Project Concept Note

Micro, Small and Medium Industries Competitiveness Improvement Project

A. Background:

The success of industry and its sustainability depends on major intervention viz. Technology, Innovation, Finance, Training, Marketing and personnel. The eco system for sustainable development of small industries has linkages with policy framework and MSMEs who supply products for domestic consumption and large industries for example auto majors, ESDM (Electronic System Design and Manufacturing), Plastic and other high value engineering sectors.

In the Indian context the Tool Rooms are facilitators of sustainable eco-system development as they support the MSMEs from development stages beginning from Reverse Engineering to Design and Development of products and components of high precision through state of art machinery and equipment. These Tools Rooms provide a technological push for process and product development:

- In the field of **product development** interventions include Design innovation, value engineering and material substitution.
- In the field of **process development** it includes process design, Improvement of Production technology and consultancy.
- They also provide support to MSMEs in the field of skill up gradation of their manpower for sustainable development.

The manufacturing sector has been facing tough competition in the national and international market. The micro, small & medium industries cannot afford to have their captive Tool Rooms. Therefore, in order to improve the competitiveness of micro, small & medium industries, it is necessary that quality tools and testing facilities are made available to them at reasonable costs by setting up Tool Rooms in public sector. With a view to foster the growth of the MSME Sector in the country, Government of India has set up 10 State-of-the-art Tool Rooms. These centers provide invaluable service to the industry by way of providing necessary technological push.

These Tool Rooms are highly proficient in Tool & Die Making Technology and promote precision and quality in the development and manufacture of sophisticated moulds, dies, tools and equipments. The Tool Rooms are concentrating on an integrated development of related segments of industries by way of providing international quality products, trained personnel and consultancy in Product and Process Development including turnkey projects. They are constantly crossing new frontiers in their quest for excellence and beyond.
Considering that useful service is rendered by these Tool Rooms, it is imperative that more such centers should be established in the country. The estimated cost of each Tool Room (including the cost of land, building, plant & machinery, other infrastructure and pre-operative cost) is nearly Rs 125-130 crores i.e. about USD 25 Mn. Thus an outlay of USD200 Mn of external finance may be required for setting up 15 Tool Rooms, during XII Plan (2012-2017), in addition to funds already being provided by the central ministry and state government.

B: Country Context

India is a developing country. It has been facing challenges in areas including inter-alia development of micro, small & medium enterprises (MSMEs). The MSME sector plays an important role in the country’s economy. But it has been facing tough competition in national and international markets.

Under federal structure of governance in India, the responsibility for promotion and development of industries lies with State Governments. However, Central Government assists the States by launching programs for enhancing the competitiveness of MSMEs in national and international markets.

C: Sectoral and Institutional Context

The project relates to MSME sector, which is an important segment of Indian economy in terms of its contribution to country’s industrial production, exports, employment and creation of entrepreneurship base. Government of India’s policy is to promote MSME sector. The objective of the project is to make available quality tools to this sector at reasonable cost, testing facilities and to conduct training programs to meet the shortage of trained manpower.

At the institutional level, the network of Hi-tech Tool Rooms and existing training capacity is insufficient to meet the growing demand in high value engineering design, and needs a dedicated and focused effort in order to address declining competitiveness.

D: Relation to World Bank’s CAS

The World Bank country strategy for India focusses on infrastructure development, skill upgradation and sustainable development. The increase in infrastructure upgradation will lead to rapid industrialization which will primarily be in the SME sector. The SME sector in turn will need large number of skilled manpower as well as technological support in line with the demands of new millennium. Further, the proposed project will lead to SME’s producing goods and services with increased energy efficiency and reduced carbon footprint. The proposed project is therefore, in complete synergy with the CAS for India.

The rationale for Bank involvement is to provide guidance on measures to enhance the competitiveness of the MSME sector, and on the long term financial viability of GoI’s technical and skills support to this important sector of the economy.
II. Proposed Project Development Objectives (PDO)

A: Proposed PDO:

The developed tooling sector and quality products strengthens manufacturing competitiveness and is the key to viability and growth of manufacturing MSMEs. Further, manufacturing investment is reportedly driven by the availability of skills. The massive shortage of skilled manpower therefore inhibits manufacturing growth. As demand has overStriped supply of tooling and skilled manpower along with quality testing facilities, Government of India is considering setting up more such facilities in the country. The Project Development Objectives (PDO) of the proposed project will be to increase the competitiveness of MSMEs, improve the skill set of the labor force to meet demand in key high value engineering sectors including ESDM (electronic systems design and manufacturing), plastics, automotive and aerospace industries, and address a growing gap in service delivery.

This will be achieved through the following pillars:

(i) Improved Design & Manufacturing Capabilities

- Product Development.
- Process Development
- Productivity /Quality improvement.
- Design and manufacture of precision dies and tools, moulds, jigs & fixtures etc. using latest technology and their appropriate use and maintenance.
- Tool related innovations for improved product design.
- Precision machining.

(ii) Enhance Institutional and Training Capacity

- Long Term Diploma & Certificate courses in tool engineering.
- Specialized hi-tech courses in tool engineering for engineering graduates, Diploma & ITI Certificate holders.
- Skilled enhancement courses for industry personnel.
- Upgradation of courses for trainers in training institutions and industries.
- Customized training programmes for industries.

(iii) Innovation: Special Consultancy & Turnkey Projects

- Training Programme/Course curriculum development for training institutes.
- Execution of Turn-key projects.
- Inspection and Calibration facilities.
B. MSME’s responsibilities

To meet the above stated objectives, the MSME’s Project Management Team will be responsible for the following:

1. To act as a nodal agency for providing assistance to MSME sector in providing one-stop solution for quality certification and testing of products and components
2. To establish an international state of the art testing capacity for MSMEs complying with requisite standards in areas of advanced & emerging technologies
3. To provide an institutional platform for increasing collaboration and coordination among existing TCs, and other testing bodies (e.g. Tool Rooms) for technology transfer and knowledge sharing
4. To periodically review the test/calibration services for enhancement of existing scope as well as inclusion of need based new facilities
5. To oversee various testing facilities and provide technical expertise and guidance to other MSME testing centers
6. To promote research and innovation in the areas of special significance to MSMEs, government agencies and other organizations
7. To act as nodal agency for generating awareness among MSMEs, towards better quality and certified products
8. To provide technical expertise and consultancy to MSMEs in developing human resources and other infrastructure in areas of advanced technology and research

C: Key Results indicators:

i. Value of tools, dies, components manufactured
ii. Value of services (testing, training & consultancy)
iii. Number of units assisted through various services
iv. Number of persons trained
v. Number of trainees, who got employment or initiated an enterprise within specified period of time.
vii. Financial sustainability

For result indicators, baseline numbers will be identified at the beginning of the project and targets will be clearly defined. The progress of the key result indicators will be measured to ensure the both output and outcomes are being achieved.

D: Outcome / Output of the Scheme:

The project after implementation will lead the MSME sector in India in becoming globally competitive through adoption of best practices in the field of manufacturing, testing and training.
III. Project Description:

The micro, small & medium industries cannot afford to have their captive Tool Rooms. In order to improve the competitiveness of micro, small & medium industries, it is necessary that quality tools and testing facilities are made available to them at reasonable costs by setting up Tool Rooms and Testing Centers in public sector. The build the overall eco-systems for improvement of MSME competitiveness the following three components are planned under this project:

Component I : Establishment and Financial Sustainability of Tool Rooms

- The project aims at setting up of 15 Tool Rooms in the country. Each center will have state-of-the-art infrastructure facilities and business processes including latest machinery & equipment to design and manufacture quality tools, testing facility and for conducting training programmes conforming to International standards, and adequate response time and service delivery mechanisms to enhance overall competitiveness of the sector.
- Each center will have adequate technical staff and a few non-technical staff to manage the affairs.

Component II: Improve Institutional and Training capacity

- Long Term Diploma & Certificate courses in tool engineering.
- Specialized hi-tech courses in tool engineering for engineering graduates, Diploma & ITI Certificate holders.
- Skilled enhancement courses for industry personnel.
- Upgradation of courses for trainers in training institutions and industries.
- Customized training programmes for industries.

Component III : Innovation: Special Consultancy & Turnkey Projects

- Develop an institutional platform for increasing collaboration and coordination among existing TCs, and other testing bodies for technology transfer and knowledge sharing.
- Special projects to promote research and innovation in the areas of special significance to MSMEs, government agencies and other organizations.
- Special Programs to provide technical expertise and consultancy to MSMEs in developing human resources and other infrastructure in areas of advanced technology and research.

B. Key risks and issues:

- Recession in manufacturing sector
- Low level utilization of high value and critical machines
- Shortage of well qualified, experienced and motivated staff
C: Implementing Agency:

The project is proposed to be implemented by Government of India by establishing separate institutions. Locations will be identified on the basis of demand surveys, but will include both lagging and non-lagging states. Some of the State Governments have already expressed interest in setting up of such facilities. They have also agreed to provide adequate land for the purpose and have assured all possible cooperation in providing infrastructure like power, water, road etc.

The existing Tool Rooms and Testing centers have developed expertise in the field and with their assistance; there may not be any hindrance in establishing new centers within time schedule.

D: Project Stakeholder Assessment:

- Government of India and State Governments are main stakeholders in the project. Government of India will be responsible for implementation and operating these centers by constituting a Governing Council Body or other appropriate mechanism within the framework of Government of India rules. State Government will provide land and ensure that these centers get electricity, water and other services timely. Recurring losses, if any, will be borne by Government of India.

Other stakeholders will be Regional / Sectoral Industry Associations representing MSMEs, trainees, Regional / National level Academic / Vocational Training Institutions and beneficiary MSMEs availing services of these centers especially from Auto, Plastic, Electronic, Aerospace, Consumer durables and other general engineering sector. These MSMEs will in turn provide products/services to the large industries in the field of Automobile, ESDM etc. which by their very nature of stringent quality control will encourage the MSMEs to have similar quality measures in place & thereby producing products of international standards.

IV: Overall Risk Rating:

The operational risks involved in the project, as indicated in para III A above may have some impact on achieving results. But these risks can be overcome by timely action of management.

V. Proposed Team Composition and Resources:

Government of India have already established 10 Tool Rooms (4 with German assistance, 3 with Danish assistance, 2 with UNDP assistance and 1 without foreign assistance). Most of these centers have been performing well. The services of officers of existing centers will be available for preparation of Detailed Project Report (DPR) and in implementation of the project.

Please refer Annex – 1 for more details on one of the Tool Room set-up in central India under Indo-German collaboration.
Annex – I : Sample of Tool Room

Indo-German Tool Room, Indore

MSME TOOL ROOM-INDORE

(WESTERN GERMANY - INDORE)

MSME TOOL ROOM, INDORE Indo-German Tool Room, Indore) is one of the leading tool rooms in central part of India. It is located in Indore, one of the commercial cities of Madhya Pradesh. It is a Central Govt. project with assistance from Republic of Germany. Govt. of Madhya Pradesh provided land, building & infrastructure. It is providing services to various customers in below mentioned fields.

Production Services

- Design and manufacturing of Press Tools, Moulds and Die casting dies.
- Design and manufacturing of Jigs, Fixtures and Gauges.
- Precision Job work in CNC Machining.
- Mass and Pilot Production of Precision Components/Assemblies/Sub-Assemblies.

Special

We have developed our capacity and capability for manufacturing of

- Special type of Magnets used in Electron Beam Accelerator required for R&D Labs.
- Special Moulds like Form Fill and Blow Fill moulds for Pharmaceutical Industries used in liquid medicine packaging.

Training Services

(a) Long Term Training Courses

- Advanced Diploma in Tool and Die Making (4-years)
- Certificate Course in Machinist Trade (2-years)

(b) Medium Term Training Courses

- Condensed Course in Tool and Die Making (1-year)
- Certificate Course in CNC Machining (6-months)
- Post Diploma in CAD/CAM (6-months)
- Govt. Sponsored Courses (Tailor made)

(c) Short Term Training Courses

- Software Training Courses (3-weeks)
- CAD/CAM Training Courses
- CNC Programming and Operation (2-weeks)
- Heat Treatment of Steels (1-week)
- Inspection and Metrology (1-week)
- Basic Course in Pneumatics and Hydraulics (1-week each)
Design & Development

A team of well experienced Designers are working in Design department for designing and developing product design as per requirement of customers. Designer also try to innovate the product design for increasing productivity, improved Tool Design, easy tool operation etc. Design is developed in computer using Uni-Graphix Latest version of software. All Designs are produced by developing solid model of individual parts and assembled. Two dimension drawings are developed from developed solid models. This ensures to avoid any design error. Further these solid models are sending to CAM for developing CNC programming. This is how we ensure our quality of designing work. We are engaged in designing and manufacturing of -

- Press Tools
- Injection & Compression Moulds
- Blow Moulds
- Form Fill and seal Mould (Pharmaceutical Industries)
- Blow Fill & seal Mould (Pharmaceutical Industries)
- Die Casting dies
- Jigs, Fixtures & Gauges

Designers are designing with Software

- UniGraphix
- Die-Office and autodesk inventor
- Auto cad for sheet metal analysis
- Mold flow for mold analysis

Consultancy & Marketing

- Understanding customer's need of product and accordingly development of product drawing.
- Supporting development of product drawing, assessment of Tool Design and explaining to customer.
- Estimation of tooling cost, and submission of Quotation to customer.

- Increasing customer awareness for latest technology to increase productivity and Quality.
- Booking of orders from customer.
- Supporting customer for try-out & commissioning of tool.
Quality Assurance

Full care is taken towards outgoing products, to facilitate all types of Quality equipments are made available in Quality Assurance. All important parts made are passing through QA for inspection. They are inspected to assure dimensional correctness and sound for further assembly. In case of deviation found they are either rejected or accepted under deviation of minor. Stage Inspection is also carried out at Shop by Shop Floor Engineers.

Facilities available are:-

- 3D Co-ordinate measuring machine, PREISSMO & HFG VAST, Carl Zeiss.
- Profile Projector, Movement 50X50mm, Magnification 10X/20X/50X, MIKROMAT machine.
- Tool Maker's Microscope, Carl Zeiss, 150X/350mm, Magnification- 100/500X, LC-1 micrometer.
- Electronic Comparator, Bakri Mercer, LC-1 micrometer.
- Optical Flat, Mitutoyo, Flatness: 0.2 micron.
- Electronic Height Gage with Micro computer, 500mm.
- Surface Finish Tester, Hommel T 500, For ISO / DIN / JIS standard.

Latest Machines and Facilities

Manufacturing

We are the state-of-the-art Tool Room in Central Part of India. Well equipped with latest machines for manufacturing quality tooling and job work to meet the present requirements of Industries. We also undertake Turn-key projects of precision manufacturing.
## Training Courses

### Long Term Courses

<table>
<thead>
<tr>
<th>Name of Course</th>
<th>Qualification</th>
<th>Duration</th>
<th>Age (as on 1st Aug.)</th>
<th>Course Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADVANCE DIPLOMA IN TOOL &amp; DIE MAKING (AICTE Approved)</td>
<td>10th Pass with 60% marks</td>
<td>4 Years</td>
<td>Minimum -15 Yr, Maximum -19 Yr</td>
<td>30,600/- per Year (In Rs)</td>
</tr>
<tr>
<td>CERTIFICATE COURSE IN MACHINIST TRADE (NCVT Affiliated)</td>
<td>10th Pass with 60% marks</td>
<td>2 Years</td>
<td>Minimum -15 Yr, Maximum -19 Yr</td>
<td>22,500/- per Year (In Rs)</td>
</tr>
</tbody>
</table>

*Admission: All India basis selection through written test followed by personal interview as per procedure. Subjected to changes as per rules.*

### Medium Term & Short Term Training Programme

**1. Certificate Course in Conventional Machining**
- Duration: 1 Year
- Course Fees: 30,000/-
- Eligibility: 10th Pass

**2. Certificate Course in Tool & Die Making**
- Duration: 1 Year
- Course Fees: 79,000/-
- Eligibility: 10th Pass

**3. Post Diploma in Tool Design**
- Duration: 1 Year
- Course Fees: 70,000/-
- Eligibility: 10th Pass

**4. Post Diploma in CAD/CAM**
- Duration: 4 Months
- Course Fees: 49,000/-
- Eligibility: 10th Pass

**5. Certificate Course in CNC Machining**
- Duration: 6 Months
- Course Fees: 30,000/-
- Eligibility: 10th Pass

**6. Master CAM**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**7. Solid Works**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**8. Pro E**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**9. Unigraphics**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**10. Catia**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**11. CNC Turning Programming & Ops.**
- Duration: 2 Weeks
- Course Fees: 6,000/-

**12. CNC Milling Programming & Ops.**
- Duration: 2 Weeks
- Course Fees: 6,000/-

**13. CNC Technology (Turning & Milling)**
- Duration: 2 Weeks
- Course Fees: 6,000/-

**14. Auto CAD**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**15. Netmak**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**16. Heat Treatment of Steels**
- Duration: 1 Week
- Course Fees: 3,000/-

**17. Basic Course in Pneumatics**
- Duration: 1 Week
- Course Fees: 3,000/-

**18. Basic Course in Electrical Pneumatics**
- Duration: 1 Week
- Course Fees: 3,000/-

**19. Basic Course in Hydraulics**
- Duration: 1 Week
- Course Fees: 3,000/-

**20. Basic Course in Electro-Hydraulics**
- Duration: 1 Week
- Course Fees: 3,000/-

**21. Inspection & Metrology**
- Duration: 1 Week
- Course Fees: 3,000/-

**22. Solid Edge**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**23. MS Office Advance**
- Duration: 2 Weeks
- Course Fees: 6,000/-

**24. MS Office Advance**
- Duration: 3 Weeks
- Course Fees: 6,000/-

**25. Oil CAM**
- Duration: 2 Weeks
- Course Fees: 6,000/-

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*Courses are offered at IGIT, INORE/Gwalior only.*

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