



Zinc...essential for life

UN CFC – India – Zinc Die Casting

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Introduction



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Introduction

- Reason for UN CFC project.
- Project content and findings.
- Opportunities for industry growth.
- Workshop content



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Reason for **UN C**ommon **F**und for **C**ommodities Project

- UN CFC supports projects that enhance the use of materials (commodities) in developing economies.
- International **Z**inc **A**ssociation develops markets for zinc.
- IZA obtained a UN CFC project grant to assist development of the zinc die casting industry in India
- Based on view that there is current opportunity for this industry sector to grow



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Project Content and Findings



Project Content

- **Stage 1**
 - Brief audits at 12 zinc die casting factories
 - Discussions with alloy makers, related industry groups and suppliers.
- **Stage 2**
 - Detailed audits at 4 zinc die casting factories.
 - Agreeing and enacting “Action Plans”
- **Stage 3**
 - Workshops – Present and discuss results and seek Inputs on what to do next



Project Findings – Indian Zinc Die Casting Industry Size and Scope

- Total current zinc alloy consumption – around 70,000 tpa
 - Vs China +/- 1,000,000 tpa
- Split around 50/50 in Organized and Unorganized Sectors.
- Main casting product types – functional
- Main product categories – automotive, gas regulators, electrical fittings
- Limited export of die cast products
- Delhi and Aligarh – two major centres
- Also Mumbai, Pune, Chennai



Project Findings – Process Capability

- Now mainly hot chamber machines
- Alloy Supply – mixture of small local alloyers and imports.
 - Mainly Alloy 3, but significant Alloy 5, other alloys very limited use.
- Alloy Ingot Quality – **some very poor quality ingot was found**
- Melting and recycling - **reasonable**
 - Some checking of incoming ingot
 - Little checking of “in house” metal
 - Metal temperature control – **fair**
 - No central melting and auto transfer of molten alloy
- Die Making – Mostly in house, using 3D CAD design and CNC machining
- Feed system design – **poor to fair**
- Die Temperature Control (thermal design)– **poor**
 - No measurement of die temperatures
 - Dies typically running at wrong temperatures.
- Casting Defect Rates – **relatively high**
- Plant Layout – **congested to reasonable**
- Plant cleanliness – “5S’s” – **poor to good**



Opportunities for Industry Growth

- Substantial.
- Main current opportunity - **builders hardware.**
- **Requires high quality for electroplating.**
- To realise it will require effort in marketing and improvement of process capability.
- Focus of the project is on process capability.
- Growth opportunities
 - Builders hardware
 - Electronics
 - Others



Product Sectors for Growth - Builders Hardware

- Bathroom hardware
- Locks
- Furniture hardware

Local market

- Substitution of brass
- Replacement of imports – make imported brands here
- Local brands

Export Market

- Compete with China and others
- Foreign brands shift manufacturing to India

Product Sectors for Growth - Builders Hardware





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Product Sectors for Growth - Builders Hardware





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Product Sectors for Growth - Builders Hardware





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Product Sectors for Growth - Builders Hardware





Product Sectors for Growth - **Electronics**

Local market

Export Market

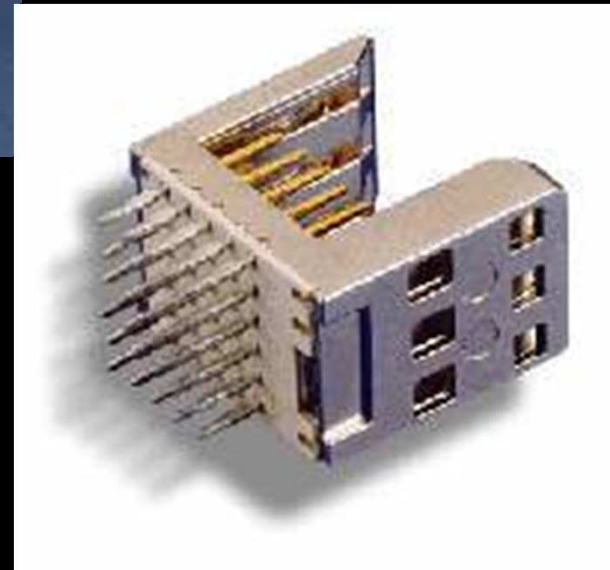
- Compete with China and others
- Foreign brands shift manufacturing to India

Most electronics parts are electroplated



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Product Sectors for Growth - **Electronics**



Connectors



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Product Sectors for Growth - **Electronics**



Heat Sinks



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Product Sectors for Growth - **Electronics**



Housings and Frames



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Product Sectors for Growth - Others

Local market

Export Market

- Compete with China and others
- Foreign brands shift manufacturing to India



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Product Sectors for Growth - Others



Tableware - Silverware



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Product Sectors for Growth - Others



Home Appliances – Functional and Decorative



Workshop Content

- Costs in Die Casting.
- Melting and Recycling
- The Die Casting Machine
- Die Design – Feed System and Thermal Design.
- Other Process Issues

- Moving Forward??

Focus on Interaction