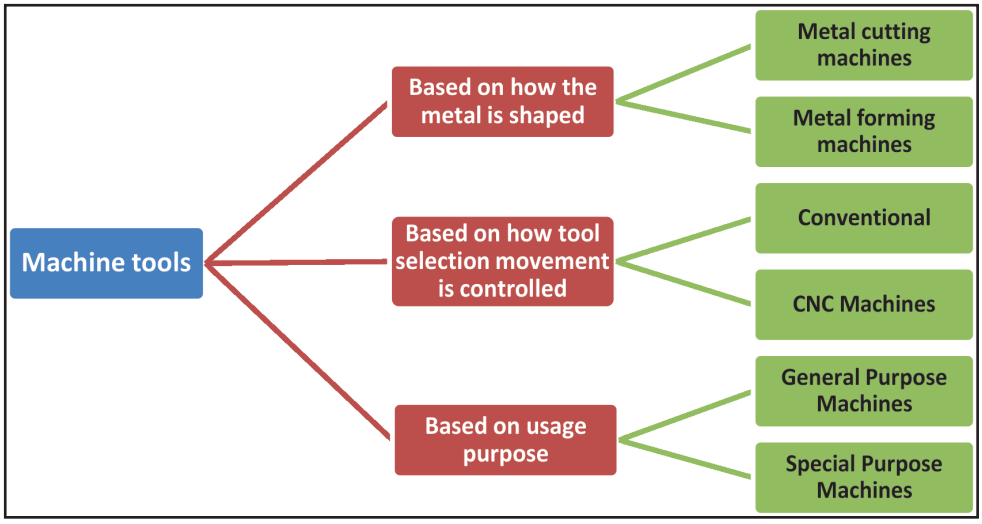
1. Transformers
2. Switchgears
3. Capacitors
4. Motors and Generators

Non Electrical Machinery

Machine Tools

The machine tools sector can be broadly classified into the segments as given in Exhibit 16.

Exhibit 16: Classification of Indian Machine Tools Sector



The machine tools sector is one of the important segments of the capital goods industry in India. The sector is recognized as a provider of cost-effective, high quality, lean-manufacturing solutions. The sector manufactures almost the entire range of metal-cutting and metal-forming machine tools. Customized in nature, the products from the Indian basket comprise conventional machine tools as well as computer numerically controlled (CNC) machines.

The total production of machine tools in the country is estimated to be Rs. 39 billion in 2012-13, recording a year-on-year negative growth rate of (-)11%. The breakup of production under various segments of machine tools sector is given in Table 14. Metal forming and metal cutting machines registered CAGRs of 26% and 29%, respectively (in value terms) during the period 2008-09 to 2012-13. Within metal forming machines, conventional metal forming machines witnessed a marginal CAGR of 0.2%, while CNC machines recorded a significant CAGR of 80% during this period. Even in the case of metal cutting machines, CNC machines (36%) far outperformed conventional machines (8%) in terms of CAGR. This trend is thus indicative of the movement of the machine tool sector away from conventional machines in favour of CNC machines.

Table 14: Production of Metal Working Machine Tools (Rs. million)

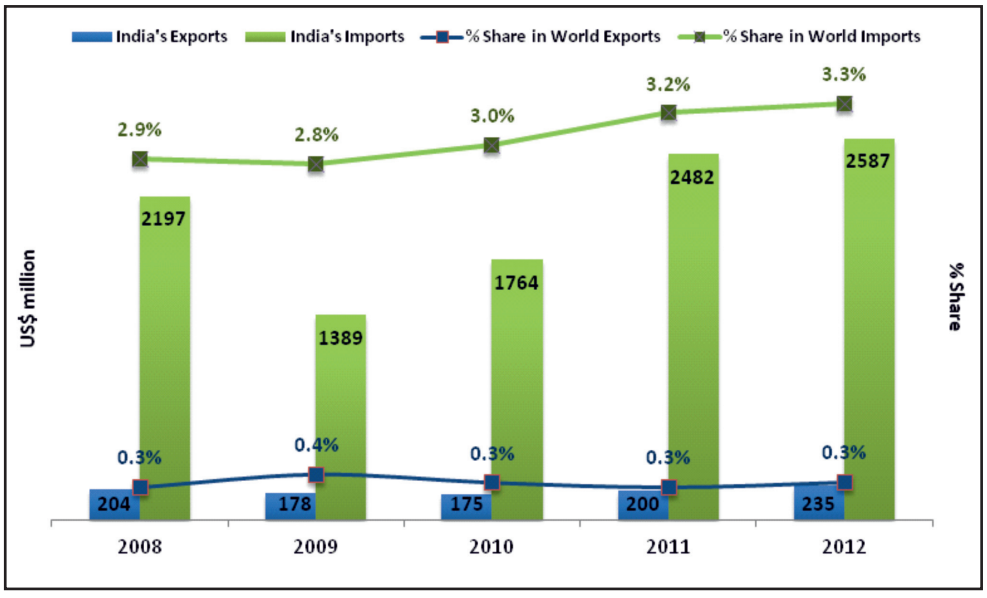
Category	2008-09	2009-10	2010-11	2011-12	2012-13	CAGR (%)
Metal Forming	**2236**	**3951**	**4625**	**5039**	**5650**	**26.1**
CNC	358	580	2967	3322	3760	80.0
Conventional	1878	3371	1658	1717	1890	0.2
Metal Cutting	**12008**	**20892**	**31613**	**37952**	**33200**	**28.9**
CNC	8242	16265	27037	32486	28110	35.9
Conventional	3766	4627	4576	5466	5090	7.8
Total Metal working machine tools	**14244**	**24843**	**36238**	**42991**	**38850**	**28.5**
CNC	8600	16845	30004	35808	31870	38.7
Conventional	5644	7998	6234	7183	6980	5.5

Source: Indian Machine Tools Manufacturers Association

Indian machine tool manufacturers have been able to penetrate the international markets too. Strategies such as product development with enhanced features, competitive pricing, and market focus have been helping the domestic players to enhance their market presence in international markets, particularly in Europe, the United States, and the East-Asian countries. Lathes and automats, presses, electro-discharge machines, and machining centres formed the bulk of export orders for Indian manufacturers.

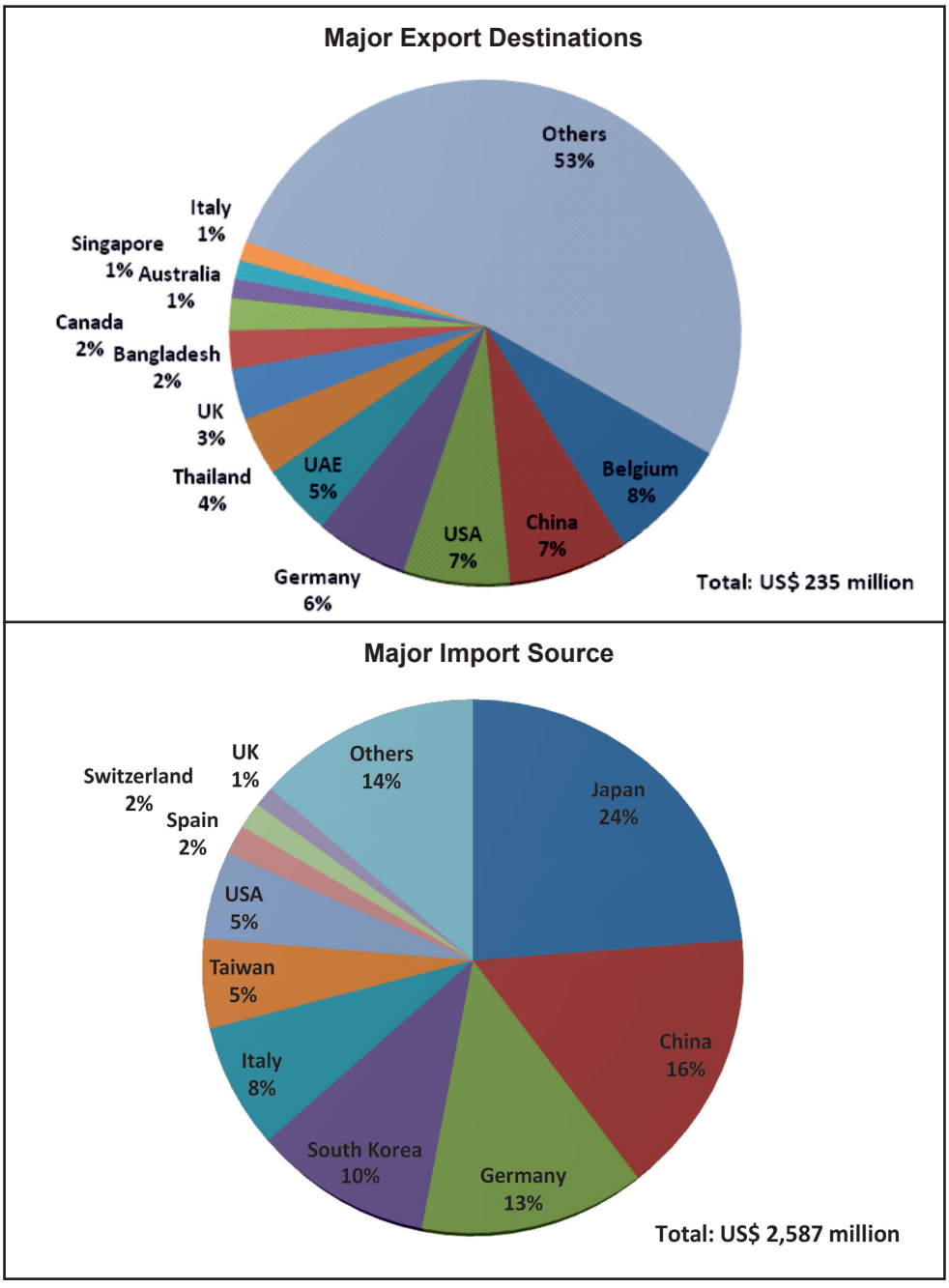
India had a significant trade deficit in the machine tools sector with exports aggregating to US$ 235 million while imports amounted to US$ 2.59 billion during 2012. This deficit has widened over the years, reflected in the variance in CAGRs with exports exhibiting a modest CAGR of 3.6%, as against a higher CAGR in imports of 4.2% during the period 2008-2012. India's major export destinations of machine tools in 2012 were Belgium (8%), China (7%), USA (7%), Germany (6%) and UAE (5%), while major import source countries were Japan (24%), China (16%), Germany (13%), South Korea (10%) and Italy (8%).

Exhibit 17: India's Exports and Imports of Machine Tools



Source: PCTAS, Exim Bank Analysis

Exhibit 18: India's Export Destinations and Import Sources of Machine Tools, 2012



Source: PCTAS, Exim Bank Analysis

Textile Machinery

Textile is one of the major export items of India, contributing to over 10% in India's export earnings. Indian textile machinery sector started as an offshoot of the textile industry to cater to the capital expenditure demand of the textile units. During the early years, the growth in the Indian textile machinery sector was hampered due to increasing demand for automated machines. However, the Indian textile machinery sector started producing automated machines, with innovation, envisaging growth in capacity expansion in the textile industry in the post-quota regime. The thrust given by the Government of India for upgradation of technology (through the Technology Upgradation Fund Scheme - TUFS) also contributed to the growth in demand for textile machinery. The spinning sector had a head start in terms of technology upgradation with the weaving sector following suit later. Presently, the technology of spinning and weaving machinery produced in India is at par with international standards.

The textile engineering industry in India is one of the five key engineering sectors contributing to the growth of the Indian economy. It consists of more than 1400 units, of which more than 80% are SMEs. With a total investment of approximately Rs. 7800 crore and an estimated total installed capacity of around Rs. 9100 crore, the industry provides direct/indirect employment to more than 250,000 people. Presently, the textile engineering industry meets 45-50% of the demand of the Indian textile industry[9]. However, the textile engineering industry has not been able to grow during the last 5 years. This is evident from Table 15.

The unprecedented recession during 2008-09 and 2009-10 had shattered the pace of growth of the Indian textile engineering industry. The companies, which had increased their capacities to meet the expected demand from the domestic textile industry, suffered the most. The capacity, production and utilization chart also shows how the domestic textile machinery manufacturers suffered during 2011-12 (Exhibit: 19).

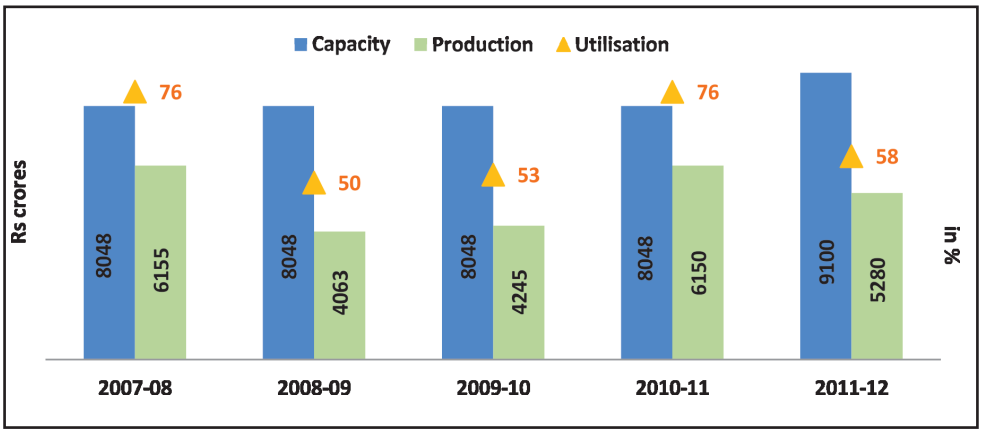
[9]TMMA

Table 15: Trends in Production of Textile Machinery in India (Rs. Cr)

Categories	2007-08	2008-09	2009-10	2010-11	2011-12
Spinning & allied machinery	366.2	241.7	210.5	350.0	257.0
Synthetic filament yarn machines	62.5	41.3	83.0	90.0	92.5
Weaving & allied machinery	62.2	41.0	49.5	60.0	48.0
Processing machines	63.5	41.9	46.0	70.0	75.0
Misc. machines (Spinning, Weaving & Processing machines, Jute)	18.5	12.2	12.0	15.0	10.0
Textile testing/measuring instruments	12.2	8.0	3.0	5.0	6.5
Hosiery machinery & needles	5.0	3.3	3.5	5.0	2.0
Total of machinery	**590.2**	**389.6**	**407.5**	**595.0**	**491.0**
Spares & accessories	25.3	16.7	17.0	20.0	37.0
Grand Total	**615.5**	**406.3**	**424.5**	**615.0**	**528.0**
% growth		**-34.0%**	**4.5%**	**44.9%**	**-14.1%**

Source: Office of the Textile Commissioner, Textile Machinery Manufacturers Association

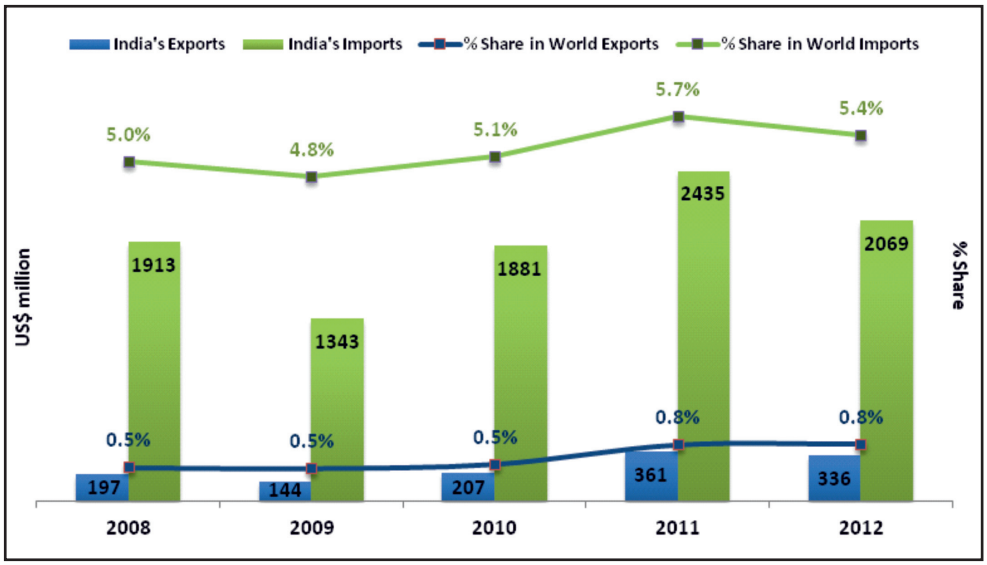
Exhibit 19: Capacity Utilization of Textile Engineering Industry



Source: Textile Machinery Manufacturers Association

India had a fairly wide trade deficit of around US$ 1.7 billion in 2012. Trade deficit narrowed somewhat in 2012 as compared to the previous year, on the back of imports declining at a faster y-o-y rate (-15%) than exports (-6.9%). As a result of the steep decline in imports witnessed in 2012, India's share in world imports of textile machinery declined to 5.4% during the year from 5.7% in 2011. India's share in world exports of textile machinery remained almost same as in the previous year, even after the decline (Exhibit 20).

Exhibit 20: India's Exports and Imports of Textile Machinery



Source: PCTAS, Exim Bank Analysis

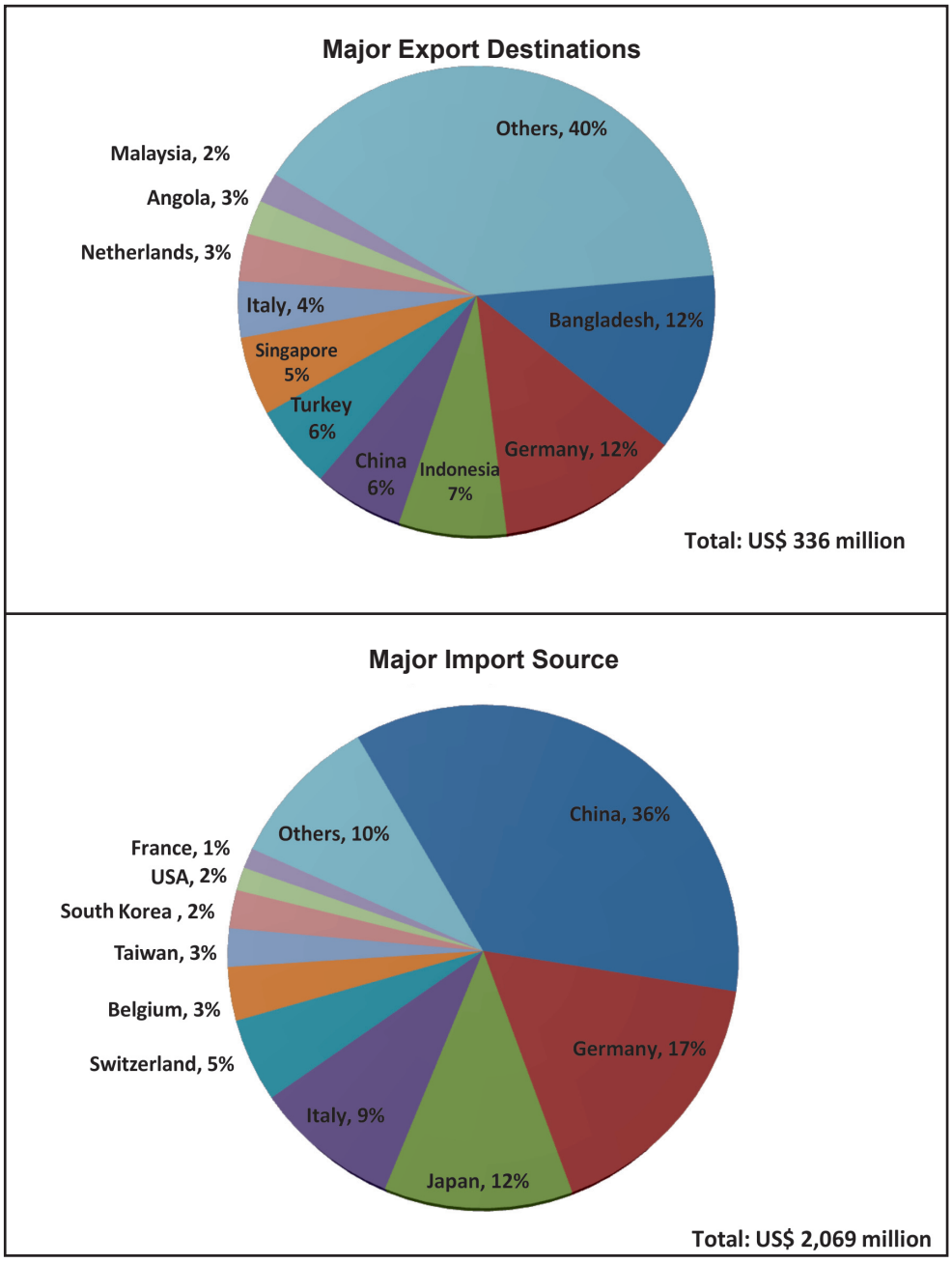
Major export destinations of textile machinery in 2012 were Bangladesh (12%), Germany (12%), Indonesia (7%), China (6%) and Turkey (6%), while major import source countries included China (36%), Germany (17%), Japan (12%), Italy (9%), and Switzerland (5%) (Exhibit 21).

Construction and Mining Machinery

India produces a wide range of construction and mining machinery such as hydraulic excavators, wheel loaders, backhoe loaders, bull dozers, dump trucks, tippers, graders, pavers, asphalt drum / wet mix plants, breakers, vibratory compactors, cranes, forklifts, dozers, off-highway dumpers (20 Tons to 170 Tons), drills, scrapers, motor graders, rope shovels etc. They perform a variety of functions like preparation of ground, excavation, haulage of material, dumping/laying in specified manner, material handling, road construction etc.

The construction and mining machinery sector in India has witnessed a phase of reorientation in the last few years through mergers and acquisitions. This also reflects the active interest of international majors in the domestic market. However, given the heavy fixed cost involved in the sector, the number of producers in each segment is few. Many international players have also

Exhibit 21: India's Major Export Destinations & Source Countries of Textile Machinery, 2012



Source: PCTAS, Exim Bank Analysis

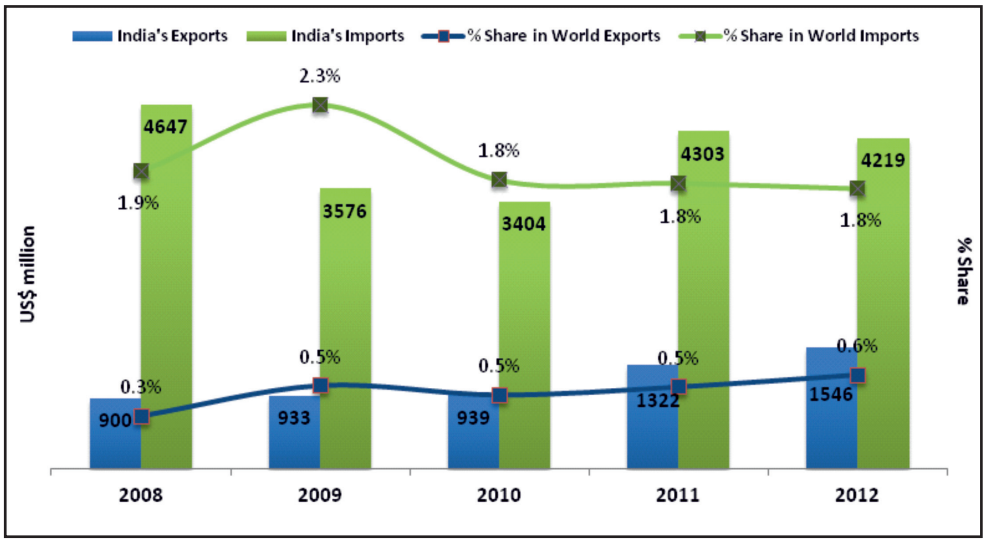
appointed selling agents for importing and selling complete construction and mining equipments in India.

JCB India, Bharat Earth Movers Ltd. and TELCO Construction Equipment Company in the earth moving machinery segment; Gujarat Apollo and Greaves Cotton Instruments in the construction machinery segment; Mcnally Bharat Engineering and TRF, in the material handling equipment segment; Action Construction Equipment and Escorts Construction Equipment in the cranes segment; and OTIS and Johnson in the lifts and escalators segments, are some of the major players.

Being a large and growing economy, domestic demand for construction and mining machinery is greater than the production capacity and thus, a major portion of the demand is met through imports. India's export of construction machinery was valued at US$ 1.55 billion while imports stood at US$ 4.22 billion in 2012. India's exports witnessed a strong y-o-y growth rate of 16.9%, increasing India's share in world exports to 0.6% in 2012 from 0.5% a year back. Imports on the other hand witnessed a y-o-y decline of (-) 2.0%.

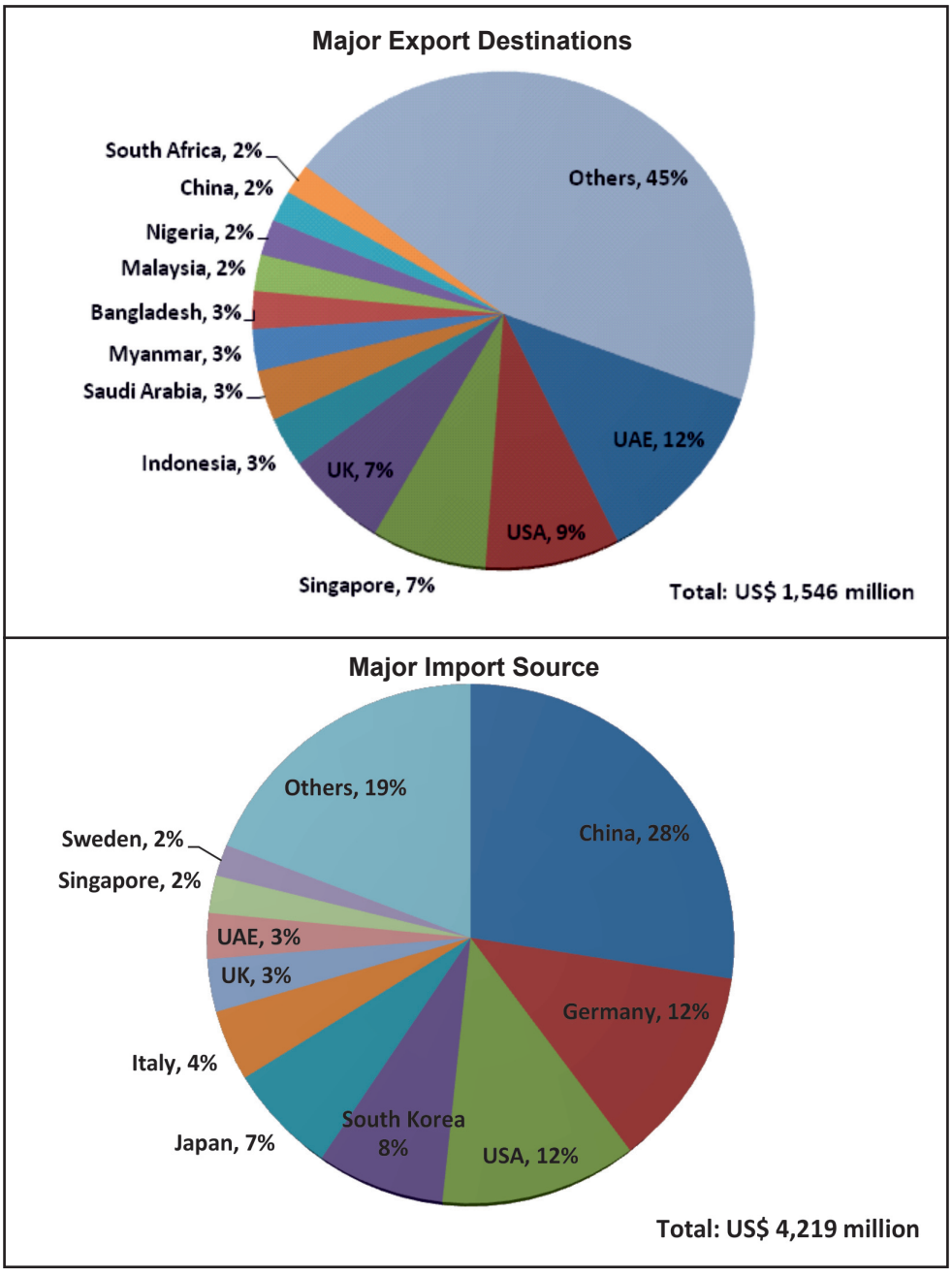
UAE (12%), USA (9%), Singapore (7%), UK (7%) and Indonesia (3%) were the major export destinations, and China (28%), Germany (12%), USA (12%), South Korea (8%) and Japan (7%) were the main source countries for import of construction and mining machinery in 2012.

Exhibit 22: India's Exports and Imports of Construction & Mining Equipments



Source: PCTAS, Exim Bank Analysis

Exhibit 23: India's Export Destinations and Import Sources of Construction and Mining Machinery, 2012



Source: PCTAS, Exim Bank Analysis

Process Plant, Office Equipment and Parts

The process plant machinery and components sector in India is a very heterogeneous segment of capital goods industry. The industry caters to a wide variety of process industries like oil and gas, petroleum refining, petrochemicals, chemicals, fertilizer, pharmaceuticals, metal industry, cement, paper, sugar, cryogenics, distilleries etc. The sector designs and manufactures a wide range of equipment and systems such as pressure vessels, columns, towers, heat exchangers, multi-tubular reactors, evaporators, crystallizers, dryers, road/rail tankers, most modern storage equipment, loading and unloading systems, cooling towers, cryogenic systems, equipment for dairy and food processing, mineral beneficiation equipment, rotary kilns, equipment for power plants, equipment for offshore projects, thermal and combustion systems etc. An impressive array of equipment for solid-liquid separation, equipment for water and waste water treatment, systems for environmental engineering and pollution control, large material handling equipment, marine equipment and special purpose equipment for critical services such as reformers, multiwall ammonia converters, urea reactors, urea strippers, transfer line exchangers, process gas waste heat boilers, hydrocracker reactors, fired heaters etc. are also being manufactured and exported by the process plant machinery industry.

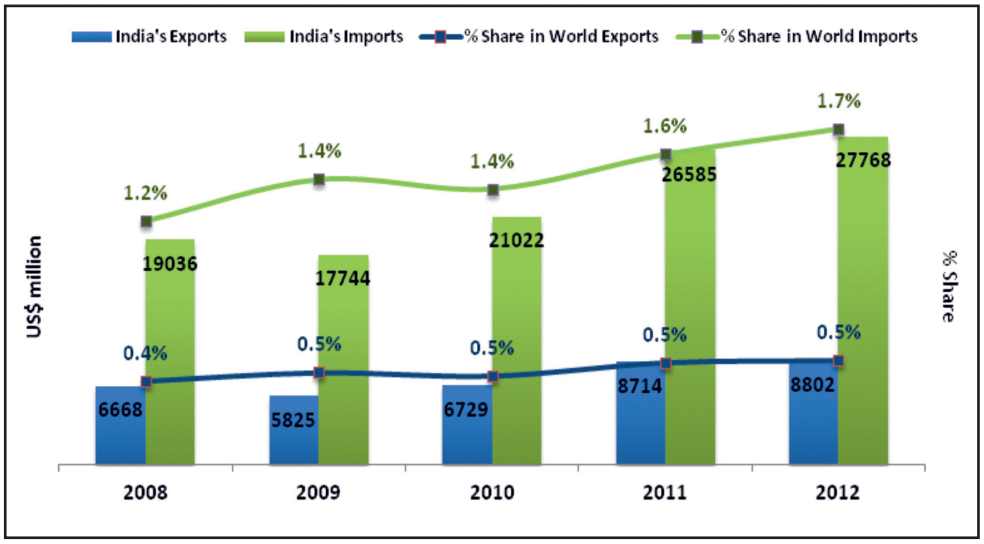
The sector is highly capital intensive with a strong engineering orientation, where the products are mostly custom built. Hence, economies of scale have less relevance in this sector except for the machine, or labour utilization factor. Due to the heterogeneous character of the sector, the process plant industry is very fragmented in nature. Some large as well as medium sized companies are well diversified in terms of product range and areas of applications. International companies (such as Atlas Copco, Alfa Laval, J.L. Smith, Sulzer) also have presence in India through joint ventures or technology tie-ups. Besides, many internationally renowned consultants in the process industries like Flour Daniel, Bechtel, Foster Wheel, LG, Daelim, Jacobs, Kvaerner, Mitsui Babcock, Linde, ABB Lummus, Technip, Stone & Webster, Udhe and Toyo Engineering have offices in India.

Few Indian companies have made their mark in the export arena due to

their manufacturing skills and quality. These companies are equipped with modern machinery and produce sophisticated equipments such as high-pressure heat exchangers, spiral heat exchangers, multi-wall vessels, air-fin coolers, multi-tubular reactors etc.

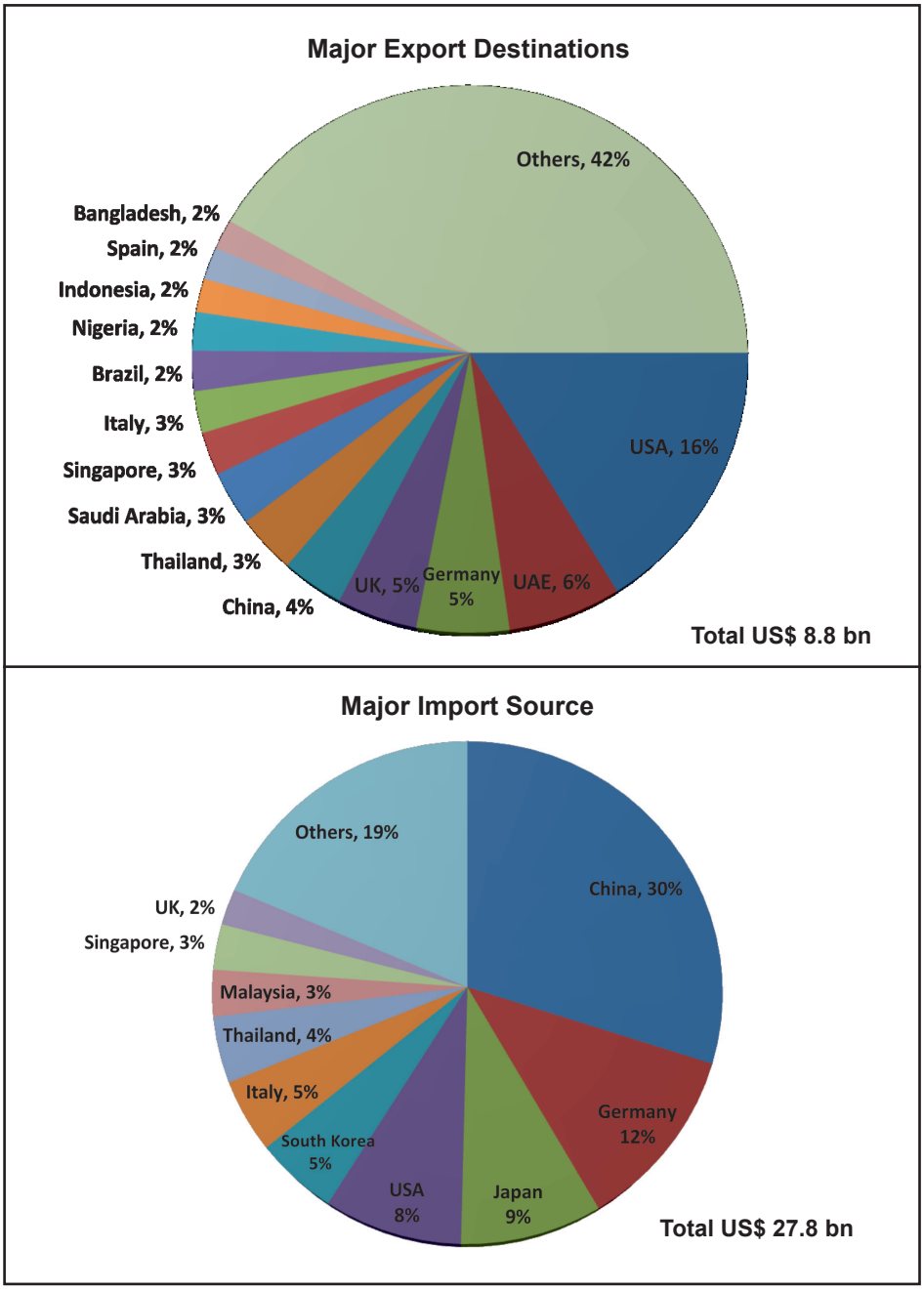
During 2012, India exported process plant/machinery worth US$ 8.8 billion (an increase of 1% over the previous year), and imported process plant/ machinery worth US$ 27.8 billion, (recording a y-o-y growth of 4.4%). USA (16%), UAE (6%), Germany (5%), UK (5%) and China (4%) were the major export destinations, while China (30%), Germany (12%), Japan (9%), USA (8%), and South Korea (5%) were the main source countries for import of process plant, office equipment and parts in 2012.

Exhibit 24: India's Exports & Imports of Process Plant, Office Equipment and Parts



Source: PCTAS, Exim Bank Analysis

Exhibit 25: India's Major Export Destinations and Import Sources of Process Plant, Office Equipments and Parts, 2012



Source: PCTAS, Exim Bank Analysis

Electrical Equipments and Machinery

Electrical equipment and machinery is principally used in the power industry (generation, transmission and distribution) as well as in other manufacturing industries, such as automobiles, cement, steel, petrochemicals and refining. The electrical equipment and machinery sector comprises a range of products, such as transformers, switchgears, motors, generators and control equipment. There are about 700 manufacturers of electrical machinery in India including those for heavy electrical power generation equipments like boilers, turbines and generator sets. Nearly 90% of them are small and medium sized manufacturers. Indian electric equipment industry caters to most of the indigenous demand. In select segments, especially to meet the demand for highly sophisticated equipments, sourcing is done through imports.

The production and market size of electrical equipment industry during 2011-12 stood at Rs 126,312 crore and Rs 140,680 crore, respectively. During the 12th plan period, while production is expected to register a CAGR of 15.2% to aggregate to Rs 257,050 crore, market size is projected to record a CAGR of 16.4% to amount to Rs 301,662 crore by 2016-17. This indicates that production capacities are not likely to keep up pace with domestic demand, with the gap being increasingly met by imports.

Exhibit 26: Structure of the Electric Equipment Industry

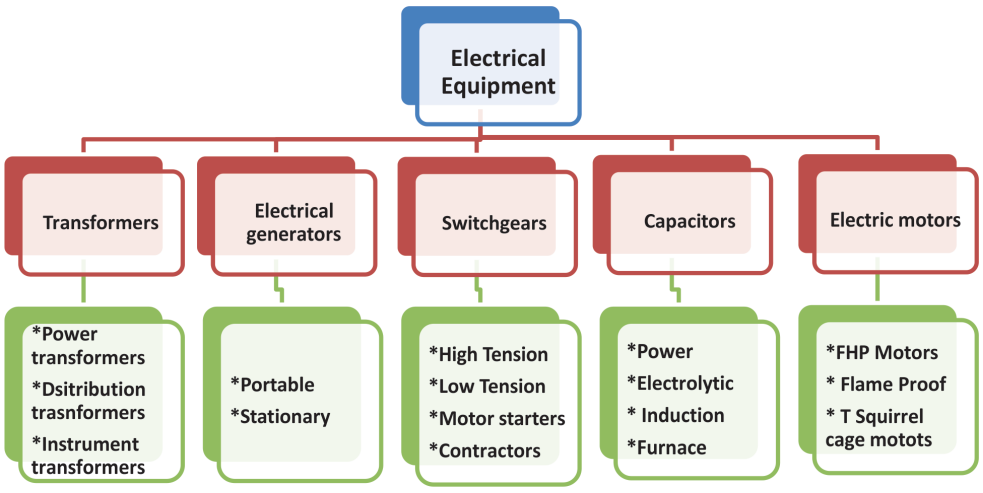


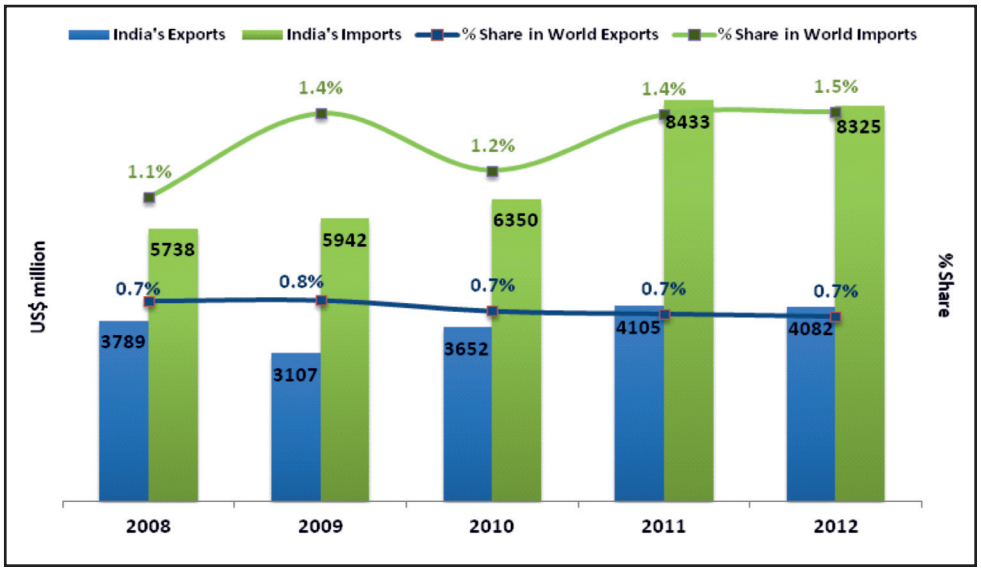
Table 16: Market Size and Production of Electrical Machinery in India (Rs. Cr)

	2009-10	2010-11	2011-12	2012-13*	2013-14*	2014-15*	2015-16*	2016-17*
Market Size	104,185	121,418	140,680	163,479	190,192	221,532	258,350	301,662
Production	93,187	110,000	126,312	145,421	167,521	193,097	222,719	257,050

Note: * Projected
Source: Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

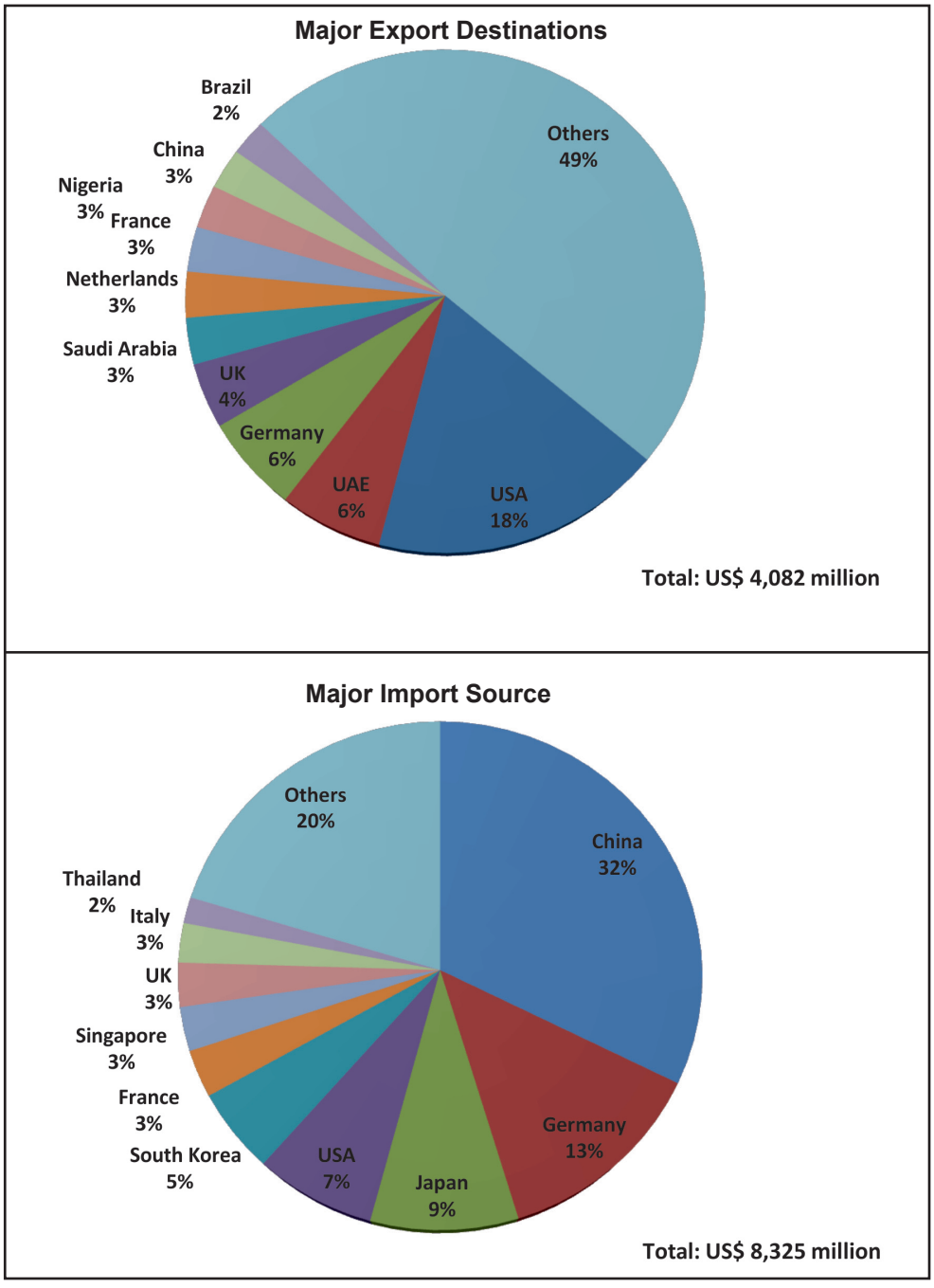
India exported electrical equipment and machinery worth US$ 4.08 billion during 2012, while imports aggregated to US$ 8.33 billion. As compared to the previous year, exports and imports declined by (-)0.6% and (-)1.3%, respectively during 2012. While the country's share in world exports of electrical machinery has remained stagnant at 0.7% during the period between 2008 and 2012, the share in world imports has increased during this period from 1.1% in 2008 to 1.5% in 2012 (Exhibit 27). India's major export destinations for electrical machinery were: USA (18%), UAE (6%), Germany (6%), UK (4%) and Saudi Arabia (3%), while the major source countries were: China (32%), Germany (13%), Japan (9%), USA (7%) and South Korea (5%) (Exhibit 28).

Exhibit 27: India's Exports and Imports of Electrical Machinery



Source: PCTAS, Exim Bank Analysis

Exhibit 28: India's Major Export Destinations and Import Sources of Electrical Machinery, 2012



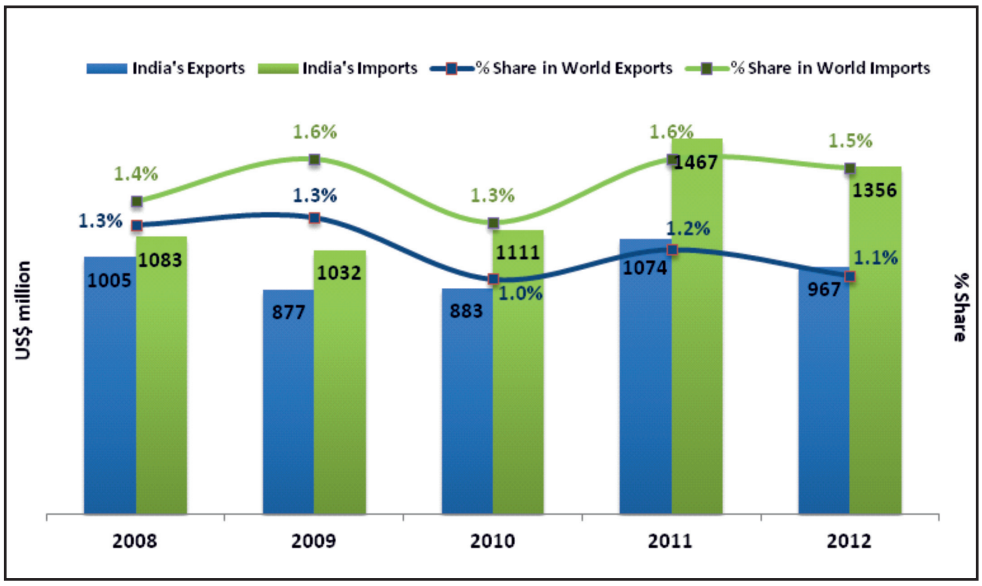
Source: PCTAS, Exim Bank Analysis

Transformer Sector

Transformer is a crucial component in transmission and distribution of electricity. The transformer industry is usually divided into distribution transformers, power transformers and other types of special transformers for welding, traction, furnace etc. The transformer industry in India has been at the forefront for over five decades and has a well-matured technology-base. The transformer market in India is on a growth path, being driven by growing demand for power in the country. Some of the major players in the transformer industry are Crompton Greaves, Vijay Electricals, BHEL, ABB and Transformers & Rectifiers.

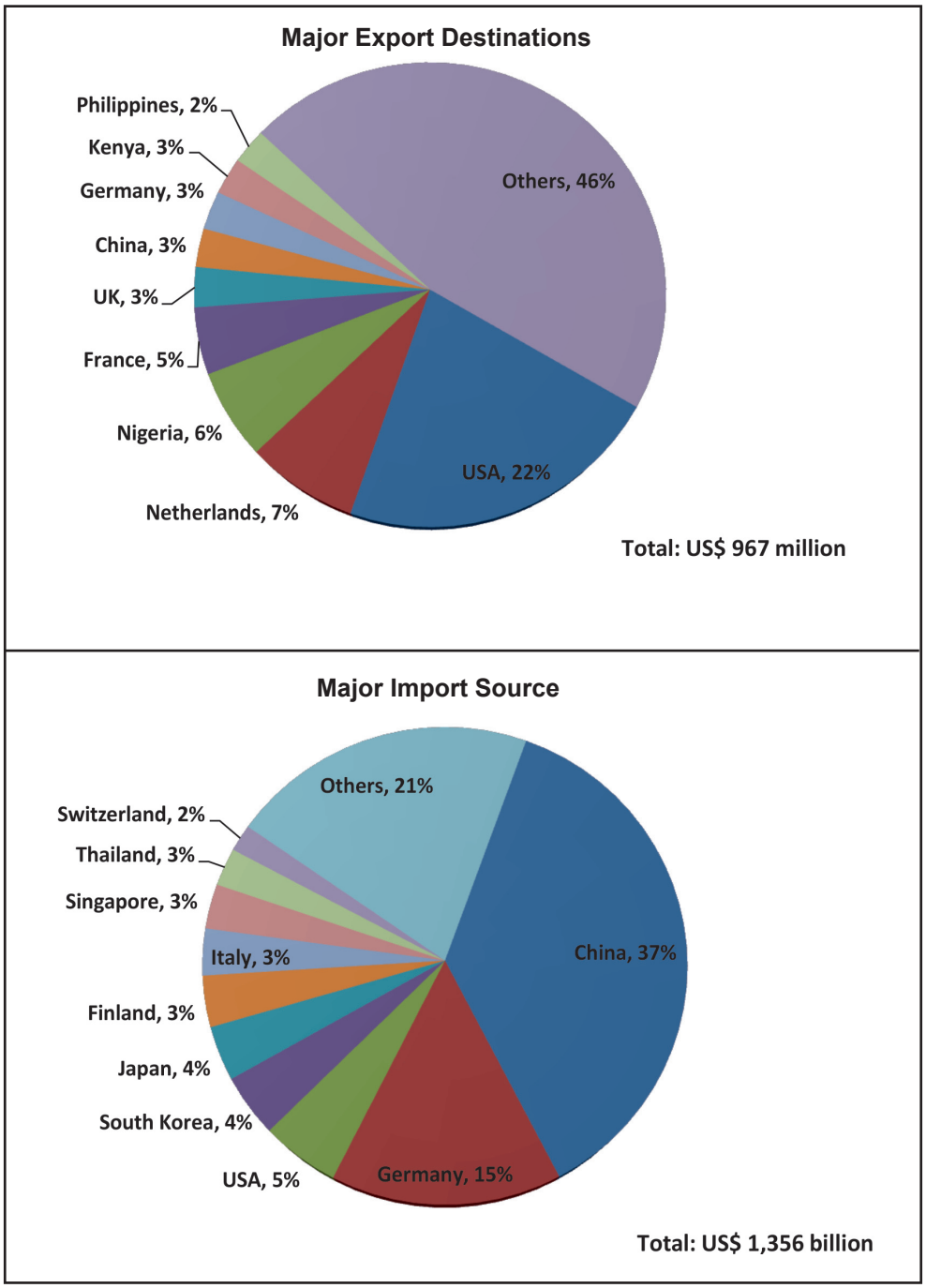
The exports and imports of transformers witnessed y-o-y declines of (-)10% and (-)7.6% respectively in 2012, to aggregate to US$ 0.96 billion and US$ 1.36 billion, respectively. While India's share in world exports of transformers has been dwindling having declined from 1.3% in 2008 to 1.1% in 2012, the country's share in world imports has increased from 1.4% to 1.5% during the same period (Exhibit 29).

Exhibit 29: India's Exports and Imports of Transformers



Source: PCTAS, Exim Bank Analysis

Exhibit 30: India's Export Destinations and Import Sources of Transformers, 2012



Source: PCTAS, Exim Bank Analysis

The major export destinations for India's transformers in 2012 were USA (22%), Netherlands (7%), Nigeria (6%), France (5%) and UK (3%), while major source countries for imports included China (37%), Germany (15%), USA (5%), South Korea (4%) and Japan (4%) (Exhibit:30).

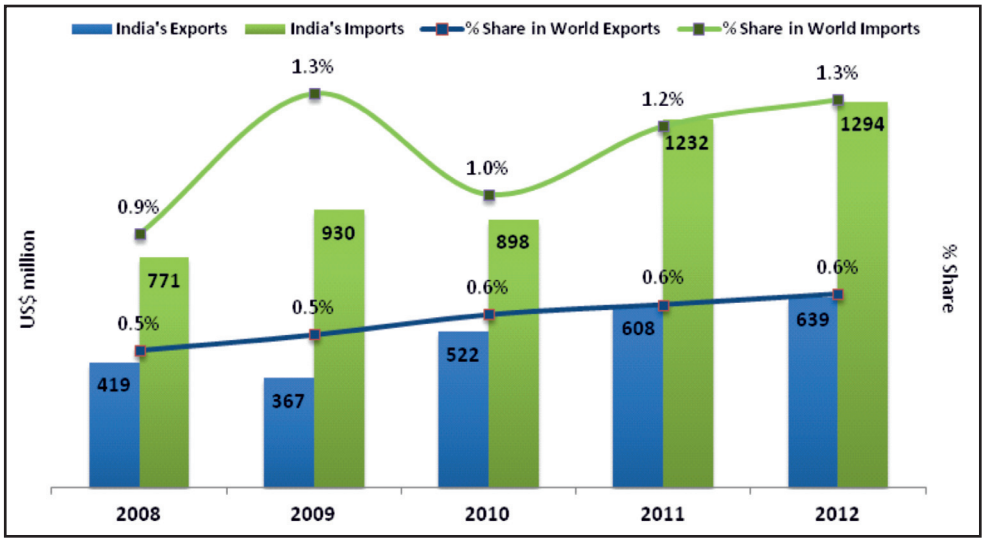
Switchgear Sector

Switchgears and control gears are required for transmission and distribution of power and are necessary at every switching point in power transmission and distribution system. This segment in India is developed and mature, producing and supplying a wide range of products catering to the needs of residential, commercial and power sector. Major players in the switchgear segment are Siemens, ABB, Larsen & Toubro, Alstom T&D India and Anchor Electricals. Switchgear products can be broadly categorized into the following three groups:

- Low Voltage (LV) Switchgear (upto 1KV) – mainly used in domestic, power distribution and industrial control system.
- Medium Voltage (MV) Switchgear (upto 36KV) – product range mainly include various types of circuit breakers (below 36KV).
- High Voltage (HV) Switchgear – product range include switchgears above 36KV, such as SF6 (Sulphur Hexafluoride) breaker, gas insulated switchgear, lighting arresters and composite insulators.

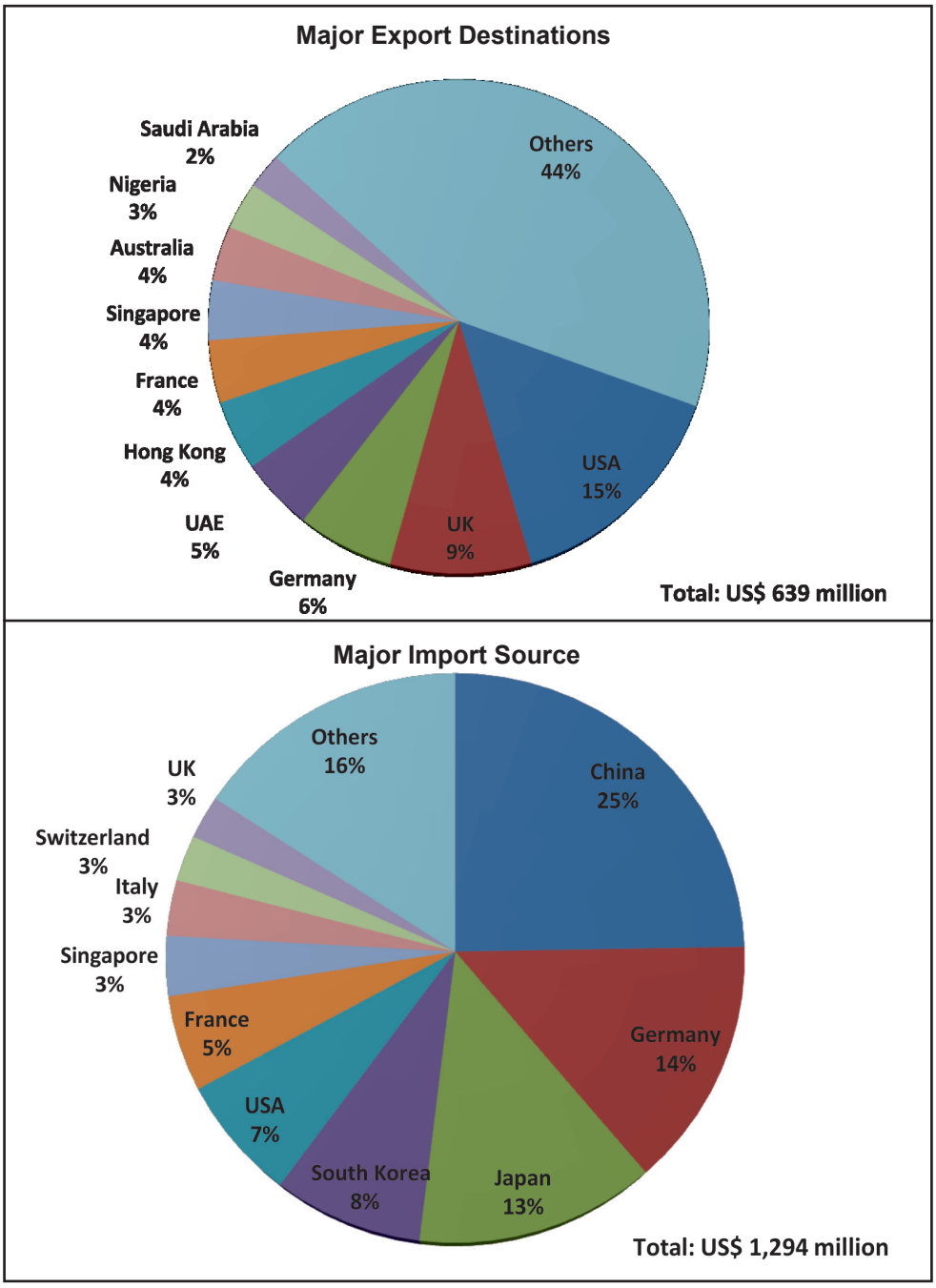
India has been exporting switchgears to various countries. India's export of switchgears was valued at US$ 639 million while imports stood at US$ 1294 million in 2012, registering y-o-y growths of 5.1% and 5%, respectively (Exhibit 31).

Exhibit 31: India's Exports and Imports of Switchgears



Source: PCTAS, Exim Bank Analysis

Exhibit 32: India's Exports Destinations and Import Sources of Switchgears, 2012



Source: PCTAS, Exim Bank Analysis

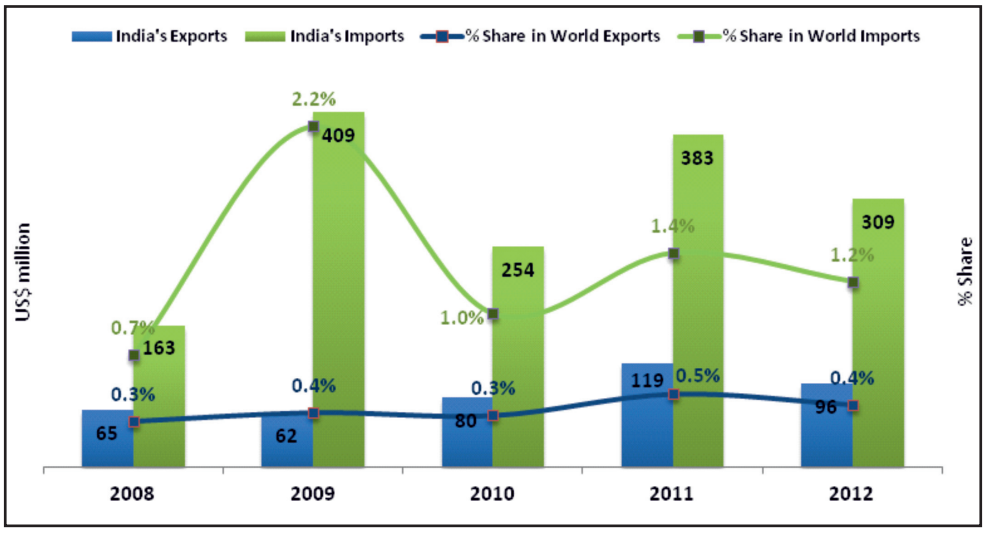
The major export destinations for India's switchgears in 2012 were USA (15%), UK (9%), Germany (6%), UAE (5%) and Hong Kong (4%), while major source countries for import included China (25%), Germany (14%), Japan (13%), South Korea (8%) and USA (7%) (Exhibit 32).

Capacitors

Capacitors are used for correcting power factor at the consumer end, to improve the efficiency of the system and reducing unwanted losses. Low tension capacitors, high tension capacitors, starting / running capacitors, electrolytic motor starter capacitors, and induction furnace capacitors are some of the capacitors manufactured in India. Major firms engaged in capacitor production in India include Shreem Electric, Epcos India, ABB, and Varroc Engineering.

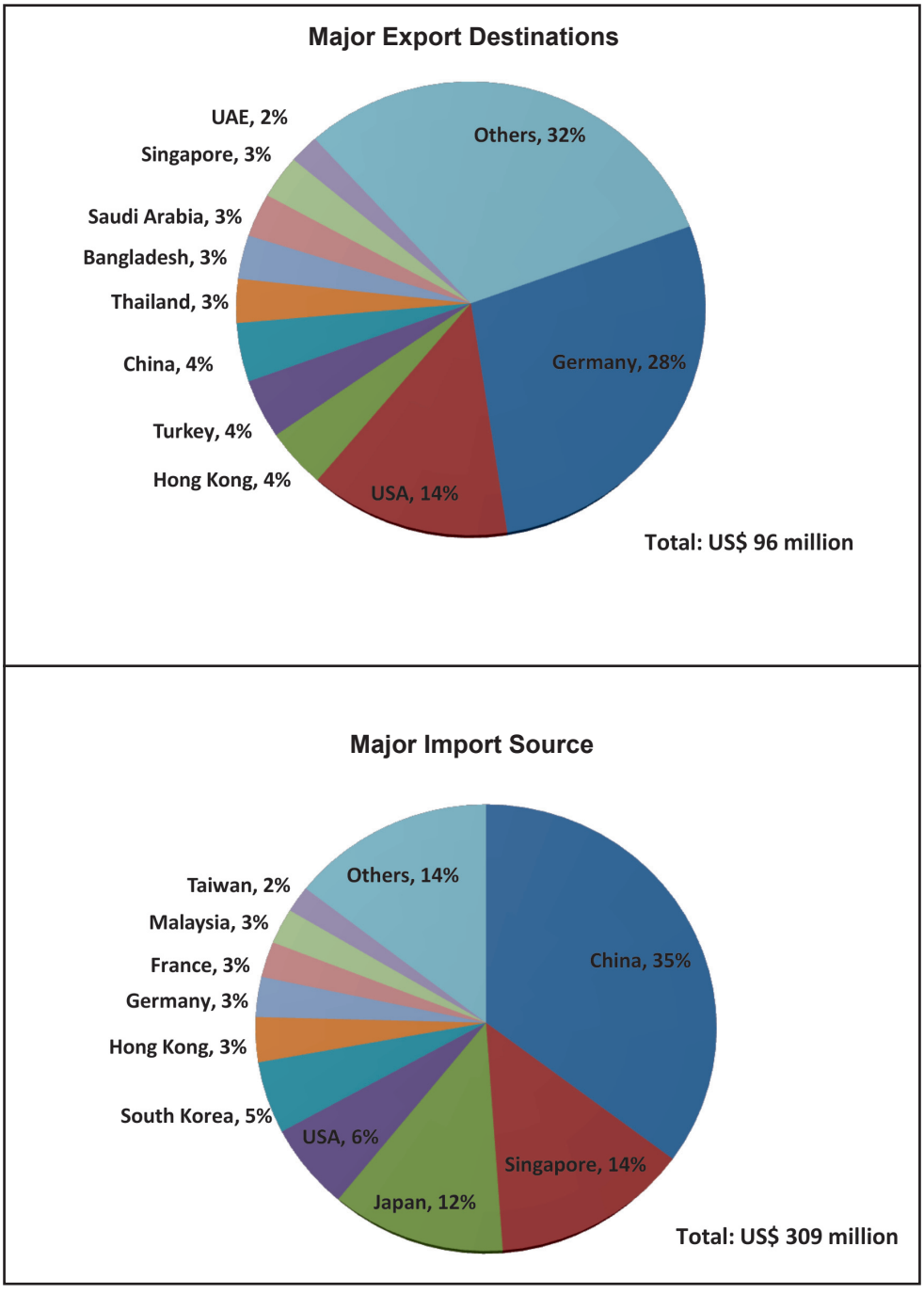
India's international trade in capacitors has witnessed fairly wide fluctuations during the last few years. After registering impressive y-o-y growths of 48.8% in exports and 50.8% in imports in 2011, both India's exports and imports of capacitor witnessed negative y-o-y growth rates of (-)19.3% each in 2012.Consequently, India's share in world exports and imports of capacitors declined from 0.5% and 1.4% in 2011, to 0.4% and 1.2% in 2012, respectively (Exhibit 33).

Exhibit 33: India's Exports and Imports of Capacitors



Source: PCTAS, Exim Bank Analysis

Exhibit 34: India's Export Destinations and Import Sources of Capacitors, 2012



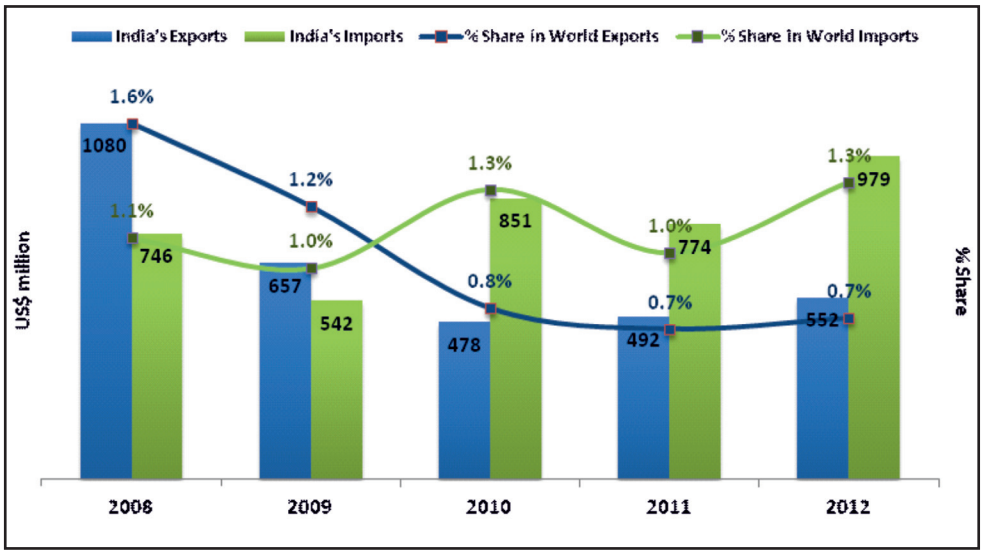
Source: PCTAS, Exim Bank Analysis

The major export destinations for India's capacitors in 2012 were Germany (28%), USA (14%), Hong Kong (4%), Turkey (4%) and China (4%), while major source countries for imports included China (35%), Singapore (14%), Japan (12%), USA (6 %) and South Korea (5%) (Exhibit 34).

Motors and Generators

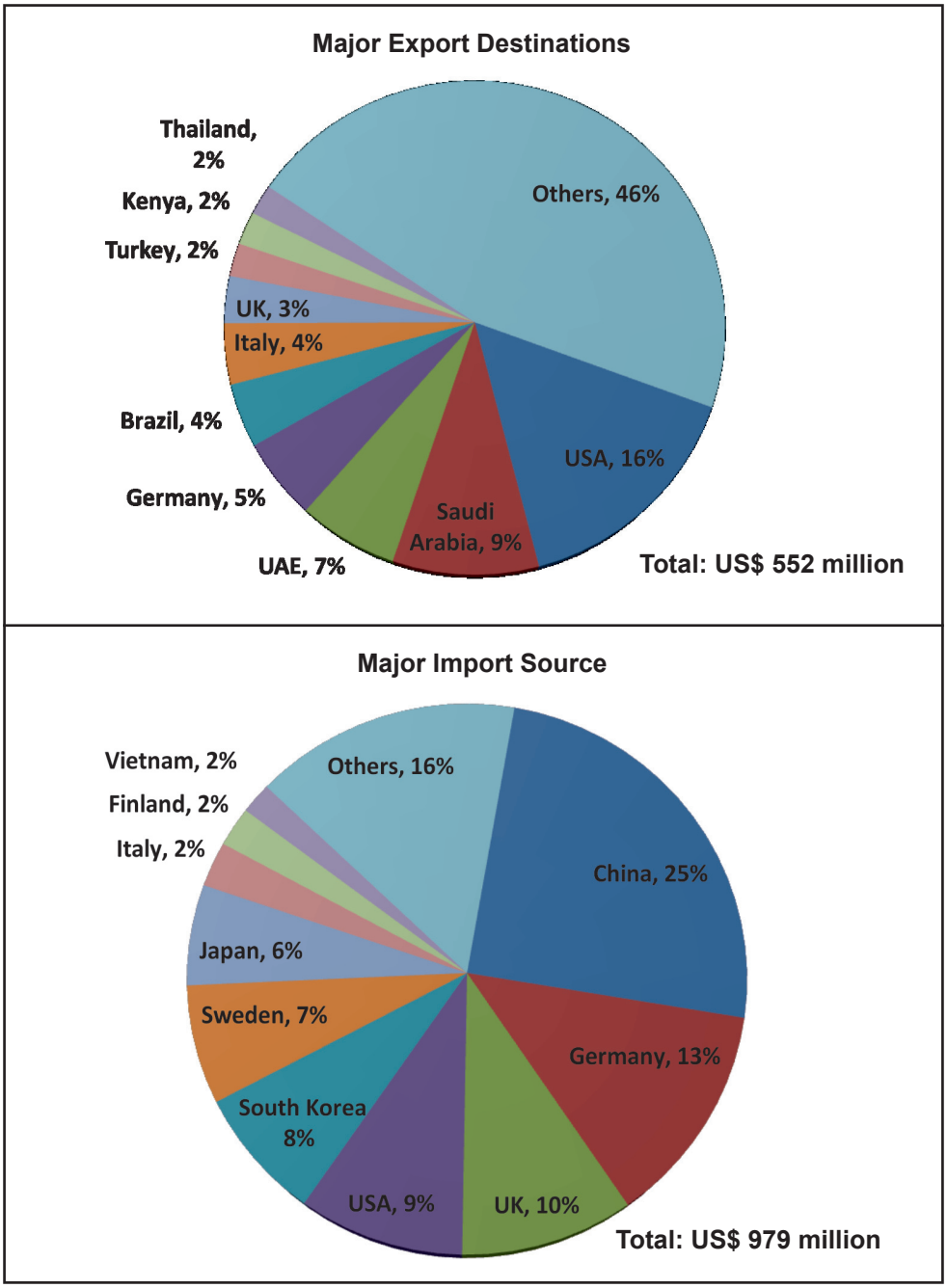
Rotating machines, whether motors or generators, are among the most crucial equipment required while running a manufacturing unit, more so given the precarious power availability situation in India. The generator industry has two segments: portable sets, which run on kerosene, petrol and diesel; and stationary sets, which run primarily on diesel. A large number of players are engaged in production of portable generators, particularly in the lower power segment (3 to 15 kilo volt amperes). These are used mainly by shops, restaurants, small offices and business establishments. This segment is characterized by simple technology and hence dominated by the small and medium enterprises (SMEs). These SME units are concentrated mainly in Agra, Rajkot, Kolhapur, Mumbai and Kolkata. Stationary generators (< 125 kVA) are primarily used in large residential and commercial complexes, hotels, hospitals while generators of capacity above 125 kVA find use mainly in large core sector and process industries. The major players

Exhibit 35: India's Exports and Imports of Motors & Generators



Source: PCTAS, Exim Bank Analysis

Exhibit 36: India's Export Destinations and Import Sources of Motors & Generators, 2012



Source: PCTAS, Exim Bank Analysis

in motor and generator segment of capital goods industry include BHEL, Crompton Greaves, Siemens, Powerica and Sudhir Gensets.

India has been exporting motors and generators to various countries. During 2012, India's export of motors and generators was valued at US$ 552 million, almost half the value of US$ 1080 million recorded in 2008. As a result, India's share in global exports of motors and generators has undergone a significant decline – from 1.6% in 2008 to 0.7% in 2012. On the other hand, India's imports have increased from US$ 746 million in 2008 to US$ 979 million in 2012, with its share in world imports increasing in tandem from 1.1% to 1.3% during this period (Exhibit 35).

The major export destinations for India's motors and generators in 2012 were USA (16%), Saudi Arabia (9%), UAE (7%), Germany (5%) and Brazil (4%), while major source countries for import included China (25%), Germany (13%), UK (10%), USA (9%) and South Korea (8%) (Exhibit 36).

Trade Deficit in Capital Goods: A Segment-wise Aanalysis

The capital goods sector has witnessed consistent trade deficits. This has been borne out from the analysis carried out in Table 17 which reveals that all the segments of capital goods sector have shown negative trade balance in both 2008 and 2012. Process plant, office equipment and parts showed the largest trade deficit (US$ 19 bn) followed by electrical equipment and machinery (US$ 4.2 bn), construction and mining machinery (US$ 2.7 bn), machine tools (US$ 2.4 bn) and textile machinery (US$ 1.7 bn).

The main contributors to trade deficit at HS-6 digit level under each of the segments are given below:

- Machine tools (trade deficit of US$ 2.4 bn in 2012): machining centres, for working metal (HS 845710), presses for working metal (HS 846299), bending/ folding/ straightening/flattening machines (including presses) for working metal (HS 846229), forging or die-stamping machines (including presses) & hammers for working metal (HS 846210), and grinding machinery in which positioning of 1 axis can be set up to an accuracy of atleast 0.01mm (HS 846029).

- Textile machinery (trade deficit of US$ 1.7 bn in 2012): machines for weaving fabrics (HS 844630), textile winding (including weft-

Table 17: India's Segment-wise International Trade in Capital Goods

Product Description	India's Exports (US$ bn)		CAGR 2008-12 (%)	India's Imports (US$ bn)		CAGR 2008-12 (%)	Trade Balance (US$ bn)		CAGR 2008-12 (%)
	2008	2012		2008	2012		2008	2012	
Capital Goods	**11.8**	**15.0**	**6.3%**	**33.5**	**45.0**	**7.6%**	**-21.8**	**-30.0**	**8.3%**
Machine Tools	0.20	0.24	4.7%	2.2	2.6	4.2%	-2.0	-2.4	4.2%
Textile machinery	0.20	0.34	14.2%	1.9	2.1	2.0%	-1.7	-1.7	0.1%
Construc-tion & Mining machinery	0.9	1.5	14.6%	4.6	4.2	-2.4%	-3.8	-2.7	-8.1%
Process plant, office equipment, parts	6.7	8.8	7.2%	19.0	27.8	9.9%	-12.4	-19.0	11.3%
Electrical Equipment & machinery	3.8	4.1	1.9%	5.7	8.3	9.8%	-2.0	-4.2	21.4%

Source: PCTAS, Exim Bank Analysis

winding) or reeling machines (HS 844540), textile spinning machines (HS 844520), machines for making gimped yarn/tulle/lace/embroidery and the like (HS 844790), and machines for extruding, drawing, text or cutting man-made textile materials (HS 844400).

- Construction and mining machinery (trade deficit of US$ 2.7 bn in 2012): parts of cranes, work-trucks, shovels, and other construction machinery (HS 843149), transporter or bridge cranes (HS 842619), machines for agglomerating mineral fuels and foundry moulds of sand etc (HS 847480), derricks, cranes or work trucks fitted with a crane, self-propelled (HS 842649), and lifts and skip hoists (HS 842810).

- Process plant, office equipment and parts (trade deficit of US$ 19.0 bn in 2012): portable digital computers <10kg (HS 847130), parts & accessories of automatic data processing machines & units thereof (HS 847330), engines, diesel, for the vehicles of HS 87 (HS 840820), computer data storage

units (HS 847170), and machines and mechanical appliances having individual functions (HS 847989).

- Electrical equipment and machinery (trade deficit of US$ 2 bn in 2012): electrical machines and apparatus (HS 854389), static converters (HS 850440), parts of electric motors, generators, generating sets & rotary converters (HS 850300), parts for use with the apparatus of switching or protecting electrical circuits, boards, panels, consoles, desks, cabinets (HS 853890) and electric accumulators (HS 850780).

4. PRODUCT & MARKET IDENTIFICATION OF CAPITAL GOODS

This chapter undertakes a granular analysis of identifying capital good products that have potential for exports from India by narrowing the HS classification to HS-6 digits. An attempt has been made to map the global demand for such products with India's exports, with a view to outline a market specific approach for exporters. In this chapter, a generic analysis has been attempted in order to identify products that have strong capabilities to export. Also analyzed are the current export markets where India has penetrated and the key competitors which India faces.

While India needs to further consolidate its share in the major import markets, there are countries where India already has an exposure but at relatively lower levels. These markets are the potential growth drivers for India's capital goods exports and need to be suitably targeted. India's capacity to serve abroad gets further strengthened given the shift and renewed focus in the manufacturing activity. With Indian firms' gradually developing capability in serving the overseas end user industries, there is a need to diversify the country's manufacturing to these products, so as to enhance its share in global exports.

PRODUCT IDENTIFICATION

Objective:

- To identify and categorize the capital good products where India could focus on, to realize potentially higher values, especially when considering that the country already possesses manufacturing capabilities for these products.
- The idea is to construct a product market matrix for capital goods that are products in demand, along with the key demand centres (importers), and the key exporters to these regions (India's competitors).

Methodology:

- The 4-digit HS (106 products) capital goods products have been disaggregated at a granular level into 6-digit HS (628 products).

- The trends in India's exports and world imports of these products have been analysed. This includes:

  - Identification of products in which India's export was at least US$ 1 mn in 2012. This filtration has been done to indicate that India has manufacturing capabilities for these products and is exporting them in fairly reasonable amounts.

  - Analysis of trends in world imports for these products using annual average growth rates (AAGR) over the five year period between 2008 and 2012. This has been undertaken to help in identification of products exhibiting dynamic global demand.

  - Analysis of trends in exports of these products from India during the 2008-2012 period.

  - This analysis has been followed for the major capital good categories namely - Machine Tools, Construction and Mining Machinery, Process Plant, Office Equipment and Parts, Textile Machinery and Electrical Machinery.

  - Based on the aforementioned analysis, products have been categorised into four segments, viz. 'Product Champions', 'Underachievers', 'Growth in declining world markets' and 'Losers in declining markets' on the basis of characteristics given in Table 18.

Further, given the focus needs to be primarily on capital goods products which figure under the "Product Champions" category, a further analysis of this categorization has been undertaken to identify India's competitors in the major markets for such products. Within this category, the products considered are based on two approaches –

- One set includes the top 5 Product Champions in terms of world market in 2012;

- The second set includes the top 5 Product Champions in terms of India's exports in 2012.

The following sections undertake an analysis of capital goods across various categories, namely - Machine Tools, Construction and Mining Machinery, Process Plant, Office Equipment and Parts, Textile Machinery and Electrical Machinery.

Table 18: Product Growth Matrix Description

CATEGORY	INDIA'S EXPORTS	WORLD IMPORTS
PRODUCT CHAMPIONS (have maximum potential)	AAGR of India's exports of these products is > AAGRs of both India's total exports as also world imports of these products (i.e. share of these products in India's overall exports and India's world market share in these products has increased over the period)	AAGR of World imports of these products is > AAGR of World's total imports (i.e. share of these products in overall world imports has increased over the period)
UNDER ACHIEVERS (need to recover lost ground from competing suppliers and increase exports)	AAGR of India's exports of these products is < AAGRs of both India's total exports as also world imports of these products (i.e. share of these products in India's overall exports and India's market share in the world has declined over the period)	AAGR of World imports of these products is > AAGR of World's total imports (i.e. share of these products in overall world imports has increased over the period)
GROWTH IN DECLINING WORLD MARKET	AAGR of India's exports of these products is > AAGR of India's total exports and also world imports of these products (i.e. share of these products in India's overall exports and India's world market share in these products has increased over the period)	AAGR of World imports of these products is < AAGR of World's total imports (i.e. share of these products in overall world imports has declined over the period)
LOSERS IN DECLINING WORLD MARKET	AAGR of India's exports of these products is < AAGR of India's total exports and also world imports of these products (i.e. share of these products in India's overall exports and India's market share has declined over the period)	AAGR of World imports of these products is < AAGR of World's total imports (i.e. share of these products in overall world imports has declined over the period)

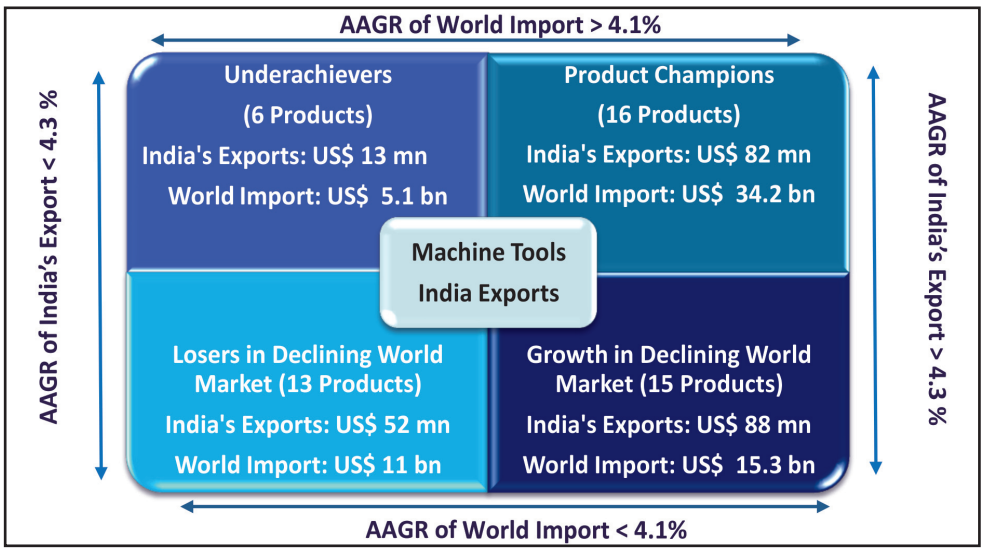
MACHINE TOOLS

Inferences:

Following the methodology as outlined above, a total of 50 products have been shortlisted for categorisation. Of these, 16 machine tool products have been identified under the category Product Champions, 6 products under underachievers, 13 products under losers in declining market and 15 products under growth in declining world market.

Product Champions: 16 machine tool products have been identified as Product Champions (Table: 19). The cumulative value of India's exports of products under this category amounted to US$ 82 million in 2012. These products have gained share in global import basket during the 2008-2012 period by increasing at a pace higher than total world imports, which averaged 4.1% during this period. Not only this, export of these products from India has grown significantly – higher than both the overall exports of India, which averaged 4.3% as also the pace of world imports of these products during the 2008-2012 period. Key Product Champions in the world import market include machining centres, for working metal (HS 845710), hand held electric saws (HS 846729), horizontal lathes numerically controlled for removing metal (HS 845811). Together, these 3 products (US$ 24.7 billion) accounted for more than half

Exhibit 37: India's Machine Tools Product Growth Matrix: 2012



the world demand (US$ 34.2 billion) of the identified machine tool product champions although India's share (totalling US$ 22 million) in it was just 0.06% of world demand (US$ 34.2 billion) (Table: 19).

Out of 16, there is 1 product where India's AAGR in exports have increased by triple digits (HS Code 846090 Mach-tools for deburring polishing etc). The Top 5 machine tool export products from India under Product Champion category constituted US$ 52 million of exports and their share in India's total exports of machine tools increased from 15.2% in 2008 to 22% in 2012. The top 5 products are machining centres, for working metal (HS Code 845710), presses for working metal (HS Code 846299), tools for working in the hand, pneumatic rotary type (HS Code 846711), draw-benches for bars/ tubes/profiles wire or the like working metal (HS Code 846310), and forging or die-stamping machines (including presses) & hammers for working metal (HS Code 846210) (Table: 20 & 21).

Underachievers: In the Under-achievers category, 6 machine tool export products have been identified. The cumulative value of India's exports of products under this category amounted to US$ 13 million in 2012, down from US$ 27 million in 2008. On the other hand, the world import market for these 6 products has increased from US$ 5 billion to US$ 5.1 billion during the same period. India has lost out market share to competing countries for these dynamic products.

Further, for all the 6 products in this category, India's imports were substantially higher than exports implying that the country had a trade deficit in each of these products. While manufacturing capabilities exists in India, the fact that the country is importing significant amounts and that these imports have increased during the 2008-2012 period is indicative of shortage of manufacturing capacities within the domestic shores. The products identified are given in Table 22.

Table 19: Product Champions under Machine Tools

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
845710	Machining centers, for working metal	11	15	76.1	8574	12731	19.1	0.13	0.12	270	352	-259	-337
846299	Presses for working metal	9	13	23.1	1396	1554	6.7	0.64	0.84	185	288	-176	-275
846711	Tools for working in the hand, pneumatic rotary type	2	9	61.3	1280	1278	4.6	0.16	0.7	20	24	-18	-15
846310	Draw-benches for bars/tubes/profiles wire or the like working metal	3	9	52.1	461	495	4.8	0.65	1.82	27	30	-24	-21
846210	Forging or die-stamping mach (inc presses) & hammers for working metal	6	6	4.7	2006	2597	10.2	0.3	0.23	131	134	-125	-128
846090	Mach-tools for deburring polishing etc for finmet other than heading 84.61	1	5	112.5	675	918	14.8	0.15	0.54	23	43	-22	-38
845940	Boring machine for removing metal	2	5	50	299	279	6	0.67	1.79	57	39	-55	-34
846729	Hand held electric saws	1	4	45.8	6248	6945	4.7	0.02	0.06	19	39	-18	-35
846029	Grinding mach in which pos of 1 axis to an acc to 0.01mm for remmet	4	4	20	395	444	5.3	1.01	0.9	76	106	-72	-102
845811	Horizontal lathes numerically controlled for removing metal	6	3	20.8	5202	5056	9.3	0.12	0.06	34	48	-28	-45
846120	Shaping or slotting machine by removing metal	2	3	37.5	99	133	12.2	2.02	2.26	15	21	-13	-18
845929	Drilling machine, for removing metal	6	2	9.9	510	697	19	1.18	0.29	31	80	-25	-78
845970	Threading or tapping machi for removing metal	1	1	12.5	459	363	9.9	0.22	0.28	12	11	-11	-10
846019	Fl-surf grinding mach in which pos of 1 axis acc to 0.01 mm remmet	1	1	12.5	276	362	14.4	0.36	0.28	12	11	-11	-10
846130	Broaching machine by removing metal	1	1	50	105	193	21.6	0.95	0.52	10	10	-9	-9
845951	Milling mach, knee-type numerically controlled for removing metal	1	1	12.5	135	108	6.4	0.74	0.93	38	39	-37	-38
	TOTAL OF ABOVE	**57**	**82**		**28120**	**34153**		**0.20**	**0.24**	**960**	**1275**	**-903**	**-1193**
	TOTAL UNDER SEGMENT	**204**	**235**	**4.3**	**76895**	**78537**	**4.1**	**0.26**	**0.30**	**2197**	**2587**	**-1993**	**-2352**

Source: PCTAS, Exim Bank Analysis

Table 20: Machine Tools:
The Top 5 "Product Champions", their Top Importers (excluding India) and their Major Suppliers

HS Code	Product	Importers	Value (US$ mn)		Major Supplier Countries with Whom India will have to Compete for Market Share	India's Rank as supplier
			2008	2012		
845710	Machining centers, for working metal	CHINA	2086	5651	Japan, Germany, Taiwan, S.Korea, Italy	14
		USA	1194	1621	Japan, Taiwan, Germany, S.Korea, Italy	17
		GERMANY	643	532	Japan, Switzerland, UK, Taiwan, Netherlands	21
		MEXICO	277	353	Japan, Germany, USA, S.Korea, Taiwan	-
		RUSSIA	270	344	Germany, Taiwan, Japan, Czech Republic, Italy	-
		WORLD	**8574**	**12731**		
846729	Hand held electric saws	USA	1193	1640	China, Mexico, Germany, Japan, Sweden	35
		GERMANY	825	749	China, Hungary, Malaysia, Switzerland, Czech Rep	24
		BELGIUM	460	491	Sweden, China, Germany, France, Italy	-
		RUSSIA	185	412	China, Belarus, Kazakhstan, Germany, Malaysia	33
		FRANCE	425	396	China, Germany, Hungary, Malaysia, Austria	29
		WORLD	**6248**	**6945**		
845811	Horizontal lathes numerically controlled for removing metal	USA	844	1085	Japan, S.Korea, Taiwan, Germany, Thailand	28
		CHINA	409	527	Japan, Taiwan, Germany, S. Korea, Italy	11
		GERMANY	742	484	Japan, S.Korea, Turkey, Italy, China	19
		BELGIUM	371	252	Japan, UK, Taiwan, Austria, Singapore	11
		RUSSIA	154	204	Japan, Germany, Taiwan, Czech Rep, USA	17
		WORLD	**5202**	**5056**		

HS Code	Product	Importers	Value (US$ mn)		Major Supplier Countries with Whom India will have to Compete for Market Share	India's Rank as supplier
			2008	2012		
846210	Forging or die-stamping mach (inc presses) & hammers for working metal	CHINA	443	815	Japan, Germany, S.Korea, Taiwan, USA	25
		THAILAND	80	273	Japan, Taiwan, Malaysia, China, USA	20
		INDONESIA	0	195	Japan, Malaysia, Taiwan, S.Korea, China	9
		USA	193	155	Japan, China, S.Korea, Germany, Taiwan	24
		WORLD	**2006**	**2597**		
846299	Presses for working metal	CHINA	183	186	Japan, S.Korea, Germany, USA, Switzerland	12
		THAILAND	91	127	Japan, Taiwan, China, S.Korea, Vietnam	8
		VIET NAM	59	125	S.Korea, China, Japan, USA, Germany	-
		S.KOREA	40	74	Japan, USA, China, Germany, Switzerland	-
		USA	57	65	S.Korea, Japan, Canada, Germany, New Zealand	19
		WORLD	**1396**	**1554**		

Source: PCTAS, Exim Bank Analysis

TABLE 21: Machine Tools:
India's Top Exports Under "Product Champion" Category, Key Destinations and Competitors, 2012

HS CODE	PRODUCT NAME	EXPORT DESTINATION (US$ mn)		IMPORT FROM WORLD (US$ mn)	INDIA'S SHARE IN IMPORTS (%)	KEY EXPORTERS TO INDIA'S KEY MARKETS / INDIA'S COMPETITORS IN THE MARKETS
845710	Machining centers, for working metal	**WORLD**	**15**	**12731**	**0.12**	
		BELGIUM	5	260	1.92	Japan, USA, UK, Germany, Taiwan
		THAILAND	2	333	0.60	Japan, Taiwan, Germany, Singapore, USA
		CHINA	2	5651	0.04	Japan, Germany, Taiwan, S.Korea, Italy
		SPAIN	1	38	2.63	Taiwan, Italy, Germany, Japan, UK
		FRANCE	1	188	0.53	Germany, Japan, Taiwan, Italy, UK
846299	Presses for working metal	**WORLD**	**13**	**1554**	**0.84**	
		CHINA	4	186	2.15	Japan, S.Korea, Germany, USA, Switzerland
		THAILAND	1	127	0.79	Japan, Taiwan, China, S.Korea, Vietnam
		GERMANY	1	43	2.33	Spain, Italy, Switzerland, USA, S.Korea
846711	Tools for working in the hand, pneumatic rotary type	**WORLD**	**9**	**1278**	**0.70**	
		BELGIUM	3	278	1.08	Sweden, Hungary, Taiwan, USA, India is the fourth largest exporter
		USA	3	232	1.29	China, Taiwan, Japan, Sweden, Canada
		INDONESIA	1	9	11.11	Japan, Singapore, Sweden, USA, France
846310	Draw-benches for bars/tubes/ profiles wire or the like working metal	**WORLD**	**9**	**495**		
		BANGLADESH	3	NA	-	-
		S.KOREA	2	17	11.76	Italy, Japan, Germany, China, India is the fifth largest exporter
846210	Forging or die-stamping mach (inc presses) & hammers for working metal	**WORLD**	**6**	**2597**	**0.23**	
		MEXICO	1	124	0.81	Japan, USA, China, Germany, S.Korea
		SINGAPORE	1	11	9.09	Japan, Italy, Taiwan, Malaysia, China
		UK	1	23	4.35	China, France, Germany, Sweden, Japan

Source: PCTAS, Exim Bank Analysis

Table 22: Underachievers under Machine Tools

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
845891	Lathes numerically controlled for removing metal	2	2	-75	1544	1605	5.0	0.13	0.12	32	27	-30	-25
845730	Multi-station transfer machines for working metal	0	1	-50	910	896	5.1	0.00	0.11	34	36	-34	-35
846390	Machine-tools for working met/sintered met carbide/cermets w/o removing material	7	3	-5.4	884	893	7.1	0.79	0.34	31	39	-24	-36
846792	Pneumatic hand tool parts	17	5	-16.8	662	693	5.3	2.57	0.72	6	7	11	-2
846040	Honing or lapping machines for removing metal	1	1	0	433	574	15.2	0.23	0.17	12	20	-11	-19
846594	Bending/asymmetrical machines for working wood/cork/ bone/hard rubber/ hard plastics etc	0	1	-100	545	451	4.1	0.00	0.22	13	10	-13	-9
	TOTAL OF ABOVE	**27**	**13**		**4978**	**5112**		**3.72**	**1.69**	**128.00**	**139.00**	**-101**	**-126**
	TOTAL UNDER SEGMENT	**204**	**235**	**4.3**	**76895**	**78537**	**4.1**	**0.26**	**0.30**	**2197**	**2587**	**-1993**	**-2352**

Source: PCTAS, Exim Bank Analysis

Growth in Declining World Market: 15 machine tool export products have been identified under the category 'Growth in Declining World Market'. These are products for which world import market has witnessed decline, while India's exports have registered growth higher than the growth in world demand. The ironical part is that a predominant part of India's machine tool exports (totalling US$ 88 million in 2012) have been under this category. This is an area of concern as it is reflective of the country targeting a set of machine tools products whose demand has been going downhill. In fact, the top 5 exported products from India in this category constitute 70% of India's machine tool exports under Growth in Declining World Market (US$ 88 mn). Table 23 gives details on the products.

Losers in Declining World Market: 13 machine tool export products have been identified as 'Losers in Declining World Market'. The export prospects for these products tend to be bleak – world imports of these machine tool products have increased at a below-average rate or actually declined, and the market share of India has also gone down. These 13 products comprised 22% of India's machine tool exports in 2012, while the share of these in world import stood at over 14% (Table 24). India needs to diversify its production away from manufacturing these products and focus on other machine tool segments, especially the Product Champions and Underachievers.

Table 23: Growth in Declining World Market – Machine Tools

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
846599	Machine-tools for working wood/cork/bone/hard rubber/hard plastic/sim hard mat etc	5	23	59.2	1654	1148	-5.0	0.30	2.00	54	39	-49	-16
846799	Hand tools, parts of	10	12	20.2	1952	1992	2.2	0.51	0.60	35	25	-25	-13
846719	Tools for working in the hand, pneumatic type	2	11	61.9	979	888	1.1	0.20	1.24	6	14	-4	-3
845819	Horizontal lathes for removing metal	7	10	33.2	743	667	3.5	0.94	1.50	32	66	-25	-56
846229	Bending/folding/straightening/flattening mach (inc presses) for working metal	3	6	127.9	1732	1694	1.0	0.17	0.35	95	150	-92	-144
846510	Mach which can c/o diff type of machine op w/o tool change between such op f wood	1	6	79.8	1533	1103	-6.2	2.13	5.70	3	4	-2	2
846190	Filing o engraving machine (o/t those of heading 84.59 o 84.60) etc by remmet	2	4	62.5	380	379	2.3	0.53	1.06	45	55	-43	-51
845969	Milling machine, for removing metal	1	3	50.0	432	382	1.9	0.23	0.79	24	39	-23	-36
846249	Punching/notching machine (incl presses)inc comb punch/shear machine of working met	2	3	16.7	455	398	-1.6	0.44	0.75	55	46	-53	-43
846490	Mach-tools f working stone/ceramic/concrete/asbestos meant etc/for cold working glass	3	3	14.2	1234	975	-1.2	0.24	0.31	69	53	-66	-50
846239	Shearing machine (inc presses) o/t combined punch/shearing machine of working metal	2	2	95.8	788	687	-0.4	0.25	0.29	24	49	-22	-47
846595	Drilling/mortising mach f working wood /cork/bone/hard rubber/hard plastic etc	2	2	12.5	799	452	1.5	0.25	0.44	16	7	-14	-5
846721	Hand held drills, pneumatic/electric	0	1	38.9	4407	3963	-0.3	1.94	3.64	5	9	-5	-8
845939	Boring-milling machines for removing metal	1	1	16.7	179	137	-3.8	0.56	0.73	54	26	-53	-25
846593	Grinding/sanding o polishing machines for working wood/cork/bone/hard rubber etc	1	1	12.5	585	425	-2.8	0.17	0.24	19	14	-18	-13
	TOTAL OF ABOVE	**42**	**88**		**17852**	**15290**		**0.24**	**0.58**	**536**	**596**	**-494**	**-508**
	TOTAL UNDER SEGMENT	**204**	**235**	**4.3**	**76895**	**78537**	**4.1**	**0.26**	**0.30**	**2197**	**2587**	**-1993**	**-2352**

Source: PCTAS, Exim Bank Analysis

Table 24: Losers in Declining World Market – Machine Tools

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
846789	Tools for working in the hand with self contained non-electric motor	2	2	4.2	2155	2242	2.3	0.09	0.09	12	33	-10	-31
846591	Sawing machine for working wood/cork/ bone/hard rubber/plastics etc	0	1	0.0	1942	1573	-2.2	0.00	0.06	3	5	-3	-4
846140	Gear cutting ,gear grinding or gear finishing machine by removing metal	5	3	-2.5	1177	1235	3.8	0.42	0.24	117	91	-112	-88
846150	Sawing or cutting-off machine by removing metal	2	1	0.0	1310	1175	1.0	0.15	0.09	31	26	-29	-25
846291	Hydraulic presses for working metal	11	10	0.7	1273	1062	-0.1	0.86	0.94	80	73	-69	-63
846420	Grinding/polish machine of working stone/ceramic/ concrete/asbestos/cement etc/f cold working glass	1	1	0.0	1121	887	-2.1	0.09	0.11	16	23	-15	-22
846592	Planning/milling or molding (by cutting) mach for working wood/plastic etc	0	1	0.0	966	710	-2.2	0.00	0.14	7	5	-7	-4
845899	Lathes for removing metal	50	28	-7.1	750	569	-1.9	6.67	4.92	72	96	-22	-68
846330	Machine for working metal wire	1	1	0.0	525	497	0.1	0.19	0.20	4	8	-3	-7
846410	Sawing mach f working stone/ceramic/concrete/ asbestos/cement etc/for cold working glass	1	1	0.0	965	449	-9.7	0.10	0.22	19	18	-18	-17
846231	Shearing mach (inc presses) other than combined punching/shearing mach n/c f working met	1	1	-100.0	454	353	-4.4	0.22	0.28	1	6	0	-5
846039	Sharpening (tool or cutter grinding) mach for removing metal	3	1	-16.7	232	177	-3.0	1.29	0.56	10	10	-7	-9
845959	Milling mach, knee-type for removing metal	0	1	-75.0	113	91	2.4	0.00	1.10	22	14	-22	-13
	TOTAL OF ABOVE	**77**	**52**		**12983**	**11020**		**0.59**	**0.47**	**394**	**408**	**-317**	**-356**
	TOTAL UNDER SEGMENT	**204**	**235**	**4.3**	**76895**	**78537**	**4.1**	**0.26**	**0.30**	**2197**	**2587**	**-1993**	**-2352**

Source: PCTAS, Exim Bank Analysis

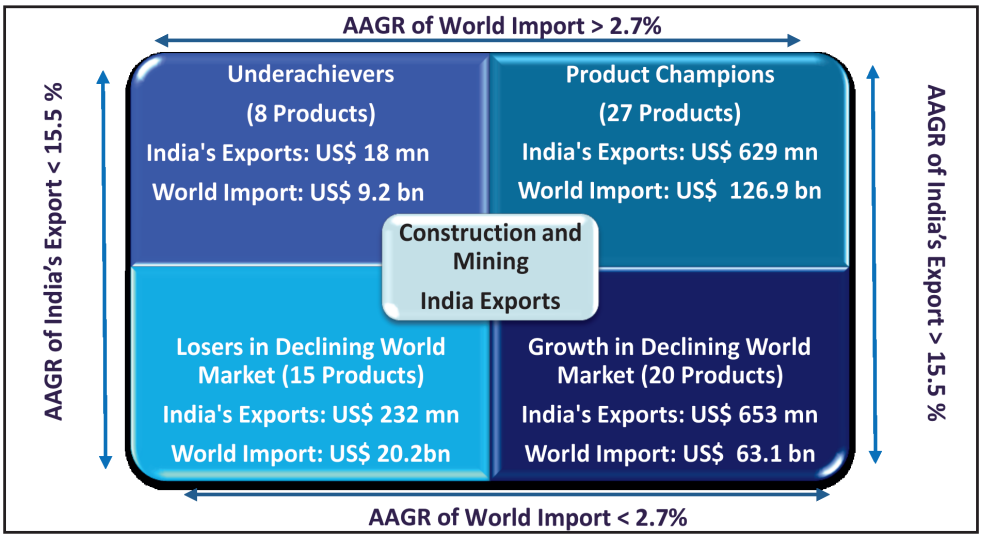
CONSTRUCTION AND MINING MACHINERY

Inferences:

A total of 70 products have been shortlisted for categorisation. Of these, 27 Construction and Mining Machinery products have been identified under the category Product Champions, 8 products as Underachievers, 15 products under Losers in Declining Market and 20 products under Growth in Declining World Market.

Product Champions: 27 Construction and Mining Machinery products have been identified as Product Champions (Table: 25). The cumulative value of India's exports of products under this category amounted to US$ 629 million in 2012. These products have gained share in global import basket during the 2008-2012 period by increasing at a pace (15.5%) higher than total world imports, which averaged 2.7% during this period. It is encouraging to note that a predominant part of India's Construction and Mining Machinery exports (amounting to US$ 629 million in 2012) have been under this category. Key Product Champions include parts of crane, work-trucks, shovels, and other construction machinery (HS 843149), shovels and excavators with a 360 revolving superstructure (HS 842952), front end shovel loader (HS 842951), lifting, handling, loading or unloading machinery (HS 842890) and self-propelled works trucks (HS 842720). Together, these 5 products (US$ 79.3 billion) accounted for more than half the world demand

Exhibit 38: India's Construction and Mining Machinery Product Growth Matrix: 2012



(US$ 126.9 billion) of the identified Construction and Mining Machinery Product Champions although India's share (totalling US$ 360 million) in it was just 0.5% (Table: 26).

Out of 27, there were 2 products where India's AAGR in exports have increased by triple digits. The products are construction equipment, not self propelled (HS Code 843069) and graders and levellers, self-propelled (HS Code 842920). The Top 5 Construction and Mining Machinery export products from India under Product Champion category constituted US$ 453 million worth of exports and their share in India's total exports of Construction and Mining Machinery increased from 22% in 2008 to 29% in 2012. The top 5 products are parts of crane, work-trucks, shovels, and other construction machinery (HS Code 843149), self-propelled excavating machinery (HS Code 842959), parts for rollers and other soil preparation or cultivation machinery (HS Code 843290), shovels and excavators with a 360^0 revolving superstructure (HS Code 842952), and construction equipment, not self propelled (HS Code 843069) (Table: 27).

Underachievers: In the Under-achievers category, 8 Construction and Mining Machinery export products have been identified. The cumulative value of India's exports of products under this category amounted to US$ 18 million in 2012, down from US$ 21 million in 2008. The world import market for these 8 products more or less remained the same over the years (from US$ 8.7 billion in 2008 to US$ 9.2 billion in 2012). India has lost out market share to competing countries for these dynamic products.

Further, for 5 of the 8 products in this category, India's imports were substantially higher than India's exports implying that the country had a trade deficit in each of these products. While manufacturing capabilities exists in India, the fact that the country is importing significant amounts and that these imports have increased during the 2008-2012 period is indicative of shortage of manufacturing capacities within the domestic shores. The products identified are given in Table 28:

Growth in Declining World Market: 20 Construction and Mining Machinery export products have been identified under the category 'Growth in Declining World Market'. These are products for which world import market has witnessed a decline, while India's exports have registered a growth higher than the growth (or decline) in world demand. A predominant part of India's Construction and Mining

Table 25: Product Champions under Construction and Mining Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
843149	Parts of cranes, work-trucks, shovels, and other construction machinery	134	267	27.6	26528	27023	6.1	0.51	0.99	447	593	-313	-326
842959	Self-propelled excavating machinery	19	58	46.6	5660	5169	5.6	0.34	1.12	336	122	-317	-64
843290	Parts for rollers and other soil preparation or cultivation machinery	13	51	48.8	2378	2617	4.3	0.55	1.95	9	21	4	30
842952	Shovels and excavators with a 360 revolving superstructure	24	47	84.1	20721	23040	13.4	0.12	0.20	12	72	12	-25
843069	Construction equipment, not self propelled	7	30	730.7	1287	2402	26.3	0.54	1.25	17	127	-10	-97
843780	Mach f milling/working of cereals/ dried leguminous veg excl farm-type	7	29	44.2	666	815	7.5	1.05	3.56	28	61	-21	-32
842890	Lifting, handling, loading or unloading machinery	9	18	30.5	9287	9178	3.5	0.10	0.20	120	117	-111	-99
842951	Front end shovel loaders	6	17	36.8	12526	11930	10.2	0.05	0.14	71	12	-65	5
847410	Sorting/screening/separating or washing mach for stone/ores or other min etc	8	17	29.1	2372	2423	3.9	0.34	0.70	86	76	-78	-59
843790	Parts of clean/sort machine etc for seed/grain mill/ working of cereal	8	14	17.9	461	500	2.7	1.74	2.80	10	24	-2	-10
843710	Machines for cleaning/sorting or grading seed, grain or dried leguminous	4	13	37.0	473	532	3.6	0.85	2.44	49	63	-45	-50
842720	Self-propelled works trucks	6	11	30.2	8976	8090	6.9	0.07	0.14	11	20	-5	-9
843390	Parts of harvesting, threshing & other agricultural & mowing machinery	6	9	20.5	4859	5233	4.2	0.12	0.17	7	11	-1	-2
842839	Cont-action elevators/conveyors for goods/mat	2	8	54.2	4470	4524	2.9	0.04	0.18	58	89	-56	-81
843120	Parts of fork-lift & other works trucks fitted with lifting equipment	7	6	46.5	5650	5065	4.2	0.12	0.12	13	36	-6	-30
842511	Pulley tackle/hoists electric (excl skip hoists/hoists f raising vehicles)	3	6	27.1	939	982	4.1	0.32	0.61	7	7	-4	-1

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
842549	Jacks & hoists	2	5	32.4	904	977	3.6	0.22	0.51	19	32	-17	-27
842911	Bulldozers and angle-dozers, crawler type	13	4	16.2	4564	4829	11.4	0.28	0.08	22	18	-9	-14
842920	Graders and levelers, self-propelled	1	3	148.2	2574	2606	8.5	0.04	0.12	66	17	-65	-14
843359	Harvesting machinery	2	3	37.5	1430	1845	9.2	0.14	0.16	3	27	-1	-24
842542	Jacks & hoists hydraulic	2	3	25.0	1361	1390	3.0	0.15	0.22	8	8	-6	-5
843680	Agri/horticulture/forestry bee-keeping mach incl germination plant	0	2	33.3	2095	2318	8.6	0.00	0.09	2	6	-2	-4
843610	Machinery for preparing animal feeding stuffs	1	2	37.5	666	782	6.9	0.15	0.26	2	19	-1	-17
843061	Tamping or compacting machinery, not self-propelled	1	2	25.0	383	758	26.3	0.26	0.26	2	2	-1	0
842832	Cont-action elevators/conveyors for goods/mat, bucket types	1	2	25.0	287	342	7.0	0.35	0.58	5	6	-4	-4
843229	Scarifiers, cultivators, weeders and hoes	1	1	52.1	1193	1211	2.9	0.08	0.08	1	6	0	-5
843352	Threshing machinery	1	1	33.3	131	294	35.7	0.76	0.34	0	0	1	1
	TOTAL OF ABOVE	**288**	**629**		**122841**	**126875**		**0.23**	**0.50**	**1411**	**1592**	**-1123**	**-963**
	TOTAL UNDER SEGMENT	**900**	**1546**	**15.5**	**244548**	**235933**	**2.7**	**0.37**	**0.66**	**4647**	**4219**	**-3747**	**-2673**

Source: PCTAS, Exim Bank Analysis

Table 26: Construction and Mining Machinery:
The Top 5 "Product Champions", their Key Importers and their Major Suppliers

HS Code	Product	Importers	Value (US$ mn)		Major Supplier Countries with Whom India will have to Compete for Market Share	India's Rank as supplier
			2008	2012		
843149	Parts of crane, work-trucks, shovels, and other construction machinery	USA	3028	3837	China, Japan, Mexico, Canada, Italy	15
		GERMANY	2465	1954	Italy, Czech Rep, France, Poland, Sweden	25
		FRANCE	1917	1650	Germany, Italy, UK, USA, Belgium	73
		CHINA	1820	1523	Japan, S.Korea, USA, Germany, Sweden	13
		SINGAPORE	1190	1436	USA, Japan, Germany, China, S.Korea	22
		WORLD	**26528**	**27023**		
842952	Shovels and excava-tors with a 360 revolving superstructure	USA	1798	4095	Japan, S.Korea, Belgium, Germany, France	-
		CANADA	1239	1601	USA, Japan, S.Korea, Belgium, Germany	-
		AUSTRALIA	808	1542	Japan, Germany, USA, France, S.Korea	17
		CHINA	1763	1538	Japan, S.Korea, Belgium, UK, France	10
		RUSSIA	1159	1404	Japan, S.Korea, China, Germany, France	-
		WORLD	**20721**	**23040**		

HS Code	Product	Importers	Value (US$ mn)		Major Supplier Countries with Whom India will have to Compete for Market Share	India's Rank as supplier
			2008	2012		
842951	Front end shovel loaders	CANADA	898	1304	USA, Japan, Sweden, China, Australia	28
		USA	893	1272	Japan, Sweden, S.Korea, Germany, Austria	26
		RUSSIA	722	945	China, UK, USA, Japan, Sweden	30
		AUSTRALIA	518	804	USA, China, Sweden, Japan, Finland	-
		GERMANY	771	584	UK, Belgium, Sweden, Austria, USA	25
		WORLD	**12526**	**11930**		
842890	Lifting, handling, loading or unloading machinery	USA	1768	1757	Mexico, Canada, Japan, Germany, China	16
		CHINA	471	1087	Germany, Japan, S,Korea, Taiwan, Italy	33
		AUSTRALIA	322	525	USA, China, Germany, Italy, New Zealand	33
		RUSSIA	466	422	Germany, Italy, France, USA, Canada	53
		GERMANY	499	413	France, Switzerland, Sweden, Netherlands, Belgium	46
		WORLD	**9287**	**9178**		
842720	Self-propelled works trucks	USA	720	892	S.Korea, UK, Canada, Ireland, Italy	-
		FRANCE	680	660	Italy, Germany, UK, Belgium, China	-
		CANADA	443	630	USA, S.Korea, UK, Italy, Germany	-
		AUSTRALIA	411	531	Japan, China, UK, France, Italy	24
		RUSSIA	520	444	Japan, Germany, China, UK, France	-
		WORLD	**8976**	**8090**		

Source: PCTAS, Exim Bank Analysis

Table 27: Construction and Mining Machinery: India's Top Exports Under "Product Champion" Category, Key Destinations and Competitors, 2012

HS CODE	PRODUCT NAME	EXPORT DESTINATION (US$ mn)		IMPORT FROM WORLD (US$ mn)	INDIA'S SHARE IN IMPORTS (%)	KEY EXPORTERS TO INDIA'S KEY MARKETS / INDIA'S COMPETITORS IN THE MARKETS
843149	Parts of crane, work-trucks, shovels, and other construction machinery	**WORLD**	**267**	**27023**	**0.99**	
		UK	66	789	8.37	China, Germany, India is the third largest exporter
		USA	52	3837	1.36	China, Japan, Mexico, Canada, Italy
		JAPAN	21	1270	1.65	China, S.Korea, Indonesia, Italy, USA
		BRAZIL	20	618	3.24	USA, Italy, Switzerland, China, Japan
		ITALY	18	530	3.40	China, Germany, France, Belgium, Japan
842959	Self-propelled excavating machinery	**WORLD**	**58**	**5169**	**1.12**	
		UAE	10	NA	-	-
		S. ARABIA	9	NA	-	-
		S. AFRICA	5	155	3.23	UK, China, Italy, Canada, Poland
		NEPAL	3	NA	-	-
		THAILAND	3	40	7.50	China, Japan, USA, Italy, Germany
843290	Parts for rollers and other soil preparation or cultivation machinery	**WORLD**	**51**	**2617**	**1.95**	
		USA	23	358	6.42	Canada, China, Mexico, Italy, Brazil
		EGYPT	6	NA	-	-
		THAILAND	3	15	20.00	China, India is the second largest exporter
		ITALY	2	65	3.08	Germany, China, Netherlands. France
		POLAND	1	77	1.30	Germany, Belgium, Italy, France, Sweden
842952	Shovels and excavators with a 360 revolving superstructure	**WORLD**	**47**	**23040**	**0.20**	
		S.ARABIA	5	NA	-	-
		INDONESIA	4	1255	0.32	Japan, Thailand, S.Korea, China, France
		S. AFRICA	3	363	0.83	Japan, France, Germany, S.Korea, Belgium
		UAE	3	NA	-	-
		AUSTRALIA	2	1542	0.13	Japan, Germany, USA, France, S.Korea
843069	Construction equipment, not self propelled	**WORLD**	**30**	**2402**	**1.25**	
		MYANMAR	23	NA	-	-
		SINGAPORE	3	72	4.17	France, Japan, Indonesia, Netherlands, Germany
		BAHRAIN	1	NA	-	-
		S.ARABIA	1	NA	-	-

Source: PCTAS, Exim Bank Analysis

Table 28: Underachievers under Construction and Mining Machinery

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
843221	Disc harrows	10	8	-4.5	274	277	5.3	3.65	2.89	-	-	-	-
843629	Poultry-keeping machinery	3	3	12.9	866	1240	13.1	0.35	0.24	0	11	3	-8
843699	Parts of agri/horticulture/forest/bee-keeping machines inc pts of germination plant	2	2	4.2	910	1157	10.3	0.22	0.17	2	5	0	-3
843621	Poultry incubators and brooders	0	1	0.0	172	288	21.1	0.00	0.35	6	1	-6	0
843360	Machines for cleaning, sorting or grading eggs, fruit or other produce	1	1	0.0	489	611	8.1	0.20	0.16	8	7	-7	-6
842860	Teleferics, chair-lifts, ski-draglines; traction mechanisms f funiculars	1	1	0.0	285	344	5.5	0.35	0.29	1	1	0	0
843142	Bulldozer and angle-dozer blades	2	1	-8.3	232	262	18.0	0.86	0.38	5	26	-3	-25
842710	Self-propelled works trucks powered by an electric motor	2	1	-12.5	5520	5064	3.9	0.04	0.02	9	19	-7	-18
	TOTAL OF ABOVE	**21**	**18**		**8748**	**9243**	**0.24**	**0.19**		**31**	**70**	**-10**	**-52**
	TOTAL UNDER SEGMENT	**900**	**1546**	**15.5**	**244548**	**235933**	**2.7**	**0.37**	**0.66**	**4647**	**4219**	**-3747**	**-2673**

Source: PCTAS, Exim Bank Analysis

Table 29: Growth In Declining World Market - Construction and Mining Machinery

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
843143	Parts of boring or sinking machinery, whether or not self-propelled	79	203	32.5	15117	14381	-0.1	0.52	1.41	332	292	-253	-89
847490	Pts of sorting/screening/mixing/crushing/grinding/washing/agglomerating mach etc	86	134	17.0	6717	6559	0.7	1.28	2.04	175	218	-89	-84
843139	Parts of lifting, handling, loading or unloading machinery	38	48	17.4	6864	6832	2.0	0.55	0.70	124	146	-86	-98
842619	Transporter or bridge cranes	6	42	146.7	2678	2102	-4.1	0.22	2.00	246	199	-240	-157
847420	Crushing/grinding machines for earth/ stone/ ores o other minerals subs etc	24	40	21.0	4612	4065	-1.9	0.52	0.98	191	134	-167	-94
843049	Boring or sinking machinery, not self-propelled	28	38	40.6	4051	3001	-3.0	0.69	1.27	115	128	-87	-90
842940	Tamping machines and road rollers, self propelled	6	28	86.3	2530	1866	-1.6	0.24	1.50	11	6	-5	22
842699	Cranes or derricks	2	26	117.5	894	927	2.3	0.22	2.80	45	105	-43	-79
842611	Gantry & overhead travelling cranes on fixed support	15	25	19.1	1066	780	-6.7	1.41	3.21	29	29	-14	-4
847480	Mach f agglomerating mineral fuels, machinery of foundry moulds of sand etc	19	14	16.0	2975	2507	-1.2	0.64	0.56	89	147	-70	-133
843050	Construction equipment, self-propelled	1	9	212.5	1115	1018	-0.1	0.09	0.88	34	10	-33	-1
843351	Combine harvester-threshers	5	8	51.1	4385	4316	1.7	0.11	0.19	2	2	3	6
843280	Rollers, stone-removers & other soil preparation or cultivation machinery	1	7	76.7	953	824	-1.4	0.10	0.85	16	27	-15	-20
842810	Lifts and skip hoists	4	7	16.7	4825	4284	-1.8	0.08	0.16	76	108	-72	-101

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
843131	Parts of lifts, skip hoist or escalators	2	6	50.0	5518	4581	-3.9	0.04	0.13	44	66	-42	-60
842519	Pulley tackle/hoists (excl skip hoists o hoists for raising vehicles)	0	5	133.3	538	574	2.5	0.00	0.87	3	4	-3	1
847439	Mixing or kneading machines for earth or other mineral substances etc	4	5	20.8	784	699	-1.0	0.51	0.72	20	21	-16	-16
842790	Trucks fitted with lifting or handling equipment, non-powered	3	4	33.3	1287	1066	0.3	0.23	0.38	44	62	-41	-58
842612	Mobile lifting frames on tyres and straddle carriers	3	2	35.0	920	563	-8.1	0.33	0.36	24	34	-21	-32
842641	Derricks/cranes o works trucks fitted w a crane, self-propelled on tires	1	2	25.0	2549	2162	2.4	0.04	0.09	9	28	-8	-26
	TOTAL OF ABOVE	**327**	**653**		**70378**	**63107**		**0.46**	**1.03**	**1629**	**1766**	**-1302**	**-1113**
	TOTAL UNDER SEGMENT	**900**	**1546**	**15.5**	**244548**	**235933**	**2.7**	**0.37**	**0.66**	**4647**	**4219**	**-3747**	**-2673**

Source: PCTAS, Exim Bank Analysis

Table 30: Losers in Declining World Market - Construction and Mining Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
843041	Boring or sinking machinery, self propelled	157	160	2.4	4760	3702	-1.5	3.30	4.32	926	210	-769	-50
843110	Parts of machinery of heading No 84.25	14	14	0.8	1796	1713	0.2	0.78	0.82	25	33	-11	-19
847432	Machines for mixing mineral substances with bitumen	15	13	0.8	968	592	-7.7	1.55	2.20	23	10	-8	3
847431	Concrete or mortar mixers	11	13	8.2	1765	1013	-5.6	0.62	1.28	15	7	-4	6
842820	Pneumatic elevators and conveyors	12	13	4.0	1311	969	-5.6	0.92	1.34	93	87	-81	-74
843210	Ploughs	5	6	10.9	425	424	2.6	1.18	1.42	4	3	1	3
842630	Portal or pedestal jib cranes	3	3	-55.6	1120	882	-2.3	0.27	0.34	68	13	-65	-10
842620	Tower cranes	9	2	9.0	3281	1278	-14.8	0.27	0.16	77	34	-68	-32
842649	Derricks, cranes or work trucks fitted with a crane, self-propelled	2	2	4.2	3307	2171	-8.8	0.06	0.09	144	104	-142	-102
842919	Bulldozers and angle-dozers, wheeled	4	1	0.4	1171	822	0.2	0.34	0.12	16	12	-12	-11
843240	Manure spreaders and fertilizer distributors	0	1	0.0	469	415	0.6	0.00	0.24	0	0	0	1
843311	Mowers, powered, lawn, with horizontal cutting device	0	1	0.0	3629	3511	0.1	0.00	0.03	5	5	-5	-4
843319	Mowers, powered, lawn,	0	1	0.0	502	395	-3.2	0.00	0.25	0	0	0	1
843230	Seeders, planters and transplanters	0	1	-33.3	1646	1622	2.0	0.00	0.06	2	6	-2	-5
843039	Coal or rock cutters, not self-propelled	1	1	-50.0	832	674	-3.2	0.12	0.15	10	22	-9	-21
	TOTAL OF ABOVE	**233**	**232**		**26982**	**20183**		**0.86**	**1.15**	**1408**	**546**	**-1175**	**-314**
	TOTAL UNDER SEGMENT	**900**	**1546**	**15.5**	**244548**	**235933**	**2.7**	**0.37**	**0.66**	**4647**	**4219**	**-3747**	**-2673**

Source: PCTAS, Exim Bank Analysis

Machinery exports amounting to US$ 653 million in 2012 have been under this category. This is an area of concern as it is reflective of the country targeting a set of construction and mining products whose demand has been going downhill. In fact, the top 5 exported products from India in this category constituted 30.2% (US$ 467 mn) of India's total exports of Construction and Mining Machinery in 2012. Table 29 gives details on the products.

Losers in Declining World Market: 15 Construction and Mining Machinery export products have been identified as 'Losers in Declining World Market'. The export prospects for these products tend to be bleak – world imports of these Construction and Mining Machinery products have declined, and so has the market share of India. These 15 products comprised 15% of India's Construction and Mining Machinery exports in 2012, while the share of these in total world import of Construction and Mining Machinery stood at only 0.1%. India needs to diversify its production away from manufacturing these products and focus on other Construction and Mining Machinery segments, especially those under Product Champions and Underachievers category.

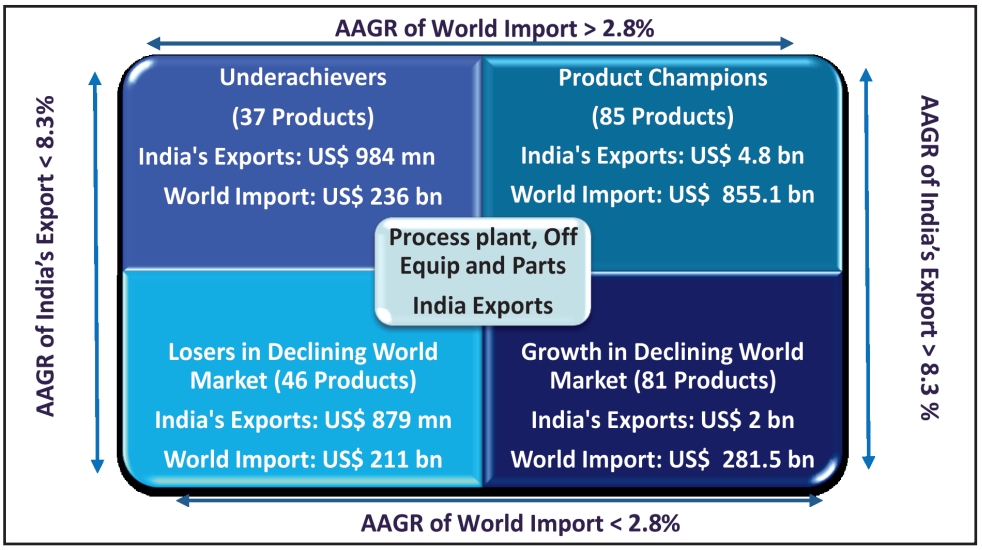
PROCESS PLANT, OFFICE EQUIPMENT AND PARTS

Inferences:

A total of 249 products have been shortlisted for categorisation. Of these, 85 process plant, office equipment and parts have been identified under the category Product Champions, 37 products as Underachievers, 46 products under Losers in Declining Market and 81 products under Growth in Declining World Market.

Product Champions: 85 Process Plant, Office Equipment and Parts have been identified as Product Champions (Table: 31). The cumulative value of India's exports of products under this category amounted to US$ 4.8 billion in 2012. These products have gained share in global import basket during the 2008-2012 period by increasing at a pace (8.3%) higher than total world imports, which averaged 2.8% during this period. The Positive aspect of India's exports of Process Plant, Office Equipment and Parts is that a predominant portion belongs to this category, constituting 55% of India's total exports of Process Plant, Office Equipment and Parts. Top 10 Product Champions in the world import (US$ 489.8 billion) accounted for more than half the world demand (US$ 855.1 billion) of the identified Process Plant, Office Equipment and Parts Product Champions, although India's share

Exhibit 39: India's Process Plant, Office Equipment and Parts Product Growth Matrix: 2012



(totalling US$ 1.5 billion) in it was just 0.3% of world demand (US$ 855.1 billion). Some of the key products in the world import market under this category are portable digital computers <10kg (HS 847130), computer input/ outputs, with/without storage (HS 847160), parts of turbo-jets or turbo-propellers (HS 841191), taps, cocks, valves and similar appliances (HS 848180), and machine & mechanical appliances having individual functions (HS 847989) (Table 32).

Out of 85 products, there were 8 products where India's AAGR in exports have increased by triple digits. The products are turbo-jets of a thrust exceeding 25 KN (HS Code 841112), engine, spark-ignition reciprocating displacing more than 1000 cc (HS Code 840734), engine and motors (HS 841280), combined refrigerator-freezers, fitted with separate external doors (HS 841810), computer input/ outputs, with/without storage (HS 847160), engine, spark-ignition type (HS 840790), hydro turbine & water wheels of a power or exceeding 1000 KW but not exceeding 10000KW (HS 841012) and machinery for finishing paper or paperboard (HS 843930).

The Top 5 Process Plant, Office Equipment and Parts export products from India under Product Champion category constituted US$ 1.9 billion value of exports and their share in India's total exports of Process Plant, Office Equipment and Parts increased from 17.7% in 2008 to 21.7% in 2012.

Table 31: Product Champions under Process Plant, Office Equipment and Parts

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
848180	Taps, cocks, valves and similar appliances,	482	684	13.4	40094	44593	3.6	1.20	1.53	534	817	-52	-133
840890	Engines, diesel	218	377	28.0	11307	12486	9.7	1.93	3.02	210	192	8	185
841480	Air or gas compressors, hoods	173	368	30.5	17325	19013	3.1	1.00	1.94	545	471	-372	-103
848190	Parts of taps, cocks, valves or similar appliances	156	258	14.9	14270	16177	5.0	1.09	1.59	191	271	-35	-13
840991	Parts for spark-ignition type engines	152	224	12.4	29636	31778	4.5	0.51	0.70	190	275	-38	-51
847989	Machines & mechanical appliances having individual functions	146	203	12.9	56543	42390	3.2	0.26	0.48	685	975	-539	-772
841391	Parts of pumps for liquid whether or not fitted with a measuring device	137	194	10.4	14103	15511	4.7	0.97	1.25	226	290	-89	-96
848310	Transmission shafts and cranks, including cam shafts and crank shafts	122	179	18.7	10313	11076	4.2	1.18	1.62	153	178	-31	1
841490	Parts of vacuum pumps, compressors, fans, blowers, hoods	136	177	13.1	13941	14875	3.5	0.98	1.19	319	544	-183	-367
847990	Parts of machines & mechanical appliances having individual functions	158	169	13.6	20902	27142	9.7	0.76	0.62	328	429	-170	-260
848299	Bearing parts	88	117	22.6	4100	4619	7.9	2.15	2.53	91	157	-3	-40
848390	Parts of power transmission equipment/other goods used to transmit power	65	91	13.1	9252	10844	7.2	0.70	0.84	237	174	-172	-83
848340	Gears & gearing, ball screws, gear boxes, speed changers/torque converters	59	89	15.2	15266	16078	3.3	0.39	0.55	424	284	-365	-195
842121	Filtering or purifying machinery and apparatus for water	64	87	13.0	5210	5960	4.3	1.23	1.46	45	75	19	12

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
842230	Mach f fill/close/seal/etc. bottle/can/box/ bag/ container, machine for aerating	50	85	17.9	6681	7078	3.3	0.75	1.20	130	169	-80	-84
848220	Bearings, tapered roller, including cone and tapered roller assemblies	58	82	21.0	4216	4453	4.1	1.38	1.84	90	143	-32	-61
840820	Engines, diesel, for the vehicles of Chapter 87	26	72	71.5	30281	30659	6.2	0.09	0.23	335	1068	-309	-996
842139	Filtering or purifying machinery and appara-tus for gases	16	60	41.3	14575	15597	4.2	0.11	0.38	135	184	-119	-124
847790	Pts of mach f working rubber/plastic/for the mfr of prods from these mat	34	53	14.1	6093	6213	4.0	0.56	0.85	80	164	-46	-111
843830	Machinery for sugar manufacture	11	50	81.4	262	358	14.9	4.20	13.97	5	11	6	39
848350	Flywheels and pulleys, including pulley bl ocks	34	49	25.3	4777	5609	5.7	0.71	0.87	58	94	-24	-45
848360	Clutches and shaft couplings (including universal joints)	32	47	12.1	2860	3061	4.5	1.12	1.54	118	101	-86	-54
842490	Parts of mechanical app (hand-op or not) for project/disp or spray liquid or powders	21	46	24.5	4270	4630	3.7	0.49	0.99	64	104	-43	-58
843890	Pts of mach f the ind prep/mfr food etc ex f ex/prep veg fat/oil	28	45	27.9	2398	2752	4.6	1.17	1.64	12	27	16	18
847920	Mach f the extraction/prep of animal/fixed fats/oil, having individual function	31	43	15.2	552	798	10.1	5.62	5.39	27	19	4	24
841290	Parts of hydraulic & pneumatic & other power engines and motors	34	39	10.8	5754	8145	10.9	0.59	0.48	57	71	-23	-32
841451	Fans: table, roof etc w a self-cont electric meter of an output not exceeding 125W	27	39	10.4	3145	3448	3.4	0.86	1.13	43	91	-16	-52

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
841810	Combined refrigerator-freezers, fitted with separate external doors	12	38	133.3	9903	11425	4.6	0.12	0.33	12	97	0	-59
848071	Moulds, injection or compression types, for rubber or plastics	16	38	29.7	7899	9966	6.7	0.20	0.38	69	155	-53	-117
840790	Engines, spark-ignition type	5	36	124.2	2526	2795	4.3	0.20	1.29	11	25	-6	11
840212	Water tube boilers with a steam production not exceeding 45T per hour	12	36	45.7	274	369	9.0	4.38	9.76	0	1	12	35
847780	Mach for working rubber/plastics/for the mfr of prods form these mat	15	34	31.1	3950	4815	7.4	0.38	0.71	143	320	-128	-286
842123	Oil or petrol-filters for internal combustion engines	10	33	38.2	4922	5763	5.2	0.20	0.57	16	41	-6	-8
847130	Portable digital computers <10kg	18	33	27.9	97643	145191	11.9	0.02	0.02	822	2023	-804	-1990
848330	Bearing housings, not incorporating ball/ roller bearings; plain shaft bearings	13	32	26.3	4360	5320	7.5	0.30	0.60	45	73	-32	-41
847141	Non-portable digital edp machines w processor & i/o	16	30	17.2	7489	10362	10.6	0.21	0.29	84	58	-68	-28
843880	Machines of the ind prep/mfr of food/drink ex f extractaction/prep veg fat/oil	14	29	21.3	1778	2163	7.6	0.79	1.34	19	51	-5	-22
847720	Extruders for working rubber or plastics	38	29	8.4	2795	2898	5.2	1.36	1.00	144	129	-106	-100
840734	Engines, spark-ignition reciprocating displacing more than 1000 cc	1	27	280.8	27610	33048	7.3	0.00	0.08	116	112	-115	-85
841229	Hydraulic power engines & motors	8	25	62.4	3765	4233	6.0	0.21	0.59	50	76	-42	-51
841430	Compressors of a kind used in refrigerating equipment	18	25	35.3	11313	12844	5.7	0.16	0.19	54	149	-36	-124
841459	Fans	12	25	28.1	8023	8914	4.5	0.15	0.28	90	125	-78	-100

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
840682	Turbines, output , 40 MW	9	23	50.0	672	835	9.8	1.34	2.75	86	75	-77	-52
841090	Parts of hydraulic turbines & water wheels including regulators	11	23	32.3	944	1020	3.3	1.17	2.25	20	13	-9	10
842129	Filtering or purifying machinery and apparatus for liquids	8	22	28.9	5336	7122	8.1	0.15	0.31	47	100	-39	-78
847982	Mach for mixing/kneading/crushing/grinding etc having individual function	9	20	23.2	3619	4066	4.4	0.25	0.49	37	80	-28	-60
847160	Computer input/outputs, with/without storage	12	18	125.9	37424	64325	23.1	0.03	0.03	694	784	-682	-766
841360	Rotary positive displacement pumps	6	17	45.0	4889	6175	8.7	0.12	0.28	28	80	-22	-63
848120	Valves for oleo-hydraulic or pneumatic transmissions	8	17	26.1	7783	8557	7.3	0.10	0.20	45	57	-37	-40
841112	Turbo-jets of a thrust exceeding 25 KN	0	16	503.3	19085	25732	8.2	0.00	0.06	14	92	-14	-76
841280	Engines and motors	4	16	261.2	591	781	10.7	0.68	2.05	12	10	-8	6
841939	Non-domestic, non-electric dryers	9	16	34.7	1835	1957	3.1	0.49	0.82	49	47	-40	-31
843930	Machinery for finishing paper or paperboard	2	15	112.5	703	644	4.4	0.28	2.33	17	67	-15	-52
847960	Evaporative air coolers	8	14	21.7	262	272	6.1	3.05	5.15	8	16	0	-2
845430	Casting machines used in metallurgy or metal foundries	9	13	23.1	1563	1670	4.7	0.58	0.78	141	188	-132	-175
841319	Pumps fitted or designed to be fitted with a measuring device	9	13	16.6	1012	1035	2.8	0.89	1.26	9	13	0	0
842489	Mechanical appliance (whether/not hand-op) for project/disp/spraying liquid/powders	5	11	24.4	3593	4312	6.8	0.14	0.26	115	87	-110	-76
840220	Super-heated water boilers	0	11	20.4	371	259	3.9	0.00	4.25	2	5	-2	6
841320	Hand pumps, o/t those of subheading No 8413.11 or 8413.19	9	11	14.7	461	586	6.9	1.95	1.88	1	1	8	10

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
841350	Reciprocating positive displacement pumps	7	11	14.1	4851	6401	11.0	0.14	0.17	35	64	-28	-53
841221	Hydraulic power engines & motors linear acting (cylinders)	4	10	68.8	3718	4617	8.7	0.11	0.22	10	14	-6	-4
841410	Vacuum pumps	7	10	20.5	3197	3328	4.4	0.22	0.30	23	35	-16	-25
847810	Machinery for preparing or making up tobacco	3	8	35.8	936	1043	4.1	0.32	0.77	24	18	-21	-10
847759	Mach for molding or otherwise forming rubber or plastics	4	8	28.3	1161	1182	3.6	0.34	0.68	44	49	-40	-41
842131	Intake air filters for internal combustion engines	4	8	23.3	2947	3032	2.8	0.14	0.26	6	8	-2	0
841191	Parts of turbo-jets or turbo-propellers	5	7	23.3	37593	44982	4.9	0.01	0.02	67	29	-62	-22
843420	Dairy machinery	3	6	45.8	591	597	3.7	0.51	1.01	17	6	-14	0
845522	Cold metal rolling mills	3	6	22.9	600	676	6.0	0.50	0.89	14	97	-11	-91
840590	Parts of prod gas/water gas generators, acetylene gas gen & sim water gas gen	3	5	56.3	308	331	4.4	0.97	1.51	3	6	0	-1
844340	Gravure printing machinery	3	5	50.0	306	380	17.1	0.98	1.32	13	19	-10	-14
848130	Valves, check	2	5	42.1	2339	2661	4.4	0.09	0.19	14	13	-12	-8
842430	Steam or sand blasting machines and similar jet projecting machines	2	5	27.1	2602	2889	4.0	0.08	0.17	15	14	-13	-9
847149	Digital data processing systems,	4	5	18.6	12826	15668	6.0	0.03	0.03	87	58	-83	-53
841012	Hydro turbines & water wheels of a power excl 1000 KW but not exceeding 10000KW	0	4	116.7	79	133	22.1	0.00	3.01	3	1	-3	3

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
847510	Mach for assembling electric lamps, tubes, flashbulbs, in glass envelopes	1	4	75.0	150	99	17.5	0.67	4.04	10	16	-9	-12
841013	Hydraulic turbines and water wheels of a power exceeding 10000 KW	2	4	50.0	290	278	4.0	0.69	1.44	1	0	1	4
847981	Mach f treating metal inc electric wire coil-winders having individual function	3	4	32.5	1833	2668	10.6	0.16	0.15	29	31	-26	-27
842420	Spray guns and similar appliances	2	4	27.1	1556	1695	3.8	0.13	0.24	7	10	-5	-6
840681	Turbines, output >40 MW	6	3	15.9	660	2597	44.8	0.91	0.12	28	39	-22	-36
843820	Machinery for the manufacture of confection-ary, cocoa or chocolate	2	3	12.5	857	913	4.1	0.23	0.33	15	32	-13	-29
848020	Bases, mould	1	2	25.0	187	241	9.8	0.53	0.83	4	11	-3	-9
841420	Hand or foot-operated air pumps	2	2	22.5	313	366	4.0	0.64	0.55	10	16	-8	-14
841181	Gas turbines of a power not exceeding 5000 KW	2	2	16.3	1190	1669	10.1	0.17	0.12	4	8	-2	-6
847740	Vacuum mould machine & other thermoform-ing mach for working rubber or plastics	2	2	12.5	778	868	6.8	0.26	0.23	11	14	-9	-12
841210	Reaction engines other than turbo jets	1	1	12.5	745	944	27.1	0.13	0.11	2	1	-1	0
	TOTAL OF ABOVE	**2962**	**4807**		**715132**	**855055**		**0.41**	**0.56**	**8828**	**13137**	**-5866**	**-8330**
	TOTAL UNDER SEGMENT	**6668**	**5825**	**8.3**	**1535884**	**1630409**	**2.8**	**0.43**	**0.54**	**19036**	**27768**	**-12368**	**-21943**

Source: PCTAS, Exim Bank Analysis

Table 32: Process Plant, Office Equipment and Parts: The Top 5 "Product Champions", their Key Importers and their Major Suppliers

HS Code	Product	Importers	Value (US$ mn)		Major Supplier Countries with Whom India will have to Compete for Market Share	India's Rank as supplier
			2008	2012		
847130	Portable digital computers <10kg	USA	28074	44116	China, Mexico, S.Korea, Taiwan, Japan	25
		NETHERLANDS	3306	8701	China, Belgium, Ireland, Germany, Vietnam	34
		GERMANY	9507	8488	China, Ireland, Czech Rep, Netherlands, Japan	43
		JAPAN	4879	8100	China, S.Korea, Taiwan, USA, Mexico	21
		UK	5726	6966	China, Netherlands, Germany, Vietnam, Ireland	28
		WORLD	**97643**	**145191**		
847160	Computer input/ outputs, with/ without storage	USA	9223	13851	China, Japan, Vietnam, Indonesia, S.Korea	23
		CHINA	2043	5900	China, Japan, Taiwan, Vietnam, S.Korea	29
		GERMANY	1664	5781	China, Vietnam, Japan, Netherlands, Czech Rep	24
		NETHERLANDS	2374	4120	China, Japan, Romania, Israel, Germany	41
		JAPAN	1484	4109	China, Thailand, Indonesia, Malaysia, Vietnam	31
		WORLD	**37424**	**64325**		
841191	Parts of turbo-jets or turbo-propellers	USA	9109	10180	France, UK, Japan, Germany, Canada	25
		UK	5313	6793	USA, Germany, France, UK, Japan	13
		SINGAPORE	1487	4469	USA, UK, France, Canada, Germany	31
		FRANCE	4107	3955	USA, UK, Belgium, China, Canada	24
		HONG KONG	2664	3175	UK, Singapore, UAE, USA, China	21
		WORLD	**37593**	**44982**		
848180	Taps, cocks, valves and similar appliances,	USA	5683	7389	China, Mexico, Japan, Germany, Canada	12
		CHINA	2653	3704	Germany, Japan, USA, Italy, France	20
		GERMANY	2749	2638	Italy, China, USA, Switzerland, Portugal	22
		RUSSIA	990	2506	Kazakhstan, China, Germany, Italy, Czech Rep	31
		CANADA	1653	2303	USA, China, Italy, Mexico, Japan	12
		WORLD	**40094**	**44593**		
847989	Machine & mechanical appliances having individual functions	TAIWAN	3983	9358	Japan, USA, Netherlands, Singapore, Germany	43
		CHINA	11346	6516	Japan, Germany, USA, S.Korea, Taiwan	29
		USA	4840	3346	Japan, Canada, China, Germany, UK	21
		S. KOREA	8530	1972	Japan, Norway, Germany, USA, China, Italy	30
		GERMANY	2862	1568	Switzerland, USA, Japan, China, Italy	26
		WORLD	**56543**	**42390**		

Source: PCTAS, Exim Bank Analysis

TABLE 33: Process Plant, Office Equipment and Parts: India's Top Exports Under "Product Champion" Category, Key Destinations and Competitors, 2012

HS CODE	PRODUCT NAME	EXPORT DESTINATION (US$ mn)		IMPORT FROM WORLD (US$ mn)	INDIA'S SHARE IN IMPORTS (%)	KEY EXPORTERS TO INDIA'S KEY MARKETS / INDIA'S COMPETITORS IN THE MARKETS
848180	Taps, cocks, valves and similar appliances,	**WORLD**	**684**	**44593**	**1.53**	
		USA	170	7389	2.30	China, Mexico, Japan, Germany, Canada
		UAE	83	NA	-	-
		S. ARABIA	42	NA	-	-
		UK	34	1757	1.94	China, Germany, USA, Italy, Netherlands
		KUWAIT	24	NA	-	-
840890	Engine, diesel	**WORLD**	**377**	**12486**	**3.02**	
		UK	80	882	9.07	USA, India is the second largest exporter
		USA	76	2852	2.66	Japan, UK, Mexico, Germany, Italy
		THAILAND	73	159	45.91	Japan, China, Indonesia, Singapore, UK
		CHINA	20	1982	1.01	Japan, USA, Germany, UK, S.Korea
		EGYPT	16	32	50.00	India is the largest exporter
841480	Air or gas compressors, hoods	**WORLD**	**368**	**19013**	**1.94**	
		SPAIN	90	414	21.74	Germany, Poland, Hungary, France, Italy
		S.ARABIA	60	NA	-	-
		THAILAND	49	399	12.28	Japan, China, India is the third largest exporter
		BAHRAIN	20	NA	-	-
		GERMANY	19	1206	1.58	Italy, Romania, Netherlands, China, UK
848190	Parts of taps, cocks, valves or similar appliances	**WORLD**	**258**	**16177**	**1.59**	
		USA	69	3838	1.80	China, Mexico, Japan, Germany, Taiwan
		GERMANY	24	1339	1.79	China, Italy, Switzerland, France, Poland
		SINGAPORE	23	381	6.04	USA, Germany, UK, China, Japan
		UK	21	762	2.76	USA, China, Norway, Germany, India is the fifth largest exporter
		UAE	13	NA	-	-
840991	Parts for spark-ignition type engines	**WORLD**	**224**	**31778**	**0.7**	
		USA	55	3502	1.6	Canada, Mexico, Japan, China, Australia
		GERMANY	29	6089	0.5	Hungary, Austria, China, USA, UK
		TURKEY	15	601	2.5	Germany, UK, Italy, France, Belgium
		ITALY	14	960	1.5	Poland, Germany, France, Austria, S.Korea
		THAILAND	13	808	1.6	Indonesia, Vietnam, Japan, Argentina, USA

Source: PCTAS, Exim Bank Analysis

The top 5 products are taps, cocks, valves and similar appliances (HS Code 848180), engine, diesel (HS Code 840890), air or gas compressors, hoods (HS Code 841480), parts of taps, cocks, valves or similar appliances (HS Code 848190) and parts for spark-ignition type engine (HS Code 840991) (Table: 33).

Underachievers: In the Under-achievers category, 37 Process Plant, Office Equipment and Parts export products have been identified. The cumulative value of India's exports of products under this category amounted to US$ 984 million in 2012, down from US$ 1217 million in 2008. As compared to this, the world import market for these 37 products increased from US$ 184.3 billion in 2008 to US$ 236 billion in 2012. India has lost out market share to competing countries for these dynamic products.

Further, for all the 37 products in this category, India's imports were substantially higher than exports implying that the country had a trade deficit in all products. While manufacturing capabilities exists in India, the fact that the country is importing significant amounts and that these imports have increased during the 2008-2012 period is indicative of shortage of manufacturing capacities within the domestic shores. The products identified are given in Table 34.

Growth in Declining World Market: 81 Process Plant, Office Equipment and Parts export products have been identified under the category 'Growth in Declining World Market'. These are products for which world import market has witnessed a decline while India's exports have registered growth higher than the growth in world demand. A large part of India's exports of Process Plant, Office Equipment and Parts (amounting to US$ 2 billion in 2012) are under this category (Table 35). This is an area of concern as it is reflective of the country targeting a set of Process Plant, Office Equipment and Parts exports whose demand has been going downhill.

Losers in Declining World Market: 46 Process Plant, Office Equipment and Parts export products have been identified as 'Losers in Declining World Market'. The export prospects for these products tend to be bleak – world imports of these Process Plant, Office Equipment and Parts have declined (from US$ 250 bn to US$ 211 bn), and the market share of these products in India's total exports of Process Plant, Office Equipment and Parts has declined from 17.4% in 2008 to 10% in 2012 (Table 36). India needs to diversify its production away from manufacturing these products and focus on other Process Plant, Office Equipment and Parts segments, especially the Product Champions and Underachievers.

Table 34: Underachievers under Process Plant, Office Equipment and Parts

HS Code	PRODUCT DESCRPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
840999	Parts for diesel and semi-diesel engines	506	483	3.2	30229	32375	5.1	1.67	1.49	370	667	136	-184
841330	Fuel, lubricating or cooling medium pumps for internal comb piston engines	80	81	7.3	9651	12238	8.6	0.83	0.66	95	178	-15	-97
847170	Computer data storage units	123	71	-11.7	76669	93678	5.8	0.16	0.08	774	1028	-651	-957
846693	Parts & accessories for use on machines of heading No 84.56 to 84.61	99	56	-9.5	6626	6683	6.7	1.49	0.84	165	212	-66	-156
847290	Office machines	52	54	2.6	5149	7059	10.1	1.01	0.76	36	96	16	-42
841590	Parts of air conditioning machines	47	49	5.6	10487	14068	9.6	0.45	0.35	133	300	-86	-251
846610	Tool holders & self-opening die-heads for use w mach of heading 84.56 to 84.65	35	32	8.2	2771	3058	8.9	1.26	1.05	22	32	13	0
847710	Injection-molding machines for working rubber or plastics	43	30	-7.0	5113	5832	8.9	0.84	0.51	187	161	-144	-131
846630	Dividing heads & other spec attach for machine for use w machine/heading 84.56 to 84.65	20	21	5.9	659	755	10.0	3.03	2.78	120	101	-100	-80
848291	Balls, needles and rollers for bearings	43	18	-8.6	1461	1508	5.5	2.94	1.19	26	45	17	-27
848420	Mechanical seals	12	14	6.1	1731	2181	6.6	0.69	0.64	20	35	-8	-21
845420	Ingot moulds & ladles used in metallurgy or metal foundries	55	12	5.4	296	296	8.9	18.58	4.05	6	12	49	0
848240	Bearings, needle roller	10	8	1.9	1060	1298	9.9	0.94	0.62	17	19	-7	-11
841231	Pneumatic power engines & motors linear acting (cylinders)	1	8	-50.0	1517	1962	11.2	0.07	0.41	4	9	-3	-1
841510	Air conditioning machines window or wall types, self-contained	26	7	-24.5	10494	10611	4.1	0.25	0.07	250	540	-224	-533
841690	Parts of furnace burners, mechanical stokers grates, ash dischargers & sim appliances	7	6	0.4	939	974	3.2	0.75	0.62	15	44	-8	-38

HS Code	PRODUCT DESCRPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
848049	Moulds for metal or metal carbides,	9	6	-6.8	627	716	4.3	1.44	0.84	28	47	-19	-41
844330	Flexographic printing machinery	4	3	4.2	995	982	4.5	0.40	0.31	11	41	-7	-38
846620	Work holders for use with mach of heading 84.56 to 84.65	1	2	0.0	1354	1685	9.4	0.07	0.12	6	5	-5	-3
848010	Boxes, molding, for metal foundry	3	2	-8.3	165	154	3.0	1.82	1.30	4	9	-1	-7
848320	Bearing housings, incorporating ball or roller bearings	6	2	-15.8	907	935	3.5	0.66	0.21	18	38	-12	-36
848030	Patterns, molding	13	2	-27.6	232	326	11.3	5.60	0.61	4	4	9	-2
842320	Scales for continuous weighing of goods on conveyors	1	2	-33.3	138	175	6.6	0.72	1.14	0	2	1	0
841122	Turbo-propellers of a power exceeding 1100 KW	0	2	-100.0	1385	1538	3.2	0.00	0.13	0	2	0	0
842382	Weighing mach having a maximum weighing cap > 30 kg but </=5000 kg	1	1	0.0	431	538	6.9	0.23	0.19	3	2	-2	-1
842111	Cream separators	5	1	-7.5	118	84	3.2	4.24	1.19	3	4	2	-3
841239	Pneumatic power engines & motors	2	1	-12.5	549	674	8.5	0.36	0.15	13	26	-11	-25
845610	Machine-tools f work any mat by rem of mat opted by laser/lt/photo beam proc	0	1	-16.7	3468	23699	140.6	0.00	0.00	25	45	-25	-44
845630	Machine-tools f work any mat by rem of mat opted by electro-discharge process	2	1	-16.7	1045	915	8.4	0.19	0.11	10	8	-8	-7
842330	Constant weight scales, including hopper scales	1	1	-16.7	352	381	3.5	0.28	0.26	1	9	0	-8
845699	Machine-tools for non-mechanical material removal	4	1	-18.8	775	625	6.0	0.52	0.16	14	17	-10	-16
842010	Calendaring or rolling machines, excluding for metals or glass	1	1	-33.3	613	805	12.7	0.16	0.12	20	22	-19	-21
847950	Industrial robots	2	1	-33.3	2949	3616	11.2	0.07	0.03	30	69	-28	-68

HS Code	PRODUCT DESCRPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
847690	Parts of automatic goods-vending machine	1	1	-33.3	796	969	7.3	0.13	0.10	1	4	0	-3
848050	Moulds for glass	1	1	-33.3	417	462	3.9	0.24	0.22	1	12	0	-11
844140	Machines for molding articles in paper pulp, paper or paperboard	1	1	-33.3	205	205	2.8	0.49	0.49	3	6	-2	-5
843850	Machinery for the preparation of meat or poultry	0	1	3.2	1920	1983	3.3	0.00	0.05	4	8	-4	-7
	TOTAL OF ABOVE	**1217**	**984**		**184293**	**236043**		**0.66**	**0.42**	**2439**	**3859**	**-1222**	**-2875**
	TOTAL UNDER SEGMENT	**6668**	**5825**	**8.3**	**1535884**	**1630409**	**2.8**	**0.43**	**0.54**	**19036**	**27768**	**-12368**	**-21943**

Source: PCTAS, Exim Bank Analysis

Table 35: Growth In Declining World Market - Process Plant, Office Equipment and Parts

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
841370	Centrifugal pumps	107	186	15.6	10810	11125	1.4	0.99	1.67	133	179	-26	7
847150	Digital processing units not sold as complete systems	7	127	148.8	41246	43648	2.5	0.02	0.29	428	688	-421	-561
847340	Parts and accessories of other office machines,	81	127	15.0	3088	3241	2.3	2.62	3.92	86	73	-5	54
840710	Aircraft engines, spark-ignition reciprocating or rotary type	84	120	19.8	2486	1574	-8.7	3.38	7.62	198	228	-114	-108
842199	Parts for filtering or purifying machinery & apparatus for liquids or gases	64	111	16.6	9962	10742	2.1	0.64	1.03	142	267	-78	-156
840290	Parts of steam or vapour generating boilers	70	105	22.2	2739	2215	-3.9	2.56	4.74	225	96	-155	9
841950	Heat exchange units, non-domestic, non-electric	73	88	22.0	9468	8762	-0.8	0.77	1.00	106	116	-33	-28
842119	Centrifuges	47	72	14.9	2157	2074	0.7	2.18	3.47	82	49	-35	23
841940	Distilling or rectifying plant	11	70	70.2	2553	1296	-15.4	0.43	5.40	33	40	-22	30
845590	Parts of metal rolling mills & rolls	81	66	14.0	2489	2009	-2.3	3.25	3.29	217	366	-136	-300
841440	Air compressors mounted on a wheeled chassis for towing	55	66	11.6	1431	1139	-0.6	3.84	5.79	119	189	-64	-123
840690	Parts of steam and vapour turbines	17	47	35.2	4176	4155	0.8	0.41	1.13	139	496	-122	-449
848250	Bearings, cylindrical roller	25	43	34.1	2837	3047	2.4	0.88	1.41	25	36	0	7
847730	Blow molding machines for working rubber or plastics	24	39	26.8	1358	1260	1.0	1.77	3.10	27	32	-3	7
841869	Refrigerating or freezing equipment	25	38	17.3	7002	6284	1.0	0.36	0.60	125	148	-100	-110
848079	Moulds for rubber or plastics	18	35	18.8	2224	2028	-1.3	0.81	1.73	149	174	-131	-139
844390	Parts of printing machinery & machines for uses ancillary to printing	12	34	32.8	65612	66375	1.0	0.02	0.05	60	410	-48	-376
842240	Packing or wrapping machinery	21	34	15.7	6870	6957	2.2	0.31	0.49	114	146	-93	-112

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
840490	Parts for auxiliary plant & condenser for steam/vapour generating unit	27	32	23.8	853	800	1.8	3.17	4.00	43	9	-16	23
840219	Vapour generating boilers including hybrid boilers	14	31	29.5	1125	754	-9.1	1.24	4.11	30	31	-16	0
848110	Valves, pressure reducing	14	28	34.2	3390	2936	0.1	0.41	0.95	20	19	-6	9
842290	Pts of dish washing, cleaning or drying container, packing or wrapping mach	20	27	9.7	5234	5425	1.6	0.38	0.50	44	88	-24	-61
840910	Parts for spark-ignition type aircraft engines	9	26	176.1	1571	825	-12.9	0.57	3.15	17	38	-8	-12
848280	Bearings, ball or roller, , including combined ball/roller bearings	6	25	45.9	2142	2146	1.3	0.28	1.16	105	122	-99	-97
840510	Producer gas or water gas generators acetylene gas gen & sim gas gen	10	25	26.2	1141	747	-9.8	0.88	3.35	17	26	-7	-1
841899	Parts of refrigerating or freezing equipment	12	23	25.2	5821	5646	0.9	0.21	0.41	41	72	-29	-49
847180	Units of automatic data processing equipment	6	20	55.5	17161	15996	-0.5	0.03	0.13	84	99	-78	-79
847590	Parts of glass working machines	12	18	63.1	2493	2014	1.5	0.48	0.89	51	45	-39	-27
841311	Pumps w o w/o a measure device for disp fuel o lub in filling stat for garage	11	18	16.6	699	683	2.4	1.57	2.64	34	26	-23	-8
848140	Valves, safety or relief	5	17	38.5	3467	3355	1.0	0.14	0.51	18	22	-13	-5
846694	Parts & accessories for use on machines of heading No 84.62 or 84.63	18	17	13.0	4012	3937	1.9	0.45	0.43	73	57	-55	-40
844359	Printing machinery	0	16	49.8	42972	3209	-22.9	0.00	0.50	65	666	-65	-650
848230	Bearings, spherical roller	9	16	21.6	2707	2570	0.9	0.33	0.62	105	98	-96	-82
846890	Welding machinery parts	11	15	20.6	533	448	-1.1	2.06	3.35	18	17	-7	-2
841850	Refrigerating or freezing display counters, cabinets, show-cases, etc	2	13	84.7	4642	4429	0.6	0.04	0.29	26	33	-24	-20

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
845521	Hot or combination hot & cold metal rolling mills	6	13	23.6	1312	1239	0.2	0.46	1.05	156	60	-150	-47
843999	Parts of mach for making or finishing paper or paper-board mach	7	13	23.5	2345	2087	-0.9	0.30	0.62	47	34	-40	-21
841381	Pumps	11	13	11.1	6076	5109	-2.2	0.18	0.25	117	166	-106	-153
841780	Industrial or lab furnaces & ovens, inc incinerators non-electric	10	12	26.3	1998	1421	-4.1	0.50	0.84	94	95	-84	-83
840420	Condensers for steam or vapour power units	11	12	16.3	377	223	-7.9	2.92	5.38	15	2	-4	10
841919	Instantaneous or storage water heaters, non-electric,	6	11	26.1	2041	1821	-2.6	0.29	0.60	7	9	-1	2
841960	Machinery for liquefying air or gas	7	11	20.3	894	471	-11.6	0.78	2.34	13	46	-6	-35
847529	Machines for manufacturing glassware, articles,	7	10	139.3	1284	923	-4.0	0.55	1.08	35	42	-28	-32
842191	Parts of centrifuges, including centrifugal dryers	13	10	11.8	968	853	-2.3	1.34	1.17	9	15	4	-5
847751	Machines for molding/retreading pneu tires/for mold-ing/forming inner tubes	24	9	56.7	515	397	0.1	4.66	2.27	16	21	8	-12
841829	Refrigerators, household type,	8	9	9.5	651	649	2.6	1.23	1.39	8	12	0	-3
841340	Concrete pumps	1	8	83.3	827	411	-8.6	0.12	1.95	32	12	-31	-4
844110	Cutting machines for paper pulp, paper or paperboard of all kinds	7	8	31.2	1260	1121	-1.7	0.56	0.71	27	39	-20	-31
840810	Marine propulsion engines, diesel	14	8	24.9	7120	4308	-11.1	0.20	0.19	82	53	-68	-45
841920	Medical, surgical or laboratory sterilizers	5	7	13.5	897	940	1.6	0.56	0.74	30	33	-25	-26
844010	Book-binding machinery, including book-sewing machines	2	6	58.3	1594	938	-9.9	0.13	0.64	12	16	-10	-10
842390	Weighing machine weights of all kinds; parts of weighing machinery	4	6	23.8	804	836	2.3	0.50	0.72	10	19	-6	-13

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
847940	Rope or cable-making machines having individual functions	3	6	20.8	757	498	-8.5	0.40	1.20	44	22	-41	-16
843590	Parts of presses, crushers & sim mach used in the mfg of wine, cider etc	6	6	10.8	94	78	0.4	6.38	7.69	1	1	5	5
844180	Machinery for making up paper pulp, paper or paperboard	3	5	54.8	1222	1256	2.0	0.25	0.40	25	42	-22	-37
843910	Machinery for making pulp of fibrous cellulosic material	2	5	50.0	740	505	-3.4	0.27	0.99	28	10	-26	-5
844130	Mach for making boxes or sim cont, of paper or paperboard o/t by molding	3	5	20.8	981	840	0.0	0.31	0.60	8	20	-5	-15
847910	Mach for public works, building or the like, having individual functions	5	4	141.3	2675	2177	2.1	0.19	0.18	42	17	-37	-13
843510	Presses, crushers & sim machine used in the mfg of wine, cider, fruit juice etc	2	4	70.8	312	204	-5.8	0.64	1.96	4	2	-2	2
843860	Machinery for the preparation of fruits, nuts or vegetables	1	4	70.8	415	420	1.4	0.24	0.95	9	11	-8	-7
842220	Machinery for cleaning or drying bottles or containers	1	4	45.8	557	540	1.4	0.18	0.74	2	8	-1	-4
843920	Machinery for making paper or paperboard	2	4	45.8	1351	901	-9.0	0.15	0.44	53	40	-51	-36
846880	Welding machinery not gas-operated	10	4	12.5	355	306	0.0	2.82	1.31	22	9	-12	-5
840310	Central heating boilers	8	3	480.8	4651	4409	-0.3	0.17	0.07	2	1	6	2
842389	Weighing machinery,	2	3	56.3	215	233	2.4	0.93	1.29	7	6	-5	-3
841583	Air conditioning machine, not incorporating refrigerating unit	3	3	48.5	2736	2113	-4.8	0.11	0.14	34	36	-31	-33
841931	Dryers for agricultural products	1	3	37.5	494	442	1.3	0.20	0.68	3	8	-2	-5
847350	Parts and accessories for more than one office machine	4	3	22.6	1331	1087	-4.0	0.30	0.28	23	26	-19	-23

HS Code	PRODUCT DESCRIPTION	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
843991	Parts of mach for making pulp of fibrous cellulosic material	2	3	17.1	741	676	0.7	0.27	0.44	2	21	0	-18
840729	Marine engines of the spark-ignition reciprocating or rotary type	1	2	208.0	599	257	-14.7	0.17	0.78	14	2	-13	0
848060	Moulds for mineral materials	1	2	85.0	939	764	-1.4	0.11	0.26	31	40	-30	-38
841840	Freezers of the upright type, not exceeding 900 l capacity	1	2	81.3	1284	1328	1.3	0.08	0.15	8	15	-7	-13
843840	Brewery machinery	1	2	41.7	789	457	-9.4	0.13	0.44	18	3	-17	-1
842310	Personal weighing machines, including baby scales; household scales	1	2	37.5	679	728	2.6	0.15	0.27	2	4	-1	-2
847890	Parts of machinery for preparing or making up tobacco	1	2	37.5	499	502	0.6	0.20	0.40	4	4	-3	-2
841891	Furniture designed to receive refrigerating or freezing equipment	1	2	37.5	261	229	-2.1	0.38	0.87	1	1	0	1
842410	Fire extinguishers, whether or not charged	1	2	29.2	1108	972	-2.5	0.09	0.21	5	23	-4	-21
841720	Bakery ovens, including biscuit ovens, non-electric	1	2	25.0	379	353	-0.1	0.26	0.57	3	6	-2	-4
842381	Weighing machinery having a maximum weighing capacity not exceed 30 kg	1	2	25.0	685	604	-1.7	0.15	0.33	7	5	-6	-3
841610	Furnace burners for liquid fuel	1	2	25.0	442	290	-7.2	0.23	0.69	6	9	-5	-7
842219	Dish washing machines	2	1	8.3	751	687	-1.1	0.27	0.15	8	10	-6	-9
	TOTAL OF ABOVE	**1222**	**2033**		**337476**	**281454**		**0.36**	**0.72**	**4325**	**6277**	**-3103**	**-4244**
	TOTAL UNDER SEGMENT	**6668**	**5825**	**8.3**	**1535884**	**1630409**	**2.8**	**0.43**	**0.54**	**19036**	**27768**	**-12368**	**-21943**

Source: PCTAS, Exim Bank Analysis

Table 36: Losers in Declining World Market - Process Plant, Office Equipment and Parts

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
847330	Parts & accessories of automatic data processing machines & units thereof	126	164	7.4	145412	119135	-3.9	0.09	0.14	1243	1599	-1117	-1435
841989	Machinery, plant/laboratory equip f treat of mat by change of temp	223	153	2.7	8992	7709	-2.8	2.48	1.98	211	325	12	-172
841821	Refrigerators, household type, compression-type	117	90	3.6	4483	3559	-5.1	2.61	2.53	25	15	92	75
841990	Parts of machinery, plant and equipment of heading No 84.19	73	74	4.6	6314	5652	-1.7	1.16	1.31	137	173	-64	-99
841182	Gas turbines of a power exceeding 5000 KW	93	51	-2.6	5470	6004	2.5	1.70	0.85	64	30	29	21
841199	Parts of gas turbines	85	46	-7.5	18219	18706	0.8	0.47	0.25	208	448	-123	-402
840211	Water-tube boilers with a steam production exceeding 45T per hour	41	39	2.1	781	545	-7.0	5.25	7.16	12	29	29	10
848490	Gasket sets consisting of gaskets of different materials	30	37	7.8	1601	1640	2.2	1.87	2.26	16	21	14	16
845530	Rolls for metal rolling mills	53	31	-7.3	2782	1903	-8.8	1.91	1.63	134	115	-81	-84
844311	Reel fed offset printing machinery	29	29	3.3	1774	671	-20.8	1.63	4.32	112	36	-83	-7
845490	Pts of convertors/ladles/ingot mould & casting machine used in metallic & met found	30	25	6.7	1524	1215	-2.7	1.97	2.06	74	89	-44	-64
844250	Printing type, blocks, plates, cylinders & other printing components; blocks etc	19	20	1.5	1379	1432	1.2	1.38	1.40	32	40	-13	-20
847190	Automatic data processing equipment	43	16	-18.5	7024	7505	2.7	0.61	0.21	80	53	-37	-37

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
841790	Parts of industrial/lab furnaces & ovens inc incinerators non-electric	15	16	3.3	2429	1937	-4.4	0.62	0.83	75	200	-60	-184
840410	Auxiliary plant for use with steam or vapour generating boilers	11	8	-3.0	844	853	1.5	1.30	0.94	54	21	-43	-13
843810	Bakery mach and machinery for the mfg of macaroni, spaghetti or sim products	6	7	7.1	1955	1881	0.6	0.31	0.37	13	30	-7	-23
841710	Furnaces & ovens n-electric for the roast, melt/h-treat of ores, pyrites, metals	10	7	6.0	1516	1000	-6.6	0.66	0.70	105	75	-95	-68
846820	Gas-operated machinery for welding	9	6	-0.3	366	214	-8.4	2.46	2.80	101	56	-92	-50
844190	Pts of mach for making up paper pulp, paper or paperboard, incl cutting mach	9	5	-11.4	1583	1293	-2.8	0.57	0.39	15	19	-6	-14
842099	Parts of calendaring or rolling machinery, excluding for metals or glass	5	4	1.7	226	192	-0.5	2.21	2.08	10	11	-5	-7
840610	Turbines for marine propulsion	19	4	0.0	157	77	-9.0	12.10	5.19	13	11	6	-7
847329	Parts and accessories of calculating & accounting machines	16	4	-11.9	1531	1388	-1.0	1.05	0.29	4	5	12	-1
844319	Offset printing machinery	17	4	-22.7	5300	3229	-9.0	0.32	0.12	165	93	-148	-89
840390	Parts of central heating boiler	13	4	3.8	2473	2476	0.6	0.53	0.16	5	72	8	-68
842091	Cylinders for calendaring or rolling machinery, excluding for metals or glass	5	4	3.3	355	351	2.4	1.41	1.14	5	5	0	-1
847310	Parts & accessories of typewriters & word-processing machines, o/t cases	6	3	-4.2	801	586	-4.3	0.75	0.51	4	4	2	-1
841981	Machinery for making hot drinks or for cooking or heating food, non domestic	18	3	-20.6	3240	3398	2.4	0.56	0.09	25	31	-7	-28

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
845510	Tube mills, metal rolling	3	3	6.7	354	257	-2.3	0.85	1.17	19	49	-16	-46
846692	Parts and accessories for use on machines of heading No 84.65	5	3	3.8	1625	1222	-4.6	0.31	0.25	7	14	-2	-11
841620	Furnace burners, including combination burners	3	2	-4.2	1233	917	-5.9	0.24	0.22	15	25	-12	-23
841861	Compression type refrigerating/freeze equip whose condensers are heat exchange	6	2	4.2	2872	1761	-9.1	0.21	0.11	9	3	-3	-1
847629	Automatic beverage vending machines	3	1	2.1	28	24	-1.2	10.71	4.17	0	2	3	-1
843410	Milking machines	1	1	0.0	477	459	2.3	0.21	0.22	7	6	-6	-5
841630	Mechanical stokers, mechanical grates, mechanical ash dischargers and similar appliances	0	1	0.0	181	145	1.4	0.00	0.69	1	5	-1	-4
847621	Automatic beverage vending machines with heat/cool	0	1	0.0	553	479	-1.9	0.00	0.21	3	0	-3	1
843490	Parts of milking machines and dairy machinery	2	1	0.0	1037	859	-2.6	0.19	0.12	2	4	0	-3
844312	Sheet fed, office type (sheet size not exc-22x36 cm) offset printing mach	1	1	0.0	188	60	-8.9	0.53	1.67	17	13	-16	-12
848041	Moulds, injection or compression types, for metal or metal carbides	2	1	-12.5	1075	1135	2.7	0.19	0.09	12	17	-10	-16
841581	Air conditioning machinery inc a ref unit & a valve f rev of the cool/heat cycle	2	1	-12.5	3977	2328	-10.9	0.05	0.04	6	6	-4	-5
841582	Air conditioning machinery, inc a refrigerating unit	6	1	-16.7	4437	3786	-2.7	0.14	0.03	24	9	-18	-8

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
846691	Parts and accessories for use on machines of heading No 84.64	3	1	-16.7	858	624	-4.4	0.35	0.16	23	15	-20	-14
846920	Typewriters, electric,	0	1	-16.7	63	39	-6.8	0.00	2.56	0	0	0	1
842122	Filtering or purifying machinery & apparatus for beverages, excluding water	2	1	-33.3	325	308	1.2	0.62	0.32	2	1	0	0
844230	Mach app & equip for preparing or making printing blocks etc	1	1	-33.3	826	629	-3.1	0.12	0.16	10	14	-9	-13
841830	Freezers of the chest type, not exceeding 800 l capacity	0	1	-50.0	1093	1138	2.0	0.00	0.09	6	18	-6	-17
844120	Machines for making bags, sacks or envelopes of paper or paperboard	0	1	-100.0	317	241	-2.6	0.00	0.41	4	3	-4	-2
	TOTAL OF ABOVE	**1161**	**879**		**250050**	**210962**		**0.46**	**0.42**	**3109**	**3810**	**-1948**	**-2931**
	TOTAL UNDER SEGMENT	**6668**	**5825**	**8.3**	**1535884**	**1630409**	**2.8**	**0.43**	**0.54**	**19036**	**27768**	**-12368**	**-21943**

Source: PCTAS, Exim Bank Analysis

TEXTILE MACHINERY

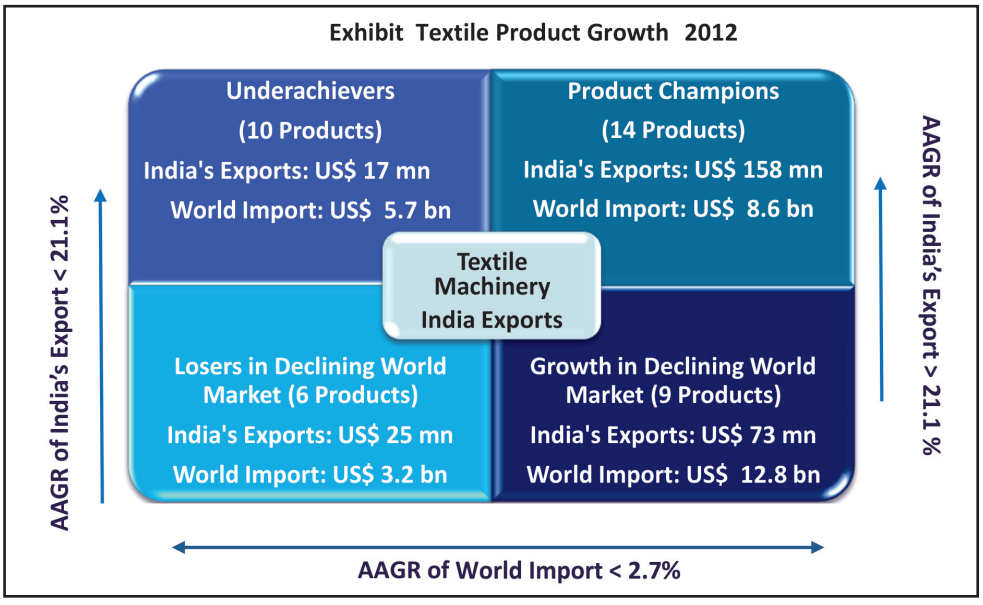
Inferences:

A total of 39 products have been shortlisted for categorisation. Of these, 14 Textile Machinery have been identified under the category Product Champions, 10 products as Underachievers, 6 products under Losers in Declining Market and 9 products under Growth in Declining World Market.

Product Champions: 14 Textile Machinery have been identified as Product Champions (Table: 37). The cumulative value of India's exports of products under this category amounted to US$ 158 million in 2012. These products have gained share in global import basket during the 2008-2012 period by increasing at a pace (21.1%) higher than total world imports, which averaged 2.7% during this period. The positive feature is that a predominant share of India's Textile Machinery exports (with value of US$ 158 million in 2012) belonged to this category, constituting 47% of India's total exports of Textile Machinery of US$ 336 mn.

Top 5 Product Champions of the world (US$ 6.2 billion) accounted for more than half the world demand (US$ 8.6 billion) of the identified Textile Machinery product champions,

Exhibit 40:India's Textile Machinery Product Growth Matrix: 2012



although India's share (totalling US$ 72 million) in it was just 0.8% of world demand (US$ 8.6 billion). Some of the key products in the world import market include machine for extruding, drawing, text or cutting manmade textile materials (HS 844400), machine for weaving fabrics of a width exceeding 30 cm shuttleless type (HS 844630), sewing machine, other than book-sewing machine (HS 845229), textile spinning machines (HS 844520), and automatic sewing machines, other than book-sewing machines (HS 845221) (Table 38).

Out of 14, there were 2 products where India's exports recorded triple digits AAGR. These products are textile spinning machine (HS Code 844520) and textile drawing or roving machine (HS Code 844513).The Top 4 Textile Machinery export products from India under Product Champion category amounted to US$ 119 million and their share in India's total exports of Textile Machinery increased from 25.4% in 2008 to 35.4% in 2012. These products are textile spinning machine (HS Code 844520), parts & accessories of machine for preparation of textile fibre (excluding card clothing) of heading No 84.45 (HS Code 844832), parts & accessories of machinery of heading No 84.44 or of their auxiliary machinery (HS Code 844820) and textile preparing machines (HS Code 844519) (Table 39).

Underachievers: In the Under-achievers category, 10 Textile Machinery export products have been identified. The cumulative value of India's exports of products under this category amounted to US$ 17 million in 2012, up from US$ 16 million in 2008. The world import market for these 10 products increased from US$ 5.2 billion in 2008 to US$ 5.7 billion in 2012. India has lost out market share to competing countries for these dynamic products.

Further, for nine of the 10 products in this category, India's imports were substantially higher than exports implying that the country had a trade deficit in each of these products. While manufacturing capabilities exists in India, the fact that the country is importing significant amounts and that these imports have increased during the 2008-2012 period is indicative of shortage of manufacturing capacities within the domestic shores. The products identified are given in Table 40.

Table 37: Product Champions under Textile Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
844520	Textile spinning machines	7	55	131.2	827	927	16.8	0.85	5.93	173	187	-166	-132
844832	Parts & accessories of machines for prep text fib,(excl card clothing) of heading No 84.45	7	28	46.3	204	203	10.1	3.43	13.79	7	3	0	25
844820	Pts & access of mach of heading No 84.44 or of their auxiliary machinery	31	19	27.0	258	426	18.8	12.02	4.46	20	10	11	9
844519	Textile preparing machines	5	17	75.2	296	257	11.3	1.69	6.61	30	13	-25	4
845229	Sewing machines, other than book-sewing machines,	2	6	55.0	1566	1414	5.4	0.13	0.42	50	119	-48	-113
845221	Automatic sewing machines, other than book-sewing machines	3	6	25.0	572	716	13.2	0.52	0.84	105	87	-102	-81
844859	Parts & accessories of machines of heading No 84.47/of their auxiliary machinery	3	6	25.0	497	486	4.8	0.60	1.23	14	7	-11	-1
844513	Textile drawing or roving machines	1	4	100.0	97	127	26.1	1.03	3.15	12	23	-11	-19
844400	Machines for extruding, drawing, text or cutting m-m textile materials	1	4	61.7	763	1645	33.8	0.13	0.24	10	3	-9	1
844629	Machines for weaving fabrics of a width exceeding 30 cm shuttle type	3	4	41.7	124	110	4.3	2.42	3.64	35	16	-32	-12
844511	Textile carding machines	4	4	31.3	230	265	21.3	1.74	1.51	9	27	-5	-23
844811	Dobbies, Jacquards, card reducing, etc of use with mach of heading 84.44,45,46,47	2	2	95.8	258	218	7.1	0.78	0.92	24	24	-22	-22
844530	Textile doubling or twisting machines	0	2	50.0	232	206	12.7	0.00	0.97	22	29	-22	-27
844630	Machines for weaving fabrics of a width exceeding 30 cm shuttleless type	1	1	25.0	1357	1566	20.0	0.07	0.06	190	297	-189	-296
	TOTAL OF ABOVE	**70**	**158**		**7281**	**8566**		**0.96**	**1.84**	**701**	**845**	**-631**	**-687**
	TOTAL UNDER SEGMENT	**197**	**336**	**21.1**	**38147**	**38341**	**2.7**	**0.52**	**0.88**	**1913**	**2069**	**-1716**	**-1733**

Source: PCTAS, Exim Bank Analysis

Table 38: Textile Machinery: The Top 5 "Product Champions", their Top Importers (excluding India) and their Major Suppliers

HS Code	Product	Importers	Value (US$ mn)		Major Supplier Countries with Whom India will have to Compete for Market Share	India's Rank as supplier
			2008	2012		
844400	Machine for extruding, drawing, text or cutting m-m textile materials	CHINA	368	922	Japan, Germany, Italy, S.Korea, France	11
		TURKEY	43	111	Germany, China, Austria, Italy, Switzerland	8
		PAKISTAN	1	100	Germany, China, Switzerland, S.Korea, Taiwan	7
		BRAZIL	18	94	China, Japan, S.Korea, Austria, Germany	16
		WORLD	**763**	**1645**		
844630	Machine for weaving fabrics of a width exceeding 30 cm shuttleless type	CHINA	565	454	Japan, Belgium, Germany, Italy, Switzerland	
		TURKEY	142	384	Belgium, Italy, Germany, Switzerland, China	-
		INDONESIA	0	66	China, Japan, Belgium, Hong Kong, Italy	-
		BRAZIL	41	38	Belgium, Japan, Italy, Germany, Switzerland	10
		WORLD	**1357**	**1566**		-
	Sewing machine, other than book-sewing machine					
		SINGAPORE	145	165	Japan, China, Vietnam, Malaysia, Portugal	9
		VIET NAM	112	102	China, Japan, Taiwan, S.Korea, Singapore	15
		TURKEY	67	99	China, Japan, Germany, Taiwan, Czech Rep	8
		HONG KONG	148	88	China, Japan, Vietnam, Singapore, Germany	24
		WORLD	**1566**	**1414**		
844520	Textile spinning machines	CHINA	115	211	Japan, Germany, Switzerland, Italy, India is the fifth largest exporter	5
		TURKEY	73	143	Germany, Switzerland, China, Japan, India is the fifth largest exporter	5
		INDONESIA	0	85	China, Japan, Germany, India is the fourth largest exporter	4
		BRAZIL	52	51	Germany, Japan, Italy, Switzerland, China	11
		VIETNAM	68	49	China, Taiwan, Germany, Japan, Australia	8
		WORLD	**827**	**927**		
845221	Automatic sewing machines, other than book-sewing machine	CHINA	98	135	Japan, China, Germany, Taiwan, Czech Rep	-
		USA	75	122	Japan, China, Switzerland, Thailand, Taiwan	-
		SINGAPORE	56	73	China, Japan, Vietnam, S.Korea, Netherlands	8
		VIETNAM	51	48	China, Japan, Taiwan, S.Korea, Italy	-
		BRAZIL	44	44	China, S.Korea, Italy, Germany, Japan	-
		WORLD	**572**	**716**		

Source: PCTAS, Exim Bank Analysis

Table 39: Textile Machinery:
India's Top Exports Under "Product Champion" Category, Key Destinations and Competitors, 2012

HS CODE	PRODUCT NAME	EXPORT DESTINATION (US$ mn)		IMPORT FROM WORLD (US$ mn)	INDIA'S SHARE IN IMPORTS (%)	KEY EXPORTERS TO INDIA'S KEY MARKETS / INDIA'S COMPETITORS IN THE MARKETS
844520	Textile spinning machine	**WORLD**	**55**	**927**	**5.93**	
		BANGLADESH	13	NA	-	-
		CHINA	12	211	5.69	Japan, Germany, Switzerland, Italy, India is the fifth largest exporter
		INDONESIA	6	83	7.23	China, Germany, Japan, India is the fourth largest exporter
		NETHERLANDS	5	NA	-	-
		MALAYSIA	5	1	500.00	Japan
844832	Pts & access of mach f prep text fib,(excl card clothing) f heading No 84.45	**WORLD**	**28**	**203**	**13.79**	
		ITALY	11	3	366.67	France, Spain, Germany
		GERMANY	3	19	15.79	Czech Rep, Poland, USA, Switzerland, Brazil
		BANGLADESH	2	NA	-	-
		THAILAND	1	NA	-	
		BRAZIL	1	4	25.00	Germany, USA, Switzerland
844820	Pts & access of mach of heading No 84.44 or of their auxiliary machinery	**WORLD**	**19**	**426**	**4.46**	
		GERMANY	10	68	14.71	China, Switzerland, Austria, Denmark, Italy
		NETHERLANDS	1	4	25.00	Japan, Switzerland
		INDONESIA	1	18	5.56	China, Japan, Germany, Taiwan, Italy
		BANGLADESH	1	NA	-	-
		SWITZERLAND	1	15	6.67	Germany, India is the second largest exporter
844519	Textile preparing machine	**WORLD**	**17**	**257**	**6.61**	
		ANGOLA	5	NA	-	-
		NETHERLANDS	3	NA	-	-
		INDONESIA	2	29	6.90	China, Taiwan, Germany, Italy, France
		BANGLADESH	2	NA	-	-
		CHINA	1	30	3.33	Italy, Germany, Taiwan, USA, France
845229	Sewing machines, other than book-sewing machines	**WORLD**	**6**	**1414**	**0.42**	
		SINGAPORE	1	166	0.60	Japan, China, Vietnam, Malaysia, Sri Lanka
		UAE	1	NA	-	-
		BANGLADESH	1	NA	-	-

Source: PCTAS, Exim Bank Analysis

Table 40: Underachievers under Textile Machinery

HS CODE	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
844819	Auxiliary machinery of machines of heading No 84.44 ,84.45,84.46,84.47	6	4	-0.2	216	252	14.1	2.78	1.59	9	16	-3	-12
844540	Textile winding (including weft-winding) or reeling machines	5	4	6.4	893	937	14.9	0.56	0.43	172	186	-167	-182
844512	Textile combing machines	0	2	-33.3	139	67	10.3	0.00	2.99	26	6	-26	-4
845240	Furniture, bases and covers for sewing machines and parts thereof	0	1	0.0	32	3	17.0	0.00	33.33	1	0	-1	1
845390	Pts of mach f prep etc hides skin leather/make/rep foot o/t sewing machine	1	1	0.0	133	139	6.1	0.75	0.72	9	14	-8	-13
845020	Household/laundry-type washing mach of a dry linen capacity exceeding 10kg	0	1	0.0	2429	2789	3.9	0.00	0.04	4	2	-4	-1
845019	Household/laundry-type washing mach of a dry linen capacity </=10 kg	2	1	-50.0	322	381	7.1	0.62	0.26	14	29	-12	-28
844900	Mach f the mfr/fin of felt/n-woven in the pace/in sh inc mach f make hats	1	1	-50.0	612	687	5.5	0.16	0.15	9	52	-8	-51
844610	Machines for weaving fabrics of a width not exceeding 30 cm	1	1	-50.0	120	95	4.5	0.83	1.05	22	25	-21	-24
844712	Circular knitting machines with cylinder diameter exceeding 165 mm	0	1	-66.7	333	328	11.7	0.00	0.30	10	14	-10	-13
	TOTAL OF ABOVE	**16**	**17**		**5229**	**5678**	**0.31**	**0.30**		**276**	**344**	**-260**	**-327**
	TOTAL UNDER SEGMENT	**197**	**336**	**21.1**	**38147**	**38341**	**2.7**	**0.52**	**0.88**	**1913**	**2069**	**-1716**	**-1733**

Source: PCTAS, Exim Bank Analysis

Growth in Declining World Market: 9 Textile Machinery export products have been identified under the category 'Growth in Declining World Market'. These are products for which world import market has witnessed a decline while India's exports have registered growth higher than the growth in world demand. A total of 23.5% of India's Textile Machinery exports (with value of US$ 79 million in 2012) have been under this category (Table 41). This is an area of concern as it is reflective of the country targeting products whose demand has been going downhill.

Losers in Declining World Market: 6 Textile Machinery export products have been identified as 'Losers in Declining World Market'. The export prospects for these products tend to be bleak – world imports of these Textile Machinery have declined (from US$ 3.3 bn in 2008 to US$ 2.4 bn in 2012), and the market share of these products in India's total exports of Textile Machinery has declined from 15.2% in 2008 to 7.4% in 2012 (Table 42). India needs to diversify its production away from manufacturing these products and focus on other textile machinery segments, especially the Product Champions and Underachievers.

ELECTRICAL MACHINERY

Inferences:

A total of 118 products have been shortlisted for categorisation. Of these, 37 electrical machinery have been identified under the category Product Champions, 9 products as Underachievers, 19 products under Losers in Declining Market and 53 products under Growth in Declining World Market.

Product Champions: 37 electrical machinery have been identified as Product Champions (Table: 43). The cumulative value of India's exports of products under this category amounted to US$ 1.2 billion in 2012. The positive part is a 28% of India's electrical machinery exports (with value of US$ 1.2 billion in 2012) have been under this category.

Top 5 Product Champions of the world (US$ 106.5 billion) accounted for half of the world demand (US$ 215.4 billion) of the identified electrical machinery Product Champions, although India's share (totalling US $ 408 million) in it was just 0.2% of world demand (US$ 215.4 billion). The top 5 products in the world import market include Boards, panels, including numerical

Table 41: Growth in Declining World Market - Textile Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
845230	Sewing machine needles	7	26	51.1	249	227	0.5	2.81	11.45	8	13	-1	13
845140	Washing, bleaching or dyeing machine (o/t machine of heading No 84.50)	4	12	141.9	664	536	-1.5	0.60	2.24	98	47	-94	-35
845180	Mach f wring/dress/finishing/coating/impregnating textile yarns etc(o/t heading No8450)	4	11	36.3	1015	923	0.7	0.39	1.19	117	74	-113	-63
845090	Parts of household or laundry-type washing machine, including comb machinery	6	6	37.5	1916	1609	-3.8	0.31	0.37	10	43	-4	-37
844590	Machinery for producing or preparing textile yarn	3	5	22.9	517	357	0.9	0.58	1.40	84	54	-81	-49
844790	Mach f making gimped yarn/tulle/lace/embroidery/trimmings/braid/net/tufting	1	4	150.0	1069	806	-5.6	0.09	0.50	257	123	-256	-119
845011	Automatic washing machine, of a dry linen capacity not exceeding 10 kg	1	4	75.0	8455	8202	-0.2	0.01	0.05	23	82	-22	-78
844842	Reeds for looms, heralds & herald-frames for weaving machine (looms)	2	3	25.0	123	99	-2.3	1.63	3.03	7	11	-5	-8
845110	Dry-cleaning machine o/t heading No 84.50	1	2	37.5	124	77	-7.5	0.81	2.60	3	5	-2	-3
	TOTAL OF ABOVE	**29**	**73**		**14132**	**12836**		**0.21**	**0.57**	**607**	**452**	**-578**	**-379**
	TOTAL UNDER SEGMENT	**197**	**336**	**21.1**	**38147**	**38341**	**2.7**	**0.52**	**0.88**	**1913**	**2069**	**-1716**	**-1733**

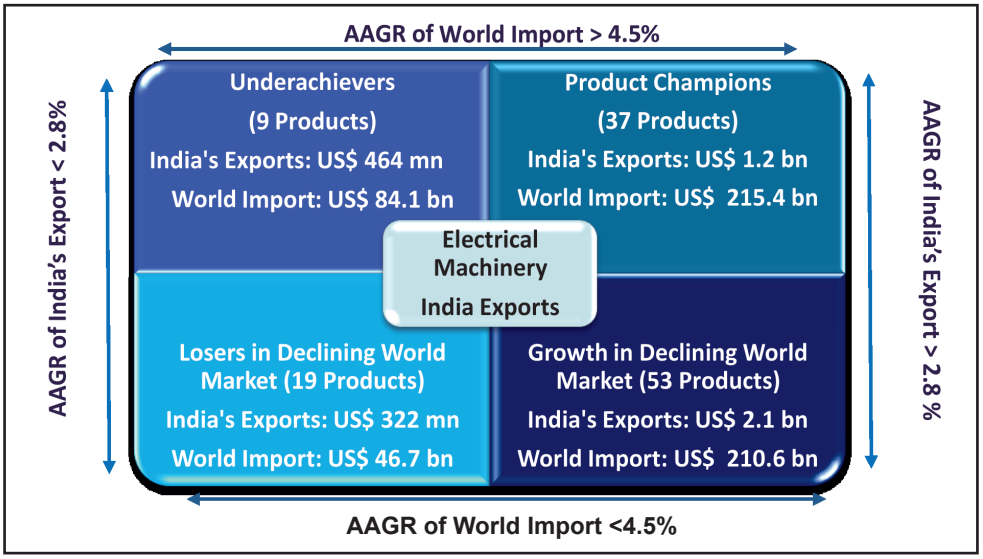
Source: PCTAS, Exim Bank Analysis

Table 42: Losers in Declining World Market - Textile Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
844849	Parts & accessories of weaving machines (looms) o of their auxiliary mach	20	12	2.6	737	617	-0.4	2.71	1.94	40	57	-20	-45
844720	Flat knitting machines; stitch-bonding machines	0	3	0.0	1670	1121	-6.1	0.00	0.27	27	71	-27	-68
845012	Washing mach of a dry linen capacity </=10 kg, with built-in dryer,	3	2	-11.1	343	281	-3.5	0.87	0.71	5	4	-2	-2
844621	Machines f weaving fabrics of a width excl 30 cm, shuttle type, power loom	1	1	-100.0	108	79	2.2	0.93	1.27	8	9	-7	-8
845130	Ironing mach & presses (including fusing presses) o/t heading No 84.50	1	1	-100.0	427	326	-3.4	0.23	0.31	12	8	-11	-7
845190	Parts of washing/cleaning/drying/ironing/ dyeing mach etc (o/t heading No 8450)	5	6	9.6	893	730	-3.1	0.56	0.82	11	13	-6	-7
	TOTAL OF ABOVE	**25**	**19**		**3285**	**2424**		**0.76**	**0.78**	**92**	**149**	**-67**	**-130**
	TOTAL UNDER SEGMENT	**197**	**336**	**21.1**	**38147**	**38341**	**2.7**	**0.52**	**0.88**	**1913**	**2069**	**-1716**	**-1733**

Source: PCTAS, Exim Bank Analysis

Exhibit 41: India's Electrical Machinery Product Growth Matrix: 2012



control panels, for a voltage </=1000 V (HS 853710), Electrical machine and apparatus (HS 854389), Electrical plugs and sockets, for a voltage not exceeding 1,000 volts (HS 853669), Electric motors of an output not exceeding 37.5 W (HS 850110), and Lighting or visual signalling equipment (HS 851220) (Table : 44).

Out of 37, there were 5 products where India's AAGR in exports have increased by triple digits. The products are Electrical machine and apparatus (HS Code 854389), Lithium primary cells and batteries (HS Code 850650). Electrical relays for a voltage not exceeding 60 volts (HS Code 853641), Permanent magnets & articles intended to become permanent magnets (HS Code 850519) and Electrical apparatus for protecting electric circuits, for voltage </=1,000 V (HS Code 853630).

The Top 5 electrical machinery export products from India under Product Champion category constituted US$ 577 million value of exports and their share in India's total exports of electrical machinery decreased from 52.1% in 2008 to 50.1% in 2012. The top 5 products are Boards, panels, including numerical control panels, for a voltage </=1000 V (HS Code 853710), Electric motors of an output not exceeding 37.5 W (HS Code 850110), Starter motors (HS Code 851140), Boards, panels, including numerical control panels, for a voltage > 1,000 V (HS Code 853720), and Parts of electrical machines & apparatus having individual functions, (HS Code 854390) (Table 45).

Table 43: Product Champions under Electrical Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
853710	Boards, panels, including numerical control panels, for a voltage </=1000 V	131	179	10.9	27967	38996	10.5	0.47	0.46	181	312	-50	-133
850110	Electric motors of an output not exceeding 37.5 W	24	115	52.0	11505	13129	5.0	0.21	0.88	158	198	-134	-83
851140	Starter motors	59	104	19.2	3755	4475	6.8	1.57	2.32	25	40	34	64
853720	Boards, panels, including numerical control panels, for a voltage > 1,000 V	64	94	16.5	4523	5405	4.6	1.41	1.74	58	53	6	41
854390	Parts of electrical machine & apparatus having individual functions,	23	85	57.8	6096	7182	5.6	0.38	1.18	134	282	-111	-197
850720	Lead-acid electric accumulators	26	56	54.5	4689	5292	5.8	0.55	1.06	146	102	-120	-46
853225	Electrical capacitors, fixed, dielectric of paper or plastics,	11	48	50.0	1276	1478	6.8	0.86	3.25	8	5	3	43
851220	Lighting or visual signaling equipment	24	48	20.8	8761	12348	11.0	0.27	0.39	43	67	-19	-19
853649	Electrical relays for a voltage exceeding 60 V but not exceeding 1,000 volts	25	44	17.0	4480	4862	4.5	0.56	0.90	104	148	-79	-104
851190	Parts of electrical ignition or starting equipment	33	41	8.9	2892	3133	4.5	1.14	1.31	53	98	-20	-57
854389	Electrical machine and apparatus	2	33	300.4	18721	27233	11.6	0.01	0.12	66	404	-64	-371
853669	Electrical plugs and sockets, for a voltage not exceeding 1,000 volts	10	33	80.4	12876	14784	5.1	0.08	0.22	72	239	-62	-206
851150	Generators and alternators	12	33	54.8	4127	5122	6.9	0.29	0.64	31	45	-19	-12

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
853521	Automatic circuit breaker f a voltage > 1,000 volts but < 72.5 KV	11	33	51.5	825	974	6.1	1.33	3.39	6	16	5	17
850153	AC motors, multi-phase, of an output exceeding 75 KW	12	25	28.0	3785	4765	6.4	0.32	0.52	60	68	-48	-43
850450	Inductors, electric	8	23	34.0	7698	10678	10.4	0.10	0.22	64	138	-56	-115
851230	Sound signaling equipment	20	20	10.4	1051	1165	5.3	1.90	1.72	4	10	16	10
850152	AC motors, multi-phase, of an output ex-ceeding 750 W but not exceeding 75 KW	7	15	29.0	6004	6466	5.3	0.12	0.23	35	104	-28	-89
850220	Generating sets with spark-ignition internal combustion piston engi	12	14	12.9	2607	3239	6.7	0.46	0.43	36	24	-24	-10
850239	Electric generating sets	9	13	22.0	5884	7006	5.0	0.15	0.19	58	166	-49	-153
853641	Electrical relays for a voltage not exceeding 60 volts	4	12	149.9	3704	4392	7.5	0.11	0.27	22	41	-18	-29
851590	Pts of electric/laser/ultrasonic mach etc f weld/cut /hot spray of met	7	11	24.7	2944	3090	4.6	0.24	0.36	57	48	-50	-37
851130	Distributors and ignition coils	2	10	66.7	1483	1938	7.9	0.13	0.52	4	12	-2	-2
850432	Transformers electric power handling capacity > 1 KVA but </= 16 KVA,	7	10	13.4	898	834	7.2	0.78	1.20	10	7	-3	3
851290	Parts of electrical lighting, signaling and defrosting equipment	4	9	28.3	4258	5241	6.5	0.09	0.17	16	35	-12	-26
850151	AC motors, multi-phase, of an output not exceeding 750 W	7	8	19.8	2031	2634	9.6	0.34	0.30	22	18	-15	-10
851110	Spark plugs	3	6	20.8	1851	2249	5.7	0.16	0.27	3	7	0	-1
851521	Electric mach/app for resistance welding of metal fully or partly auto	3	6	20.8	1262	1461	7.8	0.24	0.41	47	41	-44	-35

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
853630	Electrical app f protecting electric circuits, for voltage </=1,000 V,	0	5	125.0	3229	4401	9.4	0.00	0.11	13	16	-13	-11
851539	Electric mach/app for arc (inc plasma arc) welding of metals	4	5	81.3	1078	1130	4.5	0.37	0.44	36	34	-32	-29
850519	Permanent magnets & articles intended to become permanent magnets,	3	3	138.9	1251	1882	13.5	0.24	0.16	14	29	-11	-26
851519	Electric brazing or soldering machine and apparatus	1	3	37.5	418	614	14.6	0.24	0.49	6	7	-5	-4
853010	Electrical signaling, safety/traffic control equipment of railways/tramways	3	2	41.7	470	586	6.4	0.64	0.34	12	6	-9	-4
850520	Electro-magnetic couplings, clutches and brakes	0	2	33.3	766	844	4.7	0.00	0.24	4	9	-4	-7
851210	Lighting or signaling equipment of a kind used on bicycles	1	2	25.0	234	294	6.1	0.43	0.68	0	1	1	1
850650	Lithium primary cells and batteries	4	1	188.4	1865	2381	7.0	0.21	0.04	11	55	-7	-54
853321	Electrical resistors fixed for a power handling capacity not exceeding 20 W	2	1	60.8	3163	3672	6.2	0.06	0.03	7	26	-5	-25
	TOTAL OF ABOVE	**578**	**1152**		**170427**	**215375**		**0.34**	**0.53**	**1626**	**2911**	**-1048**	**-1759**
	TOTAL UNDER SEGMENT	**3789**	**4082**	**2.8**	**505109**	**572023**	**4.5**	**0.75**	**0.71**	**5738**	**8325**	**-1949**	**-4243**

Source: PCTAS, Exim Bank Analysis

Table 44: Electrical Machinery:
The Top 5 "Product Champions", their Top Importers, and their Major Suppliers

HS Code	Product	Importers	Value (US$ mn)		Major Supplier Countries with Whom India will have to Compete for Market Share	India's Rank as supplier
			2008	2012		
853710	Boards, panels =, including numerical control panels, for a voltage </=1000 V	USA	5380	7677	Mexico, China, Germany, Japan, Canada	13
		GERMANY	2518	3767	Hungary, Romania, Czech Rep, Switzerland, USA	31
		CHINA	2879	3561	Japan, Germany, USA, China, S.Korea	30
		S.KOREA	979	3247	China, Japan, Norway, Germany, USA	31
		RUSSIA	822	1570	Germany, Belarus, Kazakhstan, China, S.Korea	28
		WORLD	**27967**	**38996**		
854389	Electrical machine and apparatus	USA	2981	5332	China, Mexico, Japan, Germany, Canada	34
		CHINA	1398	2479	China, Japan, USA, Germany, S.Korea	25
		JAPAN	1847	2398	China, USA, S.Korea, Taiwan, Thailand	33
		THAILAND	850	1595	Japan, China, Thailand, USA, Malaysia	26
		GERMANY	1187	1505	China, USA, Japan, UK, Switzerland	15
		WORLD	**18721**	**27233**		
853669	Electrical plugs and sockets, for a voltage not exceeding 1,000 volts	USA	2164	2411	China, Mexico, Japan, Taiwan, Germany	18
		CHINA	1856	1775	China, Japan, S.Korea, USA, Germany	16
		GERMANY	1314	1611	China, Switzerland, Hungary, USA, Czech Rep	17
		S.KOREA.	923	1091	China, Japan, USA, Germany, Thailand	25
		HONG KONG	577	771	China, Japan, USA, Thailand, S.Korea	22
		WORLD	**12876**	**14784**		
850110	Electric motors of an output not exceeding 37.5 W	CHINA	1448	2118	China, Vietnam, Japan, Thailand, Philippi	21
		USA	1102	1473	Mexico, China, Japan, Switzerland, S.Korea	11
		HONG KONG	1206	1473	China, Vietnam, Thailand, Philippi, Taiwan	16
		GERMANY	968	1012	Switzerland, China, Hong Kong, Czech Rep, Italy	9
		THAILAND	407	746	Japan, China, Indonesia, Thailand, Vietnam	16
		WORLD	**11505**	**13129**		
851220	Lighting or visual signaling equipment	USA	1356	2199	Mexico, Taiwan, China, Japan, S.Korea	21
		GERMANY	1646	2148	Czech Rep, Austria, Spain, Slovakia, Slovenia	23
		CHINA	254	754	Germany, Japan, S.Korea, Taiwan, Slovakia	30
		CANADA	345	736	USA, China, Japan, Mexico, Taiwan	34
		UK	460	601	Czech Rep, France, Germany, China, Slovenia	17
		WORLD	**8761**	**12348**		

Source: PCTAS, Exim Bank Analysis

Table 45: Electrical Machinery:
India's Top Exports Under "Product Champion" Category, Key Destinations and Competitors, 2012

HS CODE	PRODUCT NAME	EXPORT DESTINATION (US$ mn)		IMPORT FROM WORLD (US$ mn)	INDIA'S SHARE IN IMPORTS (%)	KEY EXPORTERS TO INDIA'S KEY MARKETS / INDIA'S COMPETITORS IN THE MARKETS
853710	Boards, panels, including numerical control panels, for a voltage </=1000 V	**WORLD**	**179**	**38996**	**0.46**	
		UAE	21	NA	-	-
		MYANMAR	18	NA	-	-
		USA	17	7677	0.22	Mexico, China, Germany, Japan, Canada
		BANGLADESH	9	NA	-	-
		NIGERIA	8	60	13.33	China, USA, UK, Italy, Sweden
850110	Electric motors of an output not exceeding 37.5 W	**WORLD**	**115**	**13129**	**0.88**	
		USA	41	1473	2.78	Mexico, China, Japan, Switzerland, S.Korea
		GERMANY	24	1012	2.37	Switzerland, China, Hong Kong, Czech Rep, Italy
		CHINA	9	2118	0.42	China, Vietnam, Japan, Thailand, Philippi
		FRANCE	9	335	2.69	Germany, China, Switzerland, Ireland, Italy
		ITALY	7	270	2.59	China, Germany, Switzerland, France, Albania
851140	Starter motors	**WORLD**	**104**	**4475**	**2.32**	
		USA	31	1174	2.64	Mexico, Japan, China, Germany, India is the fifth largest exporter
		NETHERLANDS	24	67	35.82	Germany, Poland, China, Japan, USA
		GERMANY	11	390	2.82	Japan, Hungary, France, Poland, India is the fifth largest exporter
		BELGIUM	9	163	5.52	Austria, Hungary, Tunisia, Germany, India is the fifth largest exporter
		BRAZIL	4	75	5.33	
853720	Boards, panels, including numerical control panels, for a voltage > 1,000 V	**WORLD**	**94**	**5405**	**1.74**	
		QATAR	19	NA	-	-
		UAE	8	NA	-	-
		BANGLADESH	7	NA	-	-
		NIGERIA	5	39	12.82	India is the largest exporter
		KENYA	4	NA	-	-
854390	Parts of electrical machine & apparatus having individual functions,	**WORLD**	**85**	**7182**	**1.18**	
		UAE	63	NA	-	-
		USA	8	1036	0.77	Japan, China, Germany, Taiwan, Canada
		AUSTRALIA	3	53	5.66	S.Korea, USA, Israel, Singapore, France
		NETHERLANDS	2	58	3.45	Germany, USA, Ireland, China, France
		GERMANY	1	243	0.41	UK, USA, Switzerland, China, Italy

Source: PCTAS, Exim Bank Analysis

Underachievers: In the Underachievers category, 9 electrical machinery export products have been identified. The cumulative value of India's exports of products under this category amounted to US$ 464 million in 2012, down from US$ 599 million in 2008. The world import market for these 9 products increased from US$ 65.2 billion in 2008 to US$ 84.1 billion in 2012 (Table 46). India has lost out market share to competing countries for these dynamic products.

Further, for all the 9 products in this category, India's imports were substantially higher than exports implying that the country had a trade deficit in each of these products. While manufacturing capabilities exists in India, the fact that the country is importing significant amounts and that these imports have increased during the 2008-2012 period is indicative of shortage of manufacturing capacities within the domestic shores. The products identified are given in Table 46.

Growth in Declining World Market: 53 electrical machinery export products have been identified under the category 'Growth in Declining World Market'. These are products for which world import market has witnessed decline, while India's exports have registered growth higher than the growth in world demand. Around 52% of India's Electrical Machinery exports (amounting to US$ 2.1 billion in 2012) belonged to this category (Table 47). This is an area of concern as it is reflective of the country targeting a set of Electrical Machinery exports, whose demand has been going downhill.

Losers in Declining World Market: 19 Electrical Machinery export products have been identified as 'Losers in Declining World Market'. World imports of these Electrical Machinery have declined from US$ 49.7 bn in 2008 to US$ 46.7 bn in 2012, and the market share of these products in India's total exports of Electrical Machinery has declined from 31% in 2008 to 7.9% in 2012 (Table 48). India needs to diversify its production away from manufacturing these products and focus on other electrical machinery segments, especially the Product Champions and Underachievers.

Table 46: Underachievers under Electrical Machinery

HS CODE	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
850440	Static converters	440	391	0.1	39842	48860	7.1	1.10	0.80	499	715	-59	-324
850134	DC motors, DC generators, of an output exceeding 375 KW	84	22	-9.5	611	750	25.0	13.75	2.93	34	23	50	-1
850511	Permanent magnets &art intended to become permanent magnets, of metal	32	20	-8.3	1949	4635	31.3	1.64	0.43	24	76	8	-56
853340	Variable resistors, including rheostats and potentiometers,	14	10	-3.1	2897	3443	6.9	0.48	0.29	31	45	-17	-35
850590	Electro-magnets and parts of heading No 85.05	12	8	-7.4	2243	2558	6.8	0.53	0.31	28	29	-16	-21
850131	DC motors, DC generators, of an output not exceeding 750 W	10	6	-0.7	5175	7280	11.3	0.19	0.08	44	81	-34	-75
851679	Electro-thermal appliances, domestic,	6	5	-3.3	3752	4848	7.4	0.16	0.10	12	39	-6	-34
853224	Electrical capacitors, fixed, ceramic dielectric, multilayer,	0	1	0.0	8594	11461	9.3	0.00	0.01	6	43	-6	-42
850640	Silver oxide primary cells and batteries	1	1	-100.0	174	229	7.2	0.57	0.44	2	4	-1	-3
	TOTAL OF ABOVE	**599**	**464**		**65237**	**84064**		**0.92**	**0.55**	**680**	**1055**	**-81**	**-591**
	TOTAL UNDER SEGMENT	**3789**	**4082**	**2.8**	**505109**	**572023**	**4.5**	**0.75**	**0.71**	**5738**	**8325**	**-1949**	**-4243**

Source: PCTAS, Exim Bank Analysis

Table 47: Growth in Declining World Market - Electrical Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
853890	Parts for use with the apparatus of heading no. 85.35,85.36 or 85.37	234	309	24.1	24955	27303	4.4	0.94	1.13	504	564	-270	-255
850300	Parts of electric motors, generators, generating sets & rotary converters	164	279	17.2	18270	18719	1.2	0.90	1.49	477	553	-313	-274
853690	Electrical app for switching/protecting electric circuits, not exceed 1,000 V,	119	165	16.2	33009	36218	4.4	0.36	0.46	268	352	-149	-187
853810	Boards, panels, etc for goods of heading no. 85.37,not equipped with their app	92	164	16.1	3542	3128	-0.6	2.60	5.24	82	85	10	79
850490	Parts of electrical transformers, static converters and inductors	122	155	8.5	9737	10044	2.1	1.25	1.54	181	311	-59	-156
850421	Liquid dielectric transformers having a power handling capacity </= 650 KVA	58	109	19.0	1490	1469	-0.2	3.89	7.42	15	10	43	99
853650	Electrical switches for a voltage not exceeding 1,000 volts,	61	94	14.4	16178	17789	4.4	0.38	0.53	105	179	-44	-85
850140	AC motors, single-phase	42	67	13.3	4364	4731	4.1	0.96	1.42	13	20	29	47
850211	Generating sets, diesel/semi-diesel engines, of an output not exceed 75 KVA	53	67	11.0	1985	1550	-2.2	2.67	4.32	62	2	-9	65
853610	Electrical fuses, for a voltage not exceeding 1,000 volts	54	64	4.8	2234	2473	4.3	2.42	2.59	30	41	24	23
853620	Automatic circuit breakers for a voltage not exceeding 1,000 volts	47	56	8.0	6265	6314	2.4	0.75	0.89	80	97	-33	-41
853590	Electrical app for switching/protecting electric circuits, exceed 1,000 volts	25	48	23.8	3344	3414	1.3	0.75	1.41	44	76	-19	-28
850164	AC generators, of an output exceeding 750 K VA	33	47	13.4	3505	3235	-1.3	0.94	1.45	38	73	-5	-26

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
850422	Liquid dialect transfer having a power handling cap >650 KVA but </= 10,000KVA	48	46	3.4	1351	1169	-2.8	3.55	3.93	17	38	31	8
850433	Transformers electric power handling capacity > 16 KVA but </= 500 KVA	23	37	19.7	1557	1376	-2.2	1.48	2.69	29	15	-6	22
850410	Ballasts for discharge lamps or tubes	14	36	50.0	3942	3490	-0.4	0.36	1.03	28	22	-14	14
850212	Generating sets, diesel/semi-diesel exceeding 75 KVA but not exceed 375 KVA	12	35	39.9	1960	1450	-4.0	0.61	2.41	6	3	6	32
850730	Nickel-cadmium electric accumulators	16	33	20.0	2529	1249	-13.5	0.63	2.64	13	36	3	-3
851430	Industrial & laboratory electric furnaces & ovens	40	32	32.5	1639	1476	-1.6	2.44	2.17	42	50	-2	-18
853529	Automatic circuit breakers, for a voltage exceeding 1,000 volts,	5	30	71.2	1043	765	-6.9	0.48	3.92	3	24	2	6
853210	Fixed capacitors designed for use in 50/60 Hz circuits (power capacitors)	10	29	45.4	717	730	1.3	1.39	3.97	7	13	3	16
851490	Parts of industrial or laboratory electric furnaces and ovens	14	25	25.8	1414	1221	-1.8	0.99	2.05	31	30	-17	-5
851420	Industrial & laboratory electric induction o dielectric furnaces &ovens	20	22	4.2	632	510	-2.4	3.16	4.31	5	5	15	17
850431	Transformers electric power handling capacity not exceeding 1 KVA,	16	21	8.8	5566	5538	1.7	0.29	0.38	66	53	-50	-32
853540	Lightning arresters, voltage limiters & surge supp voltage > 1,000 volts	6	18	41.6	612	644	2.0	0.98	2.80	9	8	-3	10
853530	Isolating switches & make-and-break switches, voltage exceed 1,000 volts	4	15	39.6	1609	1585	0.0	0.25	0.95	3	40	1	-25
851680	Electric heating resistors	5	13	28.8	3144	3022	0.2	0.16	0.43	4	11	1	2
851120	Ignition magnetos, magneto-generators and magnetic flywheels	3	11	55.6	183	170	3.3	1.64	6.47	1	5	2	6

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
850790	Parts of electric accumulators, including separators therefore	8	11	10.8	2399	2365	2.1	0.33	0.47	75	107	-67	-96
850780	Electric accumulators	8	10	31.6	13901	15360	3.1	0.06	0.07	157	245	-149	-235
853310	Electrical resistors, fixed carbon, composition or film type	11	10	9.5	770	711	0.5	1.43	1.41	16	23	-5	-13
851240	Windscreen wipes, defrosters and demisters	1	8	94.6	1045	1091	3.0	0.10	0.73	5	14	-4	-6
853090	Parts of electrical signaling, safety or traffic control equipment	4	7	64.6	954	841	-2.9	0.42	0.83	15	14	-11	-7
850161	AC generators (alternators), of an output not exceeding 75 KVA	7	7	29.9	1135	1122	2.1	0.62	0.62	7	4	0	3
850133	DC motors, DC generators, of an output exceeding 75 KW but not > 375KW	7	6	15.5	366	353	0.8	1.91	1.70	23	11	-16	-5
854320	Signal generators	5	6	13.9	1036	995	0.1	0.48	0.60	19	17	-14	-11
850680	Primary cells & primary batteries	6	5	34.8	1109	1075	-0.1	0.54	0.47	75	127	-69	-122
851580	Electric/laser/ultrasonic mach etc for weld/cut / for hot spray of met	3	5	29.2	2261	2179	1.3	0.13	0.23	61	56	-58	-51
853661	Electrical lamp-holders, for a voltage not exceeding 1,000 volts	2	4	35.8	692	625	-1.0	0.29	0.64	8	11	-6	-7
851410	Industrial & laboratory electric resistance heated furnaces & ovens	5	4	30.8	1990	1713	0.5	0.25	0.23	10	10	-5	-6
853290	Parts of electrical capacitors	4	4	20.0	860	854	2.4	0.47	0.47	6	10	-2	-6
851660	Ovens; cookers, cooking plates, boiling rings, grillers & roasters, electric	4	4	12.5	8139	8627	2.1	0.05	0.05	22	121	-18	-117
851650	Microwave ovens	0	3	200.0	3898	3984	1.1	0.00	0.08	40	57	-40	-54

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
851180	Glow plugs and other ignition or starting equipment	1	3	68.8	1187	1125	0.6	0.08	0.27	9	6	-8	-3
850162	AC generators, of an output exceeding 75 KVA but not exceeding 375 KVA	1	3	37.5	602	556	3.7	0.17	0.54	3	1	-2	2
853329	Electrical resistors, fixed, other than heating resistors,	2	3	12.5	1121	1126	1.3	0.18	0.27	20	32	-18	-29
851440	Industrial & laboratory electric induction/dielectric heating equipment	3	3	4.2	659	590	-0.5	0.46	0.51	11	21	-8	-18
853080	Electrical signaling, safety or traffic control equipment	1	2	58.3	761	655	-2.7	0.13	0.31	25	10	-24	-8
851531	Electric machinery & apparatus for arc (inc plasma arc) welding of met fully/partly auto	0	2	55.6	1654	1458	-1.7	0.00	0.14	10	16	-10	-14
850690	Parts of primary cells and primary batteries	2	2	28.3	392	427	4.4	0.51	0.47	5	24	-3	-22
850163	AC generators, of an output exceeding 375 KVA but not exceeding 750 KVA	2	2	20.8	394	292	-3.5	0.51	0.68	2	0	0	2
854330	Machines & apparatus for electroplating, electrolysis or electrophoresis	4	2	3.6	1747	1483	0.9	0.23	0.13	57	48	-53	-46
854319	Particle accelerators	0	1	138.9	166	171	2.2	0.00	0.58	1	5	-1	-4
	TOTAL OF ABOVE	**1431**	**2144**		**206014**	**210560**		**0.69**	**1.02**	**2845**	**3706**	**-1414**	**-1562**
	TOTAL UNDER SEGMENT	**3789**	**4082**	**2.8**	**505109**	**572023**	**4.5**	**0.75**	**0.71**	**5738**	**8325**	**-1949**	**-4243**

Source: PCTAS, Exim Bank Analysis

Table 48: Losers in Declining World Market - Electrical Machinery

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
850423	Liquid dielectric transfer having a power handling capacity exceeding 10,000 KVA	255	130	-14.2	4389	3806	-3.0	5.81	3.42	157	17	98	113
850213	Generating sets, diesel/semi-diesel engines, of an output exceeding 375 KVA	94	44	-11.6	6305	5147	-2.9	1.49	0.85	83	97	11	-53
850231	Wind-powered generating equipment	651	44	-42.8	6967	6107	-2.2	9.34	0.72	2	5	649	39
850710	Lead-acid electric accumulators of a kind used for starting piston engines	44	36	-1.2	6332	6744	3.7	0.69	0.53	41	11	3	25
853510	Electrical fuses, for a voltage exceeding 1,000V	46	18	-14.9	355	357	2.1	12.96	5.04	4	6	42	12
850132	DC motors, DC generators, of an output exceeding 750 W but not exceeding 75KW	12	11	-1.2	1043	1057	2.7	1.15	1.04	18	18	-6	-7
853229	Electrical capacitors, fixed	29	11	-4.5	2496	2219	-1.4	1.16	0.50	105	190	-76	-179
850434	Transformers electric having a power handling capacity exceeding 500 KVA	14	9	-9.6	2207	1720	-5.4	0.63	0.52	17	30	-3	-21
851690	Parts of electro-thermic apparatus of heading No 85.16	11	7	-5.7	3436	3581	2.3	0.32	0.20	14	51	-3	-44
850610	Manganese dioxide primary cells and batteries	4	3	-5.0	3596	3373	-0.9	0.11	0.09	6	11	-2	-8
851629	Electric space heating apparatus & electric soil heating apparatus	2	1	0.0	2541	2815	3.7	0.08	0.04	7	7	-5	-6
853221	Electrical capacitors, fixed, tantalum,	0	1	0.0	2397	2523	3.3	0.00	0.04	4	6	-4	-5
851640	Electric smoothing irons	0	1	0.0	2096	1968	-0.8	0.00	0.05	5	1	-5	0
853339	Wire wound variable resistors, including rheostat and potentiometers	0	1	0.0	203	188	-1.4	0.00	0.53	6	6	-6	-5

HS Code	PRODUCT	INDIA'S EXPORTS (US$ Mn)		AAGR %	WORLD IMPORTS (US$ Mn)		AAGR %	SHARE CATERED BY INDIA IN WORLD IMPORTS		INDIA'S IMPORT (US$ Mn)		TRADE BALANCE (US$ mn)	
		2008	2012	2008-12	2008	2012	2008-12	2008	2012	2008	2012	2008	2012
850120	Universal AC/DC motors of an output exceeding 37.5 W	0	1	-16.7	1481	1422	0.6	0.00	0.07	33	58	-33	-57
851610	Electric instantaneous or storage water heaters and immersion heaters	4	1	-18.8	1975	1992	1.0	0.20	0.05	5	27	-1	-26
851529	Electric mach/app for resistance welding of metal	1	1	-33.3	352	296	0.7	0.28	0.34	20	12	-19	-11
853230	Electrical capacitors, variable or adjustable (pre-set)	9	1	-39.4	511	473	-0.7	1.76	0.21	1	2	8	-1
853223	Electrical capacitors, fixed, ceramic dielectric, single layer	1	1	-50.0	1026	875	-2.3	0.10	0.11	4	2	-3	-1
	TOTAL OF ABOVE	**1177**	**322**		**49708**	**46663**		**2.37**	**0.69**	**622**	**669**	**645**	**-235**
	TOTAL UNDER SEGMENT	**3789**	**4082**	**2.8**	**505109**	**572023**	**4.5**	**0.75**	**0.71**	**5738**	**8325**	**-1949**	**-4243**

Source: PCTAS, Exim Bank Analysis

5. CHALLENGES AND STRATEGIES

Indian capital goods industry has significant opportunities both in domestic and export markets. However, there are also challenges engulfing this sector. While the demand for capital goods in the country has been witnessing a consistent increase, domestic capital goods manufacturers have not been able to keep up with the pace of demand, leading to increasing dependence on imports across market segments. This is reflected in the significant trade deficit that the country has in the capital goods sector with imports at US$ 45 billion, being thrice the exports at US$ 15 billion in 2012. The trade deficit has been growing consistently since the last five years with certain segments like electrical equipment and machinery recording significant growths in trade deficit (CAGR of 22%).

It is estimated that nearly one-third of domestic demand for capital goods is being catered through imports. Cumulative FDI inflows from April 2000 to February 2014 in the capital goods sector amounted to only around US$ 8.8 billion (about US$ 600 million per year) which was just 4% of total FDI inflows into the country during this period. Added to this, due to various reasons, including capacity constraints, the delivery schedules of Indian capital goods suppliers are longer than their foreign counterparts. According to industry sources, delivery schedule of locally made capital goods in many cases is 1.5 to 2 times longer than in industrialised nations.

Some of the reasons that could be cited for growing imports and low capacity creation in domestic economy include inverted duty structure and external commercial borrowings (ECB) policies which incentivise imports. According to industry sources, in some cases, major inputs for production of capital goods attract higher customs duty than finished products. Further, the zero duty EPCG scheme allows import of capital goods for pre-production, production and post-production at zero customs duty. The cost arbitrage between ECB

funds and domestic funds works out to about 1% to 2%. As per the extant ECB guidelines, ECB funds could be used for procurement of domestic capital goods, but the borrower needs to declare in advance the amount required for such local sourcing at the time of applying for Loan Registration Number and has to repatriate the proceeds immediately to his Rupee account maintained with authorised dealer (AD) in India. On the other hand, ECBs meant for use in foreign currencies (or import of capital goods) can be parked abroad with stipulated agencies. Such policies leave the domestic capital goods industry in a disadvantageous position.

Appropriate strategies need to be adopted by this sector to emerge as a leading player in both domestic and export markets. Some of the challenges and strategies identified are briefly discussed below:

CHALLENGES

Technological Competency

The technologies used for production, as also in assembly of some of the sub-segments of Indian capital goods sector, are not always updated in tune with the global technological trends. While there are some players who have technological competencies, especially in design capability, application innovation and process innovation, the technological capabilities of large number of players, especially in the SME sector, are limited. In addition, the technological competencies of players in the SME sector who provide components or intermediates to original equipment manufacturers are also limited. Transfer of technology from other developed countries has also not been significant despite liberalization of policies for technology transfer and foreign direct investments. Further, the products offered by indigenous manufacturers are not always cutting edge; often there exists a large technology gap between domestic and foreign manufacturers of capital goods, leaving user industries with little recourse other than importing them in some of the sub-segments of capital goods sector. As demands of user industries evolve over time and the demand for next generation products increases, the technology gap will be widening and crippling the sector.

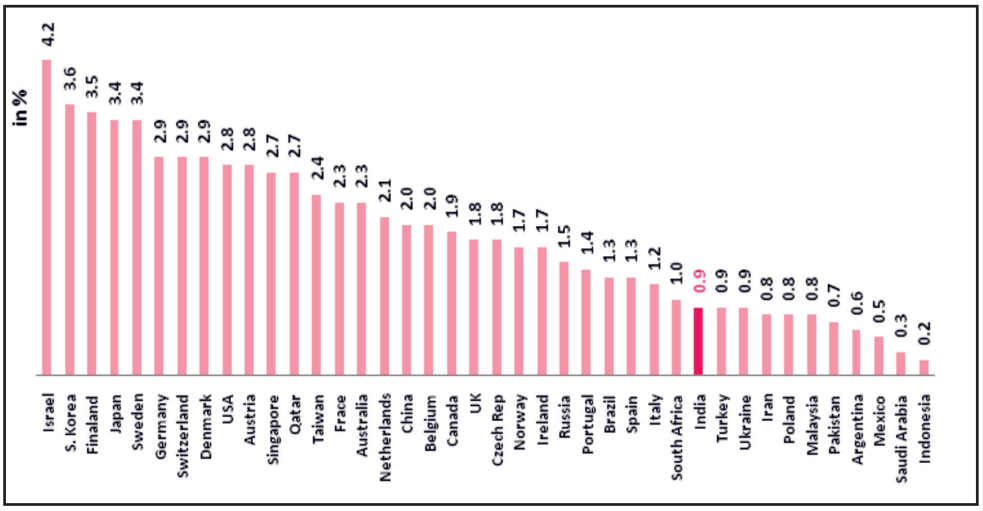
Delivery Schedules

Most capital goods are not supplied off-the-shelves and are custom-made to suit the requirements of end users. Thus, the delivery schedule to cater to the order is longer than many other engineering products. However, due to various reasons, including capacity constraints, the delivery schedules of Indian capital goods suppliers are longer than their foreign counterparts. The quality of infrastructure (transport, communication and power) is inadequate, thus affecting competitive delivery schedules, and increasing the operating costs. The delivery time of locally made capital goods in many cases is 1.5 to 2 times longer than in industrialized nations[10]. Inland transport is slow, although the railroad density in India is amongst the highest in the world. The cost of electric power is comparable to that in other developing nations, but the reliability is uncertain. Many Indian capital goods firms have set up their own captive power plants to obviate the problem. This has added to the costs. Overall, according to industry sources, the infrastructure inadequacies are estimated to translate into 5% cost disadvantage for Indian capital goods manufacturers vis-a-vis foreign manufacturers.

Low R&D Intensity

Low spending on research and development by capital goods sector

Exhibit 42 : R & D Expenditure as a share of GDP



Source: Batelle report on Global R&D Expenditure 2014

[10]Report on Indian capital goods sector by PWC

has increased India's dependence on capital goods imports which have been growing over the years. Exhibit 26 depicts the gross domestic expenditure on R&D as percentage of GDP for select countries. It may be noted that India has very low share in the total expenditure on R&D compared to other countries. While India's share of R&D expenditure was 0.9% of GDP in 2014, China held more than twice the share at 2%. Israel was the country with the largest share in R&D expenditure with a share of 4.2%. While these data represents the overall trend in these economies, the encouraging point is that the R&D intensity of Indian capital goods industry has been increasing – from 0.45% in 2006-07 to 1.42% during 2012-13 (Table 49). Further, while this fares well when compared to other sectors, there is still a lot of room for increasing R&D expenditure so as to reduce import dependence.

Challenge of Inverted duty structure

Inverted duty structure refers to a situation where final product attracts less duty than inputs that go into manufacturing of that product. Indian capital goods sector, comprising Indian corporates in public and private sector and large number of small and medium enterprises, continue to be burdened with inverted duty structure and tax anomalies. Even though customs duty on capital goods (under HS Codes 84, 85, 90) was reduced to 7.5% from 12.5%, major inputs for production of capital goods attract higher customs duty than finished products. For instance, the customs duty on seamless tubes of alloy/ non-alloy steels that find usage in boilers and heat exchangers is 10%, while the customs duty on boilers and heat exchangers is 7.5%. Also, Zero duty EPCG scheme allows import of capital goods [including CKD/SKD (completely-knocked-down/semi-knocked-down) as well as computer software systems] for pre-production, production and post-production at zero customs duty. This discourages local manufacturing and value addition, hence putting the domestic capital goods sector at a disadvantage. The government is planning to review this inverted duty structure to increase local manufacturing and reduce imports.

Table 49: Sector-wise R&D Intensity in India (%)

Sectors	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Pharma	4.77	4.45	4.52	4.76	4.83	4.77	5.09
Capital goods	0.45	0.84	1.09	1.24	1.17	1.27	1.42
• Non electrical mach.	0.49	0.98	1.28	1.45	1.31	1.44	1.64
• Electrical machinery	0.26	0.28	0.30	0.34	0.49	0.42	0.46
Transport Equipment	0.46	0.47	0.48	0.48	0.84	0.95	1.32
Chemicals	0.35	0.33	0.32	0.38	0.37	0.35	0.37
Plastic	0.23	0.24	0.27	0.28	0.28	0.29	0.27
Agriculture	0.17	0.20	0.21	0.26	0.28	0.22	0.21
Textiles	0.08	0.13	0.12	0.12	0.14	0.18	0.23
Leather	0.19	0.13	0.20	0.19	0.20	0.18	0.16

Source: Prowess

Table 50: Certain examples of import duty on select raw materials

HS Code	Product Description	Import duty
73	Articles of iron and steel	10%
3917	Tubes, pipes and hoses, and fittings therefore (for example, joints, elbows, flanges), of plastics	10%
3919	Self-adhesive plates, sheets, film, foil, tape, strip and other flat shapes, of plastics, whether or not in rolls	10%
3920	Other plates, sheets, film, foil and strip, of plastics, non-cellular and not reinforced, laminated, supported or similar	10%
3921	Other plates, sheets, film, foil and strip, of plastics	10%
7608	Aluminium tubes and pipes	10%

Source: Central Board of Excise and Customs

EXIM BANK'S SUPPORT TO CAPITAL GOODS INDUSTRY

Exim Bank has been closely associated with the export efforts of Indian capital goods industry, in its entire value chain. The Bank has a variety of loan products to cater to the financing requirements of enterprises. Apart from direct exposure, the Bank also supports the sector by virtue of supporting project exports. Project Exports are broadly classified into four categories, viz. Supply contracts on deferred payment terms, Civil Construction, Turnkey and Consultancy Services Contracts.

The Bank's Lines of Credit (LOCs) extended to commercial banks, financial institutions, regional development banks, and entities overseas serve as a market entry mechanism to Indian exporters and provide a safe mode of nonrecourse financing option to Indian exporters. LOCs enable buyers in overseas markets to import capital/ engineering goods, industrial manufactures and related services from India on deferred payment terms. The Indian capital goods industry has been increasingly using the LOC mechanism to export the machineries and equipments to other developing countries. This helps in establishing products abroad and generating export opportunities subsequently.

Exim Bank also had identified Indian machine tools sector – a sub-segment of Indian capital goods industry – which has a strong multiplier effect, and had brought out a study identifying appropriate strategies to strengthen this sector and thereby help contribute to the growth of Indian manufacturing sector. One such recommendation made by the study was that the Indian Machine Tools Manufacturers Association (IMTMA) may adopt a cluster approach, seeking institutional support to help the member-firms in overcoming the weaknesses by adopting best practices in the industry across the globe. Subsequently, a National Programme for Development of Indian Machine Tool Industry (NPDMI) was launched, as a cooperative effort of Government of India, IMTMA, UNIDO and Exim Bank. Under this programme, a range of activities was undertaken to update the manufacturing and management practices of the players in Indian machine tools sector. Evaluation of machine tool technology and market trends in USA and Europe was undertaken through technology surveys and participation in international

exhibitions. Learning through such activities was supplemented with showcasing the capabilities of Indian machine tools manufacturers in India. To bridge the technology gap, especially in the small and medium segment, a series of advanced machine tool design courses were organized at International Centre for Advancement of Manufacturing Technology (ICAMT), Bangalore. UNIDO had declared this initiative as a success story. The Bank has been supporting the machine tools sector to modernise and upgrade their production facilities, adaptation of technology and achievement of internationally acceptable standards through its various financing products and services. The Bank, under its export facilitation programme, has supported the initiative of IMTMA in setting up of the Bangalore International Exhibition Centre (BIEC).

Box 1: Scheme for Enhancement of Competitiveness of Capital Goods Sector.

In order to make the Indian capital goods sector globally competitive, the "Scheme for Enhancement of Competitiveness of the Capital Goods Sector" was approved by the Cabinet Committee on Economic Affairs in September 2014. The estimated outlay for the scheme is Rs. 930.96 crore. The scheme has five components to achieve the desired result in pilot mode:-

(i) Creation of "Advanced Centres of Excellence" for R & D and Technology Development with National Centres of Excellence in Education and Technology such as the Indian Institute of Technology, Delhi, the Indian Institute of Technology, Bombay, the Indian Institute of Technology, Madras, the Indian Institute of Technology, Kharagpur and the Central Manufacturing Technology Institute, Bangalore.

(ii) Establishment of "Integrated Industrial Infrastructure Facilities" popularly known as Machine Tool Parks with a basic objective of making the machine tool sector more competitive by providing an ecosystem for production. Establishment of Machine Tool Parks will cut down logistic cost substantially and would be a step forward in making the sector cost effective, having enhanced export capability and favourable for attracting more investment. The park would be established by a Special Purpose Vehicle formed by local industries, industry associations, financial institutions, Central / State Governments, R & D Institutions, etc.

(iii) Common Engineering Facility Centre for Textile Machinery is to be set up with active participation of the local industry and the industry association, which in turn would improve facilitation to the users along with visibility. The Common Engineering Facility that can be provided within such set ups are common foundry, common heat treatment, testing laboratories, design center, common prototyping, general and specific machinery, etc. The facility would enable textile machinery and other capital goods manufacturers to develop capital goods to meet the large requirements and improve capacity utilization, thereby reducing the variable cost of operation. This would also be established by a SPV formed by local industries, industry associations, financial institutions, Central/State Governments, R&D Institutions, etc.

(iv) Testing and Certification Centre for earth moving machineries in view of the fact that it is soon going to be made a mandatory requirement and at present there is no facility to test earthmoving machinery like that is existing in the automobile industry. By setting up of such test Centre, the import of second hand and outdated machinery could be restricted through mandatory testing and certification. In addition, the Centre would facilitate evaluating the performance, statutory and regulatory requirements of construction and mining machinery and equipment. The setting up of Test and Certification Centre for Earthmoving Machinery will be done by the SPV specifically created by the Department of Heavy Industry with the approval of the Cabinet. After approval of the Scheme, a separate proposal for formation of SPV for implementation of this particular scheme component will be sent to the Cabinet for approval.

(v) The creation of a Technology Acquisition Fund, under the Technology Acquisition Fund Programme (TAFP), in order to help the Capital Goods Industry to acquire and assimilate specific technologies, is for achieving global standards and competitiveness within a short period of time. The TAFP will provide financial assistance to Indian capital goods industry to facilitate acquisition of strategic and relevant technologies, and also development of technologies through contract route, in-house route or through joint route of contract and in-house. The Fund can extend partial support to industry to enhance their technology level, for achieving superior product quality / functionality, production capacity, safety and sustainability performance. This programme would bridge the technology gaps identified in the Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

STRATEGIES

Encourage private sector investment in technology and innovation

One of the major reasons cited for low volume of domestic capital goods production is low greenfield FDI inflows and limited focus on R&D by Indian companies. Indian investment in R&D is largely government driven. Indian firms need to be encouraged to invest in R&D which will make them technologically strong. Corporate sector investment in R&D is less than 1% of sales in India as compared to about 5% in several developed countries. India is ranked at 66th position in global innovation index[11], with countries like South Korea (18), Malaysia (32), China (35), South Africa (58) and Thailand (57) well above in global rankings. Proactive policies are required that incentivize industry efforts to invest in innovation and develop new products. This needs to be supported through financial and fiscal incentives.

Countries like Brazil have been providing special financing package for the capital goods sector through the state development bank, BNDES, which lends at significantly low rates (about 400 bps lower than benchmark Selic rate – equivalent to Indian Repo rate) for upto 10 years to buy domestically manufactured capital goods. Some countries, such as Canada, are providing dual tax credit allowances system that rewards both incremental expenses in R&D, as well as the level of spending in R&D. While India may like to consider such measures, additional tax credits for SME units engaged in R&D activities could also be considered. Such enabling provisions would help promote greenfield FDI inflows into this sector, facilitating technology transfer and capacity development in the domestic manufacturing.

Another solution is to have strategic takeovers to acquire critical technologies, in order to bridge the technology gap, as also capacity gap. An example is that of South Korea, where capital goods manufacturers have been particularly aggressive in adopting this approach. Some have obtained access to the triad of BTG (Boiler-Turbine-Generator) technologies entirely through strategic acquisitions, enabling them to enter the class of GE, Siemens and Alstom as companies capable of providing end to end solutions for fossil fuel based power plants. An example is that of Doosan Heavy Industries & Construction, a South Korean EPC contractor, which has signed an agreement to

[11]Global Innovation Report 2013

buy Czech power plant equipment maker, Skoda Power, under which Skoda Power will provide the rights to proprietary turbine technologies used in power plants. One of the benefits the acquisition brings is that Doosan will be able to build and supply turbines for EPC projects rather than purchasing from third-party suppliers. Another benefit is that Doosan will have a full BTG line-up, allowing it to pursue more profitable BTG package orders, a market segment open only to the top industry players.

Strengthening Technological Competencies

In order to enhance productivity, product quality and operating efficiency, the players in the sector need to constantly upgrade their technological competencies. The Department of Heavy Industry, Government of India, has proposed to undertake a comprehensive scheme for technology upgradation and R&D facilities, for modernization of capital goods industry. The proposed schemes could endeavour to help the players in the Indian capital goods industry in tracking global trends in product and process technologies, with specific objective of cost control, besides enhancing productivity, energy efficiency, eco-friendliness, product quality, operating flexibility and efficiency. The scheme could also help enhance the usage of information technology that provides convenience to the customers, and help enhance customer base and provide avenues for profitability. The R&D Centres could also be conceived as training platforms for skill upgradation of the shop-floor technicians in the capital goods industry.

Redefining Investment Cap for SMEs

An important reason for low technology orientation of Indian SMEs is low level of ceiling on capital investment, especially for medium enterprises. SMEs are major players in capital goods & engineering sector. More than 80% of the units are SMEs[12]. Although MSMEs play an important role in India's economic growth, be it in terms of their contribution to manufacturing value-added, exports or employment generation, not many units have ability to access technological expertise or mobilize resources for in-house innovation. Also, the cap on plant and machinery for the purpose of classifying the units as MSMEs does not encourage Indian MSMEs to move up the value chain. It may be mentioned that

[12]Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

within the manufacturing sector, micro enterprises are classified as those with investment in plant and machinery not exceeding Rs 25 lakh. While investments in plant and machinery for a small enterprise have been kept in the range between Rs 25 lakh and Rs 5 crore, a medium enterprise is defined with investment in plant and machinery in the range between Rs 5 crore and Rs 10 crore. With such low level of investment ceiling, MSMEs in capital goods sector are either expanding laterally or engaging themselves in low-tech/low-value products. Since the manufacturing operations in capital goods industry are capital intensive, investment ceiling for treatment of medium enterprises may be raised at least in the capital goods sector, benchmarking with such ceiling on investment in other countries. Some countries (such as EU and China) have positioned the ceiling on investment for medium enterprises at high level, encouraging capital intensiveness, technology upgradation, quality improvement, export orientation and employment generation. The Hon'ble Finance Minister in his maiden Union Budget (2014-15) has indicated revisiting the existing capital investment ceiling of MSMEs in India. While this is a positive step, the revision of ceiling on capital investment for medium enterprises in India may be increased at least to an extent of US$ 10 million to US$ 12 million, to encourage higher investments for technology absorption, quality upgradation, and export orientation.

Transformation in Objective and Approach

Sale of capital goods is not a one time business but requires technical support in transportation, erection, staff training (for operation and minor repairs), continuous service maintenance and periodical upgradation in technology. All over the world, the capital goods manufacturers are turning themselves as engineering services companies, offering turnkey solutions to retain the customers. Players in Indian capital goods industry could also reorient their approach to transform themselves into service based organizations. Such service orientation would help the industry in strengthening the competitive advantage.

Cluster Development Approach

Industrial clusters have been proven to have several advantages in promoting the growth of a particular sector or industry. It is recognized that enterprises can achieve high levels of competitiveness if they work in a cluster environment ensuring complementarities, common facilities, collective activities including collective sourcing and marketing. Since majority

Table 51: Definition of SMEs

Countries/Region	Ceiling on No. of employees (medium enterprises)	Ceiling on Turnover (medium enterprises) (US $ million)*	Ceiling on Investment (medium enterprises) (US $ million)*
India	-	-	1.67
Mexico	250	3.5	-
Brazil	250	-	-
Jamaica	50	1.37	-
Laos PDR	99	0.20	0.12
South Africa	200	4.82	1.80
Kenya	100	9.12	-
China	2000	48.66	64.88
Taiwan	200	-	2.62
Japan	300	-	2.91
Vietnam	300	-	0.47
Indonesia	100	-	-
Pakistan	250	2.53	0.25
South Korea	300	-	8
Malaysia	150	7.66	-
Philippines	200	-	2.23
Thailand	200	-	6.14
Singapore	200	-	11.91
Israel	100	-	-
Bangladesh	99	-	1.27
UAE	250	68.05	-
EU	250	68.76	59.13

Source: Exim Bank Research;

India: Ministry of MSME; Companion note for MSME Country Indicators, IFC and World Bank for the countries : China, Philippines, Vietnam, Singapore, Brazil, Lao PDR, Kenya; Japan: SME Agency, METI, Japan; Malaysia: SME Corp. Malaysia; Pakistan: Small and Medium Enterprises Development Authority; South Korea: Small and Medium Business Administration, South Korea; Taiwan: Small and Medium Enterprise Administration of the Ministry of Economic Affairs; Jamaica: Ministry of Industry, Investment and Commerce; Mexico: SMEs in Mexico, OECD; UAE: Mohammed Bin Rashid Establishment for SME development; Thailand: Ministry of Industry, Thailand; South Africa: Annual Review of Small Business in South Africa, Department of Trade and Industry; Bangladesh: National Manufacturing Policy 2010; EU: European Commission; OANDA

*Exchange rate as on 31st March, 2014

of the firms in the capital goods sector are SMEs, they would also benefit from working in a cluster. For instance, currently there are only a limited number of Common Facility Centres, which can offer heavy and high precision machining services to users on a chargeable basis and are equipped with advanced testing equipments. As a result, a lot of players have to invest independently in testing and machining facilities, raising overall manufacturing costs. Clusters can be useful in such situations by increasing supply chain responsiveness because of manufacturing consolidation near the suppliers.

A good example of how cluster development can strengthen an entire sector is the development of the Taiwanese CNC Machine Tool Industrial Park. Nanjing Taiwanese CNC Machine Tool Industrial Park was built in 2002 with a planning area of 5 square kilometers. Currently, there are 52 enterprises settled in the park, which gathers many Taiwan enterprises including Boyang Mold, Ligang Casting, Jiuqing Machinery, Nante Precise Machinery, Gaoqing Machinery, Rongdong Machinery, Yingyuan Science & Technology, and Techomiller Machinery to form a industrial chain of moulding, casting, machining, thermal treatment, milling and production of precise CNC machine. Among these enterprises, three of them are engaged in casting, ten in machining, three in milling, two in sheet metal, three in tool magazine, two in screw rod, two in thermal treatment and ten in production of whole machine. In 2007, it was listed as one of the 100 key industrial clusters in Jiangsu Province and was granted with the reputation of Famous Town of CNC Machine Tool of Nanjing in 2008. Similar approach could be adopted for development of machine tool clusters / industrial parks in India to develop the Indian machine tool industry.

Introducing New Product Lines

Over the years, players in the Indian capital goods industry have been diversifying the product lines offered with the objective of mitigating risks associated with business and cyclical trends. However, more focus needs to be given in building new generation machines that may be in demand in future. Such new generation machines should have greater flexibility to produce a variety of products and also create opportunities for offering engineering services that are less sensitive to business and cyclical fluctuations. This trend is already evident in developed markets which continue to be at the forefront of innovation and new technology. Greater automation is driving the development of the next generation of industrial machinery. While such

technical innovation is absorbed first by the developed world, it is adopted later by the developing world as well. In order to become a global force, Indian capital goods sector needs to understand these changes and also evolve to serve user industries with the next generation products. For instance, a sector where technical innovation and automation is becoming ever more important in mature markets is mining equipment. Next generation mining is transforming operations that were once manual and local into those that are automated, remotely operated and integrated. Increasingly, a steep change in productivity is being delivered through integration of equipment with information technology. The usage of autonomous haulage or unmanned vehicles for earth moving is a step in that direction. These earth movers are equipped with GPS, CCTV cameras, inertial guidance systems and leverage dispatch route planning and guidance software for functioning. Several global mining players are already migrating towards such advanced means of autonomous haulage.

Leverage Domestic Demand for Localization and Technology Transfer

India represents one of the fastest growing markets in the world. Local demand provides a unique opportunity for capital goods manufacturers to scale up. This fact needs to form the basis for developing a long term growth strategy for Indian capital goods sector. The government needs to ensure an environment that promotes investments in local manufacturing and enables the domestic players to compete on a level playing field. Examples of countries such as China and South Korea, where this has been the basis for creating global giants, could be suitably adapted in the Indian context.

China has been extremely successful in building a world class manufacturing sector. Chinese value addition in manufacturing has shown a dramatic rise in the last decade, and is now approaching that of USA. Acquisition of technology and building self sufficiency in capital goods has played a major role in this rise. This has been accomplished through proactive policies, prominent amongst them being a strong procurement policy favouring goods produced within the country. China's public procurement policies clearly lay down a preference for domestic goods with extensive controls over purchase of imported products (requiring several approvals and special procedures). The Chinese government's procurement law spells out that the government shall procure goods, construction and services goods from outside only in the event that

"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" or "where the items to be procured are for use abroad". There is also a clearly stated preference for domestic innovation. Such policies have led to localisation of several capital goods products. Foreign players eager to capture the Chinese market setup production facilities in China to locally manufacture the goods. At the same time manufacturers were also encouraged to think of ways in which they can acquire technology. India should also learn from such experiences and wherever feasible, public procurement should have preference for local manufacturers.

Promotion of Intelligent Manufacturing

Significant engineering skills, with the combination of hardware, software and system integration skills are required in the evolution stage of advanced technology products. This niche area is called intelligent manufacturing. These are usually high tech products which provide high value addition but low volumes in highly quality conscious capital goods sector. India has a competitive advantage in this sector where a large proportion of value addition is through software and system integration. According to a Strategy Paper on 'Doubling Exports in Next Three Years (2011-12 to 2013-14)', prepared by the Ministry of Commerce, Government of India, establishing joint ventures with Chinese companies, which have manufacturing strengths and substantial market share in third world countries, would help in increasing high tech exports in the short term to developing countries in Africa and the Middle East.

Promoting Investments in Hi-tech Capital Goods Sector

Government could identify hi-tech zones in consultation with state governments where investment, may be encouraged through fiscal and financial instruments. Analysis of hi-tech zones like Chengdu (China) and Colorado (USA) reveals that these regions, despite being land-locked (away from ports by about 800 kms) have increased their exports, provided additional employment and generated higher tax revenues than neighbouring regions that have not adopted hi-tech manufacturing strategy. Hi-tech manufacturing is region-neutral and does not require large land area. Suitable geographies may be identified in various states to develop hi-tech

zones. A conscious attempt is required to be made to attract foreign and domestic investment in these sectors by offering special incentives as is being offered by other countries.

Special incentives could include fiscal measures for setting up of manufacturing facilities, R&D Centres, world class logistics and infrastructure and easy to do business facilities, etc. There would be no adverse fiscal impact on the government, if provided with tax holidays, as it will be just a notional loss; however, the investments could potentially benefit in long term if the units are profitable through job creation, additional investments and eventually more revenues (through both direct and indirect taxes). There would also be spin-off benefits, viz. creation of ancillary segments supplying to the large hi-tech goods producing units.

Skill Development

Skilled manpower is required in two different categories. The first relate to provision of skilled people to the immediate requirements of the economy such as ITI trained persons, skilled persons at polytechnic and graduates, while certain industries like chemicals, pharmaceuticals etc., need highly skilled persons like PhD holders. In terms of enrolment for PhD, the number in India is 5,000, which is very small compared to 1,20,000 scholars in China and 50,000 scholars for PhDs in USA. Only 375 PhDs were awarded in India, of which engineering disciplines contributed to about 100[13]. There is need to improve the turnout of PhDs, for which a long term plan needs to be drawn up. The second category of skill development is for the long term growth and strength of the knowledge economy. These are science & technology skills of a high order which can be developed only in the longer run. They include basic research and directed applied research. There is need to give high priority to this area of skill development not only from the point of view of strengthening competitiveness and economic growth, but also from the point of addressing the requirement of long-term national security.

Corpus Fund for Expansion/ Upgradation/Modernization of Existing Units and Funds for Technology Transfer

It is observed that the SMEs are major players in the capital goods

[13]Recommendations for 12th Five Year Plan for Capital Goods & Engineering Sector

Box: 2

Recommendations of 12th Five Year Plan for Capital Goods & Engineering Sector on Skill Development.

Skill development should be promoted with the help of the private sector on a Public-Private Partnership mode. For this, it is necessary that:

- Programmes for skill development being implemented by 18 departments of the Government of India in the public sector be continued; however, the curriculum needs to be harmonized on the lines of Modular Employable Skill Scheme of DGET.
- National Skill Development Corporation in PPP mode with seed capital from Government and funds for the programme from the private sector should be set up at the earliest. The programmes should be run substantially for the private sector requirements.
- There is need for coordination amongst various Ministries involved in skill development programmes. Linkages with Ministry of Labour may be provided wherever feasible and adopt existing modules from Modular Employable Skills or National Vocational Certificate Training programmes. The modular employable skills have to be expanded for large number of trades in manufacturing. The instructional media has to be freely made available by National Instructional Media Institute. Modular Employable Skill Scheme can also achieve this provided the skill list is expanded to include all relevant trades and for all levels of literacy. Enough training providers are also required and for this, delivery mechanism also needs to be improved.
- The detailed skilled gap studies are required to be studied for setting up of skill development initiatives in the capital goods sub-sectors. The skill gaps should be periodically updated and made a part of institutional mechanism. Association of local industry in such skill gap studies should be ensured. Action plan for filling the gap can be drawn.
- Special emphasis may be given for development of appropriate curriculum and accreditation system in these sub-sectors.
- Greater thrust should be given to soft skills including spoken English computer usage, etc. which increases the employability.
- Since the current training infrastructure of ITIs and ITCs are inadequate, it is recommended that the industrial houses should be allowed to conduct evening courses in the existing facilities of ITIs and ITCs. Industrial houses may also be encouraged to setup their own institutions under PPP mode. The NSDC should provide necessary financial support for setting up such training institutes.

Source: Report of the Working Group of 12th Five Year Plan for Capital Goods & Engineering Sector.

sector; more than 80% of the units are SMEs. Most of these SMEs have old and outdated technology (old generation lathes, drills, cutters etc.). Such SMEs have no capacity to invest in modernization/upgradation of the existing level of technology of the capital goods installed in their factory. According to the Recommendations of the Working Group of 12th Five Year Plan for Capital Goods and Engineering Sector, the Government should provide revolving funds at lower interest rate to SMEs to modernize and upgrade their existing plant facilities through purchase of advanced machineries, expansion, investment for technology development and acquisition of units abroad.

Table 52: Recommendations of the Working Group of 12th Five Year Plan for Capital Goods & Engineering Sector

Sub-sector	Action steps
Machine Tools	A Revolving Corpus Fund of Rs. 2000 Cr. with low interest rate to act as seed capital may be introduced to attract investment in fresh capacity and substantial expansion of existing units.
Plastic Processing Machinery	Corpus fund of Rs 1000 Cr for technology upgradation.
Earth moving & mining equipment	Fund for interest subsidy for soft financing scheme: 6% interest subsidy on an expected capex of Rs.4000 Cr over 5 years. The estimated budget requirement is Rs. 240 Crore.
Metallurgical Machinery	Soft loan for setting up of new units/expansion of existing units with an estimated budget of Rs 500 Crore.
Textile Machinery	Total investment for Capex is projected to be Rs 2500 Cr. 5% interest subvention would amount to Rs 125 Cr only for a period of 5 years. The upfront margin money subsidy of 10% would amount to Rs 250 Cr. Hence, the total requirement of fund under the modernization/ technology upgradation of the textile machinery manufacturing units is Rs.325 Cr.
Process plant machinery	Technology transfer support – Rs.100 crore.
Engineering Goods	Corpus fund of Rs. 150 Crore for credit at low cost for investment and interest subventions.
Dies, Moulds and Tools	Provision of funds at low rate of interest for capacity addition to meet growing demand.

Source: Department of Heavy Industry, Ministry of Heavy Industries & Public Enterprises

CONCLUSION

The capital goods sector derives majority of its demand from the manufacturing sector. The sector performed only modestly over the last few years with virtually all the major segments of the sector exhibiting trade deficit, which has only deteriorated oflate. Further, the share of the manufacturing sector in India's GDP is still low when compared to other peer group countries. However, given the Government of India's focus and vision to increase the share of the manufacturing sector to 25% of GDP, there remains a significant upside going forward. This is further buttressed by the increased focus on infrastructure during the 12th Five Year Plan which has targeted an investment of US$ 1 trillion in infrastructure.

On the whole, the outlook for the capital goods industry in India remains bright, particularly over the medium and long-term. Production of capital goods and engineering goods sector is projected to cross Rs. 681,000 crore by 2016-17 from the level of Rs 312,557 crore in 2011-12, with adequate Government support (Table 53).

It is felt that select strategies, covering steps such as encouragement of private sector in R&D and innovation, strategic takeovers, cluster development approach, redefining investment caps for SMEs and focussed investment in hi-tech capital goods sector, will go a long way in boosting the performance of capital goods sector and help it achieve the projected growth.

Table 53: Projected Production of Select Categories of Capital and Engineering goods in India (Rs. Cr)

	2011-12	2012-13*	2013-14*	2014-15*	2015-16*	2016-17*	CAGR (%)
Machine Tool	4530	5663	7078	8848	11060	13824	25
Plastic machinery	4650	5600	6850	8400	10300	12700	22
Earthmoving & Mining Machinery	10000	16826	22356	26633	30528	34924	28.4
Heavy Electrical	126312	145421	167521	193097	222719	257050	15.3
Metallurgical Machinery	1300	1600	2100	2800	3800	5800	34.9
Textile Machinery	7072	8000	9400	11000	13000	14300	15.1
Process Plant Equipment	19861	22244	24913	27902	31250	35000	12.0
Engineering Goods	124558	145551	170451	200059	235358	277526	17.4
Dies, mould & Press tools	14274	16686	19016	22235	25493	29878	15.9
Total	**312557**	**367591**	**429685**	**500974**	**583508**	**681002**	**16.9**

Note: * Projected
Source: Report of the Working Group on Capital Goods & Engineering Sector for the 12th Five Year Plan (2012-2017)

ANNEXURE: 1

Major Exporters and Importers of Capital Goods (US$ mn)

Rank	Exporters	2008	2012	CAGR	% share	Rank	Importers	2008	2012	CAGR	% share
Capital goods											
	World	**2458228**	**2620864**	**1.6**	**100.0**		**World**	**2400583**	**2555243**	**1.6**	**100.0**
1	China	359288	490424	8.1	18.7	1	USA	325954	395156	4.9	15.5
2	Germany	331508	311282	-1.6	11.9	2	China	194745	247717	6.2	9.7
3	USA	254288	265598	1.1	10.1	3	Germany	182878	178029	-0.7	7.0
4	Japan	195104	206194	1.4	7.9	4	Hong Kong	78376	104734	7.5	4.1
5	Italy	132665	115433	-3.4	4.4	5	UK	95800	92202	-1.0	3.6
28	**India**	**11758**	**15001**	**6.3**	**0.6**	**17**	**India**	**33531**	**44968**	**7.6**	**1.8**
Machine Tool											
	World	**78136**	**78539**	**0.1**	**100.0**		**World**	**76895**	**78537**	**0.5**	**100.0**
1	Japan	11411	14459	6.1	18.4	1	China	8314	14222	14.4	18.1
2	Germany	15660	13730	-3.2	17.5	2	USA	10147	11018	2.1	14.0
3	China	7929	10779	8.0	13.7	3	Germany	6049	4881	-5.2	6.2
4	Italy	7741	6343	-4.9	8.1	4	Russia	3097	3689	4.5	4.7
5	Taiwan	4742	5250	2.6	6.7	5	Thailand	1419	3381	24.2	4.3
28	**India**	**204**	**235**	**3.6**	**0.3**	**6**	**India**	**2197**	**2587**	**4.2**	**3.3**
Construction & Mining Machinery											
	World	**267491**	**257132**	**-1.0**	**100.0**		**World**	**244548**	**235933**	**-0.9**	**100.0**
1	USA	39308	39671	0.2	15.4	1	USA	23336	27639	4.3	11.7
2	Germany	36445	31174	-3.8	12.1	2	Russia	13174	13853	1.3	5.9
3	China	23261	30425	6.9	11.8	3	Canada	10685	13766	6.5	5.8
4	Japan	22493	19942	-3.0	7.8	4	Germany	13134	11805	-2.6	5.0
5	Italy	17637	13357	-6.7	5.2	5	Australia	6582	11510	15.0	4.9
26	**India**	**900**	**1546**	**14.5**	**0.6**	**15**	**India**	**4647**	**4219**	**-2.4**	**1.8**

Textile Machinery											
	World	**39512**	**39548**	**0.0**	**100.0**		**World**	**38147**	**38341**	**0.1**	**100.0**
1	China	5030	7822	11.7	19.8	1	China	4210	4621	2.4	12.1
2	Germany	7426	5824	-5.9	14.7	2	USA	3688	3991	2.0	10.4
3	Italy	4939	3836	-6.1	9.7	3	Germany	2305	2130	-2.0	5.6
4	South Korea	2368	2955	5.7	7.5	4	Turkey	1176	2073	15.2	5.4
5	Japan	2883	2930	0.4	7.4	5	India	1913	2069	2.0	5.4
20	**India**	**197**	**336**	**14.3**	**0.8**						
Process Plant and equipment											
	World	**1566677**	**1656310**	**1.4**	**100.0**		**World**	**1535884**	**1630409**	**1.5**	**100.0**
1	China	248807	331678	7.5	20.0	1	USA	223992	274791	5.2	16.9
2	Germany	202671	189416	-1.7	11.4	2	China	117194	150119	6.4	9.2
3	USA	167244	169157	0.3	10.2	3	Germany	122573	116570	-1.2	7.1
4	Japan	114817	120168	1.1	7.3	4	Hong Kong	47260	67625	9.4	4.1
5	Italy	82775	74625	-2.6	4.5	5	UK	69295	66279	-1.1	4.1
27	**India**	**6668**	**8802**	**7.2**	**0.5**	**16**	**India**	**19036**	**27768**	**9.9**	**1.7**
Electrical equipment											
	World	**506412**	**589335**	**3.9**	**100.0**		**World**	**505109**	**572023**	**3.2**	**100.0**
1	China	74261	109720	10.3	18.6	1	USA	64791	77717	4.7	13.6
2	Germany	69306	71138	0.7	12.1	2	China	55399	67926	5.2	11.9
3	USA	41411	50400	5.0	8.6	3	Germany	38817	42643	2.4	7.5
4	Japan	43500	48695	2.9	8.3	4	Hong Kong	27807	34245	5.3	6.0
5	Hong Kong	29311	35386	4.8	6.0	5	Mexico	18666	23478	5.9	4.1
28	**India**	**3789**	**4082**	**1.9**	**0.7**	**18**	**India**	**5738**	**8325**	**9.8**	**1.5**

Source: PCTAS, Exim Bank Analysis

ANNEXURE: 2

India's Major Export Destinations and Import Sources of Capital Goods (US$ mn)

Rank	Export Destinations	2008	2012	CAGR	% share	Rank	Import Sources	2008	2012	CAGR	% share
Capital goods											
	World	**11758**	**15001**	**6.3**	**100%**		**World**	**33531**	**44968**	**7.6**	**100%**
1	USA	1806	2319	6.5	15%	1	China	7491	13308	15.4	30%
2	UAE	690	1031	10.6	7%	2	Germany	5092	5538	2.1	12%
3	Germany	625	779	5.7	5%	3	Japan	3092	4329	8.8	10%
4	UK	590	682	3.7	5%	4	USA	2899	3666	6.0	8%
5	China	239	490	19.7	3%	5	South Korea	1602	2522	12.0	6%
Machine Tool											
	World	**204**	**235**	**3.6**	**100%**		**World**	**2197**	**2587**	**4.2**	**100%**
1	Belgium	19	19	0.0	8%	1	Japan	601	615	0.6	24%
2	China	0	18	-	8%	2	China	197	414	20.4	16%
3	USA	49	16	-24.4	7%	3	Germany	362	341	-1.5	13%
4	Germany	8	14	15.0	6%	4	South Korea	116	270	23.5	10%
5	UAE	5	11	21.8	5%	5	Italy	205	194	-1.4	7%
Construction & Mining Machinery											
	World	**900**	**1546**	**14.5**	**100%**		**World**	**4647**	**4219**	**-2.4**	**100%**
1	UAE	93	187	19.1	12%	1	China	807	1161	9.5	28%
2	USA	67	131	18.2	8%	2	Germany	545	521	-1.1	12%
3	Singapore	174	112	-10.4	7%	3	USA	652	498	-6.5	12%
4	UK	61	100	13.2	6%	4	South Korea	211	324	11.3	8%
5	Indonesia	19	50	27.4	3%	5	Japan	449	283	-10.9	7%
Textile Machinery											
	World	**197**	**336**	**14.3**	**100%**		**World**	**1913**	**2069**	**2.0**	**100%**
1	Bangladesh	19	41	21.2	12%	1	China	480	743	11.5	36%
2	Germany	31	41	7.2	12%	2	Germany	427	349	-4.9	17%
3	Indonesia	12	24	18.9	7%	3	Japan	211	242	3.5	12%
4	China	2	20	77.8	6%	4	Italy	199	188	-1.4	9%
5	Turkey	1	19	108.8	6%	5	Switzer-land	230	110	-16.8	5%

Process Plant and equipment											
	World	**6668**	**8802**	**7.2**	**100%**		**World**	**19036**	**27768**	**9.9**	**100%**
1	USA	971	1435	10.3	16%	1	China	4382	8304	17.3	30%
2	UAE	416	569	8.1	6%	2	Germany	2753	3244	4.2	12%
3	Germany	415	464	2.8	5%	3	Japan	1522	2445	12.6	9%
4	UK	382	404	1.4	5%	4	USA	1671	2389	9.3	9%
5	China	156	313	19.0	4%	5	South Korea	920	1433	11.7	5%
Electrical equipment											
	World	**3789**	**4082**	**1.9**	**100%**		**World**	**5738**	**8325**	**9.8**	**100%**
1	USA	713	731	0.6	18%	1	China	1625	2686	13.4	32%
2	UAE	172	258	10.7	6%	2	Germany	1005	1083	1.9	13%
3	Germany	160	249	11.7	6%	3	Japan	309	744	24.6	9%
4	UK	145	170	4.1	4%	4	USA	411	610	10.4	7%
5	Saudi Arabia	73	122	13.7	3%	5	South Korea	317	444	8.8	5%

Source: PCTAS, Exim Bank Analysis

ANNEXURE: 3

Major Contributors to Trade Deficit in Capital Goods Industry : Sectorwise (US$ million)

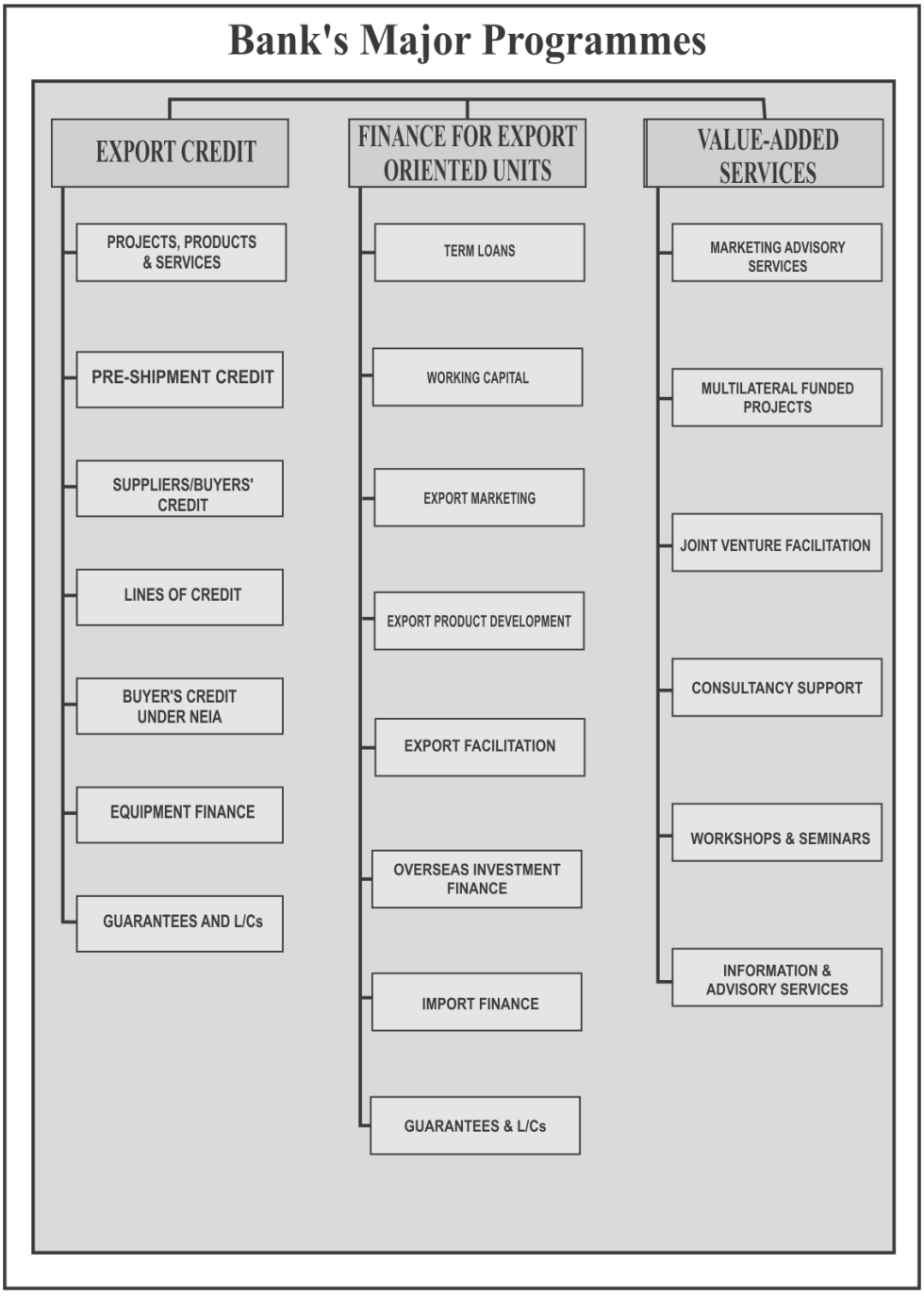
HS Code	Product Description	2008			2012			Trade Balance CAGR
		Exp	Imp	Trade balance	Exp	Imp	Trade balance	
Machine Tools								
845710	Machining centres, for working metal	21	539	-518	15	352	-337	-10.2
846299	Presses nes for working metal	15	370	-355	13	288	-275	-6.2
846229	Bending, folding, straightening or flattening machines (including presses)	3	191	-188	6	150	-144	-6.4
846210	Forging or die-stamping machinery (inc presses) & hammers for working metal	8	260	-252	6	134	-128	-15.6
846029	Grinding machinery in which positioning of 1 axis can be set up to an accuracy of atleast 0.01mm	6	149	-143	4	106	-102	-8.1
Textile Machinery								
844630	Machines for weaving fabrics of a width exceeding 30 cm shuttleless type	1	378	-377	1	297	-296	-5.9
844540	Textile winding (including weft-winding) or reeling machines	7	342	-335	4	186	-182	-14.1
844520	Textile spinning machines	13	343	-330	55	187	-132	-20.5
844790	Machines for making gimped yarn/tulle/ lace/embroidery/trimming/braid/net/tufting	1	514	-513	4	123	-119	-30.6
844400	Machines for extruding, drawing, text or cutting m-m textile materials	2	97	-95	4	119	-115	4.9
Construction and mining machinery								
843149	Parts of cranes, work-trucks, shovels, and other construction machinery	264	889	-625	267	593	-326	-15.0
842619	Transporter or bridge cranes	9	492	-483	42	199	-157	-24.5
847480	Machines of agglomerating mineral fuels, machinery of foundry moulds of sand etc nes	35	176	-141	14	147	-133	-1.4
842649	Derricks, cranes or work trucks fitted with a crane, self-propelled nes	3	287	-284	2	104	-102	-22.6
842810	Lifts and skip hoists	6	152	-146	7	108	-101	-8.8

Process plant, office equipment and parts								
847130	Portable digital computers <10kg	31	1641	-1610	33	2023	-1990	5.4
847330	Parts & accessories of automatic data processing machines & units thereof	246	2482	-2236	164	1599	-1435	-10.5
840820	Engines, diesel, for the vehicles of Chapter 87	50	670	-620	72	1068	-996	12.6
847170	Computer data storage units	243	1549	-1306	71	1028	-957	-7.5
847989	Machines & mechanical appliances nes having individual functions	283	1367	-1084	203	975	-772	-8.1
Electrical Machinery and equipments								
854389	Electrical machines and apparatus nes	3	130	-127	33	404	-371	30.7
850440	Static converters, nes	876	998	-122	391	715	-324	27.7
850300	Parts of electric motors, generators, generating sets & rotary converters	325	951	-626	279	553	-274	-18.7
853890	Parts for use with the apparatus of heading no. 85.35,85.36 or 85.37,nes	463	1002	-539	309	564	-255	-17.1
850780	Electric accumulators, nes	15	312	-297	10	245	-235	-5.7

Source: PCTAS, Exim Bank Analysis

RECENT OCCASIONAL PAPERS	
OP. No.	**Title**
103.	Export Potential of Indian Plantation Sector: Prospects and Challenges
104.	Fresh Fruits, Vegetables and Dairy Products: India's Potential For Exports to Other Asian Countries
105.	Biotechnology: Emerging Opportunities for India
106.	ASEAN Countries: A Study of India's Trade and Investment Potential
107.	Essays on Globalisation and Wages in Developing Countries
108.	Select West African Countries: A Study of India's Trade and Investment Potential
109.	Indian Leather Industry: Perspective and Export Potential
110.	GCC Countries: A Study of India's Trade and Export Potential
111.	Indian Petroleum Products Industry : Opportunities and Challenges
112.	Floriculture : A Sector Study
113.	Japanese & U.S. Foreign Direct Investments in Indian Manufacturing : An Analysis
114.	Maghreb Region: A Study of India's Trade and Investment Potential
115.	Strengthening R & D Capabilities in India
116.	CIS Region: A Study of India's Trade and Investment Potential
117.	Indian Chemical Industry: A Sector Study
118.	Trade and Environment: A Theoretical and Empirical Analysis
119.	Indian Pharmaceutical Industry : Surging Globally
120.	Regional Trade Agreements: Gateway to Global Trade
121.	Knowledge Process Outsourcing: Emerging Opportunities for India
122.	Indian Mineral Sector and its Export Potential
123.	SAARC: An Emerging Trade Bloc
124.	Indian Capital Goods Industry - A Sector Study
125.	Financial Liberalization and Its Distributional Consequences
126.	ECOWAS: A Study of India's Trade and Investment Potential
127.	Indian Textile and Clothing Industry in Global Context: Salient Features and Issues
128.	Fair Trade : Fair Way of Enhancing Export Value
129.	Indian Automotive Industry: At The Crossroads
130.	CARICOM : A Gateway to the America
131.	IBSA : Enhancing Economic Cooperation Across Continents
132.	MSMEs and Globalisation: Analysis of Institutional Support System in India and In Select Countries
133.	International Trade, Finance and Money: Essays in Uneven Development
134.	Sikkim: Export Potential and Prospects
135.	Mizoram: Export Potential and Prospects
136.	Floriculture: A Sector Study
137.	Biotechnology Industry in India: Opportunities for Growth
138.	Indian Gems and Jewellery: A Sector Study

139.	SADC: A Study of India's Trade and Investment Potential
140.	Innovation, Imitation and North South Trade: Economic Theory and Policy
141.	COMESA (Common Market for Eastern and Southern Africa): A Study of India's Trade and Investment Potential
142.	Indian Shipping Industry: A Catalyst for Growth
143.	New Renewable Energy in India: Harnessing the Potential
144.	Caribbean Community (CARICOM): A Study of India's Trade and Investment Potential
145.	West African Region: A Study of India's Trade and Investment Potential
146.	India's Trade and Investment Relations with LDCs (Least Developed Countries): Harnessing Synergies
147.	Indian Electronic Industry : Perspectives and Strategies
148.	Export Potential of Indian Plantation Sector: Prospects and Challenges
149	MERCOSUR : A Study of India's Trade and Investment Potential
150.	Openness and Growth of the Indian Economy: An Empirical Analysis
151.	The Commonwealth: Promoting a Shared Vision on Trade and Investment
152.	Southern African Development Community (SADC): A Study of India's Trade and Investment Potential
153.	Strategic Development of MSMEs: Comparison of Policy Framework and Institutional Support Systems in India and Select Countries
154.	Indian Chemical Industry : Exploring Global Demand
155.	Technological Interventions In Indian Agriculture for Enhancement of Crop Productivity
156.	Exports of Services and Offshore Outsourcing: An Empirical Investigation in the Indian Context
157.	Indian Ocean Rim Association for Regional Co-operation (IOR-ARC): A Study of India's Trade and Investment Potential
158.	West Africa: A Study of India's Trade and Investment Potential
159.	The Effects of Financial Openness: An Assessment of the Indian Experience
160.	Comparison of Labour Laws: Select Countries
161.	India's Trade and Investment Relations with Cambodia, Lao PDR, Myanmar, Vietnam (CLMV): Enhancing Economic Cooperation
162.	Indian Horticulture-Imperatives to Enhance Trade from India
163.	India's Trade and Investment Relations with Gulf Cooperation Council (GCC): Strengthening Economic Ties
164.	India's Hi-Tech Exports: Potential Markets and Key Policy Interventions
165.	Outward Direct Investment from India: Trends, Objectives and Policy Perspectives
166.	East African Community (EAC): A Study of India's Trade and Investment Potential
167	Trade Liberalization, Product Variety and Growth
168	Research & Development in BRICS: An Insight


Bank's Major Programmes
EXPORT CREDIT
PROJECTS, PRODUCTS & SERVICES
PRE-SHIPMENT CREDIT
SUPPLIERS/BUYERS' CREDIT
LINES OF CREDIT
BUYER'S CREDIT UNDER NEIA
EQUIPMENT FINANCE
GUARANTEES AND L/Cs
FINANCE FOR EXPORT ORIENTED UNITS
TERM LOANS
WORKING CAPITAL
EXPORT MARKETING
EXPORT PRODUCT DEVELOPMENT
EXPORT FACILITATION
OVERSEAS INVESTMENT FINANCE
IMPORT FINANCE
GUARANTEES & L/Cs
VALUE-ADDED SERVICES
MARKETING ADVISORY SERVICES
MULTILATERAL FUNDED PROJECTS
JOINT VENTURE FACILITATION
CONSULTANCY SUPPORT
WORKSHOPS & SEMINARS
INFORMATION & ADVISORY SERVICES

EXPORT-IMPORT BANK OF INDIA

HEAD OFFICE

Centre One Building, Floor 21, World Trade Centre Complex, Cuffe Parade, Mumbai 400 005.
Phone : (91 22) 22172600 Fax : (91 22) 22182572 E-mail : pf@eximbankindia.in
Website : www.eximbankindia.in

LONDON BRANCH

5th Floor, 35, King Street, London - EC2V8BB, United Kingdom,
Phone : (44) 20 77969040 Fax : (44) 20 76000936 E-mail: eximlondon@eximbankindia.in

INDIAN OFFICES

Ahmedabad
Sakar II, Floor 1 ,
Next to Ellisbridge Shopping Centre, Ellisbridge P. O.,
Ahmedabad 380 006.
Phone : (91 79) 26576852/26576843
Fax : (91 79) 26577696
E-mail : eximahro@eximbankindia.in

Bangalore
Ramanashree Arcade, Floor 4,
18, M. G. Road, Bangalore 560 001.
Phone : (91 80) 25585755/25589101-04
Fax : (91 80) 25589107
E-mail : eximbro@eximbankindia.in

Chandigarh
PHD House, Floor 1, Sector 31-A, Dakshin Marg,
Chandigarh 160 031
Phone : (91 172) 2641910/12/39/49
Fax : (91 172) 2641915
E-mail : eximcro@eximbankindia.in

Chennai
Overseas Towers, Floors 4 & 5, No. 756-L,
Anna Salai (Opp. TVS), Chennai - 600 002.
Phone : (91 44) 28522830, 28522831
Fax : (91 44) 28522832
E-mail : eximchro@eximbankindia.in

Guwahati
NEDFI House, Floor 4, G. S. Road,
Dispur, Guwahati-781006
Phone : (91 361) 2237607, 2237609
Fax : (91 361) 2237701
E-mail : eximgro@eximbankindia.in

Hyderabad
Golden Edifice, Floor 2, 6-3-639/640, Raj Bhavan Road,
Khairatabad Circle, Hyderabad 500 004.
Phone : (91 40) 23307816-21 Fax : (91 40) 23317843
E-mail : eximhro@eximbankindia.in

Kolkata
Vanijya Bhawan, Floor 4, (International Trade
Facilitation Centre), 1/1 Wood Street, Kolkata 700 016.
Phone : (91 33) 22833419/22833420
Fax : (91 33) 22891727
E-mail : eximkro@eximbankindia.in

New Delhi
Statesman House, Ground Floor,
148, Barakhamba Road, New Delhi 110 001.
Phone : (91 11) 23474800
Fax : (91 11) 23322758/23321719
E-mail : eximndro@eximbankindia.in

Pune
44, Shankarseth Road, Pune 411 037.
Phone : (91 20) 26403000
Fax : (91 20) 26458846
E-mail : eximpro@eximbankindia.in

OVERSEAS OFFICES

Addis Ababa
Bole Kifle Ketema, Kebele - 19, (03/05)
House No. 015-B,
Addis Ababa, Ethiopia
Phone : (251 116) 630079
Fax : (251 116) 610170
Email : aaro@eximbankindia.in

Dubai
Level 5, Tenancy 1B,
Gate Precinct Building No. 3,
Dubai International Financial Centre,
PO Box No. 506541, Dubai, UAE.
Phone : (971 4) 3637462
Fax : (971 4) 3637461
E-mail : eximdubai@eximbankindia.in

Johannesburg
Floor 2, Sandton City Twin Towers East,
Sandhurst Ext. 3, Sandton 2196,
Johannesburg,
South Africa.
Phone : (27 11) 3265103/13
Fax : (27 11) 7844511
E-mail : eximjro@eximbankindia.in

Singapore
20, Collyer Quay,
10-02, Singapore 049319.
Phone : (65) 65326464
Fax : (65) 65352131
E-mail : eximsingapore@eximbankindia.in

Washington D.C.
1750 Pennsylvania Avenue NW,
Suite 1202, Washington D.C. 20006,
United States of America.
Phone : (1 202) 223 3238
Fax : (1 202) 785 8487
E-mail : eximwashington@eximbankindia.in

Yangon
House No. 54/A, Ground Floor,
Boyarnyunt Street,
Dagon Township,
Yangon, Myanmar.
Phone : (95) 1389520
Mob. : (95) 931281726
Email : eximyangon@eximbankindia.in