TECHNICAL STANDARDS | EXPORT POTENTIAL | UPGRADING TECHNOLOGY

IndianEngineeringExports

Rs150

ie² | Magazine of EEPC INDIA (formerly Engineering Export Promotion Council) www.eepcindia.org

VOL. 8, ISSUE NO. 4, JULY 2015

60 1955 2015

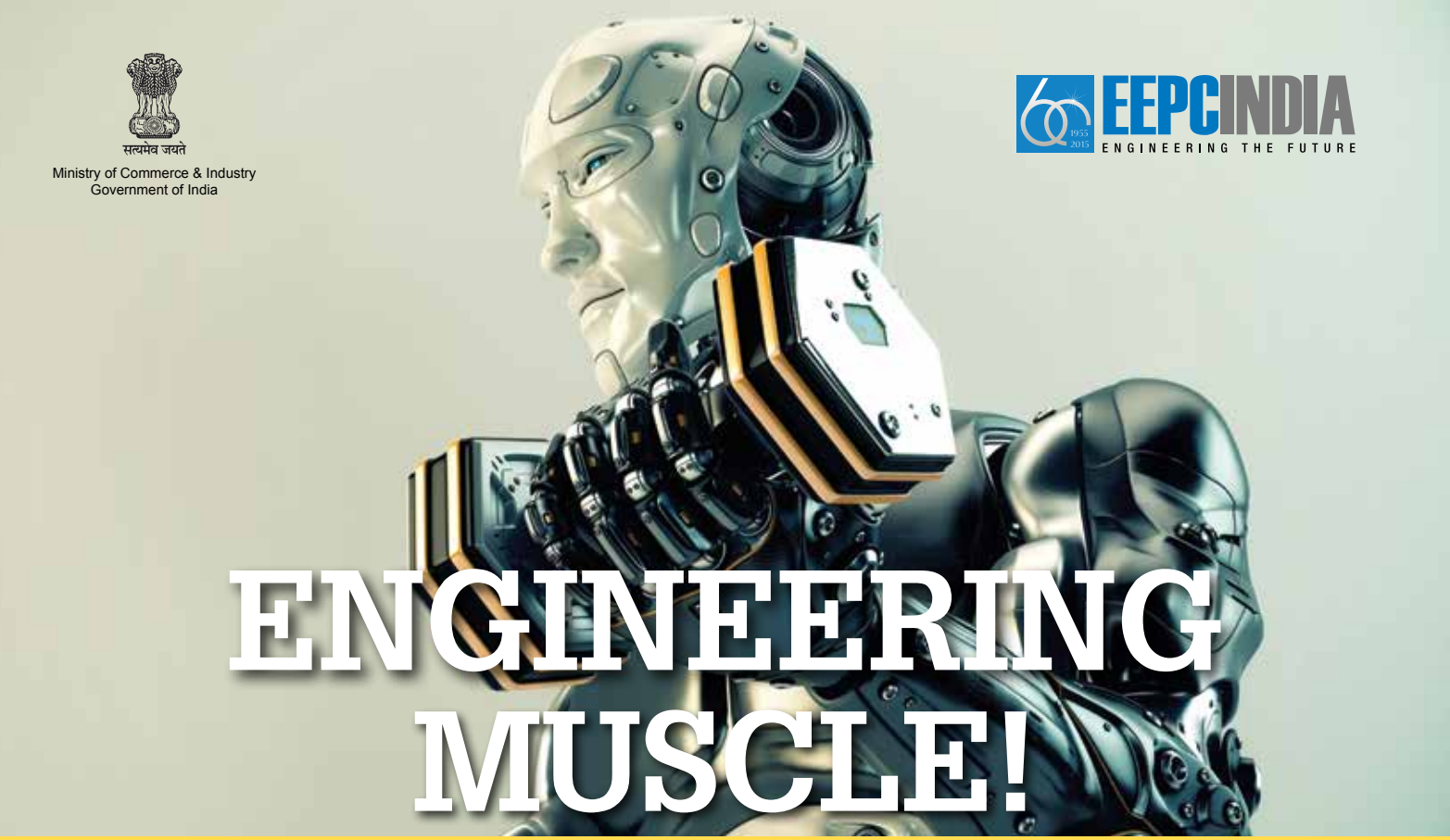
EEPCINDIA
ENGINEERING THE FUTURE

PERU DRIVES TO INDIA'S BILLION-DOLLAR CLUB

Trade figures soar with motor vehicles and gold shipments

सत्यमेव जयते
Ministry of Commerce & Industry
Government of India

EEPCINDIA
ENGINEERING THE FUTURE



ENGINEERING MUSCLE!

iess '15 India Engineering Sourcing Show 2015

Bombay Exhibition Centre, Mumbai
24 - 26 November 2015

Participate in India's truly global engineering sourcing show and take your business to the next level.

01 400 exhibitors

02 500 overseas buyers

03 10,000 trade buyers from India & overseas

PRODUCT CATEGORIES

- Industrial supply
- Automotive components
- Industrial & Electrical Machinery
- Investment & Engineering Project Exports
- Metal & Shop Floor
- Innovation & Technology

VISIT www.iesshow.in

FOR MORE DETAILS, CALL OR EMAIL US

Chennai: 91-44-28295501/5502 • eepcrochen@eepcindia.net
Mumbai: 91-22-42125555/00/01 • eepcromum@eepcindia.net
Kolkata: 91-33-22890673/74 • eepcrokol@eepcindia.net
New Delhi: 91-11-23314171/74 • eepcrodel@eepcindia.net

www.eepcindia.org
IndianEngineeringExports
ie² | Magazine of the Engineering Export Promotion Council
VOL. 8, ISSUE NO. 4, JULY 2015

EDITOR
Bhaskar Sarkar
Executive Director & Secretary, EEPC India

Printed and published by Bhaskar Sarkar, Executive Director & Secretary, for and on behalf of the owner, EEPC India
Vanijya Bhavan, 1st Floor
International Trade Facilitation Centre
1/1 Wood Street
Kolkata 700 016

Printed at
Swapna Printing Works Pvt Ltd
52 Raja Rammohan Sarani
Kolkata 700 009

Published from
EEPC India
Vanijya Bhavan, 1st Floor
International Trade Facilitation Centre
1/1 Wood Street
Kolkata 700 016

Consulting Editor
Aditi Chowdhury

Designed by
Bee Ideas
20/3 Ballygunge Place
Kolkata 700 019
ajoy.john@gmail.com

Address all correspondence to the Consulting Editor
email: editor@eepcindia.net

The views expressed in the magazine are not necessarily those of EEPC India

EXCLUSIVE MEMBER SECTION AT http://www.eepcindia.org

An exclusive member's section has been introduced on EEPC India's website. The User ID and Password has been sent to members on their email ID that is on record with EEPC India. If any member has not received it, please contact EEPC India at: eepc@eepcindia.org

The email IDs of some members are not available with EEPC India. Please provide your email ID at eepc@eepcindia.org so that we can mail the details to you. It is also recommended that all members view their details in the Member's Directory on EEPC India's website and verify their email ID.

All members are also requested to provide mobile numbers of key contact persons over email. This will enable EEPC India to send important alerts and messages on SMS.

TRUE GEM OF HANNOVER MESSE

IN MANY WAYS, this year's Hannover Messe was a record-breaking event that will long be remembered for its stand-out performance. With 220,000 attendees from around the globe, the show was nothing short of outstanding – also in terms of its perfect coverage of the Industry 4.0 theme and upwind emanating from favourable economic conditions.

But the true gem of Hannover Messe 2015 was definitely the Partner Country showcase mounted by India. We can rightly say that never before have we hosted a Partner Country that has staged itself with such professionalism, passion and keen attention to detail throughout.

Your country put its stamp on the trade fair right from the start, thanks to a captivating and delightful suite of performances at the Opening Ceremony and the keynote given by Prime Minister Modi. Throughout the days to follow, everyone was quick to emphasise how impressed they had been by India's remarkable contribution.

In terms of catering, outdoor advertising, the number of Indian guests, the vibrantly inviting Central Pavilion, an unforgettable Partner Country night and – last but not least – the evocative power of the omnipresent 'Indian lion,' your nation's presence was resoundingly felt and greatly appreciated by all. India's Central Pavilion was surely one of the most popular magnets at this year's Hannover Messe. This was not only due to its intriguing exhibits, themselves, but also to the very appealing way in which everything was presented. As such, India has surely scored major image gains in the international arena and made a vast number of new friends for future business endeavours. It is also more than evident that bilateral business between our two nations stands to greatly benefit as a result. Indeed, we would go so far as to say that your country's Partner Country showcase will go down in history as a milestone in Indo-German business relations.

We would also like to express our special thanks to you for coming to the show and, of course, for the speech you held at the Indo-German Business Summit.

For us it is obvious that this huge success would not have been possible without the outstanding contributions made by you. Please also pass our heartfelt appreciation on to your entire team.

The roar of India's lion will long reverberate throughout the exhibition grounds, also thanks to the beautiful statue you kindly gifted to us. It will serve as a living and lasting reminder of India's paramount achievements.

We look forward to teaming up with your country for even more success in the years ahead, and to the pleasure of seeing you again whenever the occasion arises.

Dr Wolfram v Fritsch, Dr Jochen Köckler, Dr Andreas Gruchow, Oliver Frese, Managing Board, Deutsche Messe AG, Hannover, Germany

Please write in with your comments at
editor@eepcindia.net
or to
The Consulting Editor
EEPC India
Vanijya Bhavan (1st Floor)
International Trade Facilitation Centre
1/1 Wood Street, Kolkata 700 016, India

in this issue

WORLDVIEW 26 |

Peru drives to India's billion-dollar club

India-Peru trade crossed $1 billion in 2011-12 following increasing shipments of gold and motor vehicles and hopes are high that bilateral trade will touch $2 billion this year

6 | SPOTLIGHT
Impact of technical standards on Indian engineering sector

The engineering exporting industry in India, hamstrung by the increasing role of standards and technical measures in international trade, needs to urgently upgrade technology to meet these standards and measures, if it does not want to lose out in the global marketplace

22 | ENVOYSPEAK
India-Peru have 'huge potential for bilateral trade'

37 | TECHNOLOGY
Enhancing exports through technology upgradation

An overview of India's place in contemporary technological developments in the world

17 | EVENT SPECIAL
PM at Hannover

18 | EVENT SPECIAL
Farewell to Rajeev Kher

47 | ANALYSIS
Export growth potential of India's engineering sector

59 | OVERSIGHT
Industrial output up, exports fall

5 | MONTHLY MUSINGS
41 | HOME AFFAIRS
71 | EEPC INDIA OFFICES
72 | OVERSEAS AFFAIRS
78 | EEPC INDIA CALENDAR OF EVENTS

From the Chairman's Desk

INDIA'S merchandise exports contracted for the sixth straight month, its longest trailing streak since 2009. During May 2015, overseas shipments from India declined 20.2 percent year-on-year to $22.35 billion from $28 billion during the same month of the previous year, owing primarily to a slump in global demand. The exports of engineering products, one of the essential groups of exported items from India sharing 24 percent in May 2015 of India's total merchandise exports, registered 10.5 percent drop in the growth rate to $5.4 billion in the month of May 2015 over May 2014. The cumulative value of engineering exports, on the other hand, recorded a dip by 5.9 percent to $11.04 billion in the current fiscal 2015-16 from $11.72 billion the same period last year.

The country-wise figures for May 2015 indicate the depressing engineering exports scenario. Out of the top 25 countries, 16 countries recorded negative growth in the month of May 2015. Top European export destinations for Indian engineering exports, such as UK, Italy, Turkey and France, recorded negative growth in May 2015 as well as during April-May 2015-16. India's engineering exports to the US, too, fell in the month of May 2015 by 3 percent though the cumulative growth in the first two months is in double digits. China, once again, recorded negative growth in May 2015. It may be noted that out of 215 destinations for export of Indian engineering goods, the top 25 nations accounted for 74.4 percent of the total during April-May 2015-16. The cumulative growth rate in the top 25 countries during this period recorded positive growth of 0.05 percent higher than that of India's total engineering exports at (-)5.85 percent.

As per the new Foreign Trade Policy for the period 2015-20, India aims to raise its overall exports (merchandise plus services) to $900 billion by fiscal 2019-20, as against the 2013-14 level of $465.9 billion. It was Mark Twain who famously had said that forecasting is a difficult proposition, especially about the future! Despite such prophesy, EEPC India has attempted to project the engineering exports by the end of the current FTP. In order to do this, first total exports of goods by 2019-20 have to be estimated. Typically, the best way to look at this is to analyse the historical data and project it into the future. At best this can give a ballpark estimate given that in periods of uncertainty, like the present times, the reality may emerge to be quite different from the historical trend. The present decline in global oil prices, quick adjustments in exchange rates (with the dollar appreciating and the weakening of most other currencies, notably the euro), and the new quantitative easing programme of the European Central Bank (ECB) as well as the Federal Reserve are elements that present an uncertain global trading situation. Our forecast, based on a simple regression analysis, indicates a slump in engineering exports and total exports for the coming years.

Since 2004-05, engineering exports as a percentage of total exports has been in the range of 18.1 percent to 22.7 percent. Our regression analysis shows that this range will be maintained till 2019-20. The analysis shows that, notwithstanding the year-to-year variations, given the present conditions, exports growth (of both engineering and total) will sharply fall by 2019-20 due to external factors as also internal factors (such as lowering of exports incentives, impact of FTAs, etc). Thus, it is anticipated that India's global exports will be in the range of $450-70 billion by 2019-20 and engineering exports will be in the range of $90-100 billion by 2019-20. A caution is again in order: the estimates give the broad outliers which seem to be in line with external demand conditions at present and, as in case of any projection, the situation will have to be reviewed with the passage of time and reversal in external demand.

The country-wise figures for May 2015 indicate the depressing engineering exports scenario. Out of the top 25 countries, 16 countries recorded negative growth in May

The takeaway from all this is that policymakers need to undertake aggressive support measures in terms of an attractive interest subvention scheme, raise and extend the MEIS benefit to category C countries, and hasten the process of the ease of doing exports from the country so that exporters can survive in tough international trade conditions.

This month's world focus is Peru, a country whose economic potential is relatively less known in this part of the world. EEPC India, which has always sought such countries for developing bilateral trade, will be hosting its trademark engineering exhibition INDEE in August 2015 and this issue provides the rationale for this interesting venture. I do hope our readers will wholeheartedly support us and join us in making INDEE in Peru a grand success.

Anupam Shah

Impact of technical standards on India's engineering sector

SPOTLIGHT

EEPC INDIA

The engineering exporting industry in India, hamstrung by the increasing role of standards and technical measures in international trade, needs to urgently upgrade technology to meet these standards and measures, if it does not want to lose out in the global marketplace

THE increasing role of standards in international trade is now globally recognised. With phasing out of tariffs either on MFN (most-favoured nation) basis or through preferential trade agreements, the focus is clearly shifting towards technical standards and domestic regulation globally. The number of notifications to the World Trade Organisation (WTO) over time pro-

vides evidence of the increased incidence of standards and other technical measures.

Several mega-regional negotiations are at present underway and changing the face of world trade: Trans-Pacific Partnership Agreement (TPP), the Transatlantic Trade and Investment Partnership (TTIP) between the European Union and the United States, the Regional Comprehensive Economic Partnership (RCEP) (involving the 10 ASEAN members, and Australia, China, India, Japan, New Zealand and the Republic of Korea) and the free trade agreements between China, Japan and the Republic of Korea, and between the European Union and Japan. All of these initiatives aim to create large economically integrated spaces at the regional level (in Asia), as well as at the trans-Atlantic and trans-Pacific levels.

It is expected that standards arising from TPP and TTIP will be higher than those from RCEP in most areas. There will be influence of TPP standards within RCEP nations also by the fact that seven out of 16 participants in RCEP are also part of TPP and more countries in RCEP are considering possible TPP participation in the future. Furthermore, there will be overlap of subject areas between TPP and TTIP, as the US is an important partner in both the agreements. In all probability, the US will push to harmonise its own existing standards for other countries, which are a part of TPP. It is also true that the new set of rules of trade that will evolve from TTP and TTIP would be discussed in the WTO and would serve as a template for future multilateral trade negotiations.

In this global context, if India does not take cognisance of this fact and work upon upgrading the standards of its own products, it can suffer from significant market loss. Moreover, improved trade standards not only will help India to gain markets but will also protect its own industries from poor-quality cheaper imports.

International standards and trade

How do international standards impact on trade? Do they help or hinder trade? In an OECD paper by G M Peter Swann in 2010,1 a key finding of the survey of empirical data is that there is no single answer to this question. 'Part of the reason is that the different studies have referred to different countries, different industries and different measures of standards. But more generally, the relationship between standards and trade is not a simple one and the econometric models surveyed represent, at best, 'black boxes' that disguise a complex of relationships.'

Some conclusions that the paper nevertheless draws from the econometric studies that sought to estimate the relationship between international standards and trade are:

- In most studies, when exporting countries use international standards, this has in most cases a positive (or at least neutral) effect on their export performance.
- When exporting countries use national standards (i.e. standards specific to country x), that may lead to superior export performance by x.
- When the importing countries also adopt international standards, the most common effect is also to increase imports.
- When the importing country uses national standards, the results are more diffused. For studies that relate exclusively to voluntary standards, the effects are distributed quite evenly. For studies that relate to regulations (i.e. mandatory standards), the effects on imports tend to be negative.

It is in this background we now look at the impact of standards on the Indian engineering industry and the road ahead.

Indian engineering industry

Engineering exports from India have grown considerably in the last few years. Despite the high growth achieved in recent years, India's engineering export share in global trade is still lower than other major competing countries such as Brazil, China, Russia, Mexico and Thailand. This is a cause for concern as it indicates that India has not been able to completely exploit its multitude of advantages in terms of engineering skills, a burgeoning domestic market, an established raw material base and availability of a large pool of skilled labour.

Engineering exports from India was $70.66 billion in FY 2014-15. The share of engineering exports in India's total exports is around 20 percent and has remained nearly the same over the last decade. India's share in global engineering trade is around 1.2 percent whereas China's share is around 12.3 percent. In the 34 product categories as defined by DGCIS classification, India does not hold a dominant position in any product category. Clearly, India has failed to establish a leadership position in any engineering product category and can be at best categorised as a 'follower' nation. India should strive to achieve leadership in at least some of the identified focus product categories within next five years and have detailed plans to achieve this objective.

India primarily exports low and medium technology-intensive engineering goods.2 The share of high-tech goods is less than 6 percent of the overall engineering export basket. Almost all exporters from India rely on the labour cost arbitrage and this has resulted in limited exports in the high-end segment. India's workforce will remain young compared to its competitors and low wages may help sustain labour cost arbitrage over the next decade. However, emerging trends like near-shoring and disruptive technologies may threaten India's advantage owing to labour cost arbitrage. Further, the bulk of the Indian engineering export basket is accounted for by SMEs who neither have the financial prowess to invest in technology nor the capability to initiate path breaking research work.

Trend in Indian engineering exports

During the pre-financial crisis period of 2003-04 to 2008-09, total Indian exports grew at an impressive rate of 24 percent per annum and engineering exports, too, had registered a CAGR of 32 percent. As a consequence of

the financial crisis, the value of total Indian exports declined from $185 billion in 2008-09 to $179 billion in 2009-10 and engineering export declined from $40.5 billion in 2008-09 to $32.5 billion in 2009-10. Indian engineering exports registered a y-o-y growth of 53 percent and 17 percent in 2010-11 and 2011-12 respectively. The high growth rate in 2010-11 is mainly explained by the low base effect and sudden recovery in global trade. Growth moderation is also seen in 2012-13 as engineering exports declined from $58.5 billion in 2011-12 to $56.7 billion. From 2013-14 India's engineering exports again started its north-bound journey. Indian engineering exports rose from $61.63 billion in 2013-14 to $70.66 billion in 2014-15 with a growth around 15 percent (**Figure1**).

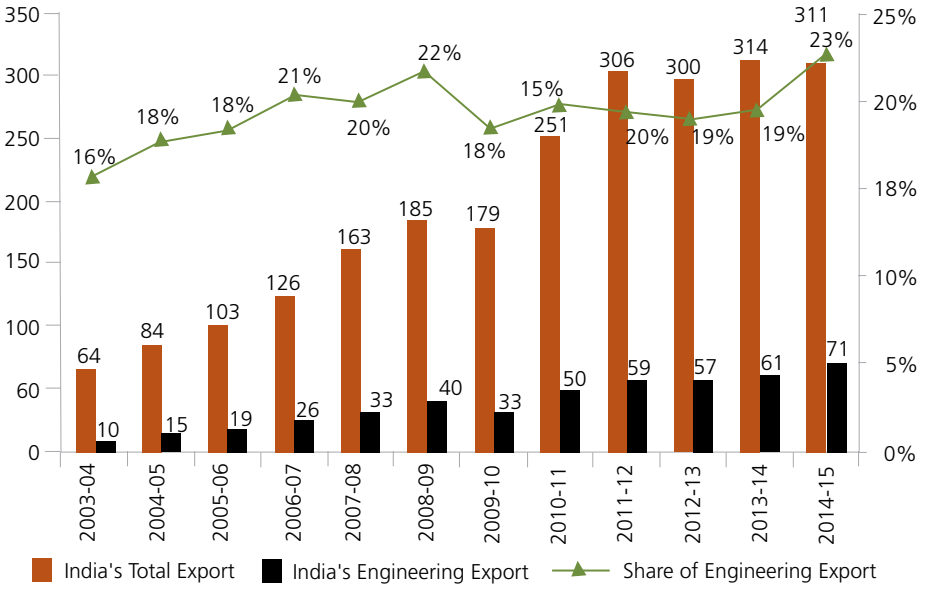
Major export destinations

India exports engineering goods to around 200 countries. However, there is evidence of geographical concentration with the top 25 countries constituting 74 percent of its total exports. It is evident from **Table1** that major export destinations continue to be developed economies like the US and the European countries. However, of late, African countries such as South Africa and Nigeria and Asian countries like China and Sri Lanka have emerged as attractive export destinations.

If we look at the regional distribution of India's engineering exports, the European Union ranks first during the last financial year. North America ranks second where Canada and the US have registered significant growth rates especially for items such as industrial machinery, IC engines and parts, iron and steel, and auto components/parts during this fiscal. Engineering exports to Africa registered a positive growth. **Figure2** depicts the regional distribution of India's engineering exports in the last financial year.

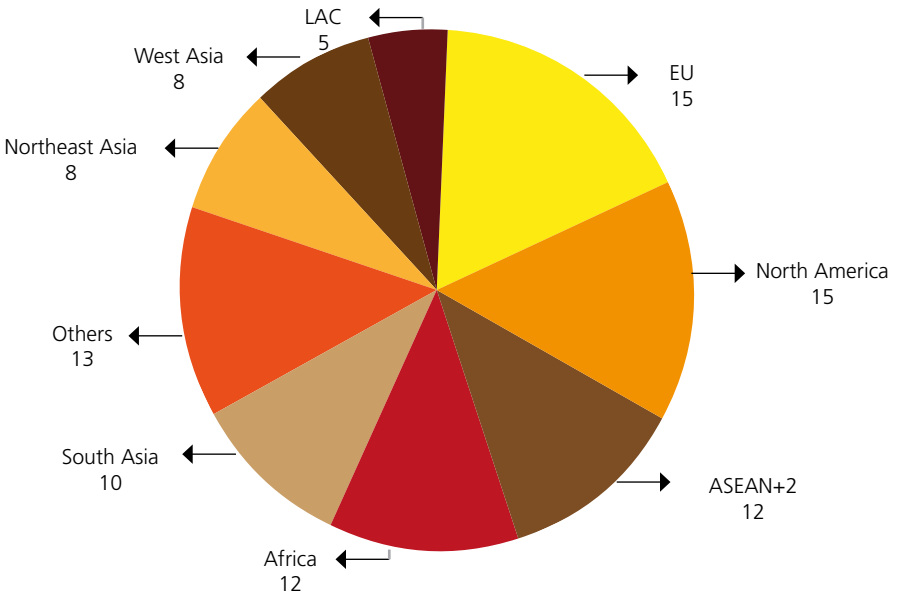
The US, China, Germany, UK, Canada, France, Russia, Japan, Australia, South Korea, Saudi Arabia and Southern Africa remain the most attractive markets for Indian engineering exports.

Figure1: Trend in India's engineering exports ($ billion)



Source: DGCI&S, EEPC India Analysis

Figure2: Trade bloc-wise India's engineering exports (%)



India is actively pursuing bilateral or regional trade agreements with most of these countries as part of its trade policy. For instance, among the countries mentioned, India already has bilateral trade agreements with Japan and South Korea and is negotiating one with Australia. It is also negotiating an FTA with the EU of which the UK and Germany are members and with SACU of which South Africa is a member. Multilaterally it is negotiating with China, Australia, Japan and South Korea under the RCEP. These trade agreements will certainly imply a reduction in tariff barriers and countries will resort more and more to nontariff measures (NTMs) to protect their domestic industries.

A point that needs to be noted here is that despite the FTAs, available data so far indicates that the utilisation rates of FTAs by India as well its partner countries remain rather low despite evidence of growing two-way trade with the FTA partners in the non-traditional product groups, with rising exports and imports in both final and intermediate products.3 This implies that standards are an integral part of trade and the nature of trade architecture may not be much relevance.

Nontariff measures (NTMs)

Countries take recourse to many mechanisms to restrict imports. Till the beginning of the 1970s tariffs were the principal mode of protectionism. But with successive rounds of GATT negotiations there was a large drop in the average tariff levels of manufactured goods in the developed country markets. When tariffs became insignificant the countries resorted to a form of administered protection known as nontariff measures (NTM). **Figure3** lists the broad categories of NTMs.

When these nontariff measures imposed by one country negatively impact the trade of another country, they become nontariff barriers (NTB).

The role of standards in international competitiveness and their potential to act as non-tariff barriers to trade is being more widely recognised. Countries recognise that the presence of standards is important to regulate quality of products to protect human health and safety. The World Trade Organisation, through the agreements on sanitary and phytosanitary (SPS) measures and on technical barriers to trade (TBT) has played a significant role in this respect. These are now basic prerequisites for market access embedded in the global trading system.

The term 'technical barriers to trade' refers to mandatory technical regulations and voluntary standards that define specific characteristics that a product should have, such as its size, shape, design, labelling/marking/packaging, functionality or performance.

Table1: India's top 25 engineering export destinations ($ million)

Top 25 destinations	India's engineering exports, 2014-15	Share to total engineering export
USA	7831.1	11.1
UAE	5883.7	8.3
Sri Lanka	3751.0	5.3
China	3121.3	4.4
UK	2648.8	3.7
Singapore	2492.4	3.5
Germany	2113.6	3.0
Malaysia	2078.3	2.9
South Africa	1997.0	2.8
Mexico	1913.8	2.7
Saudi Arabia	1778.0	2.5
Turkey	1739.7	2.5
Italy	1698.7	2.4
Nepal	1441.7	2.0
Bangladesh	1413.0	2.0
Korea	1313.0	1.9
Iran	1249.1	1.8
Nigeria	1247.5	1.8
France	1123.6	1.6
Indonesia	1114.9	1.6
Thailand	1012.3	1.4
Netherlands	863.8	1.2
Oman	810.0	1.1
Brazil	809.0	1.1
Japan	784.5	1.1
Total of top 25	52229.8	73.9

Source: DGCI&S, EEPC India Analysis

Figure3: Categories of NTMs

Technical Measures

- Sanitary and Phytosanitary measures (SPS)
- Technical barriers to trade (TBT)

Non-Technical Measures

- Pre-shipment inspection and other formalities
- Price control measures
- Export restrictions
- Government procurement restrictions
- Intellectual property
- Rules of origin

The specific procedures used to check whether a product is in compliance with these requirements are also covered by the definition of TBT. These so-called 'conformity assessment procedures' can include, for example, product testing, inspection and certification activities.

The TBT and SPS agreements of WTO encourage governments to establish national measures consistent with international standards, guidelines and recommendations. But it has been observed that these measures have reduced competition and created unjustified barriers to trade, particularly for the poor countries. It is being increasingly realised that these kinds of measures are posing major problems for small-and medium-sized enterprises (SMEs), which often do not have the resources to address these problems on their own.

Indian engineering industry has encountered many barriers relating to conformity of standards in the recent past. Some of the country-wise barriers are listed below. This database has been primarily compiled from the country-wise NTM database available with WTO and the EU market access database also listing the NTMs faced by EU in other markets.

South Korea

Telecommunication equipment: South Korea requires network equipment being procured by public sector agencies to incorporate encryption functionality certified by Korea's National Intelligence Service (NIS). NIS only certifies encryption modules based on the Korean ARIA and SEED encryption algorithms, rather than the internationally-standardised AES algorithm that is in widespread use worldwide.

Solar panels: Korea requires solar panels to be certified by the Korea Management Energy Corporation (KEMCO) before they can be sold in projects receiving government support (which in practice means for the vast majority of sales). KEMCO's certification standards prevent certain types of thin film solar panels from entering the Korean marketplace. Additionally, it is mandatory for products obtaining CCRA certification outside Korea to undergo additional verification inside the country by South Korean government authorities before they can be eligible for procurement. This is an additional step that is not needed for domestic products, raising national treatment concerns.

The TBT and SPS agreements of WTO encourage governments to establish national measures consistent with international standards, guidelines and recommendations. But it has been observed that these measures have reduced competition and created unjustified barriers to trade, particularly for the poor countries. It is being increasingly realised that these kinds of measures are posing major problems for small-and medium-sized enterprises (SMEs), which often do not have the resources to address these problems on their own

Medical devices: Under KORUS, any new Korean regulations affecting general pricing and reimbursement of pharmaceuticals and medical devices must be published in advance for notice and comment, and the Korean government is required to respond to public comments in writing and explain any substantive revisions made to proposed regulations. The KORUS also contains provisions designed to appropriately recognise the value of patented pharmaceuticals and medical devices. This may not only discourage companies from introducing advanced medical products to the Korean market but also serves as a disincentive to innovation and investment in research and development.

Japan

Automotive: Japan has brought several amendments to the proscribed details for safety regulations of road vehicles. These amendments deal with several auto-parts such as direction indicators, headlamps and fog lamps and other parts of the front lighting system. They have taken these steps to harmonise their own system with the UNECE regulations and international certification standards.

Fire alarm systems and fire extinguishers: Japan has also brought a number of amendments to improve the technical specifications and conforming standards of fire extinguishers and fire alarm system.

USA

Castings: AASHTO is a standard setting body of the US, which publishes specifications, test protocols and guidelines which are used in highway design and construction throughout the United States. It also represents air, rail, water and public transportation. AASHTO road test, a primary source of data, is used when considering structural design of roads. This test is often used to bar the export of Indian castings.

Automotive: Provisions to improve the labelling of tyres to assist consumers in identifying the tyres in case of a product recall under the federal motor vehicle safety standard. Under

the federal motor vehicle theft prevention standard, parts marking requirements extended to all passenger cars and multipurpose passenger vehicles and to selected light-duty trucks. Updation of the federal motor vehicle safety standard no.106 on brake hoses to incorporate the specifications of automotive engineers recommended practices. A number of tests have been included under the federal motor vehicle safety standard to improve the side impact protection standards in transportation vehicles

The US Department of Energy has its own standards for electrical appliances and commercial and industrial equipment which are difficult and expensive to conform to.

A few years back consignments sent by Indian castings exporters were detected positive for radioactive contamination. This was due to the presence of Cobalt 60 isotope in metal scrap. As a result, the containers were blocked at some US ports with varying response from the US customs authority.

EU

ATEX certification: ATEX certification is required in European countries for switches, starters or accessories. The certification is mandatory even if a product/switch is meeting technical requirement like flame proof, etc. ATEX certified products are not easily available in India. Industry imports these products incurring 8 to 10 times higher cost because of the certification requirement.

CE marking: Products/systems to be exported to Europe must have CE marking. As most Indian products do not have CE marking, it becomes difficult to meet the CE requirements and cost with CE marked products becomes too high to be competitive. Many of them are imported by domestic industries.

China

Chinese compulsory certification system (CCC)

Automobiles, machinery, and ceramics: The Chinese compulsory certification (CCC) system was first introduced in China in 2003 by the China National Certification and Accreditation Administration (CNCA). Despite some progress related to the implementation of the CCC, this remains a burdensome, expensive and time-consuming conformity assessment system, particularly for small and medium-sized enterprises. Current requirements of the CCC system are not always related to the level of risk of the products, which implies that the CCC system is more trade restrictive than necessary.

The CCC touches many sectors such as automobiles, electrical/electronic products, machinery, ceramics and more recently ICT products. The system lacks flexibility and the same very heavy third-party certification procedure applies to very diverse categories of products, without any genuine consideration being given to the actual level of health and safety risk associated with them. The CCC touches many sectors such as the automobiles, electrical/electronic products, machinery or ceramics. The system lacks flexibility and the same very heavy third-party certification procedure applies to very diverse categories of products, without any genuine consideration being given to the actual level of health and safety risk associated with them.

Telecommunication equipment: All enterprises that research produce and sell commercial products with encryption as a core foundation need to get approval from the Office of State Commercial Cryptographic Administration. In 2007, OSCCA started to consider core encryption products such as trusted platform modules used in computers or smart cards. This has restricted the exports of these products by foreign manufacturers.

Automotive: Safety technique specification under the National Standards of PRC mandatory for special school buses used to transport schoolchildren above three years of age.

Television: All new televisions above 40 inches sold in China's domestic market should meet the standards of terrestrial digital television receiver.

Brazil

INMETRO[4] certification: A problem of exporting to Brazil is their new regulation of INMETRO certification. It is the quality certification of various imports into Brazil, on specific items as notified by the Brazilian authorities. Currently bicycle tyres require INMETRO certification and soon many other bicycle parts will also included in this list. Electrical and electronic products that meet Brazilian requirements and that are certified by an INMETRO accredited organisation must carry the mandatory INMETRO mark along with the mark of the certification organisation, such as UCIEE (União Certificadora para o Controle da Conformidade de Produtos, Processos ou Serviços).

The INMETRO mark can be applied to both mandatory and voluntary Brazilian programmes.

Mandatory products

- Medical devices
- Circuit breakers
- Electrical equipment used in hazardous locations
- Equipment for gas systems (pressure regulators and hoses)
- Switches, plugs and receptacles
- Ballasts
- Wires and cables

Voluntary products

- Household appliances
- IT equipment
- Consumer electronics
- Luminaires

Good manufacturing practices (GMP) certification on medical equipment: Obstacles due to excessive regulatory controls imposed by Brazil's regulatory authority ANVISA (Agência Nacional de Vigilância Sanitária) and cumbersome procedures laid down in Resolution 11 (published in March 2009).

This resolution foresees that after 1 May 2010 health products considered as having a 'higher risk' will have to present a GMP certificate at the time of their registration, proving compliance with Brazil's GMP. ANVISA is responsible for issuing these certificates, on the basis of GMP inspections performed by ANVISA at the production facilities. India's traders found this certification process time consuming and expensive, reportedly costing more than $20,000, with an approval timeframe of as long as four years. Certificates of conformity with international standard ISO 13485 (quality management systems for medical devices), will no longer be accepted. Recently Brazil has introduced a new ANVISA Resolution 15/2014 replacing the previous resolution 25/2009 addressing the concern of the businesses.

Sri Lanka

Transformers: For exporting transformers to Sri Lanka the exporters require the KEMA4 certificate (stating that the product is of ISO standards) even though their products are certified by several reputed third-party inspection agencies such as Crown Agents, ISO 9001:2000, Lloyds, Bureau Veritas, SGS Robert, W Hunt Company, BSI Inspectorate, Griffith UK, OMIC Japan, Tubescope Vecto GmbH Germany, etc.

ASEAN

Hot and cold rolled coil imported into Thailand requires registration with the customs of Thailand. This registration is required each time a consignment is sent to Thailand. In order to register with the customs the exporter has to send various documents like plant information, production flowchart, quality system, and other firm details. The cost for this registration is not high but the time involved in getting the registration done could take anything between two weeks to two months.

Packaging requirement: In case of the equipment industry, packaging should be such that the product does not get damaged during transportation or storage. Soil testing equipment are usually packaged in thermocol and then in cardboard boxes (double packaging). This is an accepted international practice. Interestingly in the case of Malaysia, exporters are required to pack their products in thermocol and then in wooden boxes instead of cardboard boxes. This not only leads to extra costs for the exporter but also means that the exporter has to maintain a new line of packaging. Overall it increases the packaging cost by almost 2 percent. Due to this, many of the Indian exporters restrict themselves from trading with Malaysia. This is a clear case of a nontariff barrier caused due to packaging specifications.

Other countries

TBT imposed by Argentina and Italy on Indian utensils: In Italy and Argentina stainless steel utensils (ITC HS code73239390) and cutleries (ITC HS code82159900) made of only 202 and 304 grades are acceptable. They do not accept the same manufactured using 200 grade stainless steel. The rest of European countries – France, Germany, UK – and the US accept it. The chromium content should be 13 percent and it should be of food safe. SS200 grade contains chromium 13 percent and is food safe. Some of the grades have passed three BIS (Bureau of Indian Standard) tests viz. N1, N2 and N3. But the same are also not acceptable to Italy and Argentina. Their testing method is very rigorous. For instance, a serving tong is kept in acid for more than four days to determine whether it is food safe. This is a wrong method of testing for serving tongs as holding of food is a matter of seconds for tongs.

In Africa and West Asia, most of the plants and industries are headed by European professionals and it is found that many of these consultants promote only European products and intentionally do not approve Indian brands or they are not aware of Indian products. Many of them have offices in India despite which they try to make specifications so that only European products get qualified or it becomes difficult for Indian products to meet specs. This includes the certification of environments, safety and process qualification.

Private standards

Apart from the mandatory standards, in recent times there has been a growth of various private standards set up by individual industries or multinationals belonging to a particular industry. These standards are voluntary in nature. The objective is to protect the host country domestic industry on various grounds such as labour and environmental issues, etc. Indian engineering has been facing such standards for some time now. A particular case which created considerable problem for the Indian foundry industry in 2009 is highlighted in the box on page ...

The need for standards for Indian engineering industry

Indian industry at various scales of economic production needs to standardise its technology and product. This also has positive externalities. Some of these benefits are:

- Ensuring better safety and quality
- Consistency in quality (repeatability)
- Performance will be better (within a bandwidth)
- Pricing will also be within a bandwidth
- With the increasing recourse to FTAs, intra-industry trade is getting a boost. Further there is the global relocation of production stages that has resulted in 'production networks' across countries. Production networks (PN) are driven by firm-level decisions regarding relocating different parts of their value chain in different countries based on economies of scale, wage cost, transportation costs, and mobility of factors. Once PNs are established then intermediate inputs may criss-cross national boundaries multiple times. Often because of low standardisation at the Indian end of the value chain, the product becomes prone to more errors. For instance, when a component made in the US is sent to India for further value addition, the drawings are

Lack of harmonisation with global standards – how has it impacted Indian foundry industry?

Blue trade barriers and their impact

Blue refers to those trade barriers arising from the working environment, and workers' right to life, which are an excuse to take trade protection measures, and is a new trade barrier. SA8000 is one the major blue trade barriers faced by the Indian foundry industry. This standard is recognised by the Bureau of Economic Rights Promotion Committee developed and promoted for industrial and commercial enterprises such as the protection of basic labour rights of the common social responsibility management system. At present, many overseas importers seek export enterprises that conform to SA8000.

Origin of SA 80005

In the early 90s, the exposé that US clothing manufacturer Levi-Strauss employed young female workers to work under conditions similar to being in prison initiated the global anti-sweatshop movement. The activists demanded that enterprises improve working conditions and treatment of employees, not only for profit. With this background, in 1997, the Society Responsibility International (SRI), a nongovernmental organisation headquartered in the US, initiated a move for European and American multinational corporations and other international organisations to jointly formulate SA8000, the first social responsibility standard system of the world, which had been revised in 2001.

Negative reports on Indian foundry industry

A couple years ago, Finn Watch of Finland started a campaign against the foundry industry of India. They sent a group of journalists to India to visit some foundry units, meet workers and take pictures of the workplace. Based on the reports received from the journalists, the organisation prepared a report inimical to the Indian foundry industry. Following the publication of the report, efforts were made to bar exports of Indian foundry industry to Finland and perhaps to the European Union on the pretext of poor working conditions.

At present, many international buyers pay attention to their own brand image and the image of the community. To enhance the awareness and fine reputation of their products to consume, they request their suppliers to fall in line with SA8000. But the compliance to SA8000 involves huge time and cost which is beyond the scope of small, medium enterprises. The cost mainly includes certification cost, surveillance cost and transformation cost.

Source: EEPC India

on the basis of CNC, but when the component is being value added and assembled here, the process is done on conventional machines, and it becomes prone to more errors and eventually entails higher correction costs.

• India is investing in promoting Indian products abroad through the 'Brand India' campaign. With a proper standard as reference point, the Brand India campaign will get a boost.

Challenges facing Indian engineering industry?

For a late starter and whose industry, particularly, the MSME sector, has developed through reverse engineering, import of second-hand capital goods and so on, the main challenge in gearing up to a technically 'standardised' world, is primarily domestic or our own manufacturers. Some of these challenges are:

• *The lack of substantive indigenous technology:* Hence using technical standards as a nontariff barrier will also impact our own domestic industry which is already locked into a technology that is part of the global technology of different generations/vintages.

• After independence, a number of public sector technology laboratories were set up under CSIR. Over the years, it was realised that the technology developed under these labs were largely not adopted by Indian industry. Thus, there has not been any significant cooperation of technology sharing between the research institutions and domestic industry in India unlike in countries like China, Japan, South Korea and Taiwan where there was active collaboration between the two so that domestic technology could be developed and a kind of 'independence' from foreign technology could be realised. This inhibits in developing technology standards

for Indian conditions.

• Thus, there will be the *additional cost of upgrading*. For instance, steel is the main component of Indian engineering industry. The secondary steel producers use induction furnace technology which produces differing standards of steel. Thus, a reference standard has to be developed and for this investments will have to be made in testing and measuring equipment like online spectrometers and as also in secondary refining so that the hardness of steel is uniform and does not vary across a product.

• Another challenge is with regard to *'attitude' or changing work culture* with regard to new technology. For instance, when one uses, say CNC machines, one talks of 'quality assurance' while in case of conventional machines, the concept becomes 'quality control,' because at every stage of manufacture, measuring of every dimension has to be manually carried out. Our industry and workforce is tuned to 'control' rather than 'assurance.'

• Because of the high cost of capital, *R&D expenditure in the private sector has been rather low*. However, the positive thing has been the recent growth in such expenditures. For instance, RDI (R&D spending by industry) has increased from 0.24 percent in 1995-96 to 0.37 percent in 2010-11. Relatively more R&D expenditure could be noticed in sectors such as pharma/drugs, automotives and electronics sectors. This gives hope and a possible way out for developing Indian standards in the next couple of years.

• *The inadequacy of certification bodies in the country:* Often the certifications by Indian agencies have been doubted by Indian companies themselves. Material measurements certified by Indian agencies sometimes are at variance with foreign agencies' measurements and this often leads to dispute and rejections. The alternative is to test in government labs but industry says that it takes two weeks to get a chemical report in government labs and such delays are not acceptable in today's day and age.

• A feature of the small-scale is that often some units, despite having the technology and equipment, may not use the equipment as the cost of running such equipment prohibits usage. The equipment are bought and installed without being used for getting the necessary permission or approval for manufacturing the product from the relevant authorities. Thus, the need for enforcement is critical.

Another challenge is with regard to 'attitude' or changing work culture with regard to new technology. For instance, when one uses, say CNC machines, one talks of 'quality assurance' while in case of conventional machines, the concept becomes 'quality control,' because at every stage of manufacture, measuring of every dimension has to be manually carried out. Our industry and workforce is tuned to 'control' rather than 'assurance.

Because of the high cost of capital, R&D expenditure in the private sector has been rather low. However, the positive thing has been the recent growth in such expenditures.

For instance, RDI (R&D spending by industry) has increased from 0.24 percent in 1995-96 to 0.37 percent in 2010-11.This gives hope and a possible way out for developing Indian standards in the next couple of years

The roadmap ahead

What then should be India's stand on regional and multilateral negotiations?

It is now nearly a quarter of a century post-liberalisation, and Indian engineering is gradually getting integrated with global manufacturing in terms of production networks. Standards is, therefore, a reality and the sooner we shed our defensive attitude towards these being a reference point for quality assurance, the better it will be for us as a society in the medium to long run. While this entails pain in the short run, we must ensure that in our negotiations in regional and multilateral fora we do not duck the issue of standards completely, notwithstanding the fact that Indian industry is undergoing considerable transformation.

From the perspective of the Indian engineering, they, too, have to realise the difference between 'cheap' product and a 'cost-competitive' product. The former entails 'quality failure' while the latter does not. Domestic consumer awareness, too, is critical so that the manufacturers are forced to look at producing cost-competitive products. Thus, international negotiations could have the beneficial effect in setting our own house in order. For instance, suppose a domestic quality-conscious agricultural machinery manufacturer wants a steel product with 0.13 percent carbon content but the secondary steel producer produces steel that has 0.2 percent carbon content, even though that particular agricultural machinery manufacturer may reject the product, the steel producer is still able to sell that product to some other agricultural machinery manufacturer.

WHEN HAVING THE RIGHT NETWORK IS EVERYTHING.

EEPC India is India's premier engineering trade promotion body with over 12,000 members. We help you access the best of Indian engineering goods and expertise.

EEPC India can:

- Act as a link between you and Indian exporters,
- Identify suitable suppliers in India
- Arrange visits of overseas buyers, exploratory missions, and teams to India
- Provide profiles of suppliers
- Help collaboration efforts for third country exports
- Create awareness among overseas buyers on India's technical competence and supply capabilities
- Help to resolve trade disputes and remove operational constraints
- Educate you on Indian business policies

EEPC INDIA: TAKING INDIAN ENGINEERING TO THE WORLD

60 1955 2015

EEPCINDIA

ENGINEERING THE FUTURE

www.eepcindia.org

Clearly, in such an environment, setting reference points as standards is a difficult proposition, unless all agricultural machinery manufacturers demand the same quality of steel.

It may be mentioned that the Ministry of Steel has laid down quality control orders for various categories of steel particularly with respect to imports. We need to internalise this as well and enforce the same. Once this is done, we can demand particular standards in international trade negotiations.

Having said this, in the transition period of educating and enforcing quality standard amidst our own manufacturers, the following strategy can be adopted in trade negotiations:

- We should look for equivalence of standards particularly when RTAs are being negotiated. Indian manufacturers can manufacture similar quality steel as per many international standards. For instance, in the US, SAE 1045 is the quality standard for carbon steel. Indian steel plants make the same quality steel with similar chemical composition following EN-8. Thus we could look for signing of mutual recognition agreements (MRAs) which allows for such equivalence with either BIS or EN (British standard) in case of steel. Certain countries like Germany (DIN) and Japan (JIS) are rather inflexible with their standards. It is in such cases that MRAs come handy and help us tackle the standard problem internationally.
- Similarly, often within a regional grouping, a particular country may follow a certain standard which is either above or is a different one from that followed by rest of the member countries within the said regional grouping (example of Italy mentioned earlier). In such cases, WTO TBT committee is the best place to sort out such issues.
- To ensure seamless movement of products and services under the preferential route, we need to include a quality schedule along with the tariff schedule during negotiations.
- With regard to the issue of creating our own standards and protect our own consumers, it is critical that we take a focused approach in doing so. For instance, our underground railway network has done some pioneering work in this regard and their experience could be tapped. Further, EEPC India is working with CSIR laboratories to customise technologies across various engineering segments. CSIR has identified 99 tariff lines in this regard and work is underway to work with the MSME units to develop local and efficient technologies. Once this is done, the next step would be to create our own standards.
- The R&D investment in many engineering segments like electrical machinery, base metals, construction, miscellaneous manufacturing is still rather low and innovative policies are required to encourage R&D investments in these sectors so that it is possible to have a national standard or reference points for these industries which can be used as policy instrument for trade negotiations. This is important in the context of countering the increasing growth of private standards globally as well as for developing product specific rules (PSRs) for RTA negotiations.
- Under the MAI scheme, testing of engineering products abroad is reimbursed up to certain limits. This scheme needs to be strengthened allowing reimbursement of such testing domestically as well, as this will help many MSME units meet the costs of such testing and thereby enhance the quality of their products.
- There is a need to enhance the quality of our certification bodies as well by monitoring their performances. There is an acute lack of credible agencies across the country.
- Outlined here are a few indicative steps that may be initiated though a joint collaboration of industry and government to meet the challenges of upgrading and developing Indian standards in the engineering industry. Further dialogue on these lines could help in thinking of more innovative steps and working out a comprehensive strategy for this purpose.
-

Way forward

The standards-related trade measures, which in WTO terminology are known as 'technical barriers to trade,' act as obstacles to trade and play a critical role in shaping the flow of global trade. Overcoming these barriers requires significant investment both in time and resources, which constrain SMEs in internationalising.

More than 60 percent of EEPC members belong to the SME sector. The plethora of TBT regulations and the lack of harmonisation of standards used by different countries make it difficult for our exporters to meet the conformity assessments requirements demanded by various trade partners.

The small and medium enterprises are far away from the changes of regulatory requirements. Hence, there is an urgent need to increase the awareness of our MSMEs about developing markets and emerging standards and regulation. Also, there is a need to harmonise our national standards with the global ones. Therefore, it is important for the government, the standard setting bodies, industry and other stakeholders to work together to create globally harmonised standards which could be easily adopted by our industry.

Notes

1. 'International standards and trade: a review of the empirical literature,' GMP Swann, OECD Trade Policy Working Papers No. 97
2. As defined in UNCTAD classification
3. *Impact Analysis of India's Free Trade Agreements*, Rupa Chanda, 2014
4. The National Institute of Metrology, Standardisation and Industrial Quality (INMETRO) was created by law in December 1973, to support Brazilian enterprises to increase their productivity and the quality of goods and services. In Brazil, certification bodies must be accredited by INMETRO
5. *China-USA Business Review*, ISSN1537-1514, USA
6. Presentation by Dr Nirmalya Bagchi, ASCI

PM meets industrialists at Hannover

Prime Minister Narendra Modi with Mr Anupam Shah, Chairman, EEPC India (top) during a meeting with Indian industrialists (above) on the sidelines of Hannover Messe 2015 held in Hannover, Germany over 13-17 April 2015

EEPC India's farewell to Rajeev Kher

1

2

EEPC India bids adieu

EEPC India hosted a farewell for the Commerce Secretary, Mr Rajeev Kher, at a colourful ceremony in New Delhi. (**1**) Mr Anupam Shah, Chairman, EEPC India, speaking on the occasion; (**2**) Mr Amitabh Kant, Secretary, Dept of Industrial Policy & Promotion, Govt of India, greeting the Commerce Secretary; (**3**) Mr T S Bhasin, Senior Vice-Chairman, EEPC India, welcoming Mr Rajeev Kher; (**4**) Mr Arvind Mehta, Joint Secretary, Dept of Commerce, making a point

EEPCINDIA
ENGINEERING THE FUTURE
Farewe
Mr Ra Kher, Union Comm
d of you an
u've achi
New Delhi

3

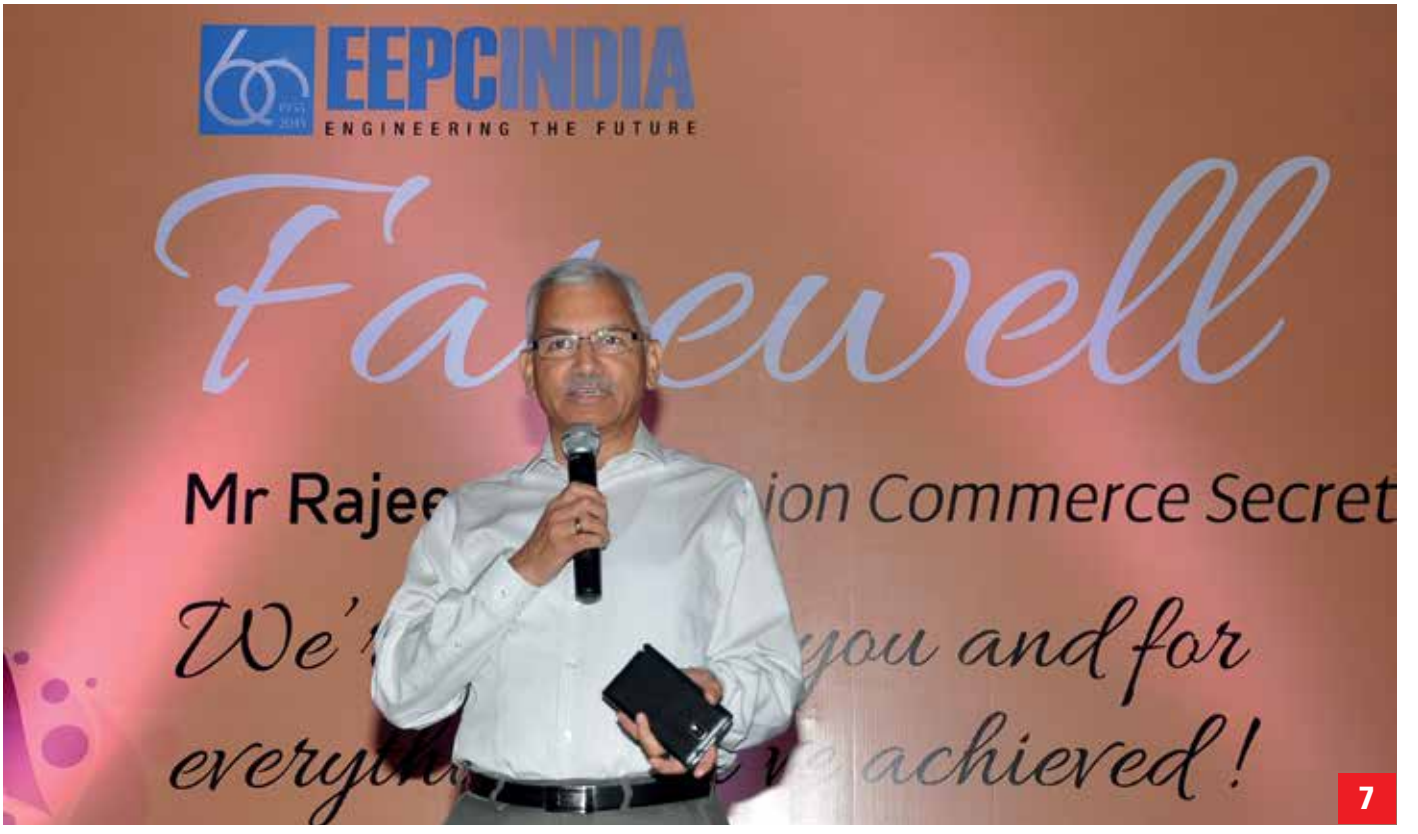
4

5

6

EEPC India bids adieu

The Commerce Secretary, Mr Rajeev Kher, was a pillar of support for EEPC India and the engineering exporting community during his tenure.
(**5**) Mr Bhaskar Sarkar, Executive Director and Secretary, EEPC India, summarises EEPC India's association with the outgoing Commerce Secretary;
(**6**) Mr Sarkar presenting an illustrated book specially designed for Mr Kher;
(**7**) Mr Rajeev Kher regales the audience with tales of his tenure as Commerce Secretary;
(**8**) Mr Anupam Shah, EEPC India Chairman, presenting a memento to Mr Kher


EEPCINDIA
ENGINEERING THE FUTURE
Farewell
Mr Rajee
ion Commerce Secret
We'
you and for
everyth
achieved !

7

EEPCINDIA
ENGINEERING THE FUTURE
Farewell
Mr R
Kher,
ommerc
retary

8

ENVOYSPEAK

JAVIER PAULINICH

Ambassador of the Republic of Peru

'HUGE POTENTIAL FOR BILATERAL TRADE'

With EEPC India taking its flagship event INDEE to Peru, interest is running high in the export potential of India's engineering products in that country. The Peruvian Ambassador to India, Mr Javier Paulinich, very graciously gave us time and answered the questions we had for him

EEPC India: ***India-Peru trade, especially in the engineering sector is far below the potential. What are the reasons for the same?***

Mr Javier Paulinich: I would not say that. In my opinion, there is a huge potential in the bilateral trade between Peru-India, especially in the engineering sector. In the last two decades, Peru has been progressively strengthening its relationship with India, which we consider both a democratic country and a strategic trade partner, with a high degree of technology development.

In recent years, the bilateral trade has shown an enormous growing tendency, from $80 million in 2003 to more than $1317 million in 2013. In 2014, the Peruvian exports to India reached $321 million and $837 million of import from India. The bilateral trade includes mining, agricultural, fisheries, textiles, and chemical products. In sum, the bilateral trade has increased ten-fold in one decade. There is a considerable potential for both countries to enhance trade and economic cooperation in engineering products and services.

Indian exports to Peru include automobiles and motorcycles, other vehicles, along with electrical power transformers and other products, with various high-tech components among them. In the case of Peru, exports to India include electrical power transformers, looms for embroidery, and hyperbaric chambers. In all the above-mentioned cases, there has been an increase of 30 percent in the last year.

What steps should be taken by India and by Peru to reverse this trend and improve the bilateral trade and investment?

Peru and India are taking steps to have a closer and stronger trade relationship. In the next months, we will start negotiations for a Free Trade Agreement (FTA) in order to increase the bilateral trade and investments for the benefit of both countries. Peru is proposing a comprehensive and flexible agreement that could involve not only trade in goods, but also trade in services, investment, cooperation and movement of businesspersons that would allow a broad range of possibilities for new business between both countries.

In order to achieve these goals, the Embassy of Peru in India is fully committed to foster the bilateral relationship by facilitating the visit of Peruvian authorities and entrepreneurs, while connecting the Indian industrial communities with their counterparts in Peru. To further strength these efforts, the Peruvian Trade Office was opened in New Delhi in March 2014, aiming to promote and improve the Peruvian exports, tourism and Indian investments in Peru.

Few sectors like nuclear reactors, and their parts, iron and steel, vehicles, optical, railway parts has been identified as the potential areas: a) can trade regimes be eased in these sectors to increase their volume? and b) if possible, in what specific ways?

Peru is one of the freest economies in Latin America. The average custom duty on our products is 1.37 percent. Because of this, Indian exports as compared to the Peruvian exports are more than $500 million. Peruvian imports of Indian cars between the years 2013 and 2014 have increased by 39 percent, the electrical power transformers by 14 percent and polypropylene by almost 74 percent.

Peru needs to open its doors to the Indian market vis-à-vis its products and services. Therefore, an FTA would boost the trade exchange between our countries as a result of the tariff preferences that the agreement would provide.

Distance could be one of the major issues coming in the way of India-Peru trade. Would you suggest moving from pure trade to strategic investment in setting up manufacturing facilities both in India and Peru by their respective entrepreneurs?

The internationalisation of a company is a process carried out in various stages. The export and import of products is the initial stage, after which comes the stage of investments in other countries. Having commercial offices abroad or the setting up of factories are other stages of the same process.

The distance and the logistical costs could at this moment pose to be challenges for consumers and industries, but the ease of trade which would be provided by the FTA would permit a greater traffic of products and thus, better routes and reduction of costs.

Many years back, we always thought of China as a far and distant country. Today, due to its trade and commerce, China has become a strategic trade partner for Peru, which we are certain will be the case with India, too. With the current development of our bilateral relation, the future FTA, and based on our complementary economies and cooperative approach, I am convinced about the extraordinary potential of our partnership.

What specific comparative advantages can accrue to Indian investors in Peru, if they show interest in setting up facilities there?

Peru welcomes the entrepreneur enthusiasm of the Indian investors. Our country offers opportunities in industry, mining and agriculture, in a consolidated market with an adequate legal framework.

Peru is considered a country with one of the most open investment systems. Peru has adopted a legal framework for investments that requires no previous authorisation for foreign investment. Additionally, it establishes the necessary regulations to protect the economic stability of investors from arbitrary changes in legal terms or conditio ns applicable to their projects and reduces government interference in economic activities.

The Peruvian government guarantees legal stability to foreign investors with regard to the legislation governing income tax and distribution of dividends. Foreign investors with the right to obtain legal and tax stability

are those willing to invest in Peru for a period of no less than two years and for a minimum amount of $10 million in the Mining and/or Hydrocarbons sectors, or $5 million in any other economic activity, or those who acquire more than 50 percent of the shares in a company in the process of privatisation.

Peru's laws, regulations and practices do not discriminate between domestic and foreign companies. Foreign investors receive equal treatment. There are no restrictions on repatriation of profits, international transfers of capital, or foreign exchange practices. The remittance of interest and royalties is also not restricted in any way. Foreign currency may be used to acquire goods or cover financial obligations, provided the operator complies with Peruvian tax laws.

Peru offers a legal framework that protects foreign investors' interests by offering an equal and non-discriminatory treatment, unrestricted access to the majority of economic sectors and free capital transfer. Additionally, there is the right to free competition, private property is guaranteed (no expropriation or nationalisations), and there is freedom to acquire shares in Peruvian companies, freedom to access internal and external credit, freedom to transfer royalties and profits from their investment, among others. Foreign investors may remit abroad the net profits (without any restriction) from their registered investments, as well as transferring their shares, ownership interests, or participatory rights, perform capital reductions, and dissolve or wind-up their companies.

This policy is based on the conviction that private investment must be the driving force of growth and to this effect we require the concurrence of national and foreign capitals that will boost the development of the enormous opportunities that the country offers.

Are there ways through which India can take advantage of Peru's regional trade agreements with different trading partners?

Peru is considered a country with one of the most open investment systems. Peru has adopted a legal framework for investments that requires no previous authorisation for foreign investment. Additionally, it establishes the necessary regulations to protect the economic stability of investors from arbitrary changes in legal terms or conditions

Peru can be considered as a strategic hub in the Latin American region. In fact, Peru maintains a proactive attitude with respect to its participation in integration mechanisms that make it possible to access broader markets, to which the investor in our country can gain access by harnessing our natural resources and competitive advantages.

Peru has signed a number of Free Trade Agreements (FTA) covering approximately 95 percent of its exports. This enables Peruvian products to enter, subject to the rules of origin of each trade agreement, under preferential conditions to over 53 countries, including the United States, China, Canada, Japan, South Korea, Thailand, Singapore, and the member countries of the European Union, MERCOSUR, among others. Peru is part of the negotiations relating to the Trans-Pacific Partnership Agreement (TPP), and is also member of the Pacific Alliance, with Mexico, Colombia, and Chile, the world's eighth-largest economy and seventh-largest exporter in the world.

For example, the total Peruvian exports to the United States, in the last six years of having a FTA between the two economies, has increased to more than 26 percent and in the case of Peruvian products with large value added components, has increased to 80 percent.

The figures between Peru in China in the last four years of having a FTA are similar. Total Peruvian exports to China have increased by 29 percent and the exports of value added products by 83 percent.

How connected is India's EXIM Bank with Peru's trade, in terms of line of credit etc ... would you have any specific suggestions?

Peru has not signed any Line of Credit (LOC) Agreement with the EXIM Bank of India. We know that EXIM Bank has already placed 197 Lines of Credit (LOC), covering 74 countries including Latin America countries, among others, with credit commitments of over $10.58 billion. This demonstrates not only the strong compromise of the Indian government to promote India's exports, but the Indian expertise and project execution capabilities in emerging markets.

There is a huge opportunity to explore the real potential of our bilateral relationship. I believe that there are many potential areas for investments and cooperation in Peru and in India in the near future, such as agricultural sector, especially in transition from traditional farming to commercial farming through application of technology; financial sector, including banking; information and communication technology (ICT) sector; manufacturing; energy; infrastructure; and SME sector.

What are your expectations in terms of trade and investment between India and Peru with INDEE Peru in Lima in August 2015?

I am very glad that EEPC India is organising its next edition of India Engineering Exhibition (INDEE) in Lima, Peru in August 2015. The Indian engineering industry is recognised globally and entrepreneurs in Peru are looking forward to doing business with Indian companies and also the opportunity to join efforts towards enhancing the bilateral trade, especially in engineering products.

I am sure that INDEE Peru 2015 will be a great success.

EEPC INDIA
ENGINEERING THE FUTURE

INDEE PERU 2015
PARTNERSHIP FOR GROWTH

INDEE TO TRAVEL TO ONE OF THE FASTEST GROWING ECONOMIES IN THE WORLD

YOU ARE INVITED!

INDEE PERU
5 - 7 AUGUST 2015, LIMA

INDEE Peru 2015

Centro de Convenciones
Jockey Plaza, Av. J.prado Este
Nro. 4200, Santiago de Surco,
Lima
5–7 August 2015
2 p.m. to 9 p.m.

EEPC India takes its flagship engineering exhibition INDEE to the Peruvian capital of Lima. Peru holds a lot of promise and has big opportunities in machine tools, auto components, casting and forging, steel equipment and items, and agro machinery.

Peru drives to India's billion-dollar club

India-Peru trade crossed $1 billion in 2011-12 following increasing shipments of gold and motor vehicles and hopes are high that bilateral trade will touch $2 billion this year

WORLDVIEW

PERU

2013 was the golden year of friendship between India and Peru. Not only did it mark the 50th year of the establishment of India-Peru bilateral relations, it was also the year when Peru became firmly entrenched in India's billion-dollar club of trade partners, spurred by imports of gold and exports of engineering goods, mainly automobiles, motorcycles and three-wheelers. India's exclusive billion-dollar club in annual trade comprises Brazil, Venezuela, Mexico, Chile, Colombia, and Argentina. The increase in trade with Peru was an impressive 50 percent from $750 million in 2011 and only $470 million dollars in 2007. The bilateral trade could reach $2 billion by 2015.

It all began in 2011, when the Latin American nation was officially permitted to sell gold to India. Exports commenced in 2012 and in the first year, Peru shipped 106 ounces of gold, more than doubling the volume to 270 ounces in 2013 and the volume of trade shot up to over 80 percent in 2011-12 to $1.11 billion from $604.96 million in the previous fiscal.

Exports of engineering goods at $381.4 million in 2014-15 contributed significantly to the increase in overall trade volume, automobiles heading the list with exports valued at $115.11 million and two- and three-wheelers among the top five engineering export items at $34.7 million. Exports of India's top five engineering products' groups were valued at nearly $342 million in 2014-15, almost 90 percent of India's total exports of engineering products.

In fact, though Chinese three-wheelers are cheaper, Bajaj three-wheelers outsell Chinese three-wheelers in Peru. The Bajaj three-wheeler is the market leader, selling 2000 three-wheelers a month while TVS, arriving in Peru just a few years ago with its three-wheeler, sells 300 units per month;

Mineral-rich Peru is the world's sixth-largest producer of gold, mining five million ounces every year. It is second in the world in silver production and third in the mining of copper, tin, zinc and lead. The heightened trade was a shot in the arm for the two countries, which launched initial talks on a bilateral free trade agreement in real earnest. Peru hopes that India will ease up on exports of information technology and agricultural produce to that country in return for its minerals and metals.

Foreign investment is pouring into mining, hydrocarbons and big infrastructure projects. The FDI in 2012 was $12.2 billion,

an increase of 49 percent over 2011. Peru is one of the seven countries in Latin America which has an Investment Grade rating. Four big mining projects will double Peru's output of copper, its largest single export, in the next four years. Peru is one of the leading mining countries of the world, with reserves of minerals such as copper, gold, zinc, silver, lead, and tin. The Peruvian mining sector expects to see an investment of $52 billion in the next 10 years. The potential of oil and gas is also being explored, and Peru has already started exporting gas.

Peru exports gold to India in dore form – which is partially refined with oxidised lead removed in the ore. This saves the receiving country precious foreign exchange that would otherwise have been spent on ore refinement. In India, further refinement of imported gold in dore form is carried out at the MMTC-PAMP Refinery.

Trade between India and Peru since 2012 has crossed the $1 billion mark. According to Indian statistics, during 2013-14, the total trade was $1107 million, a slight decline from 2012-13. However, according to Peru Customs statistics, trade between India and Peru during the calendar year 2013 (January-December) was $1.265 billion – exports from India to Peru were $678.94 million and imports by India from Peru were $586.25 million.

India's exports to Peru reached a record $742 million in 2012, up from $510 million in 2011 and $250 million in 2007. The main exports from India in 2012 were iron and steel

products, including pipes ($ 100 million); motorcycles and cycles ($ 72 million); cotton yarn and fibre ($ 74 million); vehicles ($ 59 million); and polyester yarn ($ 41 million).

India's main exports to Peru are automobiles, motorcycles, three-wheelers and their parts, iron and steel laminated products, organic and inorganic chemicals, polyester and cotton yarns, pharmaceuticals, rubber tyres, pipes, etc. The main Indian imports from Peru are gold, silver, copper minerals, phosphates of calcium, zinc and lead minerals, fishmeal, synthetic filaments and so on.

Minerals and hydrocarbons are among the most important sectors in the Peruvian economy contributing close to about 65 percent of total exports. The Peruvian government has been keen to develop relations with India and has invited Indian investments in the hydrocarbons and mining sectors. Peru has extensive proven reserves of natural gas – 17.4 TCF in 2011.

It is clear that Peru is rapidly emerging as one of the more important trade partners for India in the Latin America region. To resurrect and upgrade its infrastructure, Peru is targeting $80-billion investment under the public-private partnership (PPP) model. As a part of the initiative, Indian firms have been invited to join hands with local entities to develop rail, metro, roads, port, airport, telecommunications and energy projects. Peru wants experiences and good practices of India be replicated in Peru through partnerships with local companies.

There is offer of construction of two metro lines worth $5-6 billion and a mono rail project in the south of the country to Indian entities. Peru is also keen to partner with India on a project for hydraulic works pertaining to the potable water.

Eight Indian companies have currently invested between $35-50 million in the mining sector in Peru. It is estimated that their present investment is to the tune of $30 million. This will continue to grow every year as the mines reach more advanced stages. Many more mining companies are in the process of scouting/finalising the acquisition of mining assets. In addition, IFFCO has a major stake in a large phosphate mining operation in northern Peru. Similarly, Zuari Agro, partnering with Mitsubishi, has a 30 percent stake in a large rock phosphate reserve in the same area. Zuari's investment share in the development of this project will be about $36 million. Tata Consultancy Services, Aegis, Wipro and Mahindra Satyam have opened their offices in Peru. Reliance, too, has a representation. All the major Indian pharmaceutical companies have their representative offices or local subsidiaries here. Other sectors in which Indian companies are active include IT, pharma, electrical equipment, energy and cosmetics.

India-Peru trade, 2010-15 ($ million)

	2010-11	2011-12	2012-13	2013-14	2014-15
Export from India	417.6	564.29	637.93	620.55	819.82
% growth		35.13	13.05	-2.72	32.11
Imports to India	187.36	548.27	561.32	524.2	590.4
% growth		192.63	2.38	-6.61	12.63
Total trade	604.96	1112.56	1199.25	1144.75	1410.21
% growth		83.91	7.79	-4.54	23.19

Source: DGCI&S, Govt. of India

On the other hand, AJE Peru has opened a subsidiary in Maharashtra, AJE India Pvt Ltd, manufacturing soft beverages. The operations started in December 2010. They have invested $15 million so far and plan to increase this in the future. Another Peruvian investment has been made by Bembos, a fast-food chain, with an outlet in Mumbai. A major Peruvian company, Resemen SAC, which specialises in mining machinery, has opened a subsidiary in New Delhi by the name of Reliant Drilling Ltd, following a major contract it has won from Hindustan Zinc Ltd.

50 years of diplomacy

India's relations with Peru have always been cordial and friendly, even though the latin American nation is around 17,000 km away as the crow flies, separated by oceans and continents. India established diplomatic relations with Peru in March 1963 and the two countries celebrated their golden jubilee in 2013. Over the years, Peru and India developed a firm, consistent and privileged relation on the basis of common values, similar history as cradles of civilisation and visions about democracy and international peace and security, the widest cooperation, human interchange, market economy and mutual benefits.

An increasing economic and business content was added to the relations following the visit of Peruvian President Alan Garcia as the Chief Guest for Republic Day in 1987, which was considerably enhanced by the opening up of India's economy in the 90s. The ties have been further cemented by high-level exchange visits through the years, including state visits by the heads of state and parliamentarians.

On the Peruvian side, an enhanced interest in the Asian region due to its APEC membership, coupled with India's image as a technologically advanced democratic developing country, as well as increased bilateral trade in recent years, has enhanced India's importance. Peru is also a member of the nonaligned movement (NAM) and G-77. India and Peru cooperate closely on multilateral matters.

Agreements

Many bilateral agreements have been signed by the two sides since the establishment of diplomatic relations, covering a wide range of areas of cooperation. A few of the more recent agreements include a defence coop-

eration agreement, establishment of a joint commission, educational exchange programme and two MoUs on cooperation in geology and mineral resources and for the establishment of a centre of excellence for information technology (CEIT) in Lima. A number of other agreements, such as the Bilateral Investment Protection and Promotion Agreement, Customs Cooperation Agreement, Mutual Legal Assistance in Criminal Matters, Air Services Agreement, Agreement for the Exchange of Information and Assistance in Collection with respect of Taxes, and MoUs on Renewable Energy, and Health, are currently on the anvil. In the light of complementarities of bilateral trade between India and Peru, the two sides have agreed to the proposal for a free trade agreement (FTA) and are working towards finalising the negotiations within three years.

Other agreements signed earlier include

- MOU on space cooperation between ISRO and the Peruvian National space Organisation (CONIDA)
- Agreement between Indian Council of Agricultural Research (ICAR) and the National Institute of Agricultural Research of Peru (INIA)
- Agreement on Scientific, Technical and Logistical Cooperation concerning the Antarctica
- Agreement on Tourism Cooperation
- MOU on Annual Foreign Office Consultations
- Agreement on Technical Cooperation
- Agreement between Foreign Service Institute and Diplomatic Academy of Peru
- Agreement on the establishment of Joint Business Council between the Peruvian Confederation of Private Enterprises (CONFIEP) and Ficci and Assocham
- Protocol for cooperation between NASSCOM and the Peruvian Chamber of Software (Camara Peruana de Software – CPS)

India offers to Peru regular training courses under its ITEC programme. Peru is fully utilising the ITEC slots allotted to it. Considering the interest evinced by the Peruvian side, India increased the slots from 30 to 40 for the year 2013-14. Peruvian diplomats have also been attending the PCFD courses at the Foreign Service Institute. For the first time, Peru sent an officer (naval) to attend the 53rd NDC Course in New Delhi in 2013.

In 2007, India donated $500,000 as disaster relief assistance in the wake of a severe earthquake.

Peru has traditionally supported a Latin

American nuclear weapons-free zone and has been sharply critical of nuclear testing. Peru is part of the 'Tlatelolco Treaty' that in 1967 established the first non nuclear weapon inhabited zone in the World. Peru supports the right of the States to use this energy and technology for civilian purposes under international legislation and IAEA disposition.

Crowning glory

Way back in 1987 India and Peru signed a cultural agreement, which has been more or less dormant as very few exchanges have taken place under the agreement, a recent event being an ICCR-sponsored visit of renowned Odissi dancer Masako Ono to Peru in April 2012. It was only the 50th anniversary of the establishment of diplomatic relations between India and Peru that witnessed a flurry of activities.

During the celebrations on 25 March 2013, a postage stamp was issued depicting Taj Mahal and Machu Picchu – world heritage sites both and the crowning glory of the respective countries. An exhibition of documents and photographs covering 50 years of establishment of diplomatic relations was also opened on the occasion. On 21 June, a Conference on Scientific and Technological Developments in India was organised by the Commission of Science, Innovation and Technology of the Peruvian Congress as part of events marking the 50th anniversary of establishment of bilateral relations. A Mini Festival of India was also held where Nrityarupa dance was presented by the Sangeet Natak Akademi and a film festival and a literary programme were organised by the Directorate of Film Festivals and the Sahitya Akademi respectively.

Besides, in 2003, the 40th year of diplomatic ties, Peru announced its support to India's candidature for permanent membership in an expanded UN Security Council. Peru also expressed support to Brazil, Japan, Egypt and Germany's candidature for a permanent seat in an expanded UNSC. India and Peru signed a joint statement that inter alia covered subjects like WTO issues, sustainable development, biodiversity, climate change, poverty alleviation, fight against terrorism and reactivation of agreements signed. An agreement on abolition of visas for holders of diplomatic and official passports was also signed.

Diasporas

Peru is home to a vibrant if small Indian community numbering around 400 – some 50-60 families – mainly engaged in business and trade.. An Indian owns a chain of cinema halls, while another has set up pharmaceutical manufacturing and distribution units. More Indian professionals are coming to Peru with the entry of more Indian companies. In addition, there are some Indian nationals with the Missionaries of Charity and other Christian organisations in Lima, Chimbote and Puno. India origin organisations such as Hare Krishna, Sai Baba and Brahma Kumaris are also present in Peru.

The Peruvian community in India is quite small, around two hundred people, mainly women. They are mainly professors, engineers, housewives and students. The majority lives in the Delhi NCR and other Indian states like Haryana, Maharashtra, Uttar Pradesh, Karnataka and Rajasthan. A Peruvian soft drinks company called AJE has opened a bottling plant in Patalganga in Raigad district in Maharashtra to produce and market its Big Cola brand of fizzy drinks.

UNDERGROUND RICHES

THE Peruvian economy is one of the world's fastest-growing owing to the economic boom experienced during the 2000s. Historically, the country's economic performance has been tied to exports, which provide hard currency to finance imports and external debt payments. The 39th largest in the world, Peru is classified as an upper middle income economy by the World Bank.

Exports in Peru, which reached an all-time high of $4554.90 million in August 2011, were recorded at $2360 million in April 2015, according to the Central Reserve Bank of Peru. In recent years, Peru has been experiencing a surge in commodity exports. The country's major exports are copper (19 percent of total shipments) and gold (17 percent), followed by gasoline, lead ore, and textiles. Peru, which recorded an all-time high balance of trade at $1290.20 million in December 2011, had a trade deficit of $647 million in April 2015. Peru has been recording trade surpluses since 2002, mostly due to a rise in the shipments of minerals like gold, copper, silver, zinc and lead. Peru's main imports are: crude and refined oil, trucks, buses and light trucks and industrial machinery and equipment.

Peru's economy reflects its varied topography – an arid lowland coastal region, the central high sierra of the Andes, the dense forest of the Amazon, with tropical lands bordering Colombia and Brazil. A wide range of important mineral resources are found in the mountainous and coastal areas, and Peru's coastal waters provide excellent fishing grounds. Peru is the world's second-largest producer of silver and third-largest producer of copper. The Peruvian economy grew by an average of 5.6 percent from 2009-13 with a stable exchange rate and low inflation, which in 2013 was just below the upper limit of the Central Bank target range of 1-3 percent. This growth was due partly to high international prices for Peru's metals and minerals exports, which account for almost 60 percent of the country's total exports.

Contact Persons

R. Baskaran
Chairman cum Managing Director

B. Anandkumar
Joint Managing Director

Contact No.: 0-91–9843076999 , 0-91- 422-2360124
e-mail:anugraha@anugrahavalvecastings.com
Web site: www.anugrahavalvecastings.com

ANUGRAHA VALVE CASTINGS LIMITED

95% of Our Products are being Exported to European Countries out of Which 75% to Germany

We Have Well Equipped 4 Foundries and 2 Modern Machine Shops to fulfill our Customers' Requirement.

Foundry Approvals:

LRQA	: ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007, APPROVAL OFMANUFACTURER
TUV NORD	: ISO 9001:2008 , AV2000-WO, PED-97/23/EC,ISO3834-2
BUREAU VERITAS	: MARINE DIVISION – APPROVAL OF MATERIAL
DET NORSKE VERITAS	: APPROVAL - MANUFACTURER STEEL CASTINGS
AMERICAN BUREAU OF SHIPPING	: APPOROVAL OF MATERIAL
GERMANISCHER LLOYD	: APPROVAL OF MATERIAL
NIPPON KAIJI KYOKAI	: APPROVAL OF MATERIAL
RINA	: APPROVAL OF MATERIAL
GERMANISCHER LIOYD SE	: APPROVAL OF STEEL CASTINGS
INDIA BOILER REGULATIONS	: CENTRAL BOILERS BOARD – WELL KNOWN FOUNDRY

Ours is a Steel Castings Foundry Manufacturing Carbon Steel, Stainless Steel, Duplex Stainless Steel & Nickel based valve Castings ranging from 5 Kgs to 4500 Kgs for Seashore Industries, Chemical Plants and Oil and gas fields.

ANUGRAHA VALVE CASTINGS LIMITED
(STEEL CASTINGS FOUNDRY)

INDIA
S.F. NO.391/2 SENGODA GOUNDEN PUDUR, ARASUR,
COIMBATORE 641 407.

The road to Uchucchacua mine 4500 metres above sea level in the Peruvian Andes: the mine produces silver, zinc and lead

Growth slipped in 2014, due to weaker world prices for these resources. Despite Peru's strong macroeconomic performance, dependence on minerals and metals exports and imported foodstuffs makes the economy vulnerable to fluctuations in world prices. Peru's rapid expansion coupled with cash transfers and other programmes have helped to reduce the national poverty rate as the administration of President Ollanta Humala has championed a policy of social inclusion and a more equitable distribution of income. The government passed several economic stimulus packages in 2014 to bolster growth, including reforms to environmental regulations in order to spur investment in Peru's lucrative mining sector.

Peru instituted economic reforms in the 90s and liberalised the economy that led to sustained economic growth since 1993, except for a slump after the 1997 Asian financial crisis. Since 2006, Peru has signed trade deals with the US, Canada, Singapore, China, Korea, Mexico, Japan, the EU, the European Free Trade Association, Chile, Thailand, Costa Rica, Panama, Venezuela, concluded negotiations with Guatemala, and begun trade talks with Honduras, El Salvador, India, Indonesia, Turkey and the Trans-Pacific Partnership. Peru also has signed a trade pact with Chile, Colombia, and Mexico, called the Pacific Alliance, that seeks integration of services, capital, investment and movement of people. Since the US-Peru Trade Promotion Agreement entered into force in February 2009, total trade between Peru and the United States has doubled.

In 2014, Peru's exports were valued at an estimated $36.43 billion, the major commodities being copper, gold, lead, zinc, tin, iron ore, molybdenum, silver; crude petroleum and petroleum products, natural gas; coffee, asparagus and other vegetables, fruit, apparel and textiles, fishmeal, fish, chemicals, fabricated metal products and machinery, alloys. Its major export partners were the US (18.4 percent) and China (17.8 percent), followed by Canada, Japan, Brazil, Switzerland, Spain and South Korea.

Its imports were valued at an estimated $40.25 billion in 2014, constituting petroleum and petroleum products, chemicals, plastics, machinery, vehicles, TV sets, power shovels, front-end loaders, telephones and telecommunication equipment, iron and steel, wheat, corn, soybean products, paper, cotton, vaccines and medicines. The US and China again were Peru's main import partners, followed by Brazil, Argentina, Chile, Ecuador and Mexico.

Services account for 53 percent of Peruvian gross domestic product, followed by manufacturing (22.3 percent), extractive industries (15 percent), and taxes (9.7 percent). Recent economic growth has been fuelled by macroeconomic stability, improved terms of trade, and rising investment and consumption. Peru has a high Human Development Index of .752 based on 2011 data.

HEIGHTS OF MACHU PICHU

THE Republic of Peru, located in western South America, is bordered in the north by Ecuador and Colombia, in the east by Brazil, in the southeast by Bolivia, in the south by Chile, and in the west by the Pacific Ocean. It is an extremely bio-diverse country with habitats ranging from the arid plains of the Pacific coastal region in the west to the peaks of the Andes vertically extending from the north to the southeast of the country to the tropical Amazon Basin rainforest in the east with the Amazon river.

Peruvian territory was home to ancient cultures spanning from the Norte Chico civilisation in Caral, one of the oldest in the world, to the Inca Empire, the largest state in Pre-Columbian America. The earliest evidences of human presence in Peruvian territory have been dated to approximately 9000 BCE.

Andean societies were based on agriculture, using techniques such as irrigation and terracing; camelid husbandry and fishing were also important. The oldest known complex society in Peru, the Norte Chico civilisation, flourished along the coast of the Pacific Ocean between 3000 and 1800 BCE. These early developments were followed by archaeological cultures that developed mostly around the coastal and Andean regions throughout Peru. The Cupisnique culture which flourished from around 1000 to 200 BCE along what is now Peru's Pacific coast was an example of early pre-Incan culture.

The Chavín culture that developed from 1500 to 300 BCE was probably more of a religious than a political phenomenon, with their religious centre in Chavin de Huantar. After the decline of the Chavin culture around the beginning of the Christian era, a series of localised and specialised cultures rose and fell, both on the coast and in the highlands, during the next thousand years.

On the coast, these included the civilisations of the Paracas, Nazca, Wari, and the more outstanding Chimu and Mochica. The Mochica who reached their apogee in the first millennium CE were renowned for their irrigation system which fertilised their arid terrain, their sophisticated ceramic pottery, their lofty buildings, and clever metalwork. The Chimu were the great city builders of pre-Inca civilisation.

Machu Picchu: an Incan citadel set high in the Andes Mountains in Peru

In the 15th century, the Incas emerged as a powerful state which, in the span of a century, formed the largest empire in pre-Columbian America with their capital in Cusco. The Incas of Cusco originally represented one of the small and relatively minor ethnic groups, the Quechuas. Gradually, as early as the 13th century, they began to expand and incorporate their neighbours. From 1438 to 1533, the Incas used a variety of methods, from conquest to peaceful assimilation, to incorporate a large portion of western South America, centred on the Andean mountain ranges, from southern Colombia to Chile, between the Pacific Ocean in the west and the Amazon rainforest in the east. The Incas considered their king, the Sapa Inca, to be the 'child of the sun.'

The most familiar icon of Inca civilisation

is Machu Picchu, a 15th-century Inca site located 2430 m above sea level, often mistakenly referred to as the 'Lost City of the Incas,' and immortalised by Nobel laureate Pablo Neruda in his poem Heights of Macchu Picchu. Located in the Cusco Region, Urubamba Province of Machupicchu District, it is situated on a mountain ridge above the Sacred Valley which is 80 km northwest of Cuzco and through which the River Urubamba flows. Most archaeologists believe that Machu Picchu was built as an estate for the Inca emperor Pachacuti (1438-72).

The Incas built the estate around 1450, but abandoned it a century later at the time of the Spanish Conquest. Although known locally, it was not known to the Spanish during the colonial period and remained unknown to the outside world before being brought to international attention in 1911 by the American historian Hiram Bingham. Since then, Machu Picchu has become the largest tourist attraction in South America. Most of the outlying buildings have been reconstructed in order to give tourists a better idea of what the structures originally looked like. By 1976, 30 percent of Machu Picchu had been restored. The restoration work continues to this day.

Machu Picchu was declared a Peruvian Historical Sanctuary in 1981 and a UNESCO World Heritage Site in 1983. In 2007, Machu Picchu was voted one of the New Seven Wonders of the World in a worldwide Internet poll.

Spanish conquest

The Spanish Empire conquered the region in the 16th century and established a Viceroyalty with its capital in Lima, which became known as the 'city of kings,' and included most of its South American colonies. Ideas of political autonomy later spread throughout Spanish America and Peru gained its independence, which was formally proclaimed in 1821.

The indigenous population dramatically collapsed due to exploitation, socioeconomic change and epidemic diseases introduced by the Spanish. Viceroy Francisco de Toledo reorganised the country in the 1570s with gold and silver mining as its main economic activity and Amerindian forced labour as its primary workforce. With the discovery of the great silver and gold lodes at Potosí (present-day Bolivia) and Huancavelica, the viceroyalty flourished as an important provider of mineral resources. Peruvian bullion provided revenue for the Spanish Crown and fuelled a complex trade network that extended as far as Europe and the Philippines. Because of lack of available workforce, African slaves were added to the labour population.

With the conquest started the spread of Christianity in South America; most people were forcefully converted to Catholicism, taking only a generation to convert the population. They built churches in every city and replaced some of the Inca temples with churches, such as the Coricancha in the city of Cusco. The church employed the Inquisition, making use of torture to ensure that newly-converted Catholics did not stray to other religions or beliefs. Peruvian Catholicism follows the syncretism found in many Latin American countries, in which religious native rituals have been integrated with Christian celebrations. In this endeavour, the church came to play an important role in the acculturation of the natives, drawing them into the cultural orbit of the Spanish settlers.

By the 18th century, declining silver production and economic diversification greatly diminished royal income. In the early 19th century, while most of South America was swept by wars of independence, Peru remained a royalist stronghold. As the elite vacillated between emancipation and loyalty to the Spanish Monarchy, independence was achieved only after the occupation by military campaigns of José de San Martín and Simón Bolívar.

After fighting for the independence of the Viceroyalty of Rio de la Plata, José de San Martín created the Army of the Andes and crossed the Andes in 21 days, a great accomplishment in military history. Once in Chile he joined forces with Chilean army General Bernardo O'Higgins and liberated the country in the battles of Chacabuco and Maipú in 1818. Because Peru was the stronghold of the Spanish government in South America, San Martin's strategy to liberate Peru was to use diplomacy. He sent representatives to Lima urging the Viceroy that Peru be granted independence, however all negotiations proved unsuccessful.

San Martin occupied Lima and declared Peruvian independence on 28 July 1821. He created the first Peruvian flag. Alto Peru (Bolivia) remained as a Spanish stronghold until the army of Simón Bolívar liberated it three years later. Jose de San Martin was declared Protector of Peru. Peruvian national identity was forged during this period, as Bolivarian projects for a Latin American Confederation floundered and a union with Bolivia proved ephemeral. In July 1822 Bolivar and San Martin gathered in the Guayaquil Conference. Bolivar was left in charge of fully liberating Peru while San Martin retired from politics after the first parliament was assembled. The newly-founded Peruvian Congress named Bolivar dictator of Peru giving him the power to organise the military.

With the help of Antonio José de Sucre they defeated the larger Spanish army in the Battle of Junín on 6 August 1824 and the decisive Battle of Ayacucho on 9 December of the same year, consolidating the independence of Peru and Alto Peru. Alto Peru was later established as Bolivia.

Peru engaged in a brief successful conflict with Ecuador in the Paquisha War as a result of territorial dispute between the two countries. After the country experienced chronic inflation, the Peruvian currency, the sol, was replaced by the Inti in mid-1985, which itself was replaced by the nuevo sol in July 1991. In early 1995, once again Peru and Ecuador clashed in the Cenepa War, but in 1998 the governments of both nations signed a peace treaty that clearly demarcated the international boundary between them.

AMAZING DIVERSITY

San Martin Square in Peru's capital Lima

PERU covers 1,285,216 km^2 of western South America. It borders Ecuador and Colombia to the north, Brazil to the east, Bolivia to the southeast, Chile to the south, and the Pacific Ocean to the west. The Andes range runs parallel to the Pacific Ocean; they define the three regions traditionally used to describe the country geographically. The costa (coast), to the west, is a narrow plain, largely arid except for valleys created by seasonal rivers. The sierra (highlands) is the region of the Andes; it includes the Altiplano plateau as well as the highest peak of the country, the 6768 m Huascarán. The third region is the selva (jungle), a wide expanse of flat terrain covered by the Amazon rainforest that extends east. Almost 60 percent of the country's area is located within this region.

Most Peruvian rivers originate in the peaks of the Andes and drain into one of three basins. Those that drain toward the Pacific Ocean are steep and short, flowing only intermittently. Tributaries of the Amazon are longer, have a much larger flow, and are less steep once they exit the sierra. Rivers that drain into Lake Titicaca are generally short and have a large flow. Peru's longest rivers are the Ucayali, the Marañón, the Putumayo, the Yavarí, the Huallaga, the Urubamba, the Mantaro, and the Amazon.

The combination of tropical latitude, mountain ranges, topography variations, and two ocean currents (Humboldt and El Niño) gives Peru a large diversity of climates. Because of its varied geography and climate, Peru has a high biodiversity with 21,462 species of plants and animals reported as of 2003, 5855 of them endemic.

Peru is a multiethnic nation formed by the combination of different groups over five centuries. Amerindians inhabited Peruvian territory for several millennia before Spanish Conquest in the 16th century; according to historian Noble David Cook their population decreased from nearly 5-9 million in the 1520s to around 600,000 in 1620 mainly because of infectious diseases. Spaniards and Africans arrived in large numbers under colonial rule, mixing widely with each other and with indigenous peoples. After inde-

The Virgen del Carmen parade in the Peruvian Andes at Pisac Peru

pendence, there has been gradual immigration from England, France, Germany, Italy, and Spain. Chinese and Japanese arrived in the 1850s as a replacement for slave workers and have since become a major influence in Peruvian society. This mixture of cultural traditions has resulted in a wide diversity of expressions in fields such as art, cuisine, literature, and music.

Population

With about 29.5 million inhabitants, Peru is the fifth most populous country in South America. As of 2007, 75.9 percent lived in urban areas and 24.1 percent in rural areas. Major cities include the Lima Metropolitan Area (home to over 9.8 million people), Arequipa, Trujillo, Chiclayo, Piura, Iquitos, Cusco, Chimbote, and Huancayo. There are 15 uncontacted Amerindian tribes in Peru.

According to the Peruvian Constitution of 1993, Peru's official languages are Spanish and Quechua, Aymara and other indigenous languages in areas where they predominate. Spanish is spoken by 84.1 percent of the population and Quechua by 13 percent, while other languages make up the remaining 2.9 percent.

Cultural fusion

Peruvian culture is primarily rooted in Amerindian and Spanish traditions, though it has also been influenced by various Asian, African, and other European ethnic groups. Peruvian artistic traditions date back to the elaborate pottery, textiles, jewellery, and sculpture of pre-Inca cultures. The Incas maintained these crafts and made architectural achievements including the construction of Machu Picchu. Baroque dominated colonial art, though modified by native traditions.

During this period, most art focused on religious subjects; the numerous churches of the era and the paintings of the Cuzco School are representative. Arts stagnated after independence until the emergence of Indigenismo in the early 20th century. Since the 50s, Peruvian art has been eclectic and shaped by both foreign and local art currents.

Peruvian literature is rooted in the oral traditions of pre-Columbian civilisations. Spaniards introduced writing in the 16th century; colonial literary expression included chronicles and religious literature. After independence, Costumbrism and Romanticism became the most common literary genres, as exemplified in the works of Ricardo Palma. The early 20th century's Indigenismo movement was led by such writers as Ciro Alegría and José María Arguedas. César Vallejo wrote modernist and often politically engaged verse. Modern Peruvian literature is recognised thanks to authors such as Nobel laureate Mario Vargas Llosa, a leading member of the Latin American Boom.

Peruvian cuisine blends Amerindian and Spanish food with strong influences from Chinese, African, Arab, Italian, and Japanese cooking. Common dishes include anticuchos, ceviche, and pachamanca. Peru's varied climate allows the growth of diverse plants and animals good for cooking. Peru's diversity of ingredients and cooking techniques is receiving worldwide acclaim.

Peruvian music has Andean, Spanish, and African roots. In pre-Hispanic times, musical expressions varied widely in each region; the quena and the tinya were two common instruments. Spaniards introduced new instruments, such as the guitar and the harp, which led to the development of crossbred instruments like the charango. African contributions to Peruvian music include its rhythms and the cajón, a percussion instrument. Peruvian folk dances include marinera, tondero, zamacueca, diablada and huayno.

– EEPC India research and Internet sources

Enhancing India's exports through technology upgradation

EEPC India has been tasked with identifying areas in India's manufacturing and engineering sectors that are in urgent need of technological innovation. Accordingly, this is the first of a series of articles we are preparing on the issue. This paper provides an overview of contemporary technological developments in the world for comparison with where India stands. Do write to us at the address provided at the end if there are any areas that you would like EEPC India to investigate and include in our list

Competition between manufacturing nations is fundamentally a competition between them in their abilities to apply, and develop technologies more effectively than other nations. Efficient application of technologies in manufacturing also requires sophisticated organisational skills. Thus, at the heart of the development of competitive manufacturing capabilities lies the ability to learn and apply technologies faster than other nations. By many measures, India has been slipping in this race. The consequence is that, in an open competitive world, India is importing more manufactured goods and cannot increase its exports as fast as it wants to.

– Excerpts from the Report on 'Technology and Depth,' Planning Commission, India 2012

Post the financial crisis of 2008, manufacturing performances of most of the advanced nations had hit a slump and lost their share in global manufacturing, while emerging economies, especially BRICS – Brazil, Russia, India, China and South Africa – economies, gained their manufacturing share in global output, while there were few notable exceptions that not only withstood the challenges rather increased their manufacturing competitiveness. Most significant among them was Germany, which proved itself as an exceptional example. Germany has consistently been able to sustain its manufacturing sector as a relevant source of employment, growth, and exports. Germany's share of manufacturing is 22 percent of GDP, around the same that India targets for itself of the manufacturing share in GDP by 2022.

The success of German manufacturing lies in its highly focused and elaborate R&D ecosystem, due to which Germany boasts of succeeding in sustaining high-value global exports despite its average wages being higher than those in the US. On the contrary to the general perception, the US manufacturing reflected strong resurgence and recovered faster than the other sectors of the economy in the post-recession period. According to MAPI foundation, in 2013 alone, the US manufacturing sector generated almost $2 trillion worth of value-addition in manufacturing. The industry-R&D collaborations and spending were largely responsible for successful restructuring of the manufacturing sector in developed economies.

Industry 4.0 – New frontier for research implementation

As a result of recession and reducing competitiveness of manufacturing in developed economies in the face of the emergence of China and others BRICS and ASEAN countries, manufacturers sought to scout and develop more efficient manufacturing processes. This led to the developments in integration of information technologies, energy-efficient systems and individual product-centric manufacturing models. It has further opened new avenues for the socioeconomic landscape and opening millions of new jobs in a new environmentally-conscious manufacturing environment.

Advanced nations are leading in the adoption and integration of these latest manufacturing processes in the form of cyber-physical systems, energy-efficient technologies to enhance their productivity and reduce cost. This is what is now commonly referred to as 'Fourth Industrial Revolution' or Industry 4.0. Germany is already at the forefront in this evolution, whereas the US, China, Japan and the EU are fast catching up.

The main features of industry 4.0 are high degree of automation, enhanced use of IT with mechanisation and labour-saving techniques such as industrial robots and additive manufacturing. Similarly China had recently unveiled its national strategy on 29 May 2015 to boost manufacturing competitiveness and hi-tech industry by releasing 'Made in China 2025.' It identified 10 technologies which would be key focus for R&D and development to compete with the western nations in the 21st century. Further, the US and other developed economies are also focusing on renewing their R&D ecosystems in order to develop their leadership in niche sectors.

With the 'Make in India' programme in place, India is targeting to double its share in world trade from 1.7 percent to 3.5 percent by 2020. The existing export commodities, except some, have reached a point where elasticity is less in the export market. For long, the majority share of India's engineering export basket is made up of raw materials with little value addition. Therefore, there is a need to promote and develop newer products. This can be achieved by technology upgradation of certain key value-added products which have significant export potential.

Overview of current global R&D investment trends

As hi-technology manufacturing bases are spreading across emerging economies like China, Brazil, ASEAN, East European countries and South Africa, even some of the Gulf countries such as UAE and Qatar are now focusing on adding manufacturing capabilities.

According to Battelle and R&D magazine, there has been dramatic change in the extent of globalisation involved in research activities and their spending. China's aggressive programmes has helped Southeast Asia to emerge as the world's largest region for research investments, and is expected to continue as a major destination through at least the end of the decade. Asia is also leveraging its global scientific knowledge and capabilities by increasing collaborations with technology firms and research organisations in the US and Europe. There is a clear indication that R&D leadership is shifting from the West to

the East.

In 2014, ten countries spent about 80 percent of the total $1.6 trillion invested in R&D around the world; the combined investments by the US, China and Japan alone accounted for more than half of the total. Together, the US, China, Japan and Europe account for about 78 percent of total global R&D investments in the year 2014.

India stands at 8th position globally in gross expenditures on research and development (GERD). It invested approx $40 billion across various sectors. Despite India's position in the top 10 global spenders in R&D, India not only lags significantly in R&D in manufacturing, but majority of R&D in India is done by large MNCs to bring their operations into India, in order to bring their research labs and market closer. India is the only BRICS nation, which is keeping its research spending as share of GDP constant over last five years at 0.9 percent of GDP. The majority of research spending in India is done by large MNCs.

India stands at 8th position globally in gross expenditures on research and development. It invested approx $40 billion across various sectors. Despite India's position in the top 10 global spenders in R&D, India not only lags significantly in R&D in manufacturing, but a majority of R&D in India is done by large MNCs to bring their operations into India, in order to bring their research labs and markets closer

Evaluation of R&D spending by major economies

USA

According to the National Science Foundation, the US maintained its commitment in R&D investments in the range of 2.5-3 percent of GDP. Of this, the private sector accounts for three-fourths of research activities. This has set the foundations for US technological innovations. Recently, there has been increase in energy-related research, life sciences, IT, chemical and advanced materials. However, defence and aerospace is likely to witness focused contractions.

The US is a dominant force today in global research spending across numerous industries. It spends approx. $465 billion annually on R&D. The US has successfully retained its competitiveness by maintaining its annual R&D of approx. 2.8 percent of GDP. Today this has become the global benchmark for competitiveness level of R&D spending, although today, the US economic dominance is challenged by rapidly emerging China.

CHINA

According to Batelle, China has continuously increased its R&D expenditures by 12-20 percent over the past 20 years. As a result, China's R&D investments are at 61 percent that of the US. At the current rate, China is likely to overtake the US in total R&D spending by 2022 and EU combined by 2018.

China is investing heavily to create an innovation infrastructure that will allow it to develop, commercialise and market advanced technology-based products, moving beyond its established position as a low-cost location for manufacturing. China is steadily building its innovation capabilities strategically by focusing on key sectors which will play important role in future manufacturing.

China has already fixed its macroeconomic goal of spending 2.2 percent of GDP on research by 2015. China strives to transition from a manufacturing economy to become 'innovation-driven' by 2020. It will not be wrong to assume that China will soon be able to brand itself at par with German, Japanese or US engineering across technological domains.

China's R&D investment is linked to national goals for industrial growth, stable domestic evolution to an advanced economy, power projection and international prestige. Chinese R&D goals are manifested in large R&D-enabled projects like space station and energy generation infrastructure spanning from renewable to nuclear power.

China has aptly demonstrated that R&D is not an impediment, and, in fact, is part of the solution to resource-based growth restraints like energy capacity and independence, water supply, agricultural productivity and environmental protection. This is a big example that India can adopt to pursue its R&D strategy. Chinese emergence as an R&D superpower is a major challenge for India in the coming years.

EUROPE

The EU is witnessing shaky recovery from economic crises. Major economies are yet to sustain economic growth. However, for the coming years, the European Research Council has emphasised priorities on translation from scientific research to commercialisation to economic impact by helping innovative enterprises develop technological assets into viable products with large commercial potential. This market-driven approach includes creating partnerships with the private sector and member states. European research priorities over the next 10 years includes focus on energy, environmental and life science R&D applications. Areas that may become less emphasised include military and space-based research.

OTHERS

Other emerging R&D economies such as **South Korea**, **Japan** and **Taiwan**, all have strong R&D programmes that support development of science and technology

(S&T) in both the public and private sectors. Like China, Korea also has also established aggressive five-year plans for S&T. The objectives involve national competitiveness in innovation-intensive industries in which the country has a strong manufacturing stake.

All the **BRICS** countries except India are increasing research intensity (i.e. spending as a percent of GDP). **ASEAN** countries are also witnessing increase in R&D investments which is partly driven by Chinese investments in the region.

Crucial need for technology upgradation in Indian manufacturing

According to the recently released Annual Survey of Industries (ASI) estimates for the year 2012-13 released by the Government of India, the total number of engineering factories increased 3.14 percent, while the total output declined -2.59 percent. Correspondingly the employment declined -4.09 percent and the net value addition also declined -14.55 percent. The dismal performance of the engineering sector has reiterated the need for improving manufacturing capabilities so as to achieve faster growth in the manufacturing sector.

The share of industry in R&D expenditure is also much lower than other countries. The Indian government contributes around 60 percent of total R&D expenditure which is much higher than other countries where industry-led R&D spending is much higher. Also most government R&D expenditure in India goes into non-industrial sectors such as space, defence, agriculture, biotech, etc. with the share of industry being very small. In addition, while there is infrastructure for research in academic institutes in India like the IITs, etc. the patent filing rate is quite low. Less than 10 percent of patents filed in India are owned by Indian companies, the majority being owned by MNCs. Academics focus more on publishing papers rather than on conducting research, applied research and product development. This is also due to limited funds, absence of academia-industry linkages, lack of awareness on patenting and insufficient incentives around commercialisation of research. In India full-time R&D professionals' strength is just 150 per million compared to China which has 1180. India is unable to improve this ratio with growing population and lack of investments in technical education infrastructure.

In 2012, the Planning Commission released a report on 'Technology and depth' that clearly underlined the need for improving manufacturing capabilities so as to achieve faster growth in the manufacturing sector. It recognised that India's machine-building capabilities are inadequate for the country's manufacturing ambitions. Therefore, India must increase the technology development capacity for its manufacturing sector, focusing on more value addition. It would require a combination of many inputs, including skilled manpower, better managers of factories, and more research and development of new production technologies.

New Industrial Revolution with new opportunities

In India, there is a need to establish strong linkages amongst researchers and manufacturers. This can be done by effective facilitation processes and mechanisms in place by bringing together government bodies and private organisations. The facilitation processes shall concentrate actions on priority areas for technological development and by selection of these areas through systematic engagements of the producers and the various policy organs of government.

With the new industrial revolution that has just begun, India stands to gain a unique place in it, provided it manages to build up its infrastructure, simplify excessive regulations for easing the business environment and reform its bureaucracy. If India could catch up with the ensuing opportunities and capitalise upon its strengths of skill and free enterprises, India can soon surpass all that China gained in the last 20 years. However, India needs to focus on the following main areas:

i) India will need to invest in skill and technology development as well as R&D facilities to develop the local market.

ii) The government needs to ramp up its efforts to develop a formidable data security environment.

iii) Encourage development of security services for the industry.

iv) Implement practical skill development programmes. Specialised skills in the hi-tech emerging sector such as cognitive robotics, advanced automation, industrial ICT, automation bionics and other specialised skills needs to be encouraged across centres of excellence.

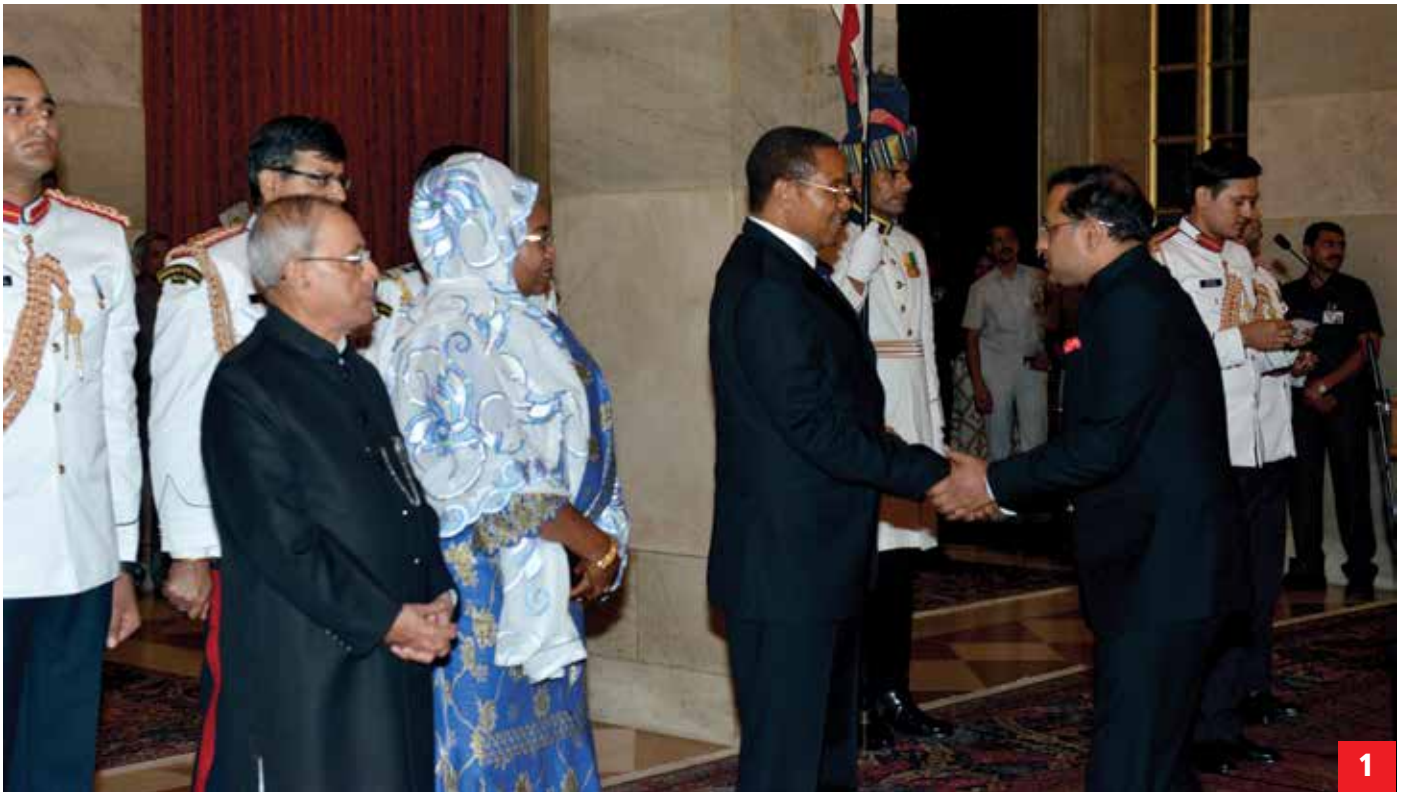
Action Plan to boost Indian engineering exports by Ministry of Commerce and Industry, Government of India

(Extracts from DoC Circular to CSIR Labs, 2014)

Under a strategic action plan of Ministry of Commerce and Industry, Government of India, to boost engineering exports, a new basket of globally important products, for which India needs to strengthen its indigenous competitiveness for enhancing exports is underway. EEPC India, as directed by the Department of Commerce, is providing the necessary inputs for monitoring engineering market trends and also implementing action plans for capturing more and more of international trade in engineering sector.

Please write to EEPC India about areas that require technology upgradation at: mkrishna@eepcindia.net; eepcto@eepcindia.net

This paper has been prepared primarily with inputs from Mayank Krishna, EEPC India Territorial Office, New Delhi



EEPC at home ...

Mr Anupam Shah, Chairman, EEPC India, greets Tanzanian President Jakaya Kikwete (**1**) and First Lady Salma Kikwete (**2**) as President Pranab Mukherjee looks on at a banquet hosted in honour of the visiting dignitaries at Rashtrapati Bhavan, New Delhi

3

4

EEPC at home ...

With the release of the long-awaited Foreign Trade Policy 2015-20, EEPC India has been organising meetings with member-exporters to clarify the implications of the new policies. (**3**) Mr SBS Reddy, JDGFT, Hyderabad, making a presentation in an interactive session on the new FTP in Hyderabad; (**4**) Mr VC Ravish, Jr Executive Officer, EEPC India, Hyderabad introducing the speakers; (**5**) Mr Mahesh K Desai, Regional Chairman, EEPC India, answering questions from the floor. (**6**) Mr CH Nadiger, Regional Director, EEPC India (SR), facilitating an interactive session.

EEPCINDIA
New Foreign Trade Policy 2015-2020
A Seminar & Interactive Session
HYDERABAD
12 JUNE 2015
SHRI S B S REDDY, ITS
SHRI MAHESH K DESAI
EEPCINDIA

5

ECGC
MOHAN
J.V. PATIL
Y. HARIHARAN

6

HOME AFFAIRS

7

8

9

10

EEPC at home ...

The interactive sessions on the Foreign Trade Policy 2015-20 was held in all the regional offices of EEPC India. (**7**) Mr Sanjiv Nandwani, Addl Director-General Foreign Trade & Development Commissioner, SEZ interacting with Council members in an interactive session on Foreign Trade Policy 2015-20 in Kolkata; (**8**) a view of the interactive session on Foreign Trade Policy 2015-20. (**9**) Mr Anil Kumar Singh, Jt Director-General Foreign Trade, and (**10**) Mr Sudhakaran Nair, Sr Asst Director, EEPC India, addressing an interactive session on FTP 2015-20 in Ahmedabad

HOME AFFAIRS

EEPC at home ...

(**11**) Mr Opinder Singh, Deputy Director, EEPC India, Jalandhar, speaking in a seminar on Lean Manufacturing organised by EEPC India in Jalandhar

India's engineering sector and the potential for growth of exports

ANALYSIS

EEPC INDIA

This article provides an overview of India's engineering industry, and identifies the advantages and challenges facing the industry in an attempt the analyse the potential of engineering exports and ways and means to ease the path of exports

INDIA'S engineering sector, being closely associated with the manufacturing and infrastructure sectors of the economy, is of strategic importance to India's economy. Growth of the sector drives the growth of core sectors like infrastructure, power, steel, automotives, oil and gas among others. The secondary-level survey carried out by the Central Statistical Office reflected moderate recovery of the industry in 2014-15 after a gloomy scenario in the previous fiscal as industrial output grew by 2.8 percent during fiscal 2014-15 as against (-)0.1 percent in 2013-14. The recovery was mainly led by the

Table1: Factories and total output, 2011-13 (Rs lakh)

	Factories		Growth	Total output		Growth
	2011-12	2012-13	%	2011-12	2012-13	%
Basic metals	11644	11877	2.00	83445301	76839815	-7.92
Machinery and equipment n.e.c.	11521	11877	3.09	25254819	25460125	0.81
Motor vehicles, trailers and semi-trailers	5306	5558	4.75	38114155	39809123	4.45
Electrical equipment	7345	7702	4.86	20693222	21349332	3.17
Fabricated metal products, except machinery and equipment	15617	16206	3.77	18062725	16249114	-10.04
Other transport equipment	2412	2399	-0.54	12585896	13267451	5.42
Repair and installation of machinery and equipment	826	767	-7.14	873158	904433	3.58
Total of engineering products	**54671**	**56386**	**3.14**	**1.99E+08**	**193879393**	**-2.59**
Total industry	**217554**	**222120**	**2.10**	**5.78E+08**	**602594536**	**4.29**
Share of engineering to total (%)	**25.13**	**25.39**		**34.45**	**32.17**	

Table2: Total employees and net value added, 2011-13 (Rs lakh)

Description	Total employees		Growth	Net value added		Growth
	2011-12	2012-13	%	2011-12	2012-13	%
Basic metals	1089666	1017218	-6.65	14326074	7940607	-44.57
Machinery and equipment n.e.c.	690099	671284	-2.73	5608470	6014389	7.24
Motor vehicles, trailers and semi-trailers	791639	764515	-3.43	5141800	5700717	10.87
Electrical equipment	518732	501158	-3.39	3440724	3607401	4.84
Fabricated metal products, except machinery and equipment	668421	636411	-4.79	3027786	3247943	7.27
Other transport equipment	288479	293983	1.91	2047872	2217858	8.30
Repair and installation of machinery and equipment	37803	33073	-12.51	252130	190348	-24.50
Total of engineering products	**4084839**	**3917642**	**-4.09**	**33844856**	**28919263**	**-14.55**
Total industry	**13430117**	**12950025**	**-3.57**	**83628401**	**85194869**	**1.87**
Share of engineering to total (%)	**30.42**	**30.25**		**40.47**	**33.94**	

manufacturing sector that bounced back with 2.3 percent growth during 2014-15 from a contraction in the previous fiscal. As an important segment of manufacturing, engineering sector also revived in 2014-15. Most importantly, the revival of basic and capital goods in 2014-15 spoke for a better tomorrow of Indian engineering.

In order to provide a detailed picture of Indian industry, the Annual Survey of Industries (ASI) estimates released by the Government of India have been used as it is based on primary survey and hence is considered as more authentic than the CSO estimates. However, as ASI estimates comes out with a lag of two to three years, the CSO estimates, which is secondary in nature, has been considered to portray the updated scenario of Indian manufacturing as well as the engineering sector.

The latest ASI 2012-13 figures reveal interesting aspects of India industrial scenario. In **Table1** we look at the number of factories and total output over a period of two years.

The main trends that can be noticed from the table are:

- The engineering industry accounts for 25 percent of India's total factories in the organised sector.

Projected engineering exports for 2019-20

INDIA aims to raise its overall exports (merchandise plus services) to $900 billion by fiscal year 2019-20, as against the 2013-14 level of $465.9 billion. Projecting engineering exports in goods will, therefore, entail also projecting total exports of goods by 2019-20.

Typically, the best way to look at this is analyse the historical data and try and project it into the future. At best this can give a ballpark estimate given that in periods of uncertainty, like the present times, the reality may emerge to be quite different.

It is in this context we carry out a simple regression analysis. Please note that since 2004-05, engineering exports as a percentage of total exports has been in the range of 18.1 percent to 22.7 percent. Our regression analysis shows that this range will be maintained till 2019-20.

The projection as per our regression analysis is given in the table. From the figures we see that both engineering and overall exports are deteriorating, except a kinked demand growth observed in 2015-16. The kinked phenomenon is due to a considerable deviation of the actual total exports from the predicted sample observations in 2014-15. Other than the kinked path, it is clearly expected that engineering goods exports is relatively more elastic to global business cycles than total exports.

The present decline in global oil prices, quick adjustments in exchange rates (with the US dollar appreciating and the weakening of most other currencies, notably the euro), and the new quantitative easing programme of the European Central Bank (ECB) presents an uncertain global trading situation. These situations indicate a slump in the engineering export and total exports trend for the coming years.

Conclusion

Accordingly, notwithstanding the year-to-year variations, given the present conditions, exports growth (of both engineering and total) will sharply fall by 2019-20 due to external factors as also internal factors (such as lowering of exports incentives, impact of FTAs, etc.). Thus, it is anticipated that:

- India's global exports will be in the range of $450-70 billion by 2019-20; and
- Engineering exports will be in the range of $90-100 billion in 2019-20.

So in our view the estimates give the broad outliers which seem to be in line with the external demand situation as of now (barring the kink in total exports in 2015-16).

As in case of any projection, the situation will have to be reviewed with the passage of time and reversal in external demand.

India's projected exports from 2015-16 to 2019-20 ($ billion)

Year	Engineering exports	Engg growth (%)	Overall exports	Overall growth (%)	Engg as % of total
2004-05	15.2	49.9	83.5	30.8	18.1
2005-06	19.1	26.1	103.1	23.4	18.5
2006-07	26.2	37.0	126.4	22.6	20.7
2007-08	33.0	26.2	163.1	29.0	20.3
2008-09	40.9	23.9	185.3	13.6	22.1
2009-10	32.9	-19.6	178.8	-3.5	18.4
2010-11	48.9	48.5	249.8	39.8	19.6
2011-12	59.0	20.9	306.0	22.5	19.3
2012-13	57.0	-3.5	300.4	-1.8	19.0
2013-14	61.5	8.0	314.4	4.7	19.6
2014-15	70.5	14.6	310.6	-1.2	22.7
2015-16*	74.88	6.1	366.63	18.0	20.42
2016-17*	80.33	7.3	392.56	7.1	20.46
2017-18*	85.78	6.8	418.50	6.6	20.50
2018-19*	91.22	6.3	444.43	6.2	20.53
2019-20*	96.67	6.0	470.36	5.8	20.55

*Figures provided by DGCI&S; *Projections by EEPC India*

Table3: Profile of some heavy and light engineering segments	
Heavy engineering segments	
Heavy electrical industry	Heavy electrical Industry is an important manufacturing sector, which caters to the needs of energy sector and other industrial sectors. India has a strong manufacturing base for heavy electrical equipments. Manufacturers of heavy electrical equipment have absorbed sub-critical technology up to a unit capacity of 660 MW and are gearing up for adopting super-critical technology for unit size of 800 MW and above for thermal sets. For the 12th Five-Year Plan targeted capacity addition will be 88000 MW corresponding to 9 percent economic growth.
Turbines and generator sets	Indigenous capacity for manufacture of various kinds of turbines such as steam and hydro turbines including industrial turbines has been established up to unit size of 800 MW for steam, 270 MW for hydro and 260 MW for gas turbines.
Boilers	Indian industry is continuously upgrading their technology and is introducing better products. BHEL is the largest manufacturer of boilers in the country accounting for around two-thirds of the domestic share. Manufacturing facilities are also available for higher size super-critical boilers.
Switchgear and control gear	This industry is a fully developed and mature industry in India meeting the requirement of the industrial and power sector and manufacturing the entire range of circuit breakers from bulk oil, minimum oil, air blast, vacuum to sulphur hexafluoride as per standard specifications. This industry sector manufactures the entire voltage range from 240 V to 800 kV.
Textile machinery industry	The industry comprises over 1446 machinery and components manufacturing units, with over 600 units producing complete machinery and other units mainly into the production of parts and accessories of textile machinery. The investment in the industry is around Rs7800 crore with an installed capacity of Rs9350 crore.
Cement machinery industry	The industry is fully capable of meeting the domestic demand of cement machinery. The value of the existing installed capacity has been estimated at $130.5 million (Rs600 crore) per annum.
Plastic processing machinery	There are 11 major units in the organised sector and nearly 200 SME units. Major plastic machineries include injecting moulding machines, blow moulding machines and extrusion moulding machines. Domestic manufacturers meet 95 percent of processing industry needs on technology and product range.
Sugar machinery industry	There are at present 27 units in the organised sector for the manufacture of complete sugar plants and components with an installed capacity of around $43.5 million (Rs200 crore) to manufacture complete sugar plants and components.
Rubber machinery industry	There are at present 10 units in the organised sector for the manufacture of rubber machinery mainly required for the tyre/tube industry. The domestic installed capacity is about Rs1000 crore.
Material handling equipment	There are 50 units in the organised sector for the manufacture of material handling equipment. Besides there are a number of units operating in the small-scale sector. The range of equipment manufactured includes crushing and screening plants, coal/ore/ash handling plant and associated equipment mainly to meet the demand from industries like coal, cement, power, port, mining, fertilisers and steel plants.
Metallurgical machinery	At present there are 39 units in the organised sector engaged in the manufacture of various types of metallurgical machinery.
Mining machinery	At present there are 32 manufacturers in the organised sector both in the public and private sector for underground and surface mining equipment of various types. Out of the 32, 17 units manufacture underground mining equipment. Domestic manufacturers are able to meet most of the requirements of the mining industry.
Dairy machinery industry	At present there are 20 units manufacturing dairy machinery and equipment in the organised sector, both in the private and public sector.
Machine tool industry	The machine tool industry consists of around 1000 units in the production of machine tools, accessories/attachments, subsystems and parts. Around 25 of the units belong to the large-scale sector, accounting for 70 percent of the turnover while the rest are SMEs.
Automotive industry	At present, India is the seventh-largest automobiles producer in the world with an average annual production of 17.5 million vehicles, and is on way to become the fourth-largest automotive market by volume, in 2015. The industry accounts for 22 percent of the country's manufacturing GDP.
Agricultural machinery	This industry mainly consists of agricultural tractors, power tillers, combine harvesters and other agricultural machineries and implements. Due to negligible production of power tillers, combine harvesters and other agricultural machineries, this sector is mainly dominated by agricultural tractors. The Indian Tractor Industry is the largest in the world (excluding sub 20 HP belt-driven tractors used in China), accounting for one-third of the global production. The other major tractor markets in the world are China and the US. Tractor sales in India rose by about 20 percent to an all-time high of 6,33,656 units in fiscal 2013-14.
Earthmoving and construction machinery	This industry covers a variety of machinery such as hydraulic excavators, wheel loaders, backhoe loaders, bulldozers, dump trucks, tippers, graders, pavers, asphalt drum/wet mix plants, breakers, vibratory compactors, cranes, forklift dozers, off-highway dumpers, drill scrapers, motor graders, etc. The global meltdown has resulted in the increase in import of equipments from idle global capacities and also in sharp rise in import of used and obsolete machineries as second-hand equipment. The import of used crawler cranes and mobile cranes is almost 50-80 percent of the total consumption in Indian market during the last three years. Therefore, the biggest problem being faced by the domestic construction and earthmoving equipment manufacturing industry is the lack of a level playing field. However, this industry is projected to grow at an average 20 percent - 25 percent per annum in the next few years.

Table3: Profile of some heavy and light engineering segments (contd)

Heavy engineering segments	
Light engineering segments	
Hand tools industry	The diversified hand tools industry is concentrated in north India with all the units in the small-scale sector and exporting to over 16 countries around the world. Manufactured hand tools include tools like spade, shovel, mattock, etc. for use in agriculture and handsaw, file, rasp, plier, etc; pipe-cutter; spanner and wrench; wood-working tools and tools for use in other sectors.
Welded steel pipes and tubes	There are currently 123 units engaged in the manufacture of welded steel pipes and tubes in the organised sector. There is adequate capacity of the manufacture of these types of pipes and tubes.
Process control instrument	There are 26 units in the organised sector manufacturing process control instruments and systems, out of which seven units are capable of taking up complete turnkey projects for the entire instrumentation system including software required by process industries. The industry is in a position to meet approximately two-thirds of the country's demand.
Medical and surgical equipment	Indigenous manufacturers are currently in a position to manufacture a wide variety of electro-medical equipments such as ECG (electro-cardiograph) machine, X-ray scanner, CT scanner, short-wave physiotherapy unit, electro-surgical unit, blood chemistry analyser, etc. The indigenous industry is capable of supplying about 40 percent of the demand and the rest is met by imports.
Industrial fasteners	Industrial fasteners cover high-tensile and mild steel bolts, nuts, screws, studs and pins. All types of fasteners except high-tensile and special type fasteners are reserved for SSI sector.
Industrial gears	The industry is de-licensed as per the current industrial licensing policy and is eligible for automatic approval for foreign direct investment.
Antifriction roller bearing	The Indian bearing industry has grown rapidly during the last few years. Today the industry is meeting around 70 percent of its demand for common varieties and sizes of bearings while rest is being imported. At present there are 19 units in the organised sector manufacturing both ball and roller bearings. The industry has established a highly diversified product range of around 500 types of bearings.
Plain paper copier	There are, at present, 12 units manufacturing plain paper-copiers. The major manufacturers have technical collaboration with reputed foreign companies.
Sewing machine	The major source of production of sewing machines in the country is the small-scale sector as manufacture of conventional 'hand operated' sewing machine is reserved for this sector. The demand for conventional domestic machines is being fully met indigenously. The industry has potential to undertake export to developing countries.
Bicycle industry	The annual domestic demand of bicycles in India is approximately 10 million units, mostly from rural areas. The bicycle industry is mostly in the small-scale sector. Large-scale units have been permitted to manufacture bicycle frames, chains and rims for captive consumption only. Bicycle manufacturing is an established industry in the country with well-accepted quality standards in the international market. The difficulties faced by the Indian companies are high fixed cost, low product differentiation and high excise duty.
Steel forgings	This industry is well established in the country having modern manufacturing facilities. Besides meeting the requirement of domestic market, it is well established in the export market also.

• The engineering industry contributes a little more than 32 percent of total output in the country.
• In 2012-13, there has been a drop in the shares.
• In terms of growth in number of factories, the engineering sector has shown a better performance in comparison to the total industries combined together in 2012-13 over 2011-12.

The main trends that can be noticed from **Table2** are:
• The number of factories in operation during 2011-12 was 54,671. Out of the total number of factories under operation, the 25 percent belonging to the engineering industry contributed by way of net value added of Rs3.38 lakh crore with the engagement of 40.85 lakh employees.
• In comparison, the number of factories in operation during the year 2012-13 increased to 56,386. The engineering industry contributed by way of net value added of Rs2.89 lakh crore, which indicates a decline in growth of more than 14 percent compared to the previous year. Total employment all dropped to 39.18 lakh in 2012-13.

The engineering sector can be categorised into ***heavy engineering*** and ***light engineering*** segments. The heavy engineering segment forms the majority of the engineering sector in India. The heavy engineering market contributed over 80 percent with the light engineering segment accounting for the remaining. The sector is relatively less fragmented at the top, as the competencies required are high, while it is highly fragmented at the lower end (e.g. unbranded transformers for the retail segment) and is dominated by smaller players.

Heavy engineering segment

Heavy engineering goods account for the bulk of engineering goods production in

India. Most of the leading players are engaged in the production of heavy engineering goods and mainly produce high-value products using high-end technology. Requirement of high level of capital investment poses as a major entry barrier. Consequently, the small and unorganised firms have a small market presence.

Light engineering segment

The light engineering goods segment, on the other hand, uses medium- to low-end technology. Entry barrier is low on account of the comparatively lower requirement of capital and technology. This segment is characterised by the dominance of small and unorganised players who manufacture low-value added products. However, there are few medium- and large-scale firms which manufacture high-value added products. This segment is also characterised by small capacities and high level of competition among the players.

Players in the engineering sector in India can be categorised as:

- **Equipment manufacturers** such as Bharat Earth Movers Limited (BEML), Siemens, Cummins India, ABB, etc;
- **Execution specialists** such as Bharat Heavy Electricals Ltd (BHEL), Larsen and Toubro (L&T), Engineers India, etc; and
- **Niche players** such as Thermax in environmental solutions, Voltas in electro-mechanical projects, ABB for automation technologies and so on.

A large number of multinational companies like Cummins, Alfa Laval, Sandwik Asia, AREVA, etc. have also entered the engineering industry in India.

Manufacturing performance and capacities

As mentioned, the engineering sector can be categorised into heavy engineering and light engineering segments. The heavy engineering segment forms the majority of the engineering sector in India. **Table3** provides a bird's eye of the capacities and salient features of the some of the main engineering segments for both heavy and light engineering.

It may be interesting to look at the performance of some of the key engineering sectors in the country.

Table4: India's steel production vs world production (million tonne)

Year	India	Growth (%)	World	Growth (%)
2004	32.6	2.7 %	1062.5	9.5 %
2005	45.8	40.3 %	1147.8	8.0 %
2006	49.5	8.0 %	1250.1	8.9 %
2007	53.5	8.1 %	1348.1	7.8 %
2008	57.8	8.1 %	1343.3	-0.4 %
2009	63.5	9.9 %	1238.3	-7.8 %
2010	69.0	8.6 %	1432.8	15.7 %
2011	73.5	6.5 %	1537.2	7.3 %
2012	77.3	5.2 %	1559.5	1.4 %
2013	81.3	5.2 %	1649.3	5.8 %

Source: www.worldsteel.org

Table5: India's automobile production trends

Category	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Passenger vehicles	2357411	2982772	3146069	3231058	3087973	3220172
Commercial vehicles	567556	760735	929136	832649	699035	697083
Three-wheelers	619194	799553	879289	839748	830108	949021
Two-wheelers	10512903	13349349	15427532	15744156	16883049	18499970
Grand total	**14057064**	**17892409**	**20382026**	**20647611**	**21500165**	**23366246**

Source: SIAM

Table6: Automobile domestic sales trends

Category	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Passenger vehicles	1951333	2501542	2629839	2665015	2503509	2601111
Commercial vehicles	532721	684905	809499	793211	632851	614961
Three wheelers	440392	526024	513281	538290	480085	531927
Two wheelers	9370951	11768910	13409150	13797185	14806778	16004581
Grand total	**12295397**	**15481381**	**17361769**	**17793701**	**18423223**	**19752580**

Source: SIAM

Steel production

As per the global rankings of the World Steel Association – India is the largest producer of sponge iron and fourth-largest producer of crude steel in the world. The Working Group on Steel for the 12th Plan has projected that the crude steel capacity in India is likely to go up to 140 mtpa by 2016-17 (**Table4**).

Automobile production

The Indian auto industry is one of the largest in the world with an annual production of 21.48 million vehicles in FY2013-14. The

automobile industry accounts for 22 percent of the country's manufacturing gross domestic product (GDP). An expanding middle class, a young population, and an increasing interest of the companies in exploring the rural markets have made the two-wheeler segment (with 80 percent market share) the leader of the Indian automobile market. The overall passenger vehicle segment has 14 percent market share. India is also a substantial auto exporter, with solid export growth expectations for the near future. Various initiatives by the Government of India and the major automobile players in the Indian market are expected to make India a leader in the two-wheeler and four-wheeler market in the world by 2020.

Sales of commercial vehicles in India grew 5.3 percent to 52,481 units in January 2015 from a year ago, according to Society of Indian Automobile Manufacturers (SIAM). Sales of cars also grew for a third month in a row to 169,300 units in January 2015, up 3.14 percent from the year-ago period. Car market leader Maruti Suzuki India witnessed 8.6 percent higher sales at approximately 118,551 units in February 2015, out of which 107,892 were sold in domestic market and 10,659 units were exported. Hyundai Motor India Ltd (HMIL) reported a 2.4 percent growth in total sales at 47,612 units in February, compared with 46,505 units in the same month last year. In the two-wheeler segment, Hero Moto Corp witnessed sales of 484,769 units in February 2015. TVS Motor Co posted 15 percent higher sales at 204,565 units against 177,662 units. Bajaj Auto sold a total of 243,000 two- and three-wheelers segment. (**Tables5 and 6**)

The installed capacity of the four-wheeler industry (comprising passenger vehicles and commercial vehicles) was over six million units and two- and three-wheeler industry is over 20 million units during 2012-13.

Engineering exports: Performance and trends

India's engineering exports accounting for about one-fourth of the country's total exports grew from $19.12 billion to $70.66 billion between 2005-06 and 2014-15. This implies a CAGR of 15.6 percent. During the 10-year span the growth rate was negative in two of the last 10 years for engineering exports. In fact 2009-10 and 2012-13 showed negative performance for both national and engineering exports, but in the last fiscal 2014-15, engineering exports performed strongly, growing by 15 percent, recovering from the smothering performance couple of years back.

Table7 looks at the trend in engineering exports in the last two years – 2013-14 and 2014-15.

Diversification of Indian engineering products

During the nascent stage, Indian engineering exports were mainly confined to Asia and to a small extent to Africa. Over the years, the scenario has completely changed and as of date, over a large percentage share of total engineering exports are made to developed countries. **Table8** shows exports to top 25 countries.

Factors behind engineering exports growth

Barring 2009-10 and 2012-13, India's engineering exports have witnessed a CAGR of 15.6 percent in the last decade. This impressive growth has been possible due to a combination of factors.

1 Thrust given to the engineering industry

The key growth drivers have been:

• The growth of the key end-user sectors in India. For example, the domestic sales of automobiles have grown at the compounded annual growth rate of around 6.3 percent over the past five years.

• Government's emphasis on power and construction sectors has increased for the past few years and thus increasing the demand for capital goods.

• Further, India is being preferred by global manufacturing companies as an outsourcing destination due to its lower labour cost and better designing capabilities. Engineering companies thus have a huge potential for direct exports and outsourcing.

• The Government of India reviews its foreign direct investment policy regularly, in a bid to attract more investment. For instance, the government permitted 100 percent FDI in construction and development projects. India has opened up to private sector participation and FDI in infrastructure projects for power, roads, ports, mining, and pharmaceutical sectors.

• Trading is permitted under the automatic route with FDI up to 51 percent provided it is primarily export activities, and the undertaking is an export house/trading house/super trading house/star trading house. 100 percent FDI is permitted in case of trading companies for the following activities:

• exports.

• bulk imports with ex-port/ex-bonded warehouse sales.

• cash and carry wholesale trading.

• other import of goods or services provided at least 75 percent is for procurement and sale of goods and services among the companies of the same group and not for third party use or onward transfer/distribution/sales.

• Some specific initiatives by the government, which positively impacted the engineering sector are:

• removal of tariff protection on capital goods.

• delicensing of heavy electrical industry and allowance of 100 percent FDI.

• various initiatives focused on infrastructure development and construction.

• initiatives to increase power generation and improve quality of power supply.

• the reduction of custom duties on various equipments.

• various initiatives focused on infrastructure development and construction, initiatives to increase power generation and improve quality of power supply.

Table7: Export performance of different engineering goods ($ million)

Sl no.	Panel	March 2014	March 2015	Growth %	Apr-Mar 2013-14	Apr-Mar 2014-15	Growth %
1. Iron and steel and products made of iron and steel							
A	Iron and steel	867.84	668.16	-23.0	9211.94	8650.51	-6.1
B	Products of iron and steel	678.56	658.7	-2.9	6780.41	7565.5	11.6
Subtotal		**1546.4**	**1326.86**	-14.2	**15992.4**	**16216**	1.4
2. Nonferrous metals and products made of nonferrous metals							
A	Copper and products	328.54	267.62	-18.5	2855.1	3419.01	19.8
B	Aluminium and products	229.36	302.62	31.9	1943.25	2858.62	47.1
C	Zinc and products	27.83	78.53	182.2	435.4	608.07	39.7
D	Nickel and products	26.58	95.24	258.3	437.4	897.36	105.2
E	Lead and products	15.56	13.04	-16.2	194.7	173.22	-11.0
F	Tin and products	0.07	2.5	3471.4	80.38	37.76	-53.0
G	Other nonferrous metals	36.96	40.41	9.3	415.03	498.55	20.1
Subtotal		**664.9**	**799.96**	20.3	**6361.26**	**8492.59**	33.5
3. Industrial machinery							
A	Industrial machinery like boilers, parts, etc	58.34	53.09	-9.0	563.1	604.39	7.3
B	IC engines and parts	178.86	207.14	15.8	1770.37	2396.58	35.4
C	Pumps of all types	64.77	69.21	6.9	690.89	774.72	12.1
D	Air condition and refrigerators	137.06	118.63	-13.4	1164.12	1166.18	0.2
E	Industrial machinery for dairy, food processing , textiles etc	444.01	464.77	4.7	4275.03	4768.11	11.5
F	Machine tools	31.18	32.98	5.8	331.52	374.99	13.1
G	Machinery for injecting moulding, valves and ATMs	122.02	151.21	23.9	1244.21	1357.92	9.1
Subtotal		**1036.24**	**1097.03**	5.9	**10039.2**	**11442.9**	14.0
4	**Electrical machinery**	**349.0**	**403.0**	**15.5**	**3681.7**	**3999.9**	**8.6**
5. Auto and auto components							
A	Motor vehicle/cars	645.05	595.26	-7.7	6147.94	6685.15	8.7
B	Two- and three-wheelers	144.77	144.58	-0.1	1521.45	1863.87	22.5
C	Auto components/part	407.54	375.77	-7.8	3971.75	4436.55	11.7
Subtotal		**1197.36**	**1115.61**	-6.8	**11641.1**	**12985.6**	11.5
6	**Aircrafts and spacecraft parts and products**	**456.69**	**325.87**	**-28.6**	**4582.82**	**6183.05**	**34.9**
7	**Ships, boats and floating products and parts**	**251.67**	**253.56**	**0.8**	**3724.84**	**5179.94**	**39.1**
8. Miscellaneous items							
A	Medical and scientific instruments	116.77	118.13	1.2	1160.97	1280.79	10.3
B	Railway transport	12.96	11.73	-9.5	177.96	133.63	-24.9
C	Hand tools and cutting tools	67.71	65.92	-2.6	711.13	758.48	6.7
D	Electrodes accumulators	2.93	2.91	-0.7	37.9	38.6	1.8
E	Accumulator and batteries	19.26	20.65	7.2	169.94	212.21	24.9
F	Bicycle and parts	37.87	30.99	-18.2	348.66	354.99	1.8
G	Cranes, lifts and winches	37.69	44.45	17.9	308.74	342.19	10.8
H	Office equipment	2.27	8.78	286.8	29.73	54.3	82.6
I	Other construction machinery	91.26	106.23	16.4	1008.63	1176.68	16.7
J	Prime mica and mica products	1.62	2.4	48.1	19.1	19.47	1.9
K	Other misc. items	147.52	150.44	2.0	1630.27	1789.86	9.8
Subtotal		**537.86**	**562.63**	4.6	**5603.03**	**6161.2**	10.0
Grand total		**6040.12**	**5884.54**	**-2.6**	**61626.4**	**70661.2**	**14.7**

Source: Department of Commerce, Government of India

Table8: Country-wise exports, 2014-15, ($ million)

Country	March 2014	March 2015	Growth %	Apr-Mar 2013-14	Apr-Mar 2014-15	Growth %
USA	659.79	694.85	5.31	6174.76	7831.13	26.82
UAE	516.78	398.57	-22.87	5072.11	5883.71	16.00
Sri Lanka	225.64	112.73	-50.04	2090.97	3751.04	79.39
China	309.71	284.03	-8.29	3531.75	3121.27	-11.62
UK	199.80	208.29	4.25	2474.78	2648.83	7.03
Singapore	211.78	102.78	-51.47	2933.93	2492.35	-15.05
Germany	198.45	169.61	-14.53	2038.77	2113.60	3.67
Malaysia	65.98	251.93	281.86	900.55	2078.29	130.78
South Africa	128.93	111.69	-13.37	1481.04	1997.04	34.84
Mexico	238.96	190.71	-20.19	1369.94	1913.77	39.70
Saudi Arabia	161.88	160.67	-0.75	1652.32	1777.95	7.60
Turkey	112.06	179.00	59.74	1175.50	1739.65	47.99
Italy	156.64	170.89	9.10	1582.13	1698.70	7.37
Nepal	102.61	139.27	35.73	1054.42	1441.72	36.73
Bangladesh	148.85	120.41	-19.11	1272.01	1412.97	11.08
Korea	123.59	148.02	19.77	1197.74	1313.02	9.62
Iran	83.71	130.58	55.99	762.23	1249.13	63.88
Nigeria	101.62	90.76	-10.69	1159.39	1247.53	7.60
France	111.15	200.16	80.08	1008.57	1123.55	11.40
Indonesia	78.18	72.95	-6.69	904.09	1114.86	23.31
Thailand	103.07	64.95	-36.98	1068.24	1012.32	-5.23
Netherlands	76.75	64.97	-15.34	1023.11	863.80	-15.57
Oman	38.77	41.01	5.77	662.60	810.03	22.25
Brazil	76.80	76.22	-0.75	849.57	808.99	-4.78
Japan	73.06	65.74	-10.03	834.36	784.49	-5.98
Total of top 25	**4304.54**	**4250.78**	**-1.25**	**44274.86**	**52229.75**	**17.97**
Total engineering exports	**6040.12**	**5884.53**	**-2.58**	**61626.36**	**70661.51**	**14.66**
Share of top 25 in total (%)	**71.27**	**72.24**		**71.84**	**73.92**	

Note: Highlighted figures indicate negative monthly and cumulative growth
Source: Department of Commerce, Government of India

2 Factor conditions

Among developing countries, India offered the best combination of low costs, availability and skills and capabilities of manpower for the engineering sector. In terms of availability and skills, India produces over 1000 PhDs, a million engineers, more than 300,000 non-engineering postgraduates and 2.1 million other graduates each year, thereby ensuring a steady supply of qualified manpower for the sector. India also has a significant labour cost advantage over other countries. Several companies in the engineering sector have leveraged India's advantages in labour effectively.

3 Raw materials availability

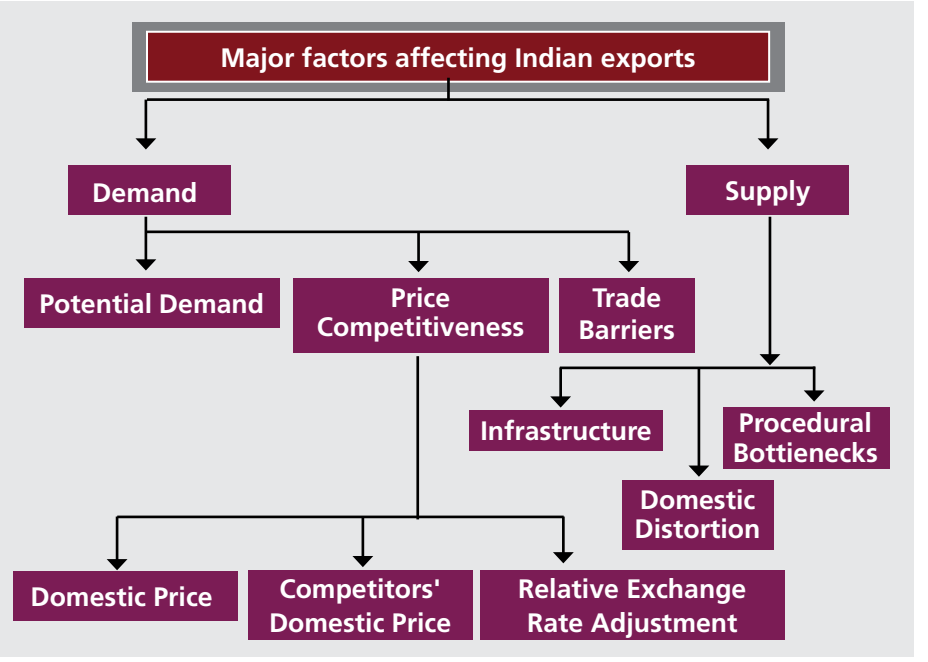
India also has the raw material resources to meet the demands of the engineering industry. Key raw materials required by the engineering sector – ferrous and nonferrous metals such as mild steel and aluminium – are available in India. Ready availability of these materials gave India a major cost advantage, as materials account for nearly 50 percent of the industry's operating costs.

4 Related and supporting industries

The presence of supporting industries provides a conducive environment for the engineering sector to grow and prosper. India's engineering industry has significant support from India's well-established IT sector, as well as institutions of higher education. India has a well-developed technical and tertiary education infrastructure of over 250 universities, 1500 research institutions and over 10,000 higher education centres, which support the engineering sector not only by supplying a steady stream of qualified manpower, but also in areas of research and development.

India has a well-developed vendor base for supporting engineering industries. Industries such as machine tools, textile machinery, auto components, etc. provide ample support to the engineering sector. Some of these sectors have developed global capabilities and help the engineering sector achieve global competitiveness.

Chart1: Factors affecting exports



5 Export promotion policies

While the above four factors have been instrumental in the development of the engineering industry, what has provided the big push has been the policy support that has encouraged exporters to supply competitive products globally. The policy support that the government has provided was largely instrumental in reviving engineering exports after it crashed in 2009-10 and 2012-13 to come back strongly in subsequent years.

The Foreign Trade Policy 2015-20 and other schemes provide promotional measures to boost India's exports with the objective to offset infrastructural inefficiencies and associated costs involved to provide exporters a level playing field. Various schemes notified under the trade policy includes Merchandise Exports from India Scheme (MEIS), Service Exports from India Scheme (SEIS), duty exemption schemes, EPCG schemes, EOU, EHTP schemes, etc.

Problems and challenges to achieve engineering export target

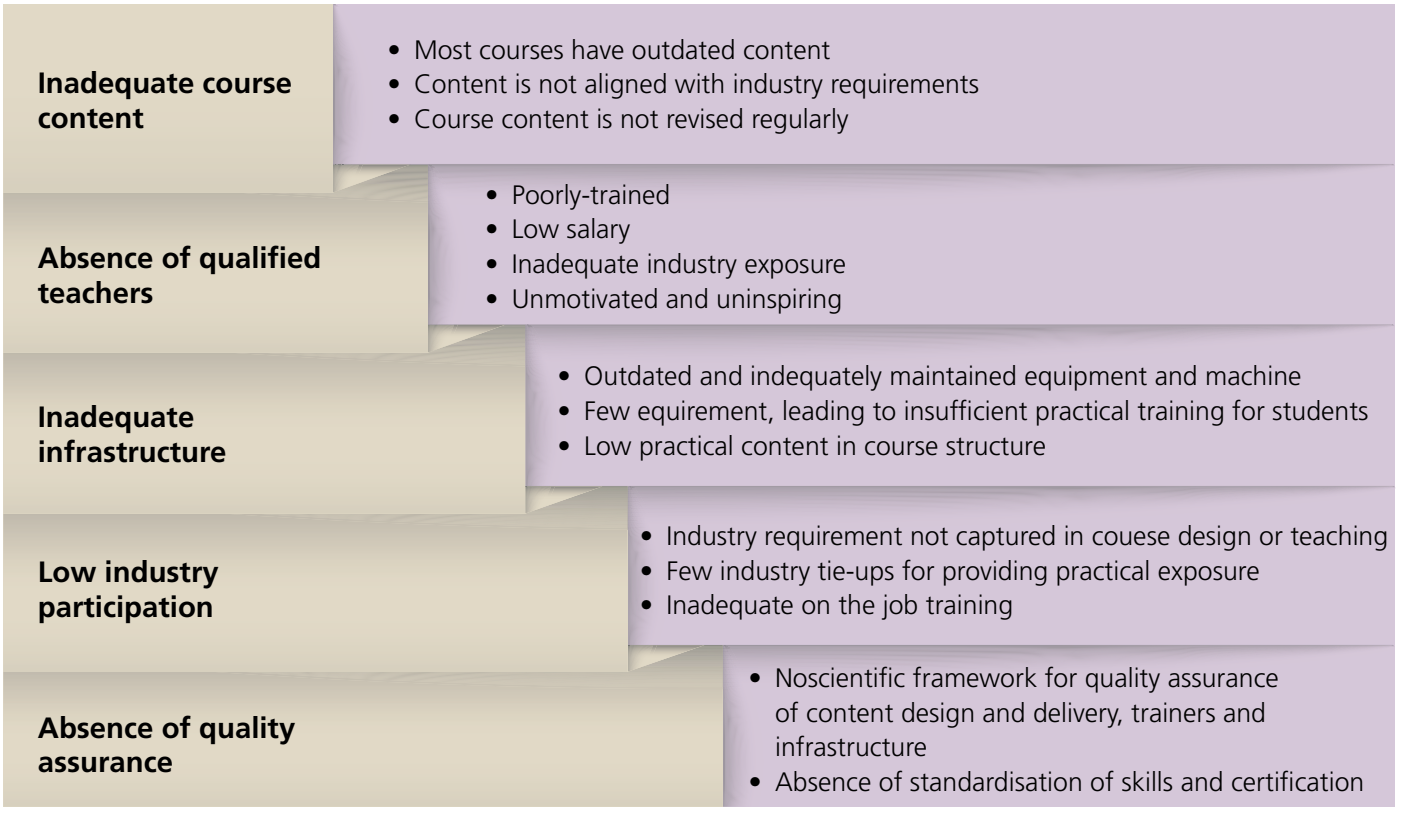
The major factors that affect exports of Indian goods including engineering goods can be depicted as shown in **Chart1**.

The problems and challenges of Indian engineering exports can, thus be, identified as follows:

• ***Stiff competition:*** Indian engineering exports have been facing stiff competition from other countries. China, Mexico, Hungary, Czechoslovakia, Brazil and Korea which have emerged as the fastest growing engineering export countries, provide formidable challenge and stiff competition to Indian engineering exports.

• ***Technology related problems resulting in low-value engineering goods:*** Technological competitiveness of Indian engineering goods sector is low. Some of the Indian exporters are still at a disadvantage in the international market vis-à-vis their counterparts in terms of product design, finish, specific features, performance, and raw material substitutes. India can be proud of having the second-largest scientific and technical manpower in the world. But this advantage due to high availability of quality engineers and scientists is lost partly due to brain drain and partly due to stagnation of skill sets of scientists and

Chart2: Reasons affecting vocational training in India



engineers within India. Although Indian firms are capable of achieving high levels of precision, they are unable to provide high-quality products due to lack of supporting process technologies such as precision measuring, material engineering and process control. Environment technologies and energy saving technologies are another area where Indian engineering companies in the MSME sector are lagging behind.

• ***High cost of credit:*** The credit cost is rather high in India. One of the rationales behind financial liberalisation was that interest rates would come down for investment purposes. At present, export credit is available at about 12-14 percent, which exporters have to factor into the price of their product.

• ***Credit availability:*** In the auto sector, for instance, financing is becoming an integral part of the vehicles business – both for commercial and passenger vehicles. The expectations for finance are both in terms of retail finance and finance for institutional bulk deals. In both the cases, the requirement is for a longer period – three-to-five years – something much longer than the usual duration (maximum a year) for which credit is available. With the statutory and institutional setup and arrangements existing today, manufacturers are unable to get funds beyond this. At the same time, competitors in other countries do get long-term finance. Many of the automobile manufacturers in India are trying to target countries in Africa, West Asia and Latin America. However, in the absence of adequate sources of finance, manufacturers are finding it tough to compete with Chinese manufacturers who enjoy the benefit of easy and low-cost funds. The need to provide long-term finance for vehicle exports to support institutional bulk deals as well as retail financing is lacking in India.

• ***High cost of industrial inputs:*** The engineering industry mainly uses raw materials of domestic origin. The raw materials price index has risen faster than the machinery price index. It is difficult for engineering manufacturers to pass on the rise in prices to the consumers there by impacting their profitability. Sometimes, the quality of raw materials is also not up to international standards and this, in turn, affects the quality of final products. Indian engineering exporters belonging to the MSME sector are of the view that steel in China is much cheaper for the domestic Chinese industry than steel for the Indian industry. The difference is over 10-15 percent. In such a scenario, MSMEs cannot compete with Chinese engineering industry where bulk orders are concerned. And the fact that we are uncompetitive prevents building large-scale manufacturing base which further creates a chain reaction. And all this results in the fact that Indian factories are one-tenth the size of Chinese factories. The key issue, however, it seems, is that till steel is provided at an internationally competitive price to the downstream light engineering industries, Indian MSME manufacturers

may not be able to actually face the Chinese in international markets.

• ***Trade barriers:*** Another major problem is the large number of trade barriers that are being imposed on Indian engineering products. This includes anti-dumping and anti-subsidy measures against Indian engineering goods, problems with regard to technical certification in various countries, particularly, the Latin American countries, certain policies of the countries like the US, which has withheld the extension of GSP for the current year so far and has also put sanctions on banks and financial institutions for doing trade with Iran, which is a growing market for Indian engineering goods, among others. Also India's competitors like China have FTAs with a number of emerging countries while India either does not have or at best has a preferential trading arrangement, which is insufficient for Indian engineering goods to be competitive vis-à-vis say Chinese engineering goods. A good example is in the case of Chile where Indian auto and industrial engineering exports are negatively affected as India has a PTA where it still has to pay a basic customs duty of 6 percent while all major auto exporting countries have FTAs with Chile. Major engineering sectors such as the auto sector, steel sector have also reported the problem of nontariff barriers faced by them.

• ***Infrastructural bottlenecks:*** A study by CII and the World Bank in 2002 had found that although India has the advantage of cheap labour, this advantage is nullified by infrastructural bottlenecks. Infrastructural bottlenecks are the major problem hindering both domestic and export production. The scarcity and quality of infrastructure (land, transport, power, ports and roads) is poor, thus affecting competitive delivery schedule and increasing operating costs. The delivery time of locally-made engineering goods in many cases is 1.5 to 2 times longer than in industrialised countries. Companies tend to lose orders on delivery schedule. The inland transport is slow although the railroad density is the highest in the world. The cost of electric power is comparable to that in other nations, but reliability is poor. This apart, compared to the Chinese, the Indian overseas freight rates are exorbitant and arbitrary, with the exporters being virtually at the mercy of a cartel of shipping lines. Overall infrastructure inadequacies are estimated to translate into 7 percent cost disadvantage for Indian engineering manufactures vis-à-vis foreign manufactures.

• ***High transaction cost:*** The export transaction costs for Indian engineering goods industry are among the highest in the world. Heavy transaction costs not only increase the prices of the final export products, but also result in inordinate delay in export fulfilments, thus affecting export competitiveness. According to estimates by export promotion bodies, total cost of transaction of engineering goods in India works out to be around 10 percent of total export earnings.

• ***Nonzero rating of exports and embedded taxes:*** While, in principle, exports are zero-rated, this is not so in actual practice. Indirect taxes that are imposed on exports are generally refunded back to exporters. The refund system very often does not refund the full element of the taxation on the goods produced, the procedures are complicated and in certain cases like the VAT refund system, either not refunded back or are delayed to such an extent that it negates the very principle of such refunds. Thus, the cascading impact of the indirect taxation both at the state and Centre levels still continues to affect exports. It may be added that the auto sector, in particular, has stated that as the supply chain of a vehicle manufacturer comprises multiple tiers of vendors (many of them at lower tiers being smaller units) and, in the course of transactions between the vendors till the supply of component to manufacturer, some element of taxes do remain unabated for various reasons creating a disadvantage position for Indian exports.

• ***High fuel cost:*** All fuel oil is becoming expensive and is increasing the cost of production of engineering sector as nearly 10-15 percent of the total cost is of fuel. All input taxes on all fuels should be perfectly Cenvatable or Vatable. Currently the central and the state laws provide for barriers in achieving this goal. For example, the Central Excise Act provides no input credit on LDO, while the state Vat Acts do not allow full input credit on furnace oil and LPG, etc. With such high costs of fuel in the country, engineering cannot grow.

• ***Manpower challenges:*** Ensuring availability of trained manpower is of critical importance. Adequate infrastructure is needed to ensure availability of trained manpower.

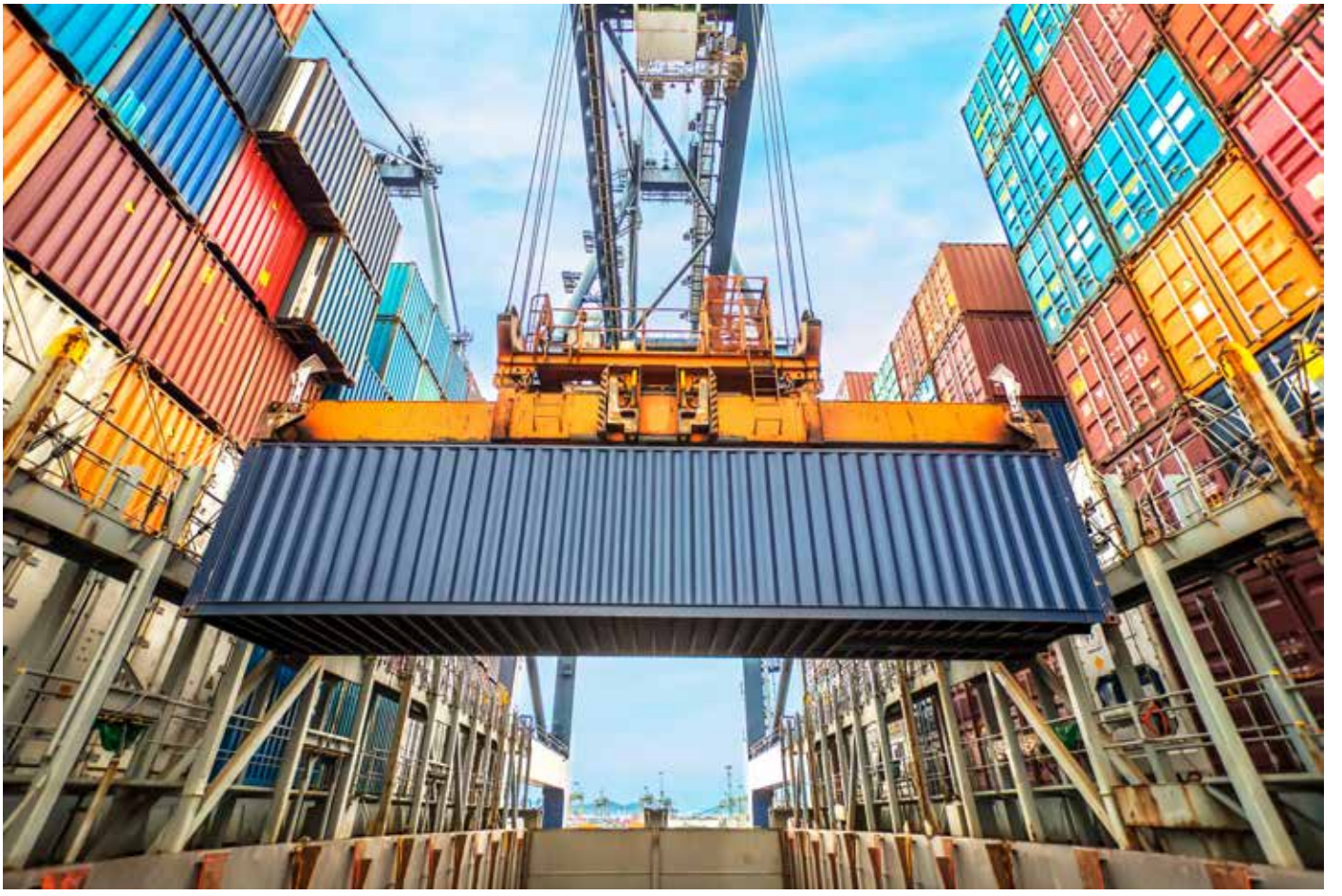
World demand for engineering exports

World engineering exports have grown at a CAGR of 5 percent during the period of 2010-14 while world exports grew by about 22.08 percent during the same period. Total trade in engineering goods increased by almost 18 percent in 2011 and then, after around 1 percent drop in 2012, it again surged moderately by 3.25 percent in 2014.

The US, being the largest economy of the world, recorded a feeble 0.2 percent growth during the first quarter of 2015. The 19-nation euro zone economy grew by a mere 0.4 percent quarter-on-quarter and 1 percent year-on-year during the first quarter of 2015. But these situations are expected to improve in the second half of the current year which will, in turn, augment the demand of engineering goods.

Moreover, India also needs to compensate and safeguard itself for trade preferences in traditional markets like the US and the EU that are negotiating mega regional trade pacts. India at present is negotiating seven FTAs with countries including Russia, Australia and Peru, which are expected to help the former in dealing with the possible loss of share due Trans-Atlantic Partnership and Trans-Pacific Partnership, of which India is not a part of.

Industrial output up, exports fall



Though exports of engineering goods fell again in May, there are optimistic signs of recovery in the world economy from the extended crises which will impact positively on trade

OVERSIGHT

POLICY WONK

INDIA'S merchandise exports contracted for the sixth straight month, its longest trailing streak since 2009. During May 2015, overseas shipment from India declined 20.2 percent year-on-year to $22.35 billion from $28 billion during the same month of the previous year owing primarily to a slump in global demand and fall in the prices of crude oil. The slowdown in China further added to the woes of the already slowing global economy.

India's merchandised imports during May 2015 were valued at $32.75 billion which was 16.52 percent lower in dollar terms over the level of imports valued at $39.23 billion in May 2014. The trade deficit also narrowed to a three-month low of $10.4 billion in May

2015 from $11.2 billion a year ago. It was nearly $6.9 billion in February.

Engineering exports

The exports of engineering products, one of the essential groups of exported items from India sharing 24 percent in May 2015 on India's total merchandise exports, registered 10.5 percent drop in the growth rate to $5.4 billion in the month of May 2015 over May 2014 while the cumulative value of engineering exports recorded a dip by 5.9 percent to $11.04 billion in the current fiscal 2015-16 from $11.72 billion the same period last year The monthly engineering figures for 2015-16 vis-à-vis 2014-15 are given in **Table1**, while **Figure1** depicts the monthly trend in engineering exports for both 2014 and 2015.

The engineering sector has a sizeable share in manufacturing and, therefore, the trend of manufacturing production reflects the trend of engineering production in India. Some correlation between manufacturing production growth and merchandise export growth is found as the manufacturing sector contributes significantly to India's engineering production as well as to exports. Hence, a brief analysis of industrial production, especially of manufacturing, is effective in the context of engineering export analysis as manufacturing has around 75 percent weightage in India's industrial production. Industrial output in April 2015 surprised the industry on the upside by witnessing 4.1 percent growth as against a slowdown to 2.5 percent in March 2015. However, the growth was firm at 4.9 percent in February 2015. The IIP, the standard measure for industrial output, stood at 179.9 in April 2015 against 198.2 in March and 181.1 in February 2015. Despite a lower index value in April 2015 than that of March 2015, higher growth was achieved due to lower statistical base and seasonality. Cumulative industrial growth during the entire fiscal 2014-15 was recorded at 2.8 percent as against a contraction of 0.1 percent during the previous fiscal.

The growth rates in engineering exports and the growth in manufacturing in the country in the current fiscal in **Table1A**.

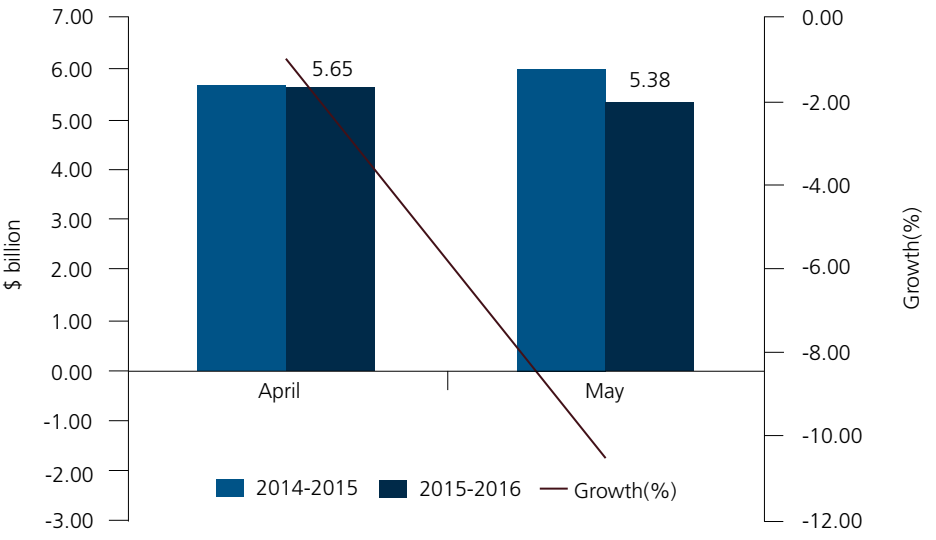
Analysis of last fiscal's data showed that export growth remained positive for all months during the first half of fiscal 2014-15 but manufacturing production declined in July and August 2014. During the third quarter of 2014-15, however, we saw similarity between the trend of month-wise manufacturing and export growth. Both engineering export and manufacturing declined (negative growth) in October 2014 but then came

Table1: Engineering exports ($ million)

Months	2014-15	2015-16	Growth (%)
April	5707.97	5652.49	-0.97
May	6013.26	5382.55	-10.49
April-May	11721.23	11035.04	-5.85

Source: Department of Commerce, Government of India

Figure1: Trends in monthly engineering exports 2015-16 vis-à-vis 2014-15 ($ billion)



Source: EEPC India analysis)

Table1A: Engineering exports growth vis-à-vis manufacturing growth (2014-15)

Months/year	Engg exports growth (%)	Manufacturing growth (%)
April-March 2014-15	14.7	2.3
April 2015	-0.97	5.1
May 2015	-10.49	NA

Source: Department of Commerce and CSO

back to growth in the next two months. Moreover, both export growth and manufacturing growth showed declining trend between November 2014 and January 2015. The similarity in trend then ended in February when export growth turned negative but manufacturing growth reached its ten-month high. Again in March 2015, decline in exports doubled and manufacturing growth also more than halved as compared to February 2015. These figures necessarily established some correlation between manufacturing growth and engineering export growth. On a cumulative basis, manufacturing growth was recorded at 2.3 percent during fiscal 2014-15 as against a decline of 0.8 percent in the previous fiscal. Cumulative export growth, on the other hand recorded at 14.7 percent during fiscal 2014-15 over the previous fiscal. During the first month of fiscal 2015-16, however, engineering exports growth and manufacturing growth moved in opposite directions as depicted in the table.

In **Table2** we present the month-wise corresponding revised engineering exports for 2014-15 as opposed to 2013-14.

Impact of exchange rate

How has the exchange rate been in May 2015 vis-à-vis May 2014? We look at the average exchange rate for May 2015 vis-à-vis May 2014. **Table3** provides the same. The official exchange rate of rupee vis-à-vis the dollar during May 2015 depreciated by 6.9 percent to that of the same period last year.

Trends in engineering panel exports

We begin by looking at the engineering panel-wise exports for the month of May 2015 vis-à-vis May 2014 and cumulative exports for April-May 2015-16 vis-à-vis April-May 2014-15. The data is given in **Table4**.

Some factors that need to be noted are:

• Out of 33 engineering panels – 16 panels recorded positive growth and the remaining 17 panels fared negative growth in the month of May 2015.

Table 2: Revised engineering exports, 2013-14 ($ million)

Quarter	Month	2013-14	2014-15	Growth rate (%)
Quarter 1	April	4529.32	5707.97*	26.02*
	May	4819.47	6013.26*	24.77*
	June	4229.72	5179.17	22.45
Quarter 2	July	4473.34	5498.34	22.91
	August	5264.51	6381.27	21.21
	September	5216.94	6280.51	20.39
Quarter 3	October	5552.78	5000.79	-9.94
	November	4874.85	6410.04	31.49
	December	5531.18	6697.8	21.09
Quarter 4	January	6122.54	6716.26	9.70
	February	4971.59	4907.37	-1.29
	March	6040.14	5884.54	-2.58
	Total exports	**61626.38**	**70677.32***	**14.69***

**Revised figures as per latest estimates by DGCI&S*

Table 3: Average exchange rate

May	Average exchange rate 1 USD to INR
2014	59.5
2015	63.6

Source: Calculated from RBI archive

• Primary iron and steel exports has fallen by more than 25 percent in May 2015 vis-à-vis May 2014. Products of iron and steel have dropped more in May 2015 vis-à-vis May 2014, than the cumulative fall during April-May 2015 vis-à-vis April-May 2014.

• All nonferrous metals like aluminium, copper, lead, nickel, zinc, tin, and products have witnessed rise in export growth in the month of May 2015. The highest growth is seen in the export of zinc and products. Barring these nonferrous metals, the exports of other nonferrous metals dropped by 5.6 percent in May 2015 vis-à-vis May 2014.

• Monthly exports of railway transports have been shown remarkable positive trends growing by 172.1 percent, during May 2015 as against the same period last year. Similarly other panels like electrodes accumulators, cranes lifts and winches, office equipment, and prime mica and mica products have also registered substantial growth in May 2015 vis-à-vis May 2014.

• The aircrafts panel and ships, boats and floating products registered drop in exports in March 2015.

Top 25-country engineering exports

We now look at the export scenario of the top 25 nations that have the highest demand for

Table4: Trends in engineering panel exports, May 2015 and April-May 2015-16 ($ million)							
Sl no.	**Panel**	**May 2014**	**May 2015**	**Growth %**	**Apr-May 2014**	**Apr-May 2015**	**Growth %**
1. Iron and steel and products made of iron and steel							
A	Iron and steel	800.6	528.0	-34.1	1497.8	1055.4	-29.5
B	Products of iron and steel	634.1	546.4	-13.8	1183.5	1149.7	-2.9
Subtotal		**1434.7**	**1074.4**	**-25.1**	**2681.3**	**2205.1**	**-17.8**
2. Nonferrous metals and products made of nonferrous metals							
A	Copper and products	209.8	255.8	21.9	430.8	516.5	19.9
B	Aluminium and products	173.8	233.0	34.1	337.7	426.1	26.2
C	Zinc and products	5.4	41.9	677.0	20.9	113.1	441.5
D	Nickel and products	8.3	35.6	328.8	41.6	57.2	37.5
E	Lead and products	6.4	11.3	75.8	26.1	22.9	-12.0
F	Tin and products	0.5	2.0	343.5	11.7	4.4	-62.6
G	Other nonferrous metals	41.2	38.9	-5.6	75.2	77.1	2.5
Subtotal		**445.3**	**618.5**	**38.9**	**943.9**	**1217.3**	**29.0**
3. Industrial machinery							
A	Industrial machinery like boilers, parts, etc	35.4	43.0	21.5	85.6	99.1	15.8
B	IC engines and parts	171.2	155.5	-9.2	313.8	302.5	-3.6
C	Pumps of all types	65.8	66.9	1.7	122.6	132.0	7.6
D	Air condition and refrigerators	109.4	91.2	-16.6	205.2	176.4	-14.0
E	Industrial machinery for dairy, food processing, textiles etc	400.8	362.4	-9.6	793.7	771.8	-2.8
F	Machine tools	33.7	32.6	-3.3	63.4	66.7	5.2
G	Machinery for injecting moulding, valves and ATMs	113.1	103.1	-8.8	208.9	213.8	2.4
Subtotal		**929.4**	**854.7**	**-8.0**	**1793.2**	**1762.3**	**-1.7**
4.	**Electrical machinery**	**321.8**	**326.1**	**1.3**	**624.6**	**648.7**	**3.9**
5. Auto and auto components							
A	Motor vehicle/cars	526.3	511.8	-2.7	954.5	993.1	4.0
B	Two- and three-wheelers	156.2	156.7	0.3	286.5	279.4	-2.5
C	Auto components/part	396.8	361.1	-9.0	747.3	712.7	-4.6
Subtotal		**1079.3**	**1029.6**	**-4.6**	**1988.3**	**1985.3**	**-0.2**
6.	**Aircrafts and spacecraft parts and products**	**512.0**	**334.4**	**-34.7**	**1154.0**	**1265.9**	**9.7**
7.	**Ships boats and floating products and parts**	**799.5**	**646.4**	**-19.2**	**1504.8**	**986.2**	**-34.5**
8.	**Miscellaneous items**						
A	Medical and scientific instruments	107.7	92.9	-13.8	203.7	187.2	-8.1
B	Railway transport	5.1	13.8	172.1	45.7	20.4	-55.4
C	Hand tools and cutting tools	62.5	56.6	-9.5	120.6	113.0	-6.3
D	Electrodes accumulators	3.2	3.7	16.6	5.8	6.4	9.4
E	Accumulator and batteries	15.2	15.4	0.8	28.0	30.1	7.5
F	Bicycle and parts	30.0	26.0	-13.4	58.8	48.4	-17.7

Table4: Trends in engineering panel exports, May 2015 and April-May 2015-16 ($ million) Contd.

Sl no.	Panel	May 2014	May 2015	Growth %	Apr-May 2014	Apr-May 2015	Growth %
G	Cranes lifts and winches	24.8	46.0	85.8	50.4	72.7	44.3
H	Office equipment	2.4	7.8	220.9	4.6	13.1	183.1
I	Other construction machinery	93.8	90.5	-3.5	186.2	196.2	5.4
J	Prime mica and mica products	1.6	1.8	18.1	3.4	3.1	-8.8
K	Other misc. Items	144.9	144.1	-0.6	324.1	273.8	-15.5
Subtotal		**491.2**	**498.5**	**1.5**	**1031.3**	**964.4**	**-6.5**
Grand total		**6013.26**	**5382.55**	**-10.49**	**11721.23**	**11035.04**	**-5.85**

Source: Department of Commerce, Government of India

Table5: Country-wise exports, 2015-16 ($ million)

Country	May 2014	May 2015	Growth %	Apr -May 14-15	Apr -May 15-16	Growth %
USA	611.97	593.63	-3.00	1116.17	1228.37	10.05
UAE	617.78	264.42	-57.20	1246.17	876.63	-29.65
Sri Lanka	415.65	168.53	-59.45	621.03	816.38	31.46
China	185.50	181.88	-1.95	361.76	424.42	17.32
Singapore	444.73	240.78	-45.86	712.04	417.41	-41.38
UK	229.13	212.17	-7.40	432.56	378.40	-12.52
Malaysia	56.89	266.17	367.88	108.63	369.71	240.33
Germany	185.37	209.24	12.87	354.35	354.41	0.02
Norway	4.27	330.87	7645.68	8.79	335.33	3715.17
Mexico	128.00	166.27	29.90	259.86	320.03	23.15
Italy	151.21	117.02	-22.61	274.19	237.94	-13.22
Saudi Arabia	142.97	112.64	-21.22	251.35	224.85	-10.54
Bangladesh	122.19	114.70	-6.13	270.22	224.14	-17.05
South Africa	102.36	103.30	0.91	198.72	213.34	7.36
Korea	131.30	114.40	-12.88	225.06	202.00	-10.24
Turkey	107.07	105.54	-1.42	376.00	201.12	-46.51
Nepal	117.51	94.47	-19.61	216.82	196.93	-9.17
Nigeria	102.36	86.61	-15.38	202.03	187.98	-6.96
Thailand	85.28	86.35	1.26	170.79	161.92	-5.19
Czech Republic	11.64	140.01	1102.56	23.10	149.31	546.41
France	87.06	78.29	-10.07	175.15	148.40	-15.27
Brazil	68.42	76.94	12.45	139.23	145.05	4.18
Indonesia	129.05	66.42	-48.54	285.38	135.19	-52.63
Iran	83.68	61.42	-26.61	157.43	129.61	-17.67
Bahrain	10.57	20.71	95.92	16.59	128.64	675.34
Total of top 25	**4331.97**	**4012.78**	**-7.37**	**8203.39**	**8207.50**	**0.05**
Total engineering exports	**6013.3**	**5382.6**	**-10.49**	**11721.23**	**11035.04**	**-5.85**
Share of top 25 in total (%)	72.0	74.6		70.0	74.4	

Note: Negative monthly and cumulative growth figures are highlighted in red
Source: Department of Commerce, Government of India

Indian engineering products during May 2015 over May 2014 in absolute value, even though the growth rate may be negative. Country-wise cumulative figures for April-May 2015 has also been taken into account to see the trend of India's engineering exports in the current fiscal.

The country-wise figures for May 2015 show interesting trends. These are:

- Out of the top 25 countries, 16 countries recorded negative growth in the month of May 2015.
- Top European export destinations for Indian engineering exports such as the UK, Italy, Turkey and France, conceded negative growth in May 2015 as well as during April-May 2015-16.
- Indian engineering exports to the US continues to be the highest in the reporting month despite there being no GSP.
- China once again recorded negative growth in May 2015 due to the fall in Chinese import demand for the seventh straight month.
- Out of 215 destinations for export of Indian engineering goods, the top 25 nations account for 74.4 percent of the total during April-May 2015-16.
- The growth rate in the top 25 countries during April-May 2015-16 taken together recorded positively at 0.05 percent higher than that of India's total engineering exports at (-)5.85 percent.

Regional distribution of engineering exports

We now look at the regional distribution of engineering exports for April-May 2015-16 as opposed to April-May 2014-15. Like before we also look at the trend in May 2015 vis-à-vis May 2014. **Table6** and **Figure2** give this picture.

Some interesting observations from the data are:

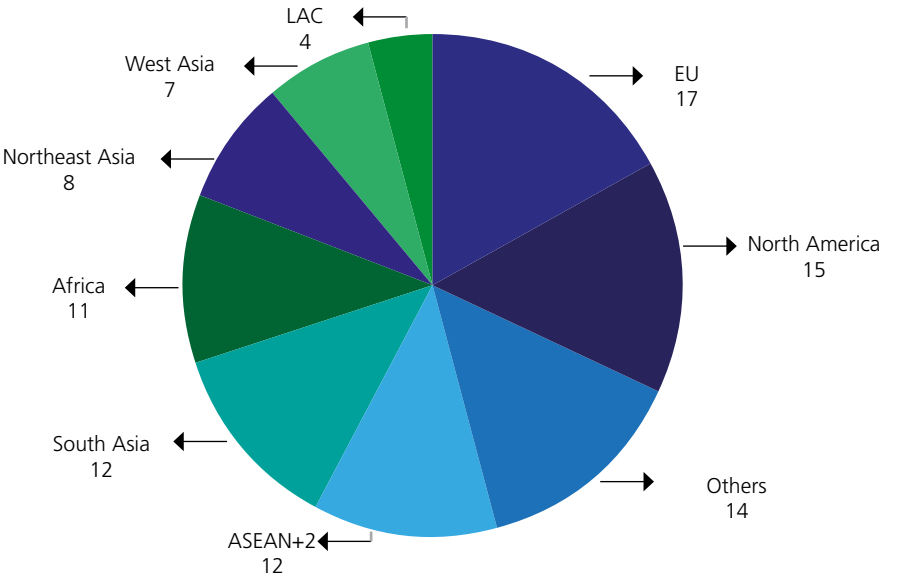
- Engineering exports to the EU ranks first in region wise exports during the cumulative period of April-May 2015-16.

Table6: Region-wise exports trend ($ million)

Region	May 2014	May 2015	Growth %	Apr-May 2014-15	Apr-May 2015-16	Growth %
EU	1003.99	1075.68	7.14	1890.58	1862.73	-1.47
North America	790.34	793.18	0.36	1458.09	1619.43	11.06
Others	877.28	748.78	-14.65	1882.40	1531.05	-18.66
ASEAN+2	907.44	806.81	-11.09	1626.27	1384.42	-14.87
South Asia	669.87	392.85	-41.35	1139.30	1286.82	12.95
Africa	627.19	552.89	-11.85	1275.84	1180.41	-7.48
Northeast Asia	421.39	415.80	-1.33	817.36	872.13	6.70
West Asia	469.85	339.70	-27.70	1172.19	798.44	-31.88
LAC	245.92	262.95	6.92	459.20	505.64	10.11
Grand total	**6013.28**	**5388.64**	**-10.39**	**11721.23**	**11041.08**	**-5.80**

*Note: *Figures have been rounded off. Source: DGCI&S; **Myanmar has been included in ASEAN+2 and not in South Asia, since ASEAN is a formal economic grouping.*
Source: Department of Commerce, Government of India

Figure2: India's region-wise exports during April-May 2015-16 (%)



Note: Others also includes rest of Europe and CIS
Source: EEPC India analysis)

• North America ranks second where countries like Canada and the US have registered significant growth rates especially for items like industrial machinery, IC engines and parts, electric machinery and equipment, and auto components/part etc during this fiscal.
• South Asia and Northeast Asia have recorded positive cumulative exports during April-May 2015-16 as compared to April-May 2014-15. However, they have recorded negative export performance for the month of May 2015. This fall of exports is due to the fall in exports to China, South Korea and other ASEAN countries like Singapore, Indonesia, Vietnam, Philippines, Myanmar, Laos and Brunei.

Major product and market analysis

We now analyse the performance of some of the important products. We pick the major panels and seek the heavy growth and heavy declines in these panels in the current fiscal of 2015-16 to give an idea about the trend that is about to emerge. (**Tables7-15**)

Iron and steel

• The US tops the list importing 9.7 percent of India's total export of iron and steel during April- May 2015-16.
• While Iran and Italy imports 7.4 percent and 6.8 percent of India's total export of Iron and Steel respectively during the same period respectively.

Products of iron and steel

• The US tops the list importing 18.7 percent of India's total export of products of iron and steel during April-May 2015-16.
• UAE and Iraq imported 10.3 percent and 8 percent of India's total export of products of iron and steel respectively during the same period.

Industrial machinery

• The US tops here importing 18.4 percent of India's total exports for industrial machinery during April- May 2015-16.
• UAE and UK imports 4.9 percent and 4.8 percent of India's total exports for industrial machinery during April- May 2015-16.

Automobiles

• In case of motor vehicles South Africa tops the list importing 12 percent of India's total exports of motor vehicles during April-March 2015-16.
• Mexico and Sri Lanka holds the 2nd and 3rd position respectively importing 11.2 percent and 9.8 percent of India's total exports of motor vehicles during the same period.

Nonferrous metals

• China is the topmost importer for nonferrous metals importing around 24 percent of India's total export of nonferrous metals during April-March 2015-16.
• Malaysia and South Korea are the new entrants ranked second and third as importer of India's nonferrous products with 9 percent share respectively during April-March 2015-16.

Table7: Export of iron and steel ($ million)

Export partners	May 14	May 15	Growth %	Apr-May 2014-15	Apr-May 2015-16	Growth %
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	800.59	529.56	-33.85	1497.79	1056.95	-29.43
Bangladesh	18.78	26.81	42.74	40.78	56.07	37.50
Belgium	18.85	31.24	65.72	38.89	42.73	9.87
Mexico	5.42	6.34	17.02	9.48	12.63	33.29
Nigeria	5.98	1.45	-75.81	11.18	11.67	4.43
Malaysia	5.05	3.41	-32.49	8.84	8.87	0.32
Sudan	2.04	1.99	-2.38	3.95	7.46	89.04
Myanmar	1.29	5.17	299.49	5.71	6.30	10.30
Oman	1.33	3.97	197.99	2.57	5.49	114.03
HEAVY CUMULATIVE DECLINE COUNTRIES						
USA	73.34	41.78	-43.04	102.56	102.06	-0.49
Iran	39.49	35.53	-10.02	79.23	78.00	-1.56
Italy	40.78	31.04	-23.88	79.20	71.88	-9.24
UAE	58.40	31.91	-45.36	116.33	56.65	-51.30
Nepal	45.83	30.78	-32.83	80.98	52.46	-35.22
Korea	52.34	25.01	-52.21	85.25	45.69	-46.40
Thailand	20.70	18.03	-12.92	50.21	37.84	-24.65
Indonesia	15.44	13.96	-9.56	32.79	29.02	-11.50

Source: Department of Commerce, Government of India

Table 8: Export of products iron and steel ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	634.13	547.01	-13.74	1183.50	1150.29	-2.81
Iraq	0.53	29.44	5445.10	1.26	91.79	7167.36
Saudi Arabia	32.91	26.05	-20.87	52.22	53.88	3.18
Mexico	2.51	31.59	1157.25	5.46	35.36	548.19
Malaysia	7.72	7.49	-2.99	11.64	24.29	108.79
Netherlands	9.68	12.07	24.72	17.94	23.91	33.28
Peru	0.19	4.25	2131.58	0.68	19.07	2707.56
Australia	8.20	7.91	-3.52	15.78	17.88	13.31
Spain	7.01	8.63	23.09	13.96	16.00	14.59
HEAVY CUMULATIVE DECLINE COUNTRIES						
USA	117.10	104.07	-11.12	218.23	214.68	-1.62
UAE	101.70	67.24	-33.88	176.55	118.55	-32.85
Germany	40.60	29.54	-27.24	77.92	59.64	-23.46
UK	35.46	24.34	-31.37	65.58	47.65	-27.34
Italy	27.43	14.41	-47.49	44.43	26.21	-41.01
Canada	15.12	10.63	-29.68	30.21	23.45	-22.38
France	10.63	10.26	-3.45	21.31	18.13	-14.91
Belgium	8.75	7.39	-15.46	15.85	13.70	-13.54

Source: Department of Commerce, Government of India

Table9: Export of industrial machinery ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	929.37	857.56	-7.73	1793.15	1765.15	-1.56
USA	143.05	159.60	11.57	284.14	325.43	14.53
UK	30.04	50.21	67.16	56.02	84.76	51.32
China	35.17	27.55	-21.67	59.94	60.85	1.51
Saudi Arabia	32.25	27.14	-15.86	56.15	60.62	7.96
Bangladesh	25.12	23.31	-7.20	51.60	54.58	5.79
Nigeria	23.96	23.37	-2.47	42.42	43.22	1.89
Brazil	18.15	19.97	10.03	31.79	38.58	21.34
Vietnam	13.29	15.95	20.03	26.20	30.19	15.26
HEAVY CUMULATIVE DECLINE COUNTRIES						
UAE	56.50	44.07	-22.00	89.90	85.96	-4.39
Germany	42.93	41.80	-2.61	82.46	77.10	-6.49
Turkey	38.09	29.37	-22.89	75.56	64.20	-15.04
Italy	32.10	17.90	-44.25	56.84	38.97	-31.43
Indonesia	22.14	18.38	-16.95	41.70	36.09	-13.47
Thailand	27.35	17.72	-35.22	46.99	35.63	-24.18
Singapore	26.60	15.05	-43.40	44.59	33.08	-25.81
Nepal	16.47	11.80	-28.33	34.38	31.38	-8.74

Source: Department of Commerce, Government of India

Table10: Export of automobiles ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	526.25	512.02	-2.70	954.48	993.29	4.07
South Africa	58.97	59.27	0.51	102.94	118.75	15.36
Sri Lanka	14.58	56.54	287.74	28.39	97.16	242.30
UAE	17.12	18.59	8.58	20.78	32.11	54.56
Italy	10.78	14.82	37.44	19.68	31.72	61.15
Egypt	1.72	8.62	401.46	1.72	31.58	1735.82
Spain	15.88	17.49	10.15	23.38	30.63	30.99
Chile	5.92	9.53	61.05	12.68	22.94	80.84
Nepal	7.22	9.94	37.62	12.97	20.00	54.21
HEAVY CUMULATIVE DECLINE COUNTRIES						
Mexico	73.34	47.78	-34.86	149.10	111.02	-25.54
UK	44.46	29.97	-32.58	74.98	53.80	-28.25
Algeria	31.49	24.58	-21.93	69.59	40.78	-41.39
Bangladesh	24.26	20.18	-16.84	43.61	29.07	-33.35
Nigeria	16.89	13.28	-21.38	32.56	23.08	-29.11
Australia	14.22	6.54	-54.02	35.70	13.92	-61.02
Netherlands	15.16	4.64	-69.38	20.48	13.54	-33.91
Germany	2.24	2.23	-0.42	10.57	7.19	-32.00

Source: Department of Commerce, Government of India

Table11: Export of nonferrous metals ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	404.19	580.04	43.51	868.70	1140.64	31.30
China	103.59	108.92	5.14	205.39	272.57	32.71
Malaysia	3.76	66.14	1658.76	9.46	107.66	1037.50
Korea	52.64	57.22	8.71	89.97	100.47	11.67
USA	29.63	33.04	11.51	56.71	78.48	38.39
Mexico	12.58	35.16	179.50	33.72	75.53	123.97
Taiwan	4.24	26.77	531.85	19.60	52.32	166.91
Saudi Arabia	7.68	19.03	147.84	13.72	28.69	109.01
Brazil	4.23	15.76	272.51	7.69	20.26	163.57
HEAVY CUMULATIVE DECLINE COUNTRIES						
UAE	54.46	25.61	-52.98	112.03	66.59	-40.56
Singapore	6.77	33.67	397.63	49.56	44.16	-10.89
Colombia	6.29	5.45	-13.40	16.08	12.10	-24.75
UK	7.19	5.83	-18.96	12.78	12.06	-5.69
Germany	8.75	7.10	-18.87	15.31	11.89	-22.35
Nigeria	6.70	5.20	-22.40	12.19	7.81	-35.93
Netherlands	3.12	3.48	11.43	6.01	5.89	-1.98
Peru	5.18	1.89	-63.58	7.84	5.76	-26.58

Source: Department of Commerce, Government of India

Table12: Export of electrical machinery and components ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	321.83	326.11	1.33	624.57	648.74	3.87
USA	49.39	53.34	8.01	84.12	97.80	16.27
Germany	22.93	22.76	-0.73	41.13	41.88	1.81
Nepal	4.28	6.48	51.36	9.60	17.29	80.12
Japan	5.20	12.15	133.63	9.40	16.45	75.06
Italy	6.29	9.17	45.72	12.38	15.03	21.42
Singapore	7.04	8.19	16.40	12.43	14.47	16.36
Nigeria	3.92	4.45	13.54	8.65	14.23	64.53
China	7.03	6.04	-14.03	12.27	13.45	9.61
HEAVY CUMULATIVE DECLINE COUNTRIES						
UK	19.21	27.14	41.27	42.80	40.33	-5.76
UAE	15.81	16.12	1.95	40.84	31.48	-22.92
France	18.27	15.56	-14.82	37.17	30.51	-17.93
Saudi Arabia	9.36	9.45	1.00	17.57	16.85	-4.08
Kenya	9.35	4.45	-52.37	14.59	9.91	-32.05
Oman	4.49	2.59	-42.47	10.10	9.01	-10.76
Thailand	5.12	3.40	-33.63	11.16	7.57	-32.14
Sri Lanka	7.21	4.29	-40.56	9.16	7.03	-23.29

Source: Department of Commerce, Government of India

Table13: Export of aircrafts and spacecrafts ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	511.98	334.39	-34.69	1153.97	1265.87	9.70
Sri Lanka	285.51	47.98	-83.20	431.54	611.06	41.60
UAE	15.43	10.32	-33.13	143.94	271.52	88.63
Czech Republic	0.02	130.03	829083.59	0.02	130.03	561425.85
USA	31.84	34.10	7.08	53.85	79.48	47.60
Germany	7.47	57.96	676.41	11.34	63.86	463.22
China	0.10	4.18	4209.93	1.17	7.95	578.17
Malaysia	5.28	0.63	-88.12	5.71	7.60	33.08
Korea	0.00	6.96	#div/0!	0.01	6.98	49692.96
HEAVY CUMULATIVE DECLINE COUNTRIES						
UK	24.16	13.66	-43.46	57.62	22.83	-60.39
France	11.62	8.36	-28.03	23.37	15.12	-35.29
Russia	3.53	0.32	-90.89	21.18	11.77	-44.43
Singapore	9.03	5.50	-39.11	16.58	10.12	-38.96
Israel	2.33	0.74	-68.35	6.71	1.90	-71.67
Poland	1.64	0.82	-50.19	3.48	0.96	-72.36
Sweden	0.67	0.48	-29.03	1.04	0.88	-15.23
Japan	0.60	0.30	-50.01	0.65	0.48	-25.99

Source: Department of Commerce, Government of India

Table14: Export of ships, boats and floating structures and parts ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	799.54	646.42	-19.15	1504.77	986.17	-34.46
Malaysia	0.00	159.55		0.02	162.32	944280.48
Maldives	0.00	0.37	21014.22	0.00	0.37	21014.22
Korea	0.00	0.04		0.00	0.04	3335.52
Angola	0.01	0.03	296.73	0.01	0.03	296.73
HEAVY CUMULATIVE DECLINE COUNTRIES						
Singapore	368.66	151.39	-58.93	492.27	269.62	-45.23
UAE	249.64	6.46	-97.41	449.28	133.05	-70.39
Italy	0.01	0.06	315.26	0.07	0.06	-14.57
Netherland	2.35	0.06	-97.41	2.37	0.06	-97.43

Source: Department of Commerce, and CSO

Table 15: Export of auto components ($ million)						
Export partners	**May 14**	**May 15**	**Growth %**	**Apr-May 2014-15**	**Apr-May 2015-16**	**Growth %**
SUBSTANTIAL CUMULATIVE GROWTH COUNTRIES						
Export to world	396.83	361.05	-9.02	747.32	712.72	-4.63
USA	85.79	82.92	-3.34	160.76	163.61	1.78
Brazil	15.61	16.16	3.53	31.57	33.87	7.29
Mexico	8.60	15.73	82.89	16.33	31.08	90.30
UAE	10.44	11.57	10.80	18.66	20.50	9.88
Nigeria	4.44	2.88	-35.03	7.49	17.15	128.82
Nepal	5.91	7.87	33.18	12.44	15.39	23.72
South Africa	4.82	3.72	-22.73	10.55	10.82	2.56
Belgium	4.85	4.78	-1.47	9.14	9.72	6.33
HEAVY CUMULATIVE DECLINE COUNTRIES						
Turkey	36.16	26.47	-26.79	71.64	53.14	-25.83
UK	19.74	17.10	-13.35	37.59	34.40	-8.47
Germany	17.70	17.12	-3.25	34.69	30.86	-11.05
Thailand	18.29	18.46	0.95	34.20	29.64	-13.34
Italy	17.22	13.38	-22.30	31.66	24.70	-21.99
Egypt	12.83	11.90	-7.27	23.55	23.16	-1.65
Indonesia	19.07	9.51	-50.14	36.28	20.21	-44.29
Bangladesh	18.90	12.03	-36.35	32.91	19.13	-41.88

Source: Department of Commerce, Government of India

Electrical machinery and components

• The US is the largest importer of electrical machinery and equipment from India during April-May 2015-16 with 15.08 percent share in India's global export of the product group.
• Germany replaced UK to hold the second position with 6.45 percent share.
• Exports to UK and UAE witnessed decline during April-May 2015-16 over the same period last fiscal despite being the third and fourth largest export destination for electrical machineries.

Aircrafts and spacecrafts

• In case of aircrafts and parts Sri Lanka continues to be the top export destination for India, importing 48.27 percent of India's total exports of aircrafts and parts during April-May 2015-16.
• The United Arab Emirates remained the second-largest importer of India's aircrafts and parts during April-May 2015-16 with 21 percent share.
• UK and France, despite being the sixth and seventh largest export destination for India's aircrafts and spacecrafts, recorded substantial decline during April-May 2015-16 over the same period last fiscal.

Ships, boats and floating structures and parts

Norway, Singapore and Malaysia are recorded as top export destinations for India's export of ships, boats and floating structures and parts during April-May 2015. Contrastingly, Singapore and UAE conceded negative cumulative and monthly growth as well during the current fiscal 2015-16 compared to the same period last year.

Malaysia recorded massive growth among top export destinations due to substantial surge in its import of Indian ships and boats during May 2015.

Auto components

The US remains the topmost destination for India's exports of auto components and parts with over 23 percent share during May 2015.

Indian manufacturing bounced back in fiscal 2014-15 that continued in April 2015 also. Engineering is a major component of manufacturing, and it also experienced decent growth during the last fiscal. This is reflected in the recovery of the capital goods sector and higher production growth of basic goods during the said fiscal. RBI has also reduced the policy rate three times in 2015 that may aid the industrial recovery following the monetary transmission of the same by commercial banks

•Brazil and Mexico hold the second and third position respectively but both were far below the exported value made to the US. India's auto-component exports to Turkey conceded by 27 percent year-on-year decline during May 2015 compared to May 2014.

Conclusion

Trade data for May 2015 suggest that both external and internal demand remained weak, reflecting not-so-pleasant news on the economic front. With more than 20 percent fall in merchandised exports and above 10 percent fall in engineering exports during May 2015, India's overseas shipment have been conceding a slowdown in the last few months. The dip in crude oil prices that has an impact on exports of petroleum products is believed to be one of the reasons for such a sharp and continuous fall.

Exporters have demanded a stimulus package stating that the continuous decline in exports due to shrinking of traditional markets, and now of emerging economies, could severely impact their businesses. Nothing short of a stimulus package would help Indian exporters regain their competitiveness across the major markets of Europe, the US, Southeast Asia and Africa.

Mr Anupam Shah, Chairman, EEPC India, said, 'The stimulus can be in the form of interest subvention, technology upgradation fund and fast refund of local taxes.'

Engineering sectors like iron and steel, aircrafts, ship and boats, auto components have been severely hit during May 2015 compared to the previous fiscal. Region-wise, slackening of demand from Europe, Africa and some of the regions of Asia contributed to this poor performance of engineering exports during the first two months of the current fiscal.

Let's now look at the positives. Indian manufacturing bounced back in fiscal 2014-15 that continued in April 2015 also. Engineering is a major component of manufacturing, and it also experienced decent growth during the last fiscal. This is reflected in the recovery of the capital goods sector and higher production growth of basic goods during the said fiscal. RBI has also reduced the policy rate three times in 2015 that may aid the industrial recovery following the monetary transmission of the same by commercial banks. A slew of reform measures by the incumbent government and initiatives like 'Make in India' will also help expanding the manufacturing industry in India. On the global front, Europe has been witnessing a weak but steady recovery and US is also not likely to dip in further recession. Demand from these two most developed regions are likely to increase from late second half of 2015 that may also drive up India's overseas shipment going forward.

In brief, despite the fact that the overall engineering export scenario looks somewhat gloomy at the current juncture, some silver lines are also in sight.

EEPC India offices

Office bearers of EEPC India

CHAIRMAN
Anupam Shah
Tel: 91-33-22872511/22874447
Fax: 91-33-22875104/22870780
e-mail: nipha@niphaindia.com
anupam@niphaindia.com

SR VICE CHAIRMAN
Tarvinder Singh Bhasin
Tel: 91-22-23738856/23724381
Fax: 91-22-23730107
e-mail: tsb@bharatsprings.com

VICE CHAIRMAN
R P Sehgal
Tel: 91-33-22803127/22878229/22902256/22903284
Fax: 91-33-22879938
e-mail: ravisehgal5@gmail.com
info@carnationindustries.com

REGIONAL CHAIRMEN
Eastern Region
Arun Kumar Garodia
Tel: 91-33-40052700 Fax: 91-33-40052800
e-mail: corona@coronaind.com, arun@coronaind.com

Northern Region
Kamna Raj Aggarwalla
Tel: 91-181-2642001/02/03/04 Fax: 91-181-2642005
e-mail: gdpa@vsnl.net, gdpa@jla.vsnl.net.in

Southern Region
Mahesh K Desai
Tel: 91-40-27615131/27617098
Fax: 91-40-27614376
e-mail: hyd1_meera@sancharnet.in
desai.mahesh64@gmail.com

Western Region
Pankaj Chadha
Tel: 91-22-26455474/75/76/77
Fax: 91-22-26455478
e-mail: export@jyotisteel.com

Offices in India

Bhaskar Sarkar
Executive Director & Secretary, EEPC India
Territorial Division, New Delhi

REGISTERED & HEAD OFFICE
Suranjan Gupta
Additional Executive Director
EEPC India
Vanijya Bhavan (1st Floor)
International Trade Facilitation Centre
1/1 Wood Street
Kolkata 700 016
Tel: 91-33-22890651/52/53
Fax: 91-33-22890654
e-mail: eepcho@eepcindia.net

TERRITORIAL DIVISION
EEPC India
Vandhna (4th Floor)
11 Tolstoy Marg, New Delhi 110 001
Tel: 91-11-23353353, 23711124/25
Fax: 91-11-23310920
e-mail: eepcto@eepcindia.net

REGIONAL OFFICES
Chennai
EEPC India
Greams Dugar (3rd Floor)
149 Greams Road, Chennai 600 006
Tel: 91-44-28295501, 28295502 Fax: 91-44-28290495
e-mail: eepcrochen@eepcindia.net

Kolkata
EEPC India
Vanijya Bhavan (2nd Floor)
International Trade Facilitation Centre
1/1 Wood Street, Kolkata 700 016
Tel: 91-33-22890673/74 Fax: 91-33-22890687
e-mail: eepcrokol@eepcindia.net

Mumbai
EEPC India
B-202 & 220, Aurus Chambers
Annex "B", 2nd Floor (behind Mahindra Tower)
S.S. Amrutwar Marg, Worli, Mumbai 400 013
Tel: 91-22-4212 5555 Fax: 91-22-4212 5506
e-mail: eepcromum@eepcindia.net

New Delhi
EEPC India
Vandhna Building (7th Floor)
11 Tolstoy Marg, New Delhi 110 001
Tel: 91-11-23314171/74 Fax: 91-11-23317795
e-mail: eepcrodel@eepcindia.net

Sub-regional offices

Bangalore
EEPC India
Vinayaka Complex (2nd Floor)
44/45, Residency Road Cross
Bangalore 560 025
Tel: 91-80-25581396/25588669
Fax: 91-80-25586914
e-mail: eepcsroblr@eepcindia.net

Hyderabad
EEPC India
'Soham Mansion' (1st Floor)
No. 5-4-187/3 & 4/4, M. G. Road
Secunderabad 500 003
Tel: 91-40-27536704 Telefax: 91-40-27536705
e-mail: eepcsrohyd@eepcindia.net

Jalandhar
EEPC India
Plot Comm. 1, Focal Point
Jalandhar 144 012
Tel: 91-181-2602264
Fax: 91-181-2601124
e-mail: eepcsrojld@eepcindia.net

Ahmedabad
EEPC India
TF-313/A (3rd Floor)
ATMA House, Ashram Road
Ahmedabad 380 009
Tel: 91-9725663534/79-26588720
e-mail: eepcsroahd@eepcindia.net

CIN: U51900WB1955NPL022644

IndianEngineeringExports **advertising rates**

Advertisement Tariff		
	Colour	**Black and white**
Back Cover	Rs40,000 (US$ 750)	
Inside Back Cover	Rs30,000 (US$ 575)	
Inside Front Cover	Rs30,000 (US$ 575)	
Centre-spread	Rs40,000 (US$ 750)	
Full Page	Rs20,000 (US$ 400)	Rs13,000
Half Page	Rs12,000	Rs8,000
Strip	Rs6,000	

Print Area	
Back Cover	26.6 cm x 20.7 cm
Inside Back Cover	26.6 cm x 20.7 cm
Inside Front Cover	26.6 cm x 20.7 cm
Centre-fold	26.9 cm x 41.4 cm
Full Page	26.6 cm x 20.7 cm
Half Page	12.9 cm x 18.4 cm

The rates are for a single insertion. Discounts may be given for more than one insertion.

The discounts are:
For 3 months 3%
For 6 months 6%
For 12 months 10%

Members of EEPC India will get a further discount of 10% of the total cost.

1

2

EEPC abroad

(**1**) Mr Anurag Bhushan, Consul General, Consulate-General of India, Dubai, inaugurating the India Pavilion at Automechanika Middle East in Dubai;
(**2**) Ms Neetu Singh, Assistant Director, EEPC India, with Mr Hussain Mohammed Al Mahmoudi, Director-General, Sharjah Chamber of Commerce and Industry, during Automechanika; (**3**) the Consul General visiting the EEPC India information booth. (**4**) Mr Anil Trigunayat, Ambassador of India to Jordan, and Mr Roshan Lepcha, Head of Chancery, Embassy of India, at the EEPC India booth at JIMEX 2015 in Jordan. Also seen is Mr Simant Vijai, EEPC India.

SHIFTS THINKING
SPARKS COLLABORATION
EXPLORES POSSIBILITIES
SHARES KNOWLEDGE
EEPC India
spearheading
growth
India Engineering
Sourcing Show 2015
GET

3

INDIA
EEPC INDIA
OPENS MARKE
SHIFTS THIN
SPARKS COLLAB
EXPLORES POS
SHARES KNO
FINDS OPPORT
FUELS EXPO
EEPCINDIA
INDIA

4

EEPC abroad ...

(**5**) Ms Maha Ali, Minister of Industry, Trade and Supply, Hashemite Kingdom of Jordan, and Mr Anil Trigunayat, Ambassador of India to Jordan, inaugurating the Indian Pavilion at JIMEX 2015 in Jordan;
(**6**) Mr Anil Trigunayat and Ms Maha Ali visiting the India Pavilion.
(**7**) Dr Virendra Paul, Dy High Commissioner of India in the UK, and Mr BC Pradhan, Head of Chancery, Consulate of India in Birmingham, inaugurating the India Pavilion in SUBCON held in Birmingham. Mr Rajat Srivastava, Regional Director, EEPC India (WR) is on the left; (**8**) Dr Virendra Paul interacting with Indian exhibitors.

7

8

OVERSEAS AFFAIRS

9

10

11

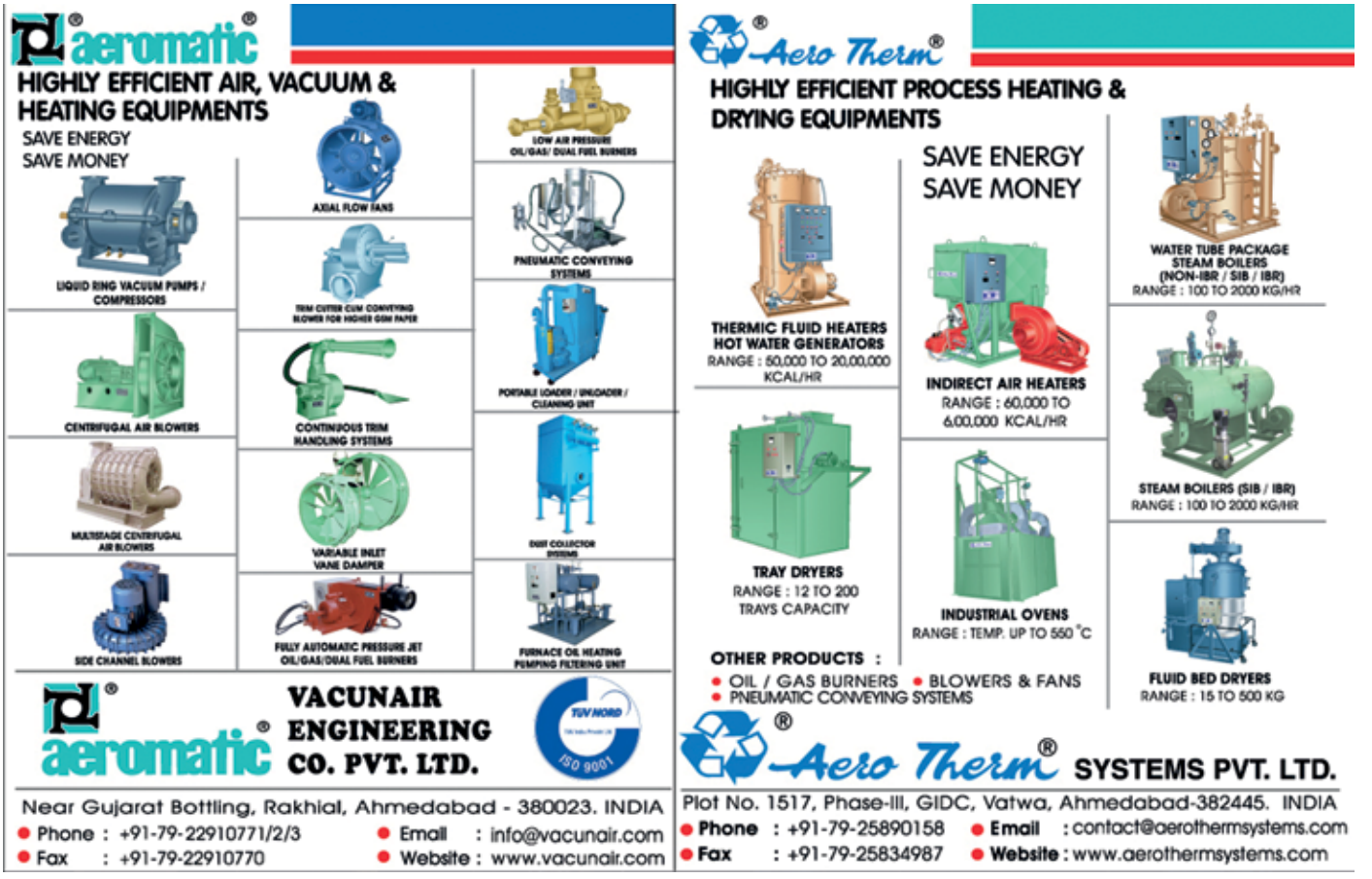
12

EEPC abroad ...

(**9**) Mr Randhir K Jaiswal, Consul-General of India in Johannesburg, South Africa, inaugurating the India Pavilion at Africa Health 20015 held in Johannesburg; (**10**) Mr Opinder Singh, Deputy Director, EEPC India (NR), at the EEPC India booth with Indian exhibitors. (**11**) Mr Randhir K Jaiswal, Counsul-General of India in Johannesburg, South Africa interacting with Indian exhibitors at Pumps & Valves Africa in Johannesburg;
(**12**) Mr JV Raja Gopal Rao, Dy Director, EEPC India presenting a memento to the Counsul-General at the EEPC India booth.

EEPC INDIA CALENDAR OF EVENTS

Name of the Event	City/Country	Date
Buyer Seller Meet to Ethiopia and Kenya		July 2015
INDEE Peru (India Engineering Exhibition)	Lima, Peru	5-7 August 2015
INDEE Sri Lanka (India Engineering Exhibition)	Sri Lanka	October 2015
BIET'15	Dhaka, Bangladesh	October 2015
International Linemans Rodeo & Expo 2015	Kansas, USA	14-17 October 2015
International Linemans Rodeo & Expo 2015	Kansas, USA	14-17 October 2015
Power Nigeria 2015	Lagos, Nigeria	3 - 5 November, 2015
Agritechnica 2015	Germany	10-14 November, 2015
India Pavilion in ITMA	Milan, Italy	12-19 November 2015
Metalex Bangkok 2015	Bangkok, Thailand	18-21 November 2015
India Engineering Sourcing Show	Mumbai	24 - 26 November 2015
Automechanika Shanghai 2015	Shanghai, China	2 - 5 December 2015
INDEE ASEAN (Cambodia or Philippines)	2016	February
India Pavilion in International Hardware Fair	Cologne, Germany	6-9 March 2016



OPEN DEFECATION A THREAT TO INDIA'S HUMAN CAPITAL

Access to improved sanitation can increase cognition in children, according to a new World Bank study. Research showed that six-year-olds who had been exposed to India's sanitation programme during their first year of life were more likely to recognize letters and simple numbers on learning tests than those who were not, according to Dean Spears, lead author of the paper. The results also suggest that open defecation is an important threat to the human capital of developing countries.

LET'S GET SERIOUS ABOUT CLEANLINESS AND SPREAD THE MESSAGE.

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Date of publication: 1 JULY 2015, R.N.I. No: WBENG/2008/24569 Postal Registration No. KOL RMS/397/2015-17

UNiSTEEL®

UNiSTEEL ENGINEERING WORKS®

Manufacturer of Civil Construction Machineries

CONCRETE SOLUTION FOR CONCRETE LINING

Concrete Electronic Sensor Paver For Road & Airport

Working on Track Chain

SRCP-750

Working on Rail

SRCP-720

Concrete Paver For Roads & Airport

RCP-750

Concrete Paver For Canal & Reservoir

RCP-750

D&B CERTIFIED
D & B D-U-N-S NUMBER 91-813-6417

UNiSTEEL ENGINEERING WORKS

Plot No. 79/B, Phase-I, Opp. Water Tank,
G.I.D.C., Vatva, Ahmedabad-382 445. Gujarat INDIA.

Phone: 0091 79 25895111, 25895546 | Fax: 0091 79 25895553

E-mail: unisteel@unisteel.net

JAS-ANZ
An ISO 9001:2000 Certified Company