



# **INDIAN FOUNDRY INDUSTRY & Human Capital Development**

**The Institute of Indian Foundrymen (IIF)**

[www.indianfoundry.org](http://www.indianfoundry.org)

# About IIF



- Apex Industry body established in 1950
- Active member of WFO, BRICS, AFF
- Accredited Business Member Organization by National Accreditation Board of Education & Training under Quality Council of India.
- Over 4000 members
  - Leading Foundries      - Equipment Manufacturers
  - Technology & Service Providers
  - Material Suppliers      - Academicians & Students

# About IIF Contd....



- ❑ Four Regional Offices
- ❑ Three Centres of Excellence
- ❑ 27 Chapters across India

## Centers of Excellences

1. Centre of Education & Training, Kolkata
2. Foundry Informatics Centre, Delhi
3. National Centre of Technical Services, Pune

# IIF's Major Activities



- Training, Education & Certification
- Seminars / Conferences / Exhibitions for Dissemination of knowledge.
- Publication of Technical Material / CDs / DVD.
- Dissemination of Information on Latest Trends/ Technologies Global Best Practices/
- Business Development
- Promotion of Various Govt. Schemes for Benefit of Foundry Sector
- Policy Advocacy
- Maintenance & Updating of Analytical Database
- Awards For Promotion of Excellence in Various Operational Areas of Foundries
- Participation in International Events

# Indian Foundry Industry At a Glance



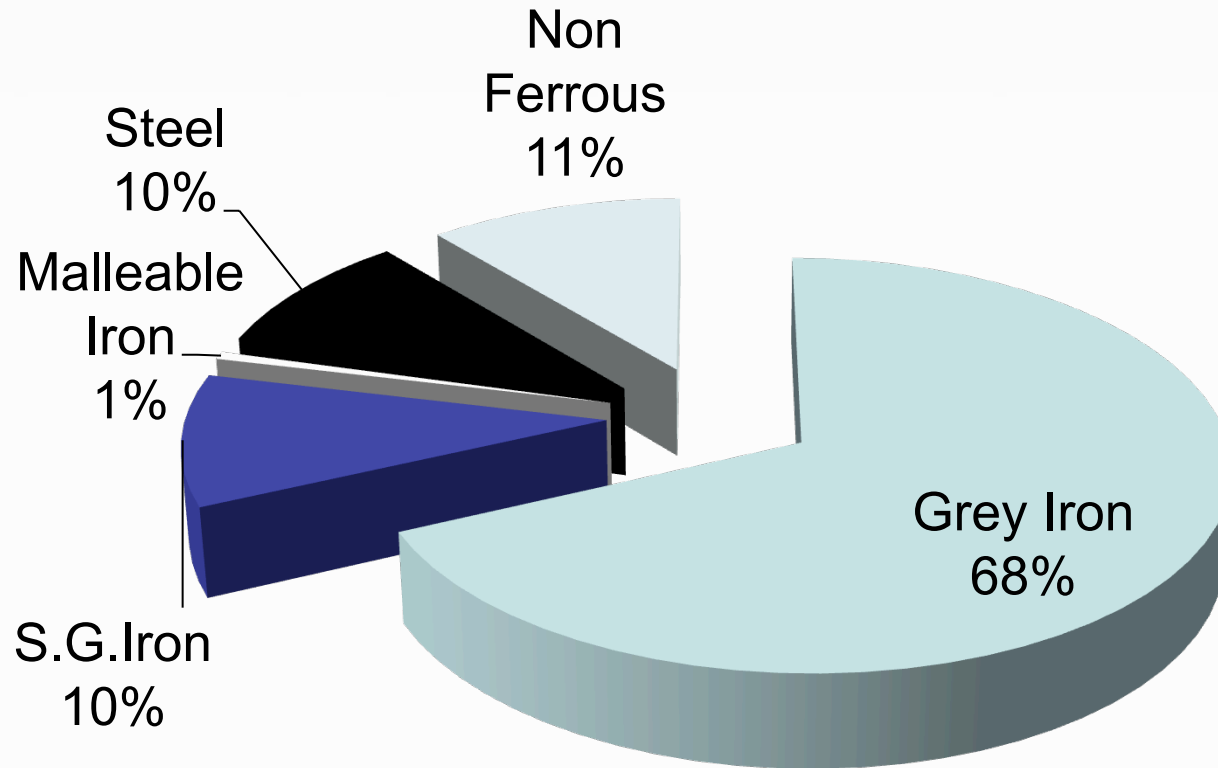
- 2<sup>nd</sup> LARGEST GLOBALLY
- Approx Units : 4600
- Production: 10.77 Million MT PA
- Employment: 0.5 Mn Direct & 1.5 Mn Indirect
- Major Foundry Clusters: 19
- Avg. Productivity Per unit : 2341 TPA

# Indian Foundry Industry Contd..



- Exports: USD 2.7 Bn. additionally USD 2.5 Bn Finished components. Potential to Grow to USD 12-15 Bn in next 7-10 years.
- Outlook: Needs to Grow 3 folds producing 30 Mn Tons/PA in next 10 years to support **“MAKE IN INDIA”**
- Investments Needed : USD 6-8 Bn in 10 years

# Product Mix



# Business Environment & Economy



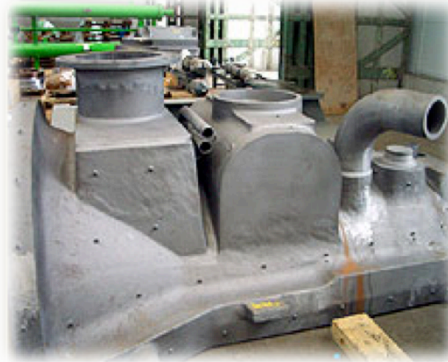
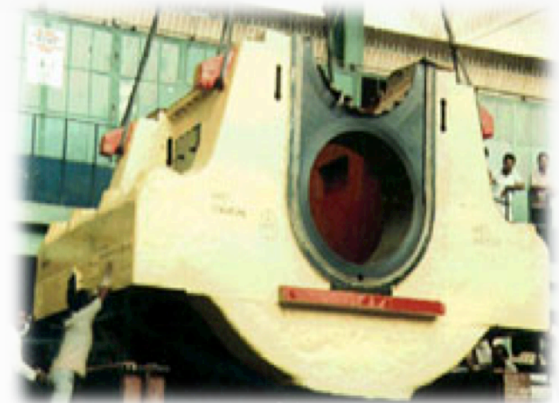
Govt. focusing on “**MAKE IN INDIA**”, “**EASE OF DOING BUSINESS**”, “**SKILL INDIA: Kaushal Vikas**”, infrastructure & easing FDI norms to promote investments in manufacturing & new initiatives.

Forecasts of growth by leading institutions :-

India to become fastest growing economy  $>7.5\%$  YoY as per forecasts of leading International Institutions



# Types of Castings Produced



# Types of Castings Produced



# Types of Castings Produced



# Major Casting User Industries



- Auto & Auto Components
- Tractors
- Railways
- Windmill
- Machine Tools
- Power Generation & Distribution
- Mining
- Chemical Industries
- Sanitary Fittings

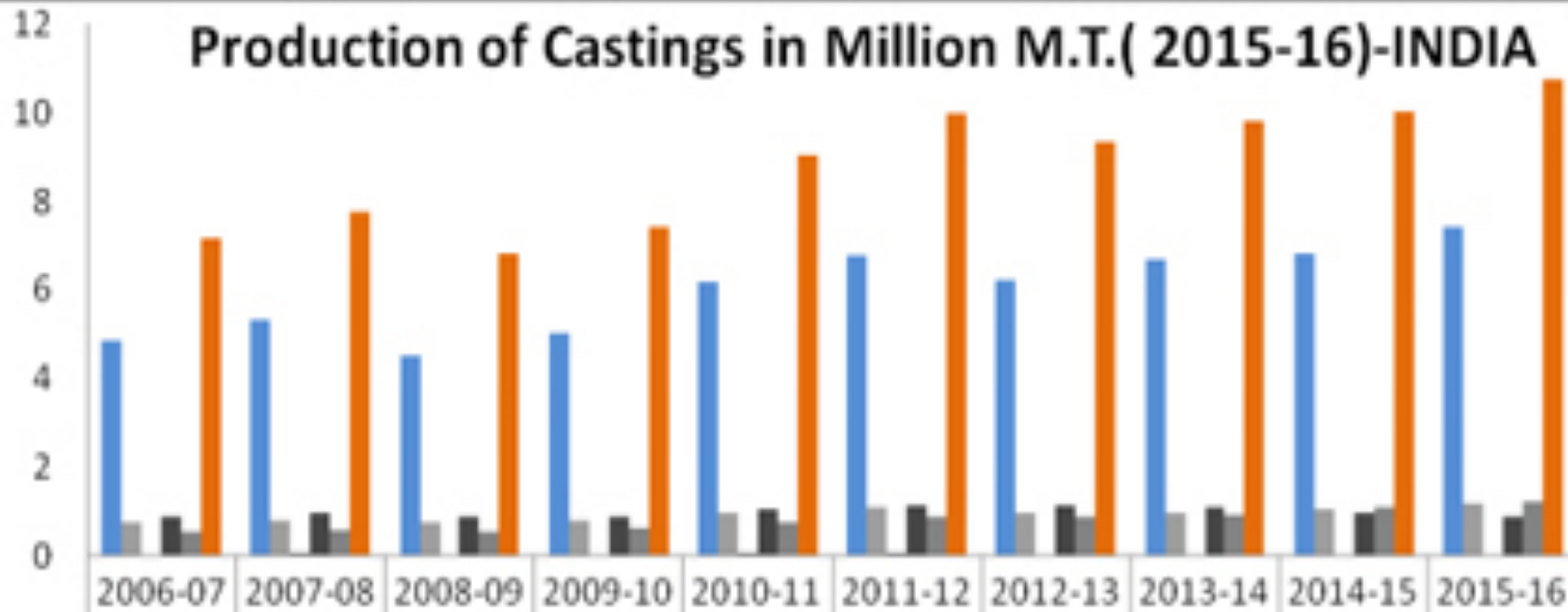


# Major Casting User Industries



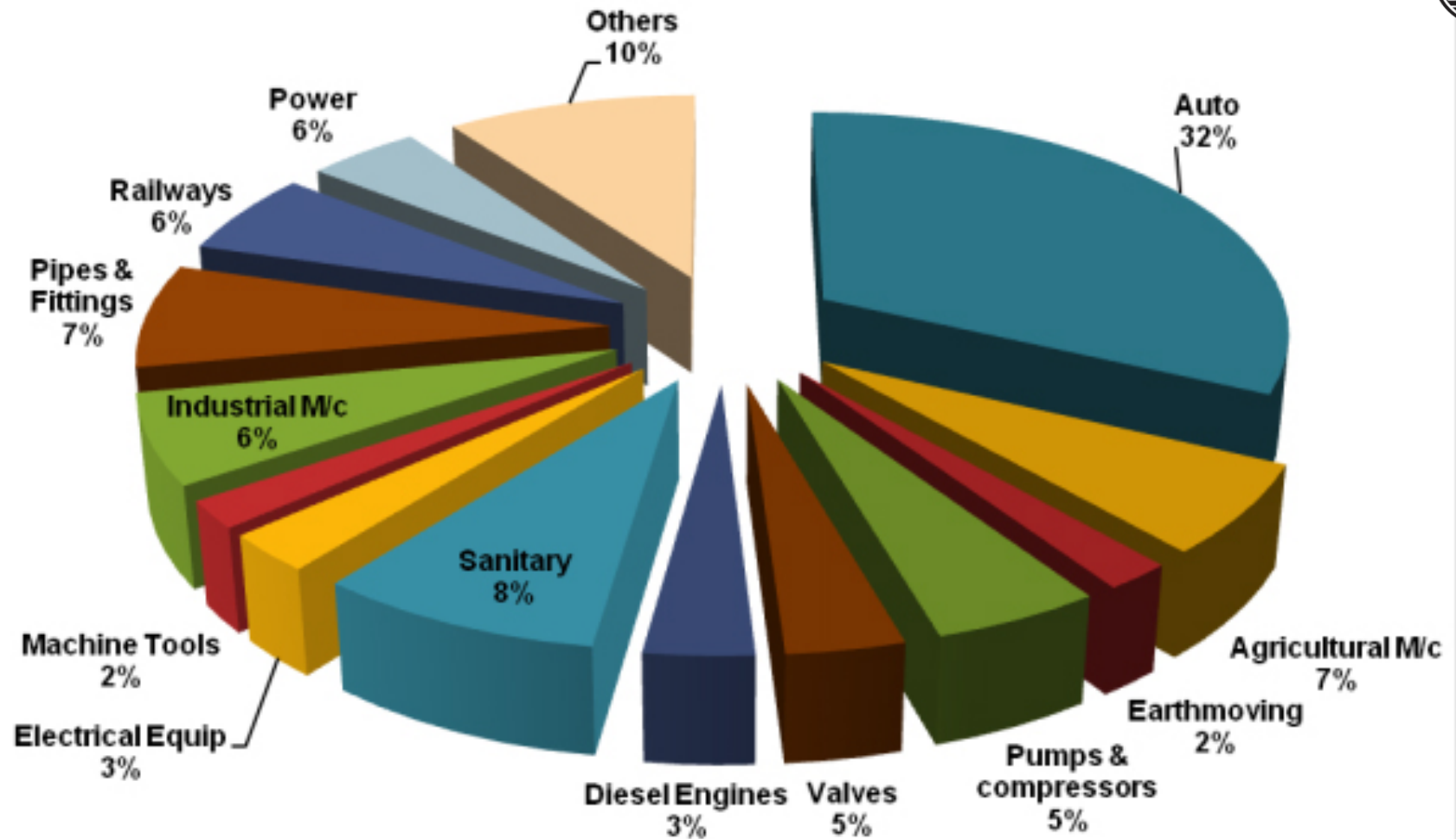
- Aerospace
- Domestic Appliances
- Textile
- Cement
- Steel Plants
- Hydraulics & Pneumatics
- Compressors
- Ship Building
- Buildings & Construction
- Pumps, Compressor & Valves
- Others

# Production of Castings in India



	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Grey C.I.	4.87	5.332	4.532	5.05	6.18	6.798	6.254	6.7	6.83	7.41
SG Iron	0.762	0.802	0.785	0.8	0.984	1.09	0.981	1.000	1.07	1.18
Malleable	0.0623	0.0651	0.0605	0.0602	0.0692	0.066	0.0604	0.060	0.06	0.05
Steel	0.914	0.964	0.916	0.88	1.07	1.14	1.158	1.100	0.968	0.88
non ferrous	0.571	0.608	0.547	0.653	0.75	0.9	0.891	0.95	1.093	1.25
<b>TOTAL</b>	<b>7.1793</b>	<b>7.7711</b>	<b>6.8405</b>	<b>7.4432</b>	<b>9.0532</b>	<b>9.994</b>	<b>9.3444</b>	<b>9.810</b>	<b>10.021</b>	<b>10.77</b>

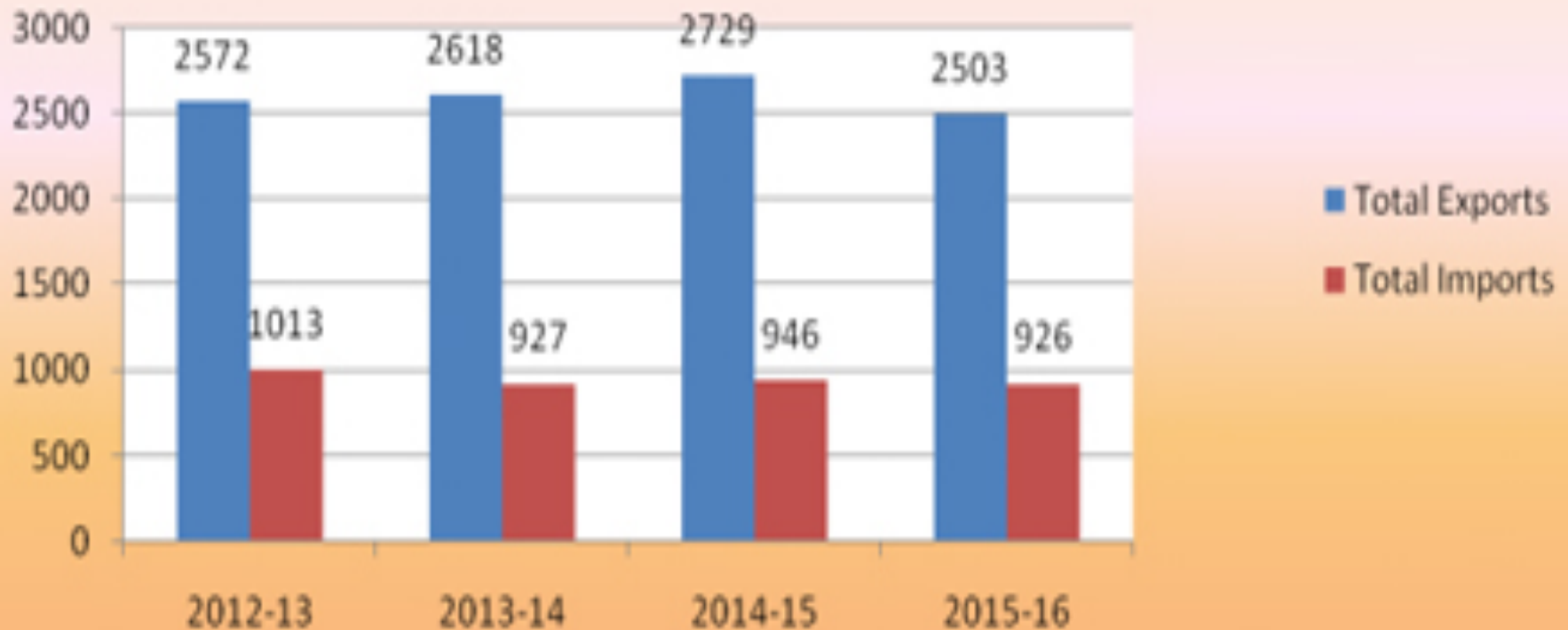
# Sector-wise consumption of Castings in India



# Export/ Import Data



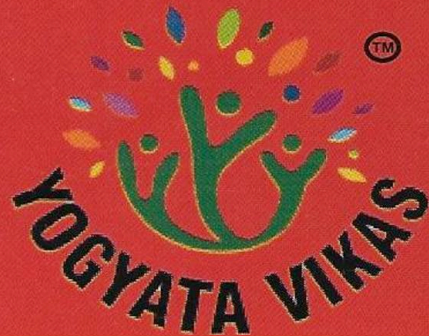
**Export/ Import Data of Major Castings**  
(Value in Million USD)





# IIF's Initiatives

## Human Capital Development



**Yogyata Vikas -  
A Journey to  
Skill  
Development  
of Foundry  
Workmen**



*Launch at Hinduja Foundries, Chennai*



*Programme at Bradken India, Coimbatore*

# IIF's Initiatives

## Human Capital Development contd..



- “**Yogyata Vikas**” Training programme for foundry workers on PAN India basis
- Training at Doorsteps of Foundries
- Instructions by Trainers in Regional languages for better understanding
- In 2016 training given to approx 1000 workmen through 30 training programmes conducted across India
- Will upscale to 5000 workmen by 2017



# IIF's Initiatives

## Human Capital Development contd..



### Modules Covered in Training

- Basic Metallurgy of Grey & SG Iron
- Basic Metallurgy of Steel Castings
- Casting Defects in Grey Iron, SG Iron and their Remedies
- Casting Defects in Steel Castings and their Remedies
- No-bake Resin, CO2 Sand System and Coatings
- Melting Grey Iron, SG Iron & Steel in Cupola and Induction Furnace
- Sand Quality & Testing
- Cupola and its Operation
- Mould-making Processes
- Pattern-making and Methoding of Castings
- Melting practice of Grey Iron by Induction Furnace
- Production of SG Iron by Induction Furnace

# IIF's Initiatives

## Human Capital Development contd..



### **The Centre for Education and Training (CET), IIF**

#### **Objectives of the CET**

- Train the Foundries for best utilization of human resources
- Educate them on the latest developments in Foundry technology
- Provide a forum to deliberate on techno-commercial problems and technology transfer and upgrade their skills.



### **The Centre for Education and Training (CET), IIF** Objectives contd..

- Conduct short term courses
- Organize in-plant-training programmes using specialized audio and visual aids.
- Study notes on important topics related to foundry operations and technologies.

# IIF's other initiatives



IIF is promoting the energy conservation in foundries by conducting awareness programmes /detailed energy audits supported under UNDP/GEF SGP

- ☐ UNDP-United Nation Development Programme
- ☐ GEF-Global Env Facility
- ☐ SGP-Small Grants Programme
- ☐ Introducing short term doorstep training programme
- ☐ Publication of Book Jointly with PCRA on Energy Conservation in Foundries

# Common Facilities in clusters



- ❖ Foundry Simulation Softwares
- ❖ Promote Green & Clean Environment
- ❖ Improvement in Basic infrastructure
- ❖ Common interactive portal for members
- ❖ ERP software package for members
- ❖ Common Training facilities
- ❖ Common Testing labs
- ❖ Vendor/supplier development programme
- ❖ Collective procurement where possible

# Common Facilities in Clusters contd..



- Modern Convention Hall
- Optical Emission Spectrometer
- 3 D CMM Machine
- Sand Reclamation
- 3 D Modelling & ERP /CAD CAM solutions
- Modern Tool room
- Rapid Product Development



# Benefits



- Access to common Modern Design, Production & Testing facilities
- Improved productivity
- Improved skills
- Better infrastructure
- Collective bargaining for procurement & other services
- Greener environment
- Improved profitability & overall improved competitiveness

# Future Plans



- ❑ Upscale training programmes and skill development initiatives
- ❑ To Promote Lean Manufacturing programmes by forming mini clusters of foundries .
- ❑ To Promote recycling of foundry sand in clusters & to take up with Govt. to support this to protect environment & conservation of natural resources.
- ❑ To promote collaborative approach in clusters for improved competitiveness.

# Conclusion



India Foundries are increasingly focusing on :-

- Skill Development & technologically advanced and competitive workforce
- Lean Manufacturing for improved productivity
- Value addition & cost competitiveness
- Energy efficiency & conservation of natural resources
- Recycling & Waste Reduction
- Indian foundries are capable of producing value added engineered castings (From a few grams to over 100 Tons/piece) for various applications conforming to international standards at internationally competitive prices.
- Need to Grow **three folds** in next 10 years to support “Make in India” & investments of USD 6-8 Billions in 10 years

# Conclusion contd....



- The business sentiment has considerably improved.
- The new Govt. has a strong mandate for economic development.
- Increased focus of Govt. on investments by allowing higher FDI limits & incentives for investments in plant & machinery for manufacturing for limited period.
- Increased focus on manufacturing, skilling.
- Fast tracking of projects & removal of procedural bottlenecks & emphasis on e governance.
- Promoting “**MAKE IN INDIA**” by facilitating “**EASE OF DOING BUSINESS**”.

THANK YOU !