INDIAN FOUNDRY INDUSTRY

&

Human Capital Development

The Institute of Indian Foundrymen (IIF)

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

- 2nd 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
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

Grey Iron: 68%
S.G.Iron: 10%
Steel: 10%
Malleable Iron: 1%
Non Ferrous: 11%
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

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

- Auto: 32%
- Industrial M/c: 6%
- Sanitary: 8%
- Machine Tools: 2%
- Electrical Equip: 3%
- Power: 6%
- Railways: 6%
- Pipes & Fittings: 7%
- Others: 10%
- Diesel Engines: 3%
- Valves: 5%
- Pumps & compressors: 5%
- Agricultural M/c: 7%
- Earthmoving: 2%
Export/Import Data

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

2012-13: Total Exports 2572, Total Imports 1013
2013-14: Total Exports 2618, Total Imports 927
2014-15: Total Exports 2729, Total Imports 946
2015-16: Total Exports 2503, Total Imports 926
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
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
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 !