

## **Independent final evaluation**

# **Operational phase of the International Centre for Advancement of Manufacturing Technology (ICAMT)**

UNIDO project numbers: SF/GLO/08/009, US/GLO/08/010



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



**UNIDO EVALUATION GROUP**

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## Glossary of evaluation related terms

| Term                                   | Definition  |
|--|---|
| Baseline                               | The situation, prior to an intervention, against which progress can be assessed.  |
| Effect                                 | Intended or unintended change due directly or indirectly to an intervention.  |
| Effectiveness                          | The extent to which the development intervention's objectives were achieved, or are expected to be achieved.  |
| Efficiency                             | A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.   |
| Impact                                 | Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.  |
| Indicator                              | Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.  |
| Intervention                           | An external action to assist a national effort to achieve specific development goals.   |
| Lessons learned                        | Generalizations based on evaluation experiences that abstract from specific circumstances to broader situations.  |
| Log frame (logical framework approach) | Management tool used to facilitate the planning, implementation and evaluation of an intervention. It involves identifying strategic elements (activities, outputs, outcome, and impact) and their casual relationships, indicators, and assumptions that may affect success or failures. Based on RBM (results based management) principles. |
| Outcome                                | The likely or achieved (short-term and/or medium-term) effects of an intervention's outputs.  |
| Output                                 | The products, capital goods and services which results from an intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.  |
| Relevance                              | The extent to which the objectives of an intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies.   |
| Risks                                  | Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.   |
| Sustainability                         | The continuation of benefits from an intervention, after the development assistance has been completed.   |
| Target groups                          | The specific individuals or organizations for whose benefit an intervention is undertaken.  |

## Abbreviations

|        |  |
|--------|--|
| AIPMA  | All India Plastics Manufactures Association                      |
| BFC    | Belgaum Foundry Cluster  |
| CAGR   | Compound Annual Growth Rate <sup>1</sup>                         |
| CIPET  | Central Institute of Plastic Engineering and Technology          |
| CNC    | Computer Numeric Controlled                                      |
| CMTI   | Central Manufacturing Technology Institute                       |
| DIPP   | Department of Industrial Policy and Promotion                    |
| EGM    | Expert Group Meeting   |
| GoI    | Government of India  |
| ICAMT  | International Centre for Advancement of Manufacturing Technology |
| IDB    | Industrial Development Board                                     |
| IDF    | Industrial Development Fund                                      |
| IMTMA  | Indian Machine Tool Manufactures' Association                    |
| IPR    | Intellectual Property Rights                                     |
| ITC    | International Technology Centre                                  |
| KPI    | Key Performance Indicator  |
| SMED   | Single Minute Exchange of Die                                    |
| SME    | Small and Medium Enterprise                                      |
| MT     | Machine Tools  |
| OEE    | Overall Equipment Efficiency                                     |
| ProDoc | Project Document   |
| UCSSIC | UNIDO Centre for South-South Industrial Cooperation              |
| UNIDO  | United Nations Industrial Development Organization               |

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<sup>1</sup> Compound Annual Growth Rate (CAGR) is a mean compounded rate of growth of a number over several years.

## **Executive Summary**

The UNIDO International Centre for the Advancement of Manufacturing Technology (UNIDO-ICAMT), with offices in Delhi and Bangalore, is a project of both the Government of India anchored with the Department of Industrial Policy and Promotions, Ministry of Commerce and Industry, and UNIDO headquarters in Vienna. The pilot phase of the project was signed in 1999, and the project is now in its third phase from 2008/9-2014 – US/GLO/08/10; SF/GLO/08/009 with a budget as per the 2008 ProDoc of US \$ 2.50 million. The Project Manager is located in Vienna with a Director that moves between Delhi and Bangalore.

At UNIDO-ICAMT's Steering Committee Meeting, of August 29 2013, the decision was made to undertake a final evaluation of the UNIDO-ICAMT project, Phase 2. This was initially scheduled for November 2013, but commenced on March 6, 2014. The team for the evaluation was made up of Carl-Gustaf Svensson (International Evaluation Consultant and team leader) and Grace Arati Davis (National Evaluation Consultant).

## **Introduction and Background**

The overall project is funded from the Indian Government contribution to the Industrial Development Fund (IDF) of UNIDO. Each sector has mobilised additional support with Department of Chemicals and Petrochemicals co-financing US \$ 400 000 for the Plastics sector and Ministry of Small and Medium Enterprises co-financing US \$ 750 000 for Machine Tools. Currently Foundry does not have co-financing from an additional Ministry, and has an IDF/UNIDO-ICAMT contribution of US \$ 2 000 000.

The UNIDO-ICAMT target audience are Small and Medium Enterprises (SMEs). India has given the role and development of SMEs in the country's economic development plan strong emphasis. This is because of the role SMEs play in providing employment and the value of manufacturing within the overall economic structure. The UNIDO-ICAMT project works directly with industrial units, but also within a cluster framework. The cluster perspective provides an opportunity for ground level replication but also provides a peer- learning platform. The project works with technical guidance, business development and knowledge sharing. The 2008 ProDoc makes the case that focusing on technology upgrading and innovation within the manufacturing sector, for growing economies like India, can have a strong impact on national and international targets in areas like the Millennium Development Goals (MDGs). At the time of the evaluation, the project was active in three sectors: machine tools, foundry, and plastics.

## **Key Findings**

The current focus on building up 'model units' within a cluster approach is a development from the second phase. This development has been made with the understanding that, the creation of model units based on diagnostic studies will provide a strong and visible message to the SME sector, and have a stronger impact. The model unit selection criteria are made up of thirty-three points that take into account a host of unit level conditions from product technology to international marketing strategy.

The implementing UNIDO team is made up of two senior project assistants, one in Delhi coordinating activities related to machine tools, and the second in Bangalore coordinating activities related to plastics and foundry. There are full time experts that work with the selected clusters. This includes senior national experts who are overarching guides for reaching cluster and unit level goals in machine tools and foundry. At the time of the evaluation there were also two Project Assistants, stationed in both Bangalore and Delhi, with responsibilities for each of the sectors. The 2008 ProDoc outlined clear and quantitative objectives to ensure successful results of the project. These were, in 2011, developed into Key Performance Indicators (KPIs) at the request of UNIDO and the Steering Committee.

Section 2 and 3 of the Evaluation Report outlines, both from ground level observation and from the more quantitative objectives as per the ProDoc, the way in which the project has met many of the ambitious targets that had been set. Work in the Foundry and Plastic sector was the last to start and is currently set to end with the project end for this phase, in May 2014. Although the project will have lasted for three years, there has not been three years of on the ground activity as has been originally planned. As a result they will not have completed the planned three year of project activity. However, section 2 and 3 make clear that the units selected, specifically Plastics have already started to experience significant outputs, most directly with production and exports.

Section 4 and 5 deals with the international ambition of the UNIDO-ICAMT project. The work being done with IPR is a strong value-added that UNIDO as co-project owner brings to the table. The IPR audits conducted, and the patents that are currently in place and pending for project units have been good for confidence building and protecting competitiveness. This aspect of SME development is often missing in other programmes.

The international programme component of management work however is weak. The evaluation report echoes the findings of the Mid-term evaluation regarding the ability of UNIDO-ICAMT to continue international project management and instead questions whether the UNIDO South-South Centre for International Cooperation (USSIC) should be given a clearer mandate to identify and plan for international projects. Experiences from the second phase indicate that the difficulty for ICAMT to respond to international demand originate from the concerned countries' possibilities to find funding for such projects. Section 6 – 10 focus on programmatic aspects such as Relevance, Design and

Programmatic Coherence, Coordination and Management, Efficiency, and Effectiveness. Here the Evaluation Report spends some time on the current operational structure of the project. Relevance is not in question, given the sensitive structure of the project and the national priorities of the recipient country being the point of departure. However, the information management, and effectiveness of a very centralized project management has been questioned and the suggestion made that there are possibly new ways of working to ensure more efficient and sustainable coordination and management.

Sections 11 and 12 deal with Sustainability and Impact. The Evaluation Report works with these questions at three levels; unit level; sector level; and project level. Conclusions are based on the methodology of the project. The Report questions the extent to which sustainability and impact have been fully ensured, given the lack of project activities around effective transition of UNIDO-ICAMT activities to longer-term owners, be this the sector associations or the Government. Although this process is underway, more needs to be done to ensure strong and sustainable transition.

The final section brings together the findings of the evaluation, together with suggested recommendations for the next steps.

### **Key Recommendations**

- I. The involvement of UNIDO HQ is important for the success of project implementation. This should be continued in a medium-term perspective, even if on the ground, it is the national advisors/consultants that are actually responsible for project intelligence.
- II. UNIDO-ICAMT ownership and project management should be moved to country level and UNIDO's role changed successively.
- III. The UNIDO-ICAMT model should continue in a project mode for an indefinite period, with new SME-sectors benefitting from the services in a three-year cycle from planning to exit. The justification for the suggested limit to three years is to ensure that there is no long-term market distortion given the effective subsidy action of the UNIDO-ICAMT project approach.
- IV. An extension should be provided to both the Plastics and Foundry sector as such that their three years of planned project activity can come to a planned closure.
- V. For the next phase of the project, UNIDO-ICAMT needs to start their project development with an effective and fair exit strategy in place.

# 1 Introduction and background

## 1.1 Context

In 2012, India's manufacturing sector employed approximately 70 million people and contributed to 14 per cent of the country's GDP. Manufacturing has been a critical component of the Indian economy since Independence. Taking on the role of building the country, the manufacturing sector has grown into one of the backbones of employment for the country. The Government of India argues that effective support to the manufacturing sector will have positive outcomes for poverty alleviation, inclusive growth and provide a strong pillar of support for the country's youth. Globalisation is an opportunity and challenge for all small and medium sector enterprises (SMEs) across the world. India's manufacturing sector is comprised of a large number of SMEs who will need effective support to be able to compete in a strong international market.

The UNIDO International Centre for the Advancement of Manufacturing Technology (UNIDO-ICAMT) aims to work with the host country's policy priorities and objectives. The National Manufacturing Competitiveness Council had elaborated focus areas for work to help India grow these sectors. The UNIDO-ICAMT 2008 ProDoc used this framework as background for project development. The project began in 1999 with a pilot phase. At this time the machine tools sector was selected for first step activity. There were also plans to include low cost housing, toy-, lock- and stone SME's The Indian Machine Tools Manufacturing Association (IMTMA) was approached to work with UNIDO-ICAMT for partnership, and to assist with access to local units. International projects in SME-sectors are of equal importance to UNIDO-ICAMT's mandate, as those directly focused on the Indian manufacturing sector as UNIDO-ICAMT claims to be an international centre- and not only an Indian centre.

Following the successful outcomes of the pilot phase, two additional phases were approved by the Government of India, and UNIDO; the first being in 2002 and the second being in 2008. The current independent evaluation is being conducted of the second phase of the project, which is set to end in May 2014. A mid-term evaluation of UNIDO-ICAMT; Project Number US/GLO/08/010 completed in December 2011; SF/GLO/08/009 has also been conducted of the second phase.

At the time of conducting the Final Evaluation of Phase two, three sector interventions were underway as part of UNIDO-ICAMT; machine tools, foundry and plastics. The overall project is funded from the Indian Government contribution to the Industrial Development Fund (IDF) of UNIDO. Each sector has mobilised additional support with Department of Chemicals and Petrochemicals co-financing US \$ 400 000 for the Plastics sector and Ministry of Small and Medium Enterprises co-financing US \$ 750 000 for

Machine Tools. Currently Foundry does not have co-financing from Ministry sources, and has an IDF/UNIDO-ICAMT contribution of US \$ 2 000 000.

The Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce & Industry, is the project owner on the Indian side, and chair of the Steering Committee (SC). The SC consists of representatives from concerned Ministries and UNIDO, with industry associations as invitees.

The UNIDO-ICAMT model of work operates on a three-year cycle of continuous business development support and hand-holding of units, organised in clusters. It also includes training of company personnel at different levels as well as international exposure of the units in the form of study-visits and participation in international fairs and expos. The target for “model units” are defined by a set of thirty-three criteria, developed by UNIDO-ICAMT, and focus on strategy and business development, product, and workforce performance. Units selected for participation in the UNIDO-ICAMT project will be regularly assessed as per this model list of criteria.

The 2008 ProDoc for the second phase has outlined clear objectives at project level for a five year period, from 2008/09 to 2014. The objectives were complemented with Key Performance Indicators (KPIs) for a set of criteria that would allow for easier monitoring and verification of results at company level. The KPIs are the baseline upon which reporting for the project has been conducted, and include turnover in each sector/unit as well as employee productivity as measures of successful results, to mention but a few of the indicators.

May 2014 is currently set as the end of the second phase. At this time, the Machine Tools sector will have completed its three year course. Planned activities however, have been affected by the stalled project payments. Project activity in the Foundry and Plastics sectors will also be coming to a close, despite the fact that these sectors were delayed in their start. The project has been largely successful in meeting the targets that have been set for execution, at the unit and cluster level.

## 1.2 Final Evaluation Phase 2

At UNIDO-ICAMT’s Steering Committee Meeting, of August 29 2013, the decision was made to undertake a final evaluation of the UNIDO-ICAMT project, Phase 2. This was initially scheduled for November 2013, but commenced on March 6, 2014. The team for the evaluation was made up of Carl-Gustaf Svensson (International Evaluation Consultant and team leader) and Grace Arati Davis (National Evaluation Consultant).

The Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, (DIPP) is interested in developing a new framework for UNIDO-ICAMT. The recommendations from this evaluation will feed into discussions about possible changes to the UNIDO-ICAMT structure.

UNIDO HQ and the India Office of UNIDO-ICAMT were responsible for unit selection for the mission. A representative of the UNIDO-ICAMT office, as well as the relevant national experts assisted the evaluation team throughout their travel. The Evaluation team visited both the Delhi and Bangalore offices of UNIDO-ICAMT, as well as Machine Tools units in Bangalore and Ludhiana, Foundry units in Belgaum, and Plastics units in Mumbai. Interviews were conducted with twelve units, out of the project total of 260 units. These were qualitative in nature and focused on three main areas of investigation; changes in turnover, technology and process as a result of the project intervention, as well the ability of the units to maintain the momentum of change and growth. This ground level work was supported with secondary data provided by UNIDO-ICAMT and included diagnostic reports unit level satisfaction reports, and unit level turnover figures as well as sector data. While the selection of units was done by the UNIDO-ICAMT team, and was limited by the short amount of time available for the tour, there was no strong variation in the findings from what was expected from the secondary data review. In fact, the focus of the evaluation, in addition to the units, was the Industry Associations. As the Evaluation team was able to meet with the Associations in each sector this was seen to be a strong component contributing toward overall reliability of ground level findings.

For the unit and Association interviews, UNIDO-ICAMT were asked not to be present, in order to allow for unbiased discussions. A list of all meetings conducted can be found in the Annex. A draft report of findings will be submitted to UNIDO HQ on April 8, 2014 and a final report will be submitted on April 25, 2014.

At the time of conducting the Final Evaluation of Phase Two, three sector interventions were underway as part of UNIDO-ICAMT; machine tools, foundry and plastics. The overall project is funded from the Indian Government contribution to the Industrial Development Fund (IDF) of UNIDO. The initial five-year budget from 2008 amounted to US \$ 2,5, Million. In March 2014 US \$ 6,3 Million was committed to the project. This has resulted in the budget that the project has had to work with being larger than originally envisioned. Department of Chemicals and Petrochemicals is co-financing US \$ 400 000 for the Plastics sector and Ministry of Small and Medium Enterprises co-financing US \$ 750 000 for Machine Tools. Currently Foundry does not co-finance and has a IDF/UNIDO-ICAMT contribution of US \$ 2 000 000.

## 2 Evaluation Findings

The UNIDO-ICAMT project, 2008 to 2014 works with 260 industrial units, and concerned Industrial Associations. The evaluation team visited 12 of these units covered in the three active sectors. The findings elaborated below are critical elements of first hand verification of the extensive amount of project documents that have been covered in Section 3. First hand feedback from the units allowed for a holistic assessment of activities undertaken, and the longer-term implications of reported outcomes. From this process, we were able to identify some of the concerns with the potential gap between the future role of the Associations, and their current capacity. We were also able to identify that UNIDO-ICAMT has been able to provide all units visited a good level of service provision as per the 2008 ProDoc. The selected case studies in the sub-sections below provide an understanding of the way in which the project has been able to work with each unit, and develop their potential. We understand that the unit selection was done to complement and extend the visits made by the mid-term evaluation group, and to cover clusters that were not visited earlier. We understand that there is a likelihood that the units were selected with the intention to provide ease of communication, and to be able to best illustrate the way in which UNIDO-ICAMT is working at the ground level. As mentioned in 1.2, the unit level visits were seen to be in line with the overall project data reviewed. However, as the focus of the evaluation was to understand the extent to which the project has created strong foundations for ongoing work, it was the Associations that were seen to be a strong point of focus for project verification.

### 2.1 Machine Tool Sector

**TOTAL BUDGET - \$3 MILLION**

**IDF - \$ 1 MILLION**

**INDUSTRY AND ASSOCIATION - \$ 750,000**

**MINISTRY OF SMALL AND MEDIUM ENTERPRISE (MSME) - \$ 750,000 of (AS OF 21.03.2014 – \$375,000 YET TO BE RELEASED)**

**UNIDO-ICAMT - \$500, 000**

***ICAMT CLUSTERS – BANGALORE (16 UNITS); DELHI NCR (12 UNITS); HYDERABAD (12 UNITS) LUDHIANA (26 UNITS); PUNE (20 UNITS); RAJKOT (25 UNITS)***

The MT clusters in Bangalore and Ludhiana were visited. We noted that many of the units were family owned and up to three generations old. Many of the units have developed from low-skill workshops to higher scale industry. It is this process of change and transition that provides the base for the UNIDO-ICAMT intervention. Units have benefitted from the handholding and change-management guidelines and expansion. Additionally, the historic stable ownership structure has been a criterion for the positive

results of the UNIDO-ICAMT project. This is because that the process of technology and process upgrading can be done without the concerns of conflict between interests within the organisation.

We were able to have a cluster-wide interaction in Ludhiana, following individual unit visits. This was with 19 of the 27 cluster members. Given the role MT plays in the overall context of India's SME sector makeup, it is clear why this was the first sector considered in Phase 1 of the project and extended into the current Phase 2. Given that the project has been operating in this sector for 10 years, the expectation is that the units taken up in Phase 2 would benefit from the accumulated knowledge of the project management team, as well as the sector experts. From the units visited, it is clear that there is a large variation in the MT units, both within the cluster as well as the sector. The assumption that productivity increases will require technology transition is not entirely wrong. But from the units visited, it becomes clear that hi-tech upgrades are not always the required inputs.

An example of increased turnover, without hi-tech transition and upgrades is provided by RATTAN HAMMERS. RATTAN HAMMERS in Ludhiana has achieved a 150 per cent increase in turn over, from the start of the unit's participation in ICAMT, from INR 600 million to INR 1600 million. This has been done by the purchase of reconditioned machines and direct domestic replication of machines seen during exhibitions abroad. UCAM Pvt Ltd, in Bangalore, on the other hand is a group of young and innovation minded entrepreneurs. In 2013, their turnover was INR 362 million from INR 180 million in 2009. UCAM is an example of the potential of an SME unit being able to move out of the SME definition and should be considered one of the overarching success stories of the UNIDO-ICAMT project. UCAM currently reserves eight per cent of their earnings for Research and Development. Similarly the exponential growth of units like UCAM should not be the basis of expectations for other units in the sector.

**The All India Machine Tools Manufacturers' Association (IMTMA)**, with their headquarters in Bangalore have been involved in UNIDO-ICAMT from Phase I onwards. Their networks have been leveraged by UNIDO-ICAMT and their feedback incorporated into activity development. IMTMA has been restructured as a service body for their members, and a relatively recently appointed CEO with history of work with Confederation of Indian Industries, of which IMTMA is a member. The Association has developed an organisational infrastructure to incorporate six verticals including training, exhibitions, technology and with a Centre for training and exhibitions. Out of the associations visited, IMTMA is in the strongest position to take forward the activities of UNIDO-ICAMT. One of the immediate challenges will be their ability for international networking and contracting of expertise in the same way as UNIDO-ICAMT.

*In discussion with the Indian Government Project owners (DIPP and MSME), there was an expectation that the evaluation should comment upon the ability of UNIDO-ICAMT to meet its mandate to bring best technology practices to the units selected. Although it is*

not possible to quantitatively evaluate the impact of UNIDO-ICAMT, the following selected case studies outline the direct relationship between UNIDO-ICAMT project activities and the subsequent outcomes. This information has been provided to the evaluation team, directly from the units as this illustrates their appreciation of the way in which the project has worked to assist them on a technical front. The Machine Tools, because it has been the longest running sector within the UNIDO-ICAMT project, has two case studies.

## CASE STUDIES MACHINE TOOLS

| I. Precitech, Bangalore   |   |  |
|---|---|--|
| Profile at Project Outset   | Activities  | Outcomes   |
| <ul style="list-style-type: none"> <li>• Industry Presence: Since 1978, over 750 machines, mostly custom built solutions and import substitutes</li> <li>• As ISO 9001-2008 certified company</li> <li>• Joined ICAMT – 2009</li> <li>• Turnover in 2009-2010: INR 64.8 million</li> </ul> <p>EUR 770,000</p> | <ul style="list-style-type: none"> <li>• Unit Storage/space redesign</li> <li>• Technology roadmap and nice position to be developed with UNIDO-ICAMT advisor</li> <li>• Advanced Course on Integrated Product Development</li> <li>• Visit of experts from UNIDO-ICAMT identifying need for plant expansion</li> <li>• Middle Management Development Course</li> <li>• Exhibition</li> </ul> | <ul style="list-style-type: none"> <li>• New Shop – UNIT 2 shown with new layout – 6000 sq.ft and also the old unit (UNIT 1) with re-lay out for large machine tool assembly</li> <li>• Bigger machines like ROTAMILL developed</li> <li>• Machines composite material machining developed</li> <li>• 5 Axes CNC Horizontal Boring on Advanced state of assembly</li> <li>• Adoption of learnings on component wise costing and unit proactively developed a new software product for SMEs</li> <li>• Training given to key staff based on ICAMT course</li> </ul> <p>TURNOVER MARCH 2014 –<br/>INR 84.3 million<br/>EUR 1 million</p> |

| II. R.S. Hydraulics, Ludhiana  |  |  |
|--|--|--|
| Profile at Project Outset  | Activities   | Outcomes   |
| <ul style="list-style-type: none"> <li>• CNC Machines not being manufactured</li> <li>• Limited International Exposure</li> <li>• TURNOVER 2009-2010: INR</li> </ul> | <ul style="list-style-type: none"> <li>• UNIDO-ICAMT assisted in the manufacturing of the first CNC turning centre (5 models) though inputs in the installation of ball screws</li> <li>• Assisted in the</li> </ul> | <ul style="list-style-type: none"> <li>• Current CNC production at 5/month to be increased by 50 per cent by the end of 2014</li> <li>• Siemens technology being replaced by lower cost</li> </ul> |

|                                      |  |   |
|--------------------------------------|--|---|
| <p>9.8 million<br/>EUR – 119,000</p> | <p>manufacturing of CNC drilling and tapping machine</p> <ul style="list-style-type: none"> <li>• UNIDO-ICAMT worked with unit to develop marketing strategy and business plan – focus on low cost niche CNC machines</li> <li>• IPR Audit undertaken</li> <li>• International trade fairs attended in Turkey and Germany</li> </ul> | <p>Chinese inputs. This has led to 70 machines with the lower cost technical inputs, for what would have given 46 machines with higher cost inputs.</p> <ul style="list-style-type: none"> <li>• Patent pending</li> <li>• TURNOVER March 2014 – INR 13 million</li> </ul> <p>EUR 156,000</p> |
|--------------------------------------|--|---|

The two case studies selected, of units visited, highlight the extent to which the handholding and guidance work of the UNIDO-ICAMT project has seen to be one of the main triggers for unit level growth. The information provided in these two case studies has been provided by the units themselves during the site visits and later verified according to project reports. The two case studies also reflect the difference within the Machine Tools sector. While R.S. Hydraulics is a relatively small player in comparison to Precitech, the unit has managed to develop in-house capacity that has allowed for it to embark on a path of high growth. The UNIDO-ICAMT project has helped the unit to unlock its innovation potential that might not have otherwise been recognised. The international exposure for both units has been a critical factor in recognising the international market competition.

### Highlights of Machine Tools as per Key Performance Indicators (KPIs)

KPIs were set as a baseline for project monitoring in 2011, as part of the Steering Committee guidelines. The KPIs focused on the overall project objectives that were outlined in the 2008 ProDoc that dealt with unit level turnover and productivity. The Highlights provided in the Evaluation Report are taken from the UNIDO-ICAMT summary provided to the Government of India in March 2013.

- **Production** in 2012-2013 compared to Baseline of 2009-2010 **increased by 32% as against end of project target of 50%**
- **Exports** in 2012-2013 compared to Baseline of 2009-2010 increased by **205% as against end of project target of 50%**
- **No of CNC machines** produced in 2012-2013 compared to Baseline of 2009-2010 increased by **27% as against end of project target of 50%**

- **Employee productivity** in 2012-2013 compared to Baseline of 2009-2010 increased **by 18.7% as against end of project target of 60%**.

## 2.2 Foundry Sector

**TOTAL BUDGET – \$ 2 MILLION**

**IDF – \$ 1.75 million**

**UNIDO – ICAMT – \$ 250,000**

**ICAMT CLUSTERS – BELGAUM (25 UNITS); COIMBATURE (25 UNITS)**

India’s Foundry cluster is an essential part of the overall manufacturing sector in the country, and the supply chain of product development. UNIDO has seen the value in working with clusters for pro-poor economic growth, and has used the cluster approach to achieve greater company-level results through collective action. It has been working with this approach for the past twenty years, across the world. The Government of India has worked with cluster development, as a means for small and medium enterprise development. In Belgaum this has resulted in the development of a Special Purpose Vehicle (SPV) of financially independent entities. This SPV was created, and is represented by members of the foundry sector, state and central government. The New Manufacturing Policy, 2013 has reconfirmed the cluster approach as an effective means of ensuring actions have the best results, by focusing interventions both geographically and by industrial cluster.

The evaluation team did not meet with the national association dealing with India’s foundry sector, the Institute of Indian Foundrymen (IIF). This was due to the fact that they were not a direct party to the project. This does seem to be an unfortunate oversight, as IIF appears to have a strong communication presence, both with their own association branding and as an active member of networks within the country including the Confederation of Indian Industry. They also serve as the point of reference for the Government of India on questions related to the Foundry sector, and it could have only been a strength to have brought them into the project.

The Foundry sector involves much more traditional and basic technology with regard to infrastructure than the other sectors within the UNIDO- ICAMT project. The units visited revealed some of the more immediate environmental challenges that are faced by this sector. During the site visits, this topic was raised and the comment made that two units had been recently closed down due to ordinance from the State Pollution Control Board.

It was evident that the Government of India has understood the value of the Foundry sector with the establishment of publicly supported Foundry clusters with SPVs in Belgaum, Kolkata and Coimbatore. This public support includes development of cluster infrastructure. In the case of the Belgaum Foundry Cluster (BFC) who is the Association

partner for ICAMT, the Central Government has put forward 75 per cent of the cost of developing the BFC, with the state Government providing 15 per cent and the cluster units coming forward with 10 per cent of cost contribution.

BFC have clearly understood the need for an overarching service to units on the ground, with regard to marketing, subsidy access and other policy benefits as well as intelligence gathering. However, what was not clear at the time of the visit was the extent to which BFC would be able to provide the services and intelligence needed by the sector units. Currently UNIDO-ICAMT acts as a consultant to BFC, and the expectations are that the project will continue for another year and a half, as had been communicated at the outset. During this time, it is expected that the cluster members will be able to take on the UNIDO-ICAMT role and continue this beyond the project period.

The units have also made progress with regard to exports, where ICAMT has been instrumental. Cost of energy has been something that is critical to the sector. The energy audits and energy efficiency advisory services have been some of the most important ways to help the units to actually improve their competitive potential.

Given that the Foundry sector project start was delayed by more than a year, due to blocks with regard to UNIDO procedures and Government clearances, the intervention is set to end in May 2014, along with the other sectors. At the time of the report, negotiations were underway to continue the work within the Foundry sector until November 2014. Due to this reason the project results are difficult to evaluate and are critically vulnerable to lack of sustainability, given what will be an abrupt ending.

BFC went as far as to mention that UNIDO-ICAMT were given access to their unit members, precisely because of the commitment made to work being undertaken for three years. By stopping the intervention mid-way, BFC is concerned for the subsequent lack of credibility that they are perceived to have, when in fact they have seemingly no input into the decision.

*In discussion with the Indian Government Project owners (DIPP), there was an expectation that the evaluation should comment upon the ability of UNIDO-ICAMT to meet its mandate to bring best technology practices to the units selected. Although it is not possible to quantitatively evaluate the impact of UNIDO-ICAMT, the following selected case studies outline the direct relationship between UNIDO-ICAMT project activities and the subsequent outcomes. This information has been provided to the evaluation team, directly from the units as this illustrates their appreciation of the way in which the project has worked to assist them on a technical front.*

## CASE STUDY – FOUNDRY

| THE ALLIED FOUNDERS PVT. LTD, BELGAUM  |   |   |
|--|---|---|
| PROFILE AT THE PROJECT<br>OUTSET   | ACTIVITIES  | OUTCOMES  |
| <p><b>Started in 1968</b></p> <p><b>TURNOVER 2011-2012<br/>INR 64.8MILLION</b></p> <p><b>EUR 787,000</b></p> | <p>UNIDO-ICAMT training in casting development, defects analysis, rejection control</p> <p>Energy efficiency audit conducted</p> <p>Marketing development to access and leverage international buyers</p> <p>Suggested plant improvements for space utilisation, production and resource efficiency</p> | <p>Yield improvements on 25 components with savings of INR 280,000</p> <p>Removal of Cupola</p> <p>Saving heat processes resulted in savings from melting costs of INR 252, 000 over 7 months</p> <p>Export value increased by 315 per cent in 2012-2013</p> <p><b>TURNOVER MARCH 2014 –<br/>INR 84.8 MILLION</b></p> <p><b>EUR – 1 MILLION</b></p> |

The case study reinforces the assumption made in the ProDoc; that guided growth in the manufacturing sector, with regard to technology and innovation can go a long way to impacting the national commitments on energy and environment. What can be seen from the case study is the degree to which energy efficiency measures have helped move the company forward. In addition to this, it is the core value of the UNIDO stamp and the introduction to an international market that has allowed Allied Founders to grow.

KPIs were set as a baseline for project monitoring in 2013, as part of the Steering Committee guidelines. The KPIs focused on the overall project objectives that were outlined in the 2008 ProDoc that dealt with unit level turnover and productivity. The Highlights provided in the Evaluation Report are taken from the UNIDO-ICAMT summary provided to the Government of India in March 2014.

### Highlights of Foundry per Key Performance Indicators (KPIs)

- **Production volume in 2012-13 as compared to baseline 2011-12 grew by 0.8%** while industry had a negative growth of -5%;
- **Iron Exports grew by 25%** while industry grew by negative -3.2% in 2012-13 as compared to baseline 2011-12;

- **Casting rejection reduced** to 8.1% in 2012-13 from initial 9.5% in 2011-12 (target of 3% reduction by end of project);
- 841 man days of training provided against a target of 1500 man days;
- ISO consulting is in process for **15 units**.

### 2.3 Plastic Sector

**TOTAL BUDGET – \$ 1.3 MILLION**

**IDF – \$ 400,000**

**Department of Chemicals and Petrochemicals – \$ 400,000**

**UNIDO-ICAMT – \$ 200,000**

**Industry Contribution – \$ 300,000**

***ICAMT CLUSTERS – 100 plastic processing SMEs (20 units each in Delhi NCR, Mumbai, Ahmedabad, Chennai and Bhubaneswar)***

Unlike the Machine Tools sector, the units in Plastics are new, young, and normally without the family history of ownership. Additionally in Plastics the units visited are not focused on international exports but rather on capturing a growing domestic market.

**The All India Plastics Manufacturers' Association (AIPMA)** with their headquarters in Mumbai has 1500 direct members, and 22000 indirect members. Currently AIPMA are made up of fifteen administrative staff, and rotating management chairs, who are themselves industry owners. The ambition of delivering value-added service to association members is high, but the ability to deliver is blocked by the internal industry competition and the lack of collective trust in data sharing. AIPMA's credibility was seen to be enhanced with the engagement with UNIDO-ICAMT. The value that UNIDO-ICAMT has brought to the plastics sector, as witnessed by AIPMA, is that a process for unit development has been put forward. Monitoring outputs was seen to be a large positive step in influencing productivity increases. UNIDO-ICAMT had begun their engagement with plastics in 2010, using the Machine Tools work as a reference. This reference, which is India, based and showed strong results, was an important factor for AIPMA and units to come on board. In fact, AIPMA have taken on a consultant, associated with the UNIDO-ICAMT Machine Tool cluster development, to assist them to develop a world class Association model as has been done with the IMTMA. This has been financed by AIPMA, and should be seen as a strong indicator for sustainability of the project intervention.

The choice of Plastics as one of the sectors for work within UNIDO-ICAMT is a challenging one. The future of plastics globally is in the process of transition with a

significant shift taking place, from traditional polycarbonate, or PVC to either biodegradable plastic to plastic-free altogether. This shift has been recognised by the UNIDO-ICAMT project, with the development of a biodegradable Testing centre. It will be important to understand how the international demands for changed plastics are being reflected within India, and how increasing number of units will be able to shift to meet these new demands.

*In discussion with the Indian Government Project owners (DIPP and DCPC), there was an expectation that the evaluation should comment upon the ability of UNIDO-ICAMT to meet its mandate to bring best technology practices to the units selected. Although it is not possible to quantitatively evaluate the impact of UNIDO-ICAMT, the following selected case studies outline the direct relationship between UNIDO-ICAMT project activities and the subsequent outcomes. This information has been provided to the evaluation team, directly from the units as this illustrates their appreciation of the way in which the project has worked to assist them on a technical front.*

## CASE STUDY – PLASTICS

| <b>MITSUCHEM PVT. LTD, MUMBAI</b>   |  |   |
|---|--|---|
| <b>Profile at Project Outset</b>  | <b>Activities</b>  | <b>Outcomes</b>   |
| Established – 1990<br><br><b>TURNOVER – 2010-2011 INR 424 MILLION</b><br><br><b>EUR 5.1 million</b> | <ul style="list-style-type: none"> <li>• Energy Audit conducted</li> <li>• Process Audit Conducted</li> <li>• Introduction of Single Minute Exchange of Die (SMED)</li> <li>• Overall Equipment Efficiency (OEE) training</li> </ul> | <ul style="list-style-type: none"> <li>• 20 TR Chilling Plant – INR 2000/day savings</li> <li>• Installation of 50kg vertical mixer machine – savings of INR 455/day</li> <li>• Energy Efficiency savings of INR 367,555 in 4 months</li> <li>• Due to OEE principles, monthly production increases of 15 per cent by March 2013</li> </ul><br><b>TURNOVER MARCH 2013 – INR 695 Million</b><br><br><b>EUR 8.4 million</b> |

Mitsuchem attributes a great deal of their growth to the intervention provided by the UNIDO-ICAMT project. Despite being one of the larger units in the project, Mitsuchem was of the opinion that the handholding that UNIDO-ICAMT provided, despite preliminary resistance or confusion from the units, was of most importance. There was a stated general mistrust of other public sector support programmes, because of lack of understanding and insufficient communication. The UNIDO-ICAMT project in comparison worked with the units to help them develop understanding, knowledge and technique.

KPIs were set as a baseline for project monitoring in 2012, as part of the Steering Committee guidelines. The KPIs focused on the overall project objectives that were outlined in the 2008 ProDoc dealing with unit level turnover and productivity. The Highlights provided in the Evaluation Report are taken from the UNIDO-ICAMT summary provided to the Government of India in March 2013.

### Highlights of ICAMT work in the Plastic Sector per Key Performance Indicators

- **Production of participating units increased** by 50.24% in 2012-13 as compared to baseline of 2010-11 against end of project target of 50%. Industry grew at a much slower rate of 19% in the same period.
- **Exports of participating units increased** by 60.12% in 2012-13 as compared to baseline of 2010-11 against end of project target of 30%. Industry grew at a much slower rate of 29.5% in the same period.
- 1811 man days of training on design, technology, productivity and quality provided to 1036 specialists on processing technology, best manufacturing practices, quality management systems etc. by end of project.
- **Employee Productivity increased** by 22 % in 2012-13 as compared to baseline of 2010-11 against target of 20%.

#### 2.4 Overall Observations from visits to Units and Associations

- In the criteria list for model units, a comprehensive list of 33 requirements have been developed that allow for UNIDO-ICAMT to deploy solutions and capacity building. However, the issues of gender, environmental challenges and labour rights are not developed<sup>2</sup>. Given the role that UNIDO plays in this project intervention, and the assumption that they bring with them international best practice, a focus on gender equity, CSR and poverty reduction for instance, it is UNIDO's responsibility to ensure that such areas are effectively mainstreamed into the project planning and monitoring.
- The role of the Associations should be more developed. The project is currently set to conclude in May 2014. With the exception of IMTMA, none of the other associations and clusters are in a position to take over the role of UNIDO-ICAMT.
- It was clear from the discussions with Associations, and units that the UNIDO-ICAMT sector senior national experts is a critical aspect of the project intervention. Each of the three sectors is very different in their characteristics, and the kinds of advisory services that would be required for the units vary. UNIDO-ICAMT has a great responsibility for quality assurance in selecting these advisors. Additionally, as was clear from the case of

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<sup>2</sup> The evaluators have to come to understand that these issues are being considered in the new project phase. A draft framework document has been developed for this new phase, but at the time of the evaluation, was still in draft form and pending approval.

the Ludhiana cluster, trust and access are equally important in the process of reaching project goals.

- Smaller units are more likely to benefit from the 'cluster' approach as put forward by the ICAMT project.

- This was evident in the visit to Ludhiana, where the 26 units of the cluster have registered the *Consortium of Ludhiana Machine Tool Manufacturers (CLMTM)* as a Society and ensured that the value of the capacity transferred to the cluster, as per the ICAMT project is further disseminated to the other 217 MT units in Ludhiana with the development of the *Association of Ludhiana Machine Tool Industries (ALMTI)*. The Consortium is undertaking an application to MSME for the creation of a Common Facility Centre. Organisers of international exhibitions in Beijing and Hanover have invited CLMTM to co-host the event with them in 2015.

- All units visited indicated that it was the constant hand-holding of ICAMT that was of the most value to them. This process developed a 'mind-set for change', that allowed the units to move out of a fire-fighting approach to business development and incorporate a longer term view of unit planning.

- Technology roadmaps, International Exhibitions and Trainings were also listed as key value additions of the Project. Exhibitions not only provided valuable networking opportunities, that have led to further business development, but have also served to give the units confidence in their product range and an understanding that they are internationally competitive.

### 3 Achievement of Results according to established objectives

A comparison between the objectives (1.1-4.2) formulated in the 2008 ProDoc and the outputs reported in February 2014, as per the UNIDO-ICAMT Quarterly Progress Report, submitted to the Steering Committee, gives the following picture:

| Objective   | Outputs   |
|---|---|
| <b>1.1</b> 10 Sectoral Projects and programmes within the framework of manufacturing industry developed and funding resources mobilised | <ul style="list-style-type: none"> <li>• 1 completed (low-cost housing)</li> <li>• 3 on-going (Machine Tools, Foundry, Plastics)</li> <li>• 7 domestic and international in the process of deployment</li> </ul>  |
| <b>1.2</b> 5 projects implemented and results achieved  | <ul style="list-style-type: none"> <li>• Technology Upgrading and Productivity Enhancement of Machine Tool Industry (US \$ 3.0 Million)</li> <li>• National Programme for Development of Plastic Manufacturing in India (US \$ 1.3 Million)</li> <li>• Technology Upgrading and Productivity Enhancement of Foundry Industry at Coimbatore &amp; Belgaum (US \$ 2.0 Million)</li> </ul>   |
| <b>1.4</b> 50 model units in each selected sector   | 235 units reviewed of 260 and 92 model units as per criteria established  |
| <b>2.1</b> Over 150 EGM/workshops/training courses  | 150 training programmes with 4920 benefitted  |
| <b>2.2</b> 3000 entrepreneurs etc. to be trained on advancement in their specific sectors   | 3698 trained  |
| Industrial Partnerships   | Joint Ventures – 2, Acquisitions – 1, Technical Knowhow Agreement – 2   |
| Business Development – IPRs   | 3 Patents, 16 Designs, 70 – Copyrights, 38 Trademarks, IPR advisory cell as part of ICAMT website   |
| <b>3.2</b> Market access strategy for new technologies and innovations developed and formulated   | <p>International Fairs and engagement with USA, Germany, Taiwan, China, South Korea, UAE, Turkey, France.</p> <p>Technology missions (for technology exposure and market development) to USA during IMTS (September 2010), Germany during EuroBlech (October 2010), Taiwan during TIMTOS (March 2011), China during both CIMTS (April 2011) and Chinaplas (May 2011), Germany during EMO Hannover (September 2011), Korea during SIMTOS (April 2012), St Louis, Missouri, USA during CastExpo (April 2013), Germany during K Fair (October 2013), Paris during Midest (November 2013), Germany &amp; Spain during EMO</p> |

|  | <p>(September 2013).</p> <p>Group participation in PolyIndia at Hyderabad (Nov 2011) and in PolyIndia at Chennai (April 2013); Plastivision Arabia 2012 at Sharjah (May 2012), MAKTEK EURASIA 2012 at Istanbul (October 2012), Engineering Expo at Ludhiana (December 2012), International Society of Prosthetic &amp; Orthotic (ISPO) 2013 Exhibition at Hyderabad (February 2013) and India Engineering Sourcing Show (IESS 2013) at Mumbai (March 2013), Midest 2013 at Paris (November 2013).</p>   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
|--|---|---------|----------------------------|---------------------------|---------|---------------------------|----------|----------------------|---------|-----------------------|----------------|--------------------------|--------|------------------------|---------|------------------|---------|---------------------|---------|-----------------------|---------|-------------------|--------|-------------------|---------|--------------|-----------------|
| <p><b>4.1</b> Creation of an International Property Rights (IPR) Advisory Cell looking into dissemination of IPR knowledge to the sectors of interventions</p> | <p>IPR Advisory Cell has been developed as part of ICAMT web portal. Contents of the Web Portal (for dissemination of IPR knowledge) have been uploaded. These include the following:</p> <ul style="list-style-type: none"> <li>• Links to IPR Databases</li> <li>• Frequently Asked Questions</li> <li>• Links to IPR Case studies</li> <li>• An IPR Blog</li> </ul> <p>IPR modules have been developed. IPR awareness programmes have been conducted</p>   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| <p><b>4.2</b> Enhanced Understanding of IPRs</p>   | <p>47 <b>IPR Audits</b> have been conducted during April 2012- January 2014, at the following clusters:-</p> <table border="1"> <thead> <tr> <th>Cluster</th> <th>No. of IP Audits conducted</th> </tr> </thead> <tbody> <tr> <td>Hyderabad (Machine Tools)</td> <td>3 Units</td> </tr> <tr> <td>Bangalore (Machine Tools)</td> <td>12 Units</td> </tr> <tr> <td>Pune (Machine Tools)</td> <td>3 Units</td> </tr> <tr> <td>Delhi (Machine Tools)</td> <td><b>7 Units</b></td> </tr> <tr> <td>Ludhiana (Machine Tools)</td> <td>1 unit</td> </tr> <tr> <td>Rajkot (Machine Tools)</td> <td>2 Units</td> </tr> <tr> <td>Mumbai (Plastic)</td> <td>8 Units</td> </tr> <tr> <td>Ahmedabad (Plastic)</td> <td>3 Units</td> </tr> <tr> <td>Bhubaneswar (Plastic)</td> <td>2 Units</td> </tr> <tr> <td>Chennai (Plastic)</td> <td>2 Unit</td> </tr> <tr> <td>Belgaum (Foundry)</td> <td>4 Units</td> </tr> <tr> <td><b>Total</b></td> <td><b>47 Units</b></td> </tr> </tbody> </table> | Cluster | No. of IP Audits conducted | Hyderabad (Machine Tools) | 3 Units | Bangalore (Machine Tools) | 12 Units | Pune (Machine Tools) | 3 Units | Delhi (Machine Tools) | <b>7 Units</b> | Ludhiana (Machine Tools) | 1 unit | Rajkot (Machine Tools) | 2 Units | Mumbai (Plastic) | 8 Units | Ahmedabad (Plastic) | 3 Units | Bhubaneswar (Plastic) | 2 Units | Chennai (Plastic) | 2 Unit | Belgaum (Foundry) | 4 Units | <b>Total</b> | <b>47 Units</b> |
| Cluster  | No. of IP Audits conducted  |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Hyderabad (Machine Tools)  | 3 Units   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Bangalore (Machine Tools)  | 12 Units  |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Pune (Machine Tools)   | 3 Units   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Delhi (Machine Tools)  | <b>7 Units</b>  |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Ludhiana (Machine Tools)   | 1 unit  |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Rajkot (Machine Tools)   | 2 Units   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Mumbai (Plastic)   | 8 Units   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Ahmedabad (Plastic)  | 3 Units   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Bhubaneswar (Plastic)  | 2 Units   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Chennai (Plastic)  | 2 Unit  |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| Belgaum (Foundry)  | 4 Units   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |
| <b>Total</b>   | <b>47 Units</b>   |         |                            |                           |         |                           |          |                      |         |                       |                |                          |        |                        |         |                  |         |                     |         |                       |         |                   |        |                   |         |              |                 |

The expected quantitative outputs have been reached in most cases, and for some components the outcomes have gone beyond the planned outcomes. The overall quantitative results must be regarded as satisfactory.

As part of the annual project monitoring done by UNIDO-ICAMT, a unit level satisfaction survey was sent to all sectors and project participants. This was done in August 2013, and the Evaluation Report has opted to refer to these results as evidence of unit level feed-back on the UNIDO-ICAMT intervention. It should be noted that such surveys, done through mail or email are far less than satisfactory indications of opinion. When this survey was brought up with the management team of one of the units, there was complete confusion about a) who had filled this up and b) what was said. Although it is understandable that there should be some means for independent feedback of project participants. This means is not ideal.

The responses of the August 2013 survey included responses from 54 units out of the 260. Although this is less than 25 percent of the total, Foundry was the sector with the highest percentage of responses of the three sectors. It is not surprising then that their responses are the most positive, with regard to overall value of the UNIDO-ICAMT project and the individual activities being undertaken as part of this, such as the regular examination of product development. Yet Foundry as a project sector has had the least amount of turnover as per the 2011 KPIs. There was a lower response from Machine Tools and Plastics. Given this, there should be significant skepticism before drawing any conclusions from the few responses that were forthcoming.

The quality of the performed advisory service, trainings, international exposures, etc. is certainly more difficult to measure. During the evaluation we have received indications of high satisfaction from the beneficiaries. The case studies also indicate that, at least in these units, the UNIDO-ICAMT inputs have resulted in a positive development for the units in terms of technology upgrading and increased turn over. This impact potential will be stronger should the sustainability of the outcomes be maintained. Sustainability will require continued provision of these external services for an indefinite time to come.

## 4 Intellectual Property Rights (IPR)

The introduction of IPR audits, as part of the UNIDO-ICAMT intervention, is a strong value addition for the selected units. IPR issues, and the knowledge of what is needed to protect process, design and trademarks is largely absent at the level of SMEs. IPR is a tool that is beneficial as a process of awareness creation at the industry level, of new developments and international innovations. It is a way of gauging unit placement, without geographic limitation. In the 2008 ProDoc Objectives, 4.1 and 4.2 deal with questions related to IPR. In the Key Performance Indicators, there has been a quantification of these objectives to include research and development, including development of 24 new technologies.

There have been no quantitative targets set for IPR development with the units. The project's qualitative goals are clear; that units strengthen their culture of competitiveness through the knowledge and capacity development with regard to IPR. Unit Level IPR interventions (IP Audits) have been undertaken in 47 Machine Tool, Plastics and Foundry member SMEs to improve knowledge management and to derive business competence from IP assets. As a result 127 International Patent filings have been made by various units including 3 Patents, 16 Design applications, 70 Copyrights and 38 Trademarks.

An IPR blog has been incorporated into UNIDO-ICAMT Website, along with information on IPR issues. Although this could be a little early for the units currently within the project, as they would rather make a phone-call to their project advisor/expert, the potential of such placement is large.

## 5 International Projects and Partnerships

As per the ProDoc, UNIDO-ICAMT is required to develop international projects and partnerships. As far as the evaluation team could find out, no quantitative targets were set in the ProDocs. As of the February 2014 Quarterly Progress Report, no international project has reached the stage of funding and action. The last project, that is still held up as a model example of international project development is the low-cost housing project. This was completed in 2011, and there has been little subsequent activity for international projects. Experiences from the second phase indicate that the difficulty for ICAMT to respond to international demand originate from the concerned countries' possibilities to find funding for such projects.

The mid-term evaluation has raised the point that the pro-active role of international project identification is not a role best suited to UNIDO-ICAMT. It was mentioned during discussions that many of the international projects currently in development, were initiated with first contact being made with the UNIDO-ICAMT office. This was due to

the fact that it is this team that often travel with the UNIDO-ICAMT units both domestically and internationally.

UNIDO-ICAMT itself can be seen as a model, worthy of replication, as has been noted in the case of the request from the Philippines to develop a UNIDO-ICAMT model. In these cases UNIDO HQ is responsible for planning and directing human capital requirements, and to be the contact point rather than giving an already overburdened team in India the administrative responsibility.

In addition to the replication of the ICAMT model in other countries, and on request as has been the case of the Philippines, UNIDO-ICAMT should look to strengthen their institutional collaboration with the UNIDO Centre for South-South Industrial Cooperation (UCSSIC). The USSIC mandate for international project management and development should be directly complementary to UNIDO-ICAMT function and core competence. As per the 2008 ProDoC, UNIDO-ICAMT should be brought in to international projects as per core competence, and act as consultants and sector experts. The original intent as part of the 2008 ProDoc should be upheld. What is currently the case is an overlap of roles and responsibilities. It is understood that the two offices have started to work together in a more streamlined manner, with the ongoing project discussions between DIPP, UCSSIC and UNIDO-ICAMT on project development in Kenya.

Establishment of an international framework for technology sourcing, transfer and diffusion as well as for industrial partnership and cooperation is another expected outcome of the project. The companies have had the opportunity to participate in international expos and fairs, combined with study-visits to factories and workshops in Asia, USA and Europe.

The impressions, impulses and ideas brought home from those international tours seem to have been one of the most appreciated and fruitful components in the UNIDO-ICAMT project. They have also resulted in a number of different types of partnerships. So far two Equity Joint Ventures – One Acquisition, and two Technical Knowhow – Training Agreements have been reported. These are more advanced and permanent forms of collaboration and joint ownership and/or long-term commitments. SMEs in many countries have international joint ventures as a business-strategy and Indian SMEs ought to be well positioned to be attractive partners in these types of agreements.

## 6 Relevance

The structure of operations of the UNIDO-ICAMT project creates a very strong situation for ensuring that national relevance and demands are met. The 2008 ProDoc makes clear that the project is built upon the priorities outlined by the National Manufacturing Competitiveness Council (NMCC) and the National Manufacturing Policy; to increase the contribution of the manufacturing sector to the country's GDP; job creation; increased

international competitiveness as well as domestic value added. All of this is premised on the role and the importance of international cooperation and partnership. Subsequently the role of the Steering Committee, the structure of sectoral funding to be made available by the relevant Ministries i.e. Department of Chemicals and Petrochemicals in the case of the Plastics sector, and the Ministry of Small and Medium Enterprise in the case of the Machine Tools sector, further ensures ownership at all levels of the program planning. The cluster approach is one that has been in line with UNIDO's institutional understanding for working with industry and in the promotion of inclusive growth, through knowledge services.

There is a potential mismatch between UNIDO's overall organisational mandate, and those of the UNIDO-ICAMT project with regards to poverty reduction. UNIDO-ICAMT has focused on taking units that have the potential to benefit from the project intervention. This is to fulfil the project principle of developing 'model units' that can then be showcased as successes for further replication, beyond the project boundaries. This is in line with the policy outlook, upon which UNIDO-ICAMT is based, and is a direct recommendation from a 2006 evaluation of UNIDO-ICAMT. However, what needs to be further justified is the extent to which such an approach fulfils the UNIDO mandate of working with overall poverty alleviation. The units selected by UNIDO-ICAMT cannot be considered to belong to the base of the pyramid. That was made clear by the process of unit selection in each sector and the fact that units were disqualified if they were not seen as strong enough to reach to model unit criteria.

The role and value of the UNIDO-ICAMT project for the Government of India is evident. The project activities are undertaken in consultation with both DIPP and the line Ministries for each sector. The value of the activities is clearly evident in the unit level results obtained and the responses from the Associations. UNIDO-ICAMT's cluster approach develops a focused model of hand-holding with units. This has served to help all units that have previously struggled to access information and basic skill development. UNIDO-ICAMT then has a responsibility to its national owners, to develop recommendations for how their project level learnings can be effectively institutionalised within the government framework for stronger strategy and policy making as well as for replication and sustainability.

## 7 Design and Programmatic Coherence

The programmatic base of the UNIDO-ICAMT model has been developed in close consultation with relevant stakeholders, and conforms to the mandates of all operational partners. The 2011 mid-term evaluation outlined a number of points for course correction. For the most part UNIDO-ICAMT has worked to incorporate these changes into the current practice. The Machine Tools sector, as the longest standing beneficiary of the UNIDO-ICAMT project, forms the basis of intervention logic in other sectors. Representatives of plastics and foundry have attended conferences that have been focused at machine tools, in order to gain experience and understand the potential of moving towards the level of model units. All the units that were visited during the evaluation echoed the story of Jyoti CNC Automation's rise from 'zero to hero'. In the case of AIPMA the advisor for UNIDO-ICAMT's machine tool sector has been brought on, to develop a similar structure as was undertaken with the Indian Machine Tools Manufacturing Association. The biodegradable unit for plastics is underway, and the Foundry sector project intervention has begun.

The key performance indicators for the sectors have been used as means of monitoring and verification throughout the project period. This has been linked directly back, in the quarterly progress reports, and the Steering Committee meetings, to the overall objectives as outlined in the 2008 ProDoc. In the case of gaps between the objectives set and the results obtained, The Machine Tools sector, with its baseline set in 2009-2010, has seen export growth of 205<sup>3</sup> per cent but domestic production growth of only 32 per cent. Domestic production targets have fallen below the project target of 50 per cent, and the reasons for this have been attributed to the decline in the automotive sector and subsequent demands for machine tools. Part of the UNIDO-ICAMT strategy has been to promote the importance of a diversified market portfolio and encourage international exports, which has been well demonstrated in the case of Machine Tools. Although activities in the Plastics sector did not start until January 2012, all targets apart from ISO certification for all units have been achieved.

What has not been undertaken, and is still of value to incorporate, is the stronger handover to the Associations to continue the work started by UNIDO-ICAMT. This will both ensure sustainability and replication. The suggestion of Association specific key performance indicators has not been taken up. Such a structured intervention in the handover process is still very much required.

The mid-term evaluation states, "[T]he Centre's activities are de facto split into two components, one addressing north-south technology transfer to Indian manufacturing sectors, and the second, much smaller component, focusing on South-South technology transfer projects. The ProDoc remains ambiguous in relation to the international south-

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<sup>3</sup> All data provided by UNIDO-ICAMT National Programme Officer

south activities.” It is maintained, in this evaluation, that UNIDO-ICAMT does not have a role to play as international project managers, but rather as project consultants and experts.

## 8 Coordination and Management

The UNIDO-ICAMT model of operations currently appears to be confused. While the Project Manager is located at the UNIDO HQ, a Programme Director has not been in place for the last one year, and the National Project Officer is split between Bangalore and Delhi, thus the administration of the Project has been difficult. The National Project Officer is backed up by two Senior Project Assistants, who while eminently capable, are not, in the current structure, in the position of taking pro-active decisions of project administration. In addition to the ground-level work that is required by the UNIDO-ICAMT project, the level of reporting needed to be undertaken, in order to feed back to both project owners, in Delhi and Vienna, is time-consuming. The current team have been able to work well despite the high demands on all individuals. This is in no small part as a result of the current team’s positive interaction and work dynamic. However, with current resources, and in a new phase with higher ambition, the administrative component of project operations is set to potentially obstruct the ability of the project team to deliver results as effectively as has been done in the past.

The India UNIDO-ICAMT office has no role in the project’s financial administration. This responsibility lies with UNIDO HQ. However when the project funds and allocations were requested for the purposes of the evaluation, it was the India office of UNIDO-ICAMT who appeared to have the full details, rather than HQ. Effective coordination and management should not rely on the goodwill of the concerned parties, but rather on the effective deployment of well-developed project administration roles and responsibilities and transparent access to financial data.

Currently the role of the UNIDO Regional Office is limited to disbursement of funds for local expenditures. The process of disbursement is quite cumbersome. Currently, every expenditure item should be attested from HQ. HQ in order to attest requires verification from the UNIDO-ICAMT India office, and this process of paperwork takes a great amount of time.

## 9 Efficiency

The UNIDO-ICAMT project is being financed from different sources. The following details were provided by the National Project Officer, upon request of UNIDO HQ:

### Technology Upgrading and Productivity Enhancement of the Machine tool industry in India

| Source of Funds  | Committed (US \$)  | Released so far by UNIDO IDF (DIPP) and Government sources (US \$) |
|------------------|--------------------|--|
| UNIDO IDF (DIPP) | 1000000            | 800000   |
| TF-DC MSME       | 750000             | 375000   |
| UNIDO ICAMT      | 500000             | 378049   |
| Industry         | 750000             | 705284   |
| <b>Total</b>     | <b>3000000 (A)</b> | <b>2258333 (F)</b>   |

### National Programme for Developing Plastics Manufacturing Industry in India

| Source of Funds                        | Committed (US \$)  | Released so far UNIDO IDF (DIPP) and Government sources (US \$) |
|--|--------------------|---|
| UNIDO IDF (DIPP)                       | 400000             | 400000  |
| TF- DCPC                               | 400000             | 400000  |
| UNIDO ICAMT                            | 200000             | 113799  |
| Industry (including cluster companies) | 300000             | 217871  |
| <b>Total</b>                           | <b>1300000 (B)</b> | <b>1131670 (G)</b>  |

### Technology Upgrading and Productivity Enhancement of the Foundry industry at Coimbatore and Belgaum

| Source of Funds  | Committed (US \$)     | Released so far UNIDO IDF (DIPP) and Government sources (US \$) |
|------------------|-----------------------|---|
| UNIDO IDF (DIPP) | 1750000               | 1000000   |
| UNIDO ICAMT      | 250000                | 19700   |
| <b>Total</b>     | <b>2000000.00 (C)</b> | <b>1197000.00 (H)</b>   |

*Total Committed (D) = US \$ 6,300,000 (A+B+C)*

*Total Committed (D) = Also includes commitments from cluster companies and ICAMT*

*Total Committed by UNIDO IDF (DIPP) and other government sources = US \$ 4,300,000*

*Total Committed by cluster companies and ICAMT = US \$ 2,000,000*

*Released so far, (E) =4,587,000 (F+G+H)*

Out of the total committed US \$ 6,3 million about 2/3 come from UNIDO IDF (DIPP) and the rest from the cluster companies (cost sharing). US \$ 1,713 million remained

unreleased as of May 2014, which evidently is causing delay in project implementation and thus affecting the efficiency of the project. Our overall impression is that the budget is rather limited given the importance of the SME-sector in India and the number of units in these three sectors.

Another observation is that only about one third of the UNIDO ICAMT part of actual expenditure has been used for international experts (478 man-days as reported by UNIDO-ICAMT- no initial budget was set). Another one third is used for national experts, including the UNIDO-ICAMT project staff. The last one third is being used for expenditure in relation to international fairs and expos, for training purposes and for equipment etc.

National experts and local staff have delivered a larger share of the advisory services compared with international expertise (considering the much higher cost per hour of services for international experts). This leads to the conclusion that much of the know-how and advisory services in demand by the companies can thus be sourced from within the country. It also underlines the decisive and key-role of the national experts, who are available to deliver constant hand-holding when the beneficiaries so require. We could also see that the quality of the experts varied from cluster to cluster. In a new phase, identification and training of the local experts must be done carefully and with great caution in order to safeguard high quality of the services. Project owners but also the respective beneficiary Associations should ideally clear experts.

Coordination between ICAMT and a network of partner institutions in academia and industry is another point for evaluation. Although ICAMT presented a clear network within which they are situated, of academic and R&D institutions, this was not reflected at the ground level, with the units or the Associations. The integration with international experts as part of institutions is documented, with trainings conducted and man-days spent. This international network, and the participation of international experts as part of the UNIDO-ICAMT project, has been a core value-added for the beneficiaries. But there seems to be limited interaction with the R&D institutes in India beyond those identified for each cluster; CIPET and CMTI. For SMEs, who are in need of constant handholding and access to information and ideas, the value of a stronger domestic network of R&D actors should be supported. It is likely to expect that SMEs will reach out to locally available, domestic contents before they would extend their reach internationally, when UNIDO-ICAMT is not able to make those connections.

To what extent synergies with the UNIDO Centre for South-South Industrial Cooperation in India (UCSSIC) have been achieved has been commented above under relevance. To a large extent UNIDO-ICAMT and UCSSIC seem to have worked parallel to each other, without benefitting fully from the competence the other brings. The first project outside India, in Kenya, identified by UCSSIC to be implemented by ICAMT will, according to plans, start later this year.

## 10 Effectiveness

Section 2 of the Evaluation Report has reviewed the outputs against the project objectives. At the request of the Steering Committee, over time the project objectives (1.1-4.2) outlined in the 2008 ProDoc were gradually developed into Key Performance Indicators (KPIs) for ease of monitoring and verification. The table below provides an overview of results against sector KPIs.

|                      | Production value(%)   | Export (%)   | Employee Productivity (%)  | Sector Specific Results   | Reasons for gap – if any   |
|----------------------|---|--|--|---|--|
| <b>Machine Tools</b> | Baseline year 2009-2010<br>By 2012-2013, production increase of <b>32 per cent</b><br>Target for project period set at <b>50 per cent</b>                   | Baseline year 2009-2010<br>By 2012-2013, exports increased by <b>205 per cent</b><br>Target for project period set at <b>50 per cent</b>       | Baseline year 2009-2010<br><br>By 2012- 2013 employee productivity increased by <b>18.7 per cent</b><br>Target for project period set at <b>60 per cent</b>  | Baseline year 2009-2010<br><br>By 2012-2013, No of CNC machines being produced increased by <b>17 per cent</b><br><br>Target for project period set at <b>50 per cent</b> | Sector wide recessionary growth<br><br>Drop in demand from automotive sector |
|                      | <b>Yet to meet KPI target</b>   | <b>Exceeded target</b>   | <b>Yet to meet target</b>  | <b>Yet to meet target</b>   |  |
| <b>Plastics</b>      | Baseline Year 2011- 2012<br><br>By 2012 – 2013, production increase of <b>50.24 per cent</b><br><br>Target set for project period set at <b>50 per cent</b> | Baseline Year 2011-2012<br><br>By 2012-2013 exports increased by <b>60 per cent</b><br><br>Target for project period set at <b>30 per cent</b> | Baseline Year 2011-2012<br><br>By 2012-2013 employee productivity increased by <b>22 per cent</b><br><br>Target for project period set at <b>20 per cent</b> | 56 out of 100 units are ISO certified. Remaining are updating quality management systems as per ISO standards and application to undertaken shortly                       |  |
|                      | <b>Exceeded Target</b>  | <b>Exceeded Target</b>   | <b>Exceeded Target</b>   | <b>Yet to meet target</b>   |  |
| <b>Foundry</b>       | Baseline 2011-2012  | Baseline 2011 -2012  | Baseline Oct 2012- March   | Castings rejections   | Sector wide recessionary   |

|  | Production value(%)   | Export (%)   | Employee Productivity (%)   | Sector Specific Results                                 | Reasons for gap – if any |
|--|---|--|---|---|--------------------------|
|  | By 2012-2013 production increase of <b>16 per cent</b><br><br>Target for project period set at <b>20 per cent</b> | By 2012-2013 export increase of <b>25 per cent (for Iron)</b><br><br>Target for project period set at <b>30 per cent</b> | 2013<br><br>By 2012-2013 employee productivity increase of <b>8.1 per cent</b><br><br>Target for project period set at <b>15 per cent</b> | reduced by 1.4 per cent between 2011-2012 and 2012-2013 | growth                   |
|  | <b>Yet to meet target</b>   | <b>Yet to meet target</b>  | <b>Yet to meet target</b>   |   |                          |

There has been 50.24 per cent growth against a target of 50 per cent. Exports have increased by 60 per cent against the target of 30 per cent. What is most interesting to note is that the growth of the sector at large has been slower than that of the project, at 19 per cent. Foundry is perhaps the sector with the greatest variance from Project targets. With reference to the KPI targets, extrapolation has been done that indicates that the project targets will be met, but this is highly optimistic given the historical data. UNIDO-ICAMT has been able to deliver a clear and comprehensive indication of the reasons for the gap.

As has been reviewed in Section 2 and 3, in most cases, these KPIs targets have been met. In the event that they were not met, economic realities and project delays specifically with financial disbursements and domestic approvals were seen to be cause of the delivery gap, rather than lack of adequate project intervention. In the case of all sectors selected, despite all KPIs not being met, the average turnover of all units was seen to be higher than the industry average. At the time of the final evaluation, the project was still underway and the final impacts of the project are still being developed. It is evident that the impact at the unit level has already been established. With the stronger inclusion and capacity development of the sector Associations, and an effective feedback to the Project owners for the institutional inclusion of project results, the ability of this project to be able to reach its larger goals of nationwide impact will be stronger.

The international role envisaged for UNIDO-ICAMT staff as project managers is not the most effective use of the Centre's expertise. Stronger cooperation with UCSSIC and UNIDO HQ will allow that UNIDO-ICAMT plays a more strategic and focused role in international project development, which allows them to exercise their core skills rather

than dilute them in international and remote project negotiation, administration and development details.

## 11 Sustainability

One of the UNIDO-ICAMT project interventions focuses on developing model units. Such an approach demonstrates the capacity of SMEs to grow and meet the project objectives of international competitiveness, skill development and job creation through professionalization. These objectives will provide long-term benefits, at the sector level and also at the country level.

Sustainability at the unit level has been ensured by the process of filtering applicants at an early stage for selection into the UNIDO-ICAMT project. Selection was undertaken based on the units' interest to grow, their potential to deliver on an international playing field, and their interest to develop niche market positions. The subsequent participation in the UNIDO-ICAMT project, and the internal changes made, for greater competitiveness and growth, as recommended by the project, provide compelling evidence that sustainability at the level of units selected will be strong.

The replication of the results to other units and sectors developed in the UNIDO-ICAMT project, and the purpose of selecting model units, is perhaps not as strong as was envisaged in the 2008 ProDoc. The value of developing model units can only be realised if there is an actor to take forward the actions and delivery services to new-interested units. This is because not enough has been done to transfer and handover the project results and processes to a new owner, ideally the sector Associations. Further, to provide the required support to the Associations, and in the interest of sustainability of the project's processes for engagement, the Government should be made aware of how best it can institutionalise the process of unit focused hand-holding. All the units visited, were in agreement that Government programmes to date have been difficult to understand and access. These gaps will need to be addressed if the project stands a strong chance to continue and expand on the project benefits after the completion.

The replication of the UNIDO-ICAMT model is another area of consideration. Domestically, the continued demand for the project to be expanded to additional sectors is a strong indicator of success, relevance and sustainability. Internationally, the UNIDO-ICAMT model has a strong contribution to make, with regard to scaling up the potential of SME's – in a holistic fashion that can upgrade skills and capacity across the board. However this international role has not been fulfilled as effectively as possible, and should be specifically addressed in the next project phase.

What is not sustainable in the long run is the present owner-ship model. If the ICAMT model for support to Indian SME's should continue for indefinite time, UNIDO's role as development agent must be successively changed and reduced and a clear national ownership created. At the present time, this gradual shift can be possibly made from

UNIDO HQ to the UNIDO Regional Office in Delhi. Additional staff, with the relevant skills for the project, will need to be added to the current team set up. This shift would be to allow for an institutionally more robust set up. At the current time, the UNIDO ICAMT office has no ready 'back up' within the Indian context. Given the reality of Indian bureaucracy, UNIDO ICAMT's backup could be either UNIDO HQ or the Regional Office. For reasons of efficacy, it would seem natural to move towards an organisational structure where decentralisation of the project management would allow for greater actions to be taken within the project activities.

## 12 Impact

At local level in towns as Belgaum and Ludhiana the creation of project clusters assisted by UNIDO ICAMT appears to have triggered a new mind-set of the entrepreneurs implying a more open and collegial attitude. Unity gives strength and constitutes a platform for further development. Ludhiana has taken the pro-active step to leverage the experience of UNIDO-ICAMT, and to share this with units outside of the project. This is being socially but also institutionally embedded with the establishment of the Association of Ludhiana Machine Tool Industries, which takes in all 210 units, compared to the 21 units selected for the UNIDO-ICAMT project. The international outlook and exposure has given the cluster-members an insight of both their potential for export, as well as the potential for import-substitution. This establishment of the Ludhiana sector wide geographic Association is not a planned outcome as per the UNIDO-ICAMT project, but this should be an intended objective for the future of such projects.

The UNIDO-ICAMT project has developed a cluster development approach, with the understanding that collective problem-solving will help to improve the bottlenecks that occur with individual SME units. The project has then subsequently developed a project approach that has worked with units at the ground level, and integrated their experiences into a cluster approach for sharing, replicating and leveraging knowledge. Although the project, from what has been discussed earlier, has had impact for the units selected and the clusters created, the impact of the UNIDO-ICAMT model for the overall SME sector in India is not possible to assess. The project will achieve greater potential impact when the learnings that UNIDO-ICAMT has developed over the course of the project period are institutionalised within a long-term framework. Currently, although the 2008 ProDoc has had ambitious target of affecting sectorial change on a national level, it has not been able to achieve this to date. A demonstration project such as UNIDO-ICAMT does not have the capacity to directly deliver national change, but it does have the potential to guide and indirectly impact such change. In order for this to happen, the gaps that the UNIDO-ICAMT project has hoped to fill and complement will have to be fed back to the project co-owners for wider replication and dissemination. Without this, the project can only have an impact within its limited ground level borders.

These gaps remain gaps currently on the questions of sustainability because there is currently very little evidence of strategic policy feedback to the Government as the co-owner of the project.

The UNIDO-ICAMT cannot be a single step change-maker, in itself for sectoral change, inclusive growth and poverty reduction. But it can be good model for replication and set good examples for process development. This replication has to be done by the National owner.

## 13 Conclusions and Recommendations

The following conclusions and recommendations are based on the information provided by the UNIDO-ICAMT project team, document review, information available in ICAMT's monitoring system, discussions with representatives of the units that were visited, and the discussions that were held with other stakeholders.

The process of developing model units and developing clusters for knowledge sharing and collective development has been a strong positive factor in the UNIDO-ICAMT project. The recommendations aim to leverage the core components of the UNIDO-ICAMT project; namely the role of handholding units and Associations with international and domestic expertise. It also seeks to revise those aspects of the project that have not been fulfilled adequately and do not add value with regard to development of results and long-term impacts. This is focused on the process of developing exit strategies and sustainability of services developed by the project. Ultimately the role of the project should be to strategically revise national guidelines on SME development, based on the findings of the UNIDO-ICAMT project in each of its selected sectors.

### **Project Concept and Sector Selection**

1. The UNIDO-ICAMT project, after ten years of implementation, has managed to establish good working models and methods for assistance and upgrading of Indian SMEs. It has gained a good reputation and respect among companies. The holistic, long term approach used by UNIDO-ICAMT follows an established international model for support to SME-sector companies and draws upon best available technology and techniques. The international perspective and networking gained with UNIDO HQ acting as "honest broker" is a valuable asset and a way for the SMEs to get access to international technology/best practices.

**Recommendation:** The involvement of UNIDO HQ is important for the success of project implementation. This should be continued in a medium-term perspective, even if on the ground, it is the national advisors/consultants that are actually responsible for project intelligence.

2. Due to delays in accessing finance, the activities in both the Plastics and Foundry sector have been delayed. Although the current phase of the UNIDO-ICAMT project is set to end in May 2014, these two sectors have not completed their planned three-year cycle of project activity. Both the units selected and sector associations are not in a position to be able to maintain the momentum provided by the UNIDO-ICAMT services. Plastics has had the highest rate of results, despite the late start. This should be given the chance to continue.

**Recommendation:** An extension should be provided to both the Plastics and Foundry sector as such that their three years of planned project activity can come to planned closure.

3. The current development of the UNIDO-ICAMT project has not adequately prepared sector Associations to continue the work of the project, beyond the project period. An example of this is that the Belgaum Foundry Cluster has UNIDO-ICAMT listed in their branding material and the Cluster service provider for technical intelligence. No pretence is made at the Cluster being able to do this on their own.

**Recommendation:** As far as Machine tools- Foundry- and Plastics sectors are concerned, discussions should be initiated immediately with the respective Association for them to take over full responsibility for continued services to their member companies.

**a)** Resources for training of the Associations to enable them to supply these services in the future should be included in the next phase of the UNIDO-ICAMT-project.

**b)** The Associations' services to their members should not be on commercial terms but only on terms covering direct costs for such services.

4. UNIDO-ICAMT and its working-methods are designed to provide hand-holding to SMEs during a critical initial period of their development. UNIDO-ICAMT is a catalyst for growth and UNIDO is a development organisation. Almost all the model units have, as a result of their participation in the project found that they need constant support of advisory services and training when it comes to international marketing, technology upgrading and general management.

**Recommendation:** For the next phase of the project, UNIDO-ICAMT needs to start their project development with an effective and fair exit strategy in place.

**a)** Units selected and Associations should not come to the end of their three years feeling unsure of how to replicate actions within the project without the involvement of the ICAMT team.

**b)** The sector Associations should be added to immediate target groups of the project outcomes.

**c)** As has been put forward in the mid-term evaluation but has yet to be taken up by this project, Associations should be given specific development indicators and KPIs. In order to meet the KPIs, it is obvious that capacity building, focused on Associations and specific to their role as service providers, will be required.

5. For SMEs, who are in need of constant handholding and access to information and ideas, the value of a stronger domestic network of R&D actors should be supported. It is likely to expect that SMEs will reach out to locally available, domestic contents before they would extend their reach internationally, when UNIDO-ICAMT is not able to make those connections. A presentation made by the UNIDO-ICAMT team recognised the role of the domestic R&D actors, and indicated that the project was indeed bringing in domestic actors. However, at the time of the evaluation, the role and active participation of domestic R&D partners appeared to be missing.

**Recommendation:** UNIDO-ICAMT should develop stronger links between domestic R&D actors and selected units and relevant Associations. Strengthening of this network would go a long way to provide parameters for 'beyond project' sustainability.

6. As part of the monitoring role of UNIDO-ICAMT, unit level satisfaction surveys are sent out to understand and assess the value of the project to beneficiaries. At the present time, the value of the survey feedback is questionable. The need for independent feedback is important.

**Recommendation:** Units need training on the importance of survey feedback. Rather than unit-level surveys being undertaken by email/mail, the Associations should be given the responsibility and capacity building to undertake these feedback processes.

7. A central component of the UNIDO-ICAMT project is the development of model units, within a cluster approach of sector development. Model units are fashioned from a set of 33 criteria that cover a holistic range of requirements for successful SME's. UNIDO's international value addition comes to bear in this regard with a wider and comprehensive understanding of the criteria that should be considered important when developing competitive SME's. Currently this list of model criteria does not fully reflect the international perspective that would be expected from UNIDO.

**Recommendation:** Sustainability issues such as external environmental challenges, including emissions and effluent, labor health issues, gender, and CSR, need be given more attention and included in the model unit criteria, and need that funds be allocated to tackle these issues.

### **Project Management – Structure**

8. UNIDO-ICAMT in India is still a project, owned jointly by the Government of India and UNIDO, mainly financed with Government funds and to a lesser extent by the participating cluster-companies. ICAMT has no legal status and the need for institutionalisation has been raised in the mid-term evaluation. This specific concern is because of the delays that have occurred in financial disbursements. In its present shape it is a demonstration project managed by a development organisation, UNIDO. During its ten years of existence it has proven to be a useful model for support to SME's in critical phases of their development and growth. In a medium term perspective a project of this kind should be owned and managed on national level. The role for the development agent, UNIDO, should be maintained but be concentrated to a "honest broker"- position, facilitating international contacts and partnerships.

**Recommendation:** The UNIDO-ICAMT model should continue in a project mode for an indefinite period, with new SME sectors benefitting from the services in a three-year cycle from planning to exit. The justification for the suggested limit of three years is to

ensure that there is no long-term market distortion given the effective subsidy action of the UNIDO-ICAMT project approach.

9. Currently the Steering Committee, chaired by DIPP, is the only arena where project discussions are held with regard to results, needs for mid-course corrections and new developments. Given the diverse composition of the Steering Committee, it is perhaps not the best venue for detailed discussions of a more technical nature. This is required for such a project and to encourage the ownership of co-supporting Ministries.

**Recommendation:** In order to ensure a timely monitoring and that relevant project revisions are made with regard to the specific sectors, there should be a Monitoring Group (MG) at each sector level. Regular meetings should include representatives of all participating stakeholders and of the concerned Ministry. For example, in the case of Plastics this would be the Department of Chemicals and Petrochemicals. This would not only create ownership but increase the ability to engage in detailed technical reviews. MGs would report to the Steering Committee with relevant suggestions and requests. The Steering Committee's main task would be to provide overall project financial administration and to approve project work plans. The Monitoring Groups should undertake detailed project management at the sector level.

#### **Project Management – Administration**

10. Management and administration of UNIDO-ICAMT is today centralised to UNIDO HQ. Different opinions about the efficiency of this modus operandi were given during the evaluation, depending on the location of the opinion-maker. Our overall impression is that the project is well-functioning at this stage. This is probably due to the good working-relationship created by the present set up of staff both at country level and at UNIDO-HQ. However, what has been observed is that there is confusion between HQ and the UNIDO-ICAMT office in India regarding the full understanding of funds. The UNIDO Regional Office (URO) has been responsible for the disbursement of funds, as per the project budget with a cumbersome approval process from HQ. If UNIDO-ICAMT is to continue, the current administrative process will not be the most effective way forward. Moving more of the administrative but also programmatic responsibilities to the region will be required. This change will require structural modifications of staff and expertise and increased administrative capacity at URO in order for it to be of value.

**Recommendation: At medium term (three years).** UNIDO-ICAMT ownership and project management should be moved to country level and UNIDO's role changed successively.

**a)** As a first step in this process, the URO could be the main allotment holder and UNIDO HQ should have sub-allotment to be able to contract international services. UNIDO-ICAMT should continue to work as an independent team, headed by a Project Manager. The administrative services should be handled by the URO. As already concluded, the

role of the international services is an important UNIDO value added and should not be lost if UNIDO HQ moves to a position of sub-allotment holder.

**b)** A long-term agreement between the Government and UNIDO, without a specific time-limit, should be put in place. This would reconfirm the principles of engagement between the two parties and act as the baseline for discussions of the annual work plan and budgets by the Steering Committee.

**c)** With this decentralization to the Regional Office, a system of regular auditing of project funds by independent auditors should also be implemented under the new phase.

**d)** The Steering Committee should review the budget and the work plan on an annual basis. This should be complemented with a review of results achieved and explanation for gaps, if any. This mechanism could give a certain guarantee for a continuous flow of funds which has been somewhat problematic under previous phases.

**e)** The detailed forms and timing of this decentralization process must be further elaborated, defined and agreed between the Parties during the up-coming negotiations concerning the objectives, content and administrative modalities of the coming phases.

### **Sustainability/Impact**

11. An important role of the UNIDO-ICAMT project is its ability to complement to existing National institutions, policy frameworks and objectives. In the case of the current framework, the project document develops its methodology from the incentives put forward by the National Manufacturing Competitiveness Council (NMCC). The project has identified gaps in the way that policy objectives can be met, and has been largely successful in developing desired objectives. However, these lessons have not been effectively and strategically communicated to Government with the intent that the project's lessons be institutionalised within Government for stronger sustainability and impact through replication and strategy and policy formulation.

**Recommendation:** UNIDO-ICAMT should develop a policy paper, directed at DIPP, on the way by which lessons learnt within UNIDO-ICAMT can be transferred for larger institutionalization.

### **Project Management - International**

12. The objectives and outputs as established in the Agreement signed in 2008 between the Indian Government and UNIDO for the Operational Phase of UNIDO-ICAMT have been achieved within India but not with regard to the objective of other international projects developed by UNIDO-ICAMT.

**Recommendation:** The UNIDO-ICAMT project should not continue to engage with international project management. In case a discontinuation of the international part of UNIDO-ICAMT is not considered feasible, we propose, in order to reach better efficiency, that the Government and UNIDO-ICAMT consider a merger of UNIDO-ICAMT and USSIC.

- a) This is with one possible exception: UNIDO-ICAMT itself can be considered as a “model unit” for provision of advisory services and training at sector- and individual company levels. Should other countries be interested in establishing similar models for services to SMEs, UNIDO-ICAMT should be prepared to provide guidance and set aside resources for the same.
- b) The Planning of international south-south interventions should be handled by UNIDO HQ. UNIDO-ICAMT’s role in international projects should be the one of a sector expert in the implementation phase.

Annex A – Key Performance Indicators (Sept 14, 2013) for Foundry and Plastics

**Proposed Key Performance Indicators – Foundry Project**

| Parameters                                | CAGR Pre-baseline (2011-12 against 2008-09)      | Baseline 2011-12 (Start of project intervention) | 2012-13 (Upto March 13)       | Achievement - CAGR (2012-13 against Baseline 2011-12) | April to December 2013        | Expected 2013-14 | Expected Achievement – CAGR (Exp 2013-14 against baseline) | Target CAGR                                    |
|---|--|--|-------------------------------|---|-------------------------------|------------------|--|--|
| <b>Production in Volume (Tones)*1</b>     | 19%  | 83684  | 84359                         | 0.8%  | 66927.8                       | 89237.1          | 3.26%  | 6.1%   |
| <b>Production in value (In Lakhs)*2</b>   | 18.2%  | 49172  | 57175                         | 16.3%   | 54889.5                       | 73186.1          | 22%  | 20%  |
| <b>Exports (In Lakhs)</b>                 | 39% for Iron<br><br>5.2% for steel and Aluminium | 12657  | 13603                         | 25% for Iron<br>-1.7% for Steel/aluminium             | 8257.2                        | 11057.2          | 2.9% for Iron.<br><br>Negative 16% for Steel and Aluminium | 30% for Iron<br><br>2% for Steel and Aluminium |
| <b>Castings Rejection (%) *3</b>          | NO CAGR  | 9.52% (D%)                                       | 8.1%                          | NO CAGR   | 7.9%                          | -                | -  | D%-3% = 6.5%                                   |
| <b>Training (in man days)*4</b>           | N.A.   | N.A.   | 841                           | N.A   | 1003                          | N.A              | N.A  | 1500   |
| <b>ISO 9001: 2008</b>                     | N.A  | 32 units already certified, 18 are not certified | Process Initiated for 4 units | N.A   | Process initiate for 15 units | N.A              | N.A  | 11 units out of 18 ISO certified               |
| <b>Employee Productivity = Production</b> | No baseline data for 2011-                       | 0.064 tones ( for Oct 12 – March 13              | April 13-September 13 – 0.069 | 8.1% ( Oct 12 – March 13 vs April to September 13     | N.A                           | N.A              | N.A  | NO CAGR 15% ( 0.073                            |

|  |                                 |    |    |   |  |  |  |   |
|--|---------------------------------|----|----|---|--|--|--|---|
| <b>in Volume (Tones)/Man days*5</b>  | 12.Baseline is Oct 12- March 13 |    |    |   |  |  |  | tones)                                    |
| <b>Improvement in yield (quantity of castings vis-à-vis liquid metal poured)</b> | NA                              | NA | NA | - |  |  |  | Unit-wise reporting (separate attachment) |

**\*1 Production in Volume**

- Cluster CAGR was 19% pre- baseline ( 2008-09 until 2011-12) and grew by 0.8% from 2011-12 to 2012-13
- The figures for production (tones)  
2008-09 - 48623  
2009-10-56944  
2010-11-75996
- Industry CAGR was 13.3% pre-baseline ( 2008-09 until 2011-12) and had a negative growth of -5% from 2011-12 to 2012-13
- **Reasons for downward trend in production:-**
  - ✓ This downward trend has been seen due to fall in General automotive market, which is one of the major drivers for foundry industry. From a Turnover of 42.4 Billion USD in 2011-12 it is down to 40.6 Billion USD, a fall of 4.3% ( Source – ACMA)
  - ✓ Our clusters in Belgaum and Coimbatore supply mainly to automotive, commercial vehicles, mining, pumps & motors, tractors, capital goods, direct & indirect exports, etc. There is a downtrend in most of these sectors.
  - ✓ Induction melting requires good high tension power supply. Coimbatore had a severe power crunch during last year. There was practically no power for about 11 hrs a day and during the rest of the time it had to face 40% demand and 40% energy cut based on 2008 power consumption. This has led to a severe fall in production.

**Projected/Expected value for March 2013-14** – Since there is no past industry trend to compare we assume that last quarter ie Q4 will be an average of the first three quarters.

**\*2 Production in Value**

- The value is higher than production due to effect of price increases and changes in product mix i.e. mix of high volume and low value products and low volume and high value products.
- In our cluster, pre-baseline growth in value was 18% and has been 16% from 2011-12 to 2012-13.

- The figures in INR Lakhs are  
2008-09 - 29776  
2009-10 - 26956  
2010-11 – 43173
- UNIDO ICAMT will encourage and assist cluster units to improve product mix towards higher value added castings rather than highly competitive items that give low margins. We are also encouraging the units to slowly migrate to supplying more machined castings which adds to turnover value and not to production. Encouraging units to adopt induction furnaces which use mostly use SG iron which has higher value. Thus value is expected to increase 20% CAGR from baseline due to improved product mix but will be constrained due to limitations on price rise.
- There is no credible source of industry data for production value.
- **Projected/Expected value in March 2013-14 will be calculated assuming that the last quarter ie Q4 is an average of the first three**

**\*3 Casting Rejection in cluster**

|                                    | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 | April to Dec 13 |
|------------------------------------|---------|---------|---------|---------|---------|-----------------|
| (IN HOUSE + CUSTOMER END) REJ in % | 8.95    | 9.39    | 9.42    | 9.52    | 8.12    | 7.93            |

Rejection % increased pre-baseline. However after ICAMT's interventions (2012-13 vs 2011-12), rejections reduced from 9.52% to 8.12% - a fall of 1.4%.

The total savings from 2011-12 to 2012-13 = reduction in rejections (Tones) \* INR 30,000

Savings are normally INR 30 per kg, therefore they are INR 30,000 per ton.

Reduction in rejections (Tones) = 8491-7452 = 1039 Tones

Savings from 2011-12 to 2012-13 = INR 31,170,000/- (Approx. 3 crore)

Our target is set at 6.5%

Rejections have further fallen in April- Dec 13 to 7.93%

**\*4 Training in man-days**

- These are UNIDO ICAMT training man-days and thus have no baseline

**\*5 Employee Productivity**

Employee productivity will be compared half yearly with October 2012- March 2013 being the baseline. This is because interventions started in October 2012 and before that there was no calculation for man days.

October 2012 – March 2013 vs April – Sept 13 has been calculated

Calculation of man days = 8 hrs in one man-day.

## Key performance Indicators as per 'CAGR' – Plastics Project

| Parameters                      | 2008-09  | Baseline 2010-11 | CAGR over two years pre project phase (2010-11 against 2008-09) | Baseline 2010-11 (Start of project intervention) | 2012-13 | CAGR over two years (2012-13 against Baseline 2010-11) | April to Dec 2013 | Expected 2013-14 | CAGR over three years (2013-14 against Baseline 2010-11) | End-term project CAGR targets |
|---------------------------------|----------|------------------|---|--|---------|--|-------------------|------------------|--|-------------------------------|
| Production in value (In Lakhs)* | 76823.97 | 115536           | 22.6%   | 115536   | 173583  | 22.6%  | 131674            | 175566           | 15%  | 15%                           |
| Exports (In Lakhs)              | 5754.01  | 9389.10          | 27.7%   | 9389.10  | 15033.5 | 26.5%  | 11942             | 15923            | 19.2%  | 9%                            |

| Employee Productivity  |  |         |  |                  |  |
|------------------------|--|---------|--|------------------|--|
|                        | Baseline 2010-11 (Start of project intervention) | 2012-13 | CAGR over two years (2012-13 against Baseline 2010-11) | Expected 2013-14 | CAGR over three years (2013-14 against Baseline 2010-11) |
| Production (In Lakhs*) | 115536   | 173583  | 10.34%   | 175566           | 6.8%   |
| No of Employees        | 5036   | 6150    |  | 6348             |  |
| Employee Productivity  | 23   | 28      |  | 28               |  |
|                        |  |         |  |                  |  |

| Parameters  | End-term target | Achievement by March 2012-13 | Achievement by December 13 |
|---|-----------------|------------------------------|----------------------------|
| Employee productivity   | 6%              | 10.34%                       | 6.8% ( Expected 2013-14)   |
| Training (in man days)  | 4000            | 1811                         | 2020                       |
| Number of specialists trained on design, technology, productivity, quality etc. | 400             | 1036                         | 1108                       |
| ISO 9001: 2008  | 100             | 23%                          | 23%                        |

## Key performance Indicators as per Percentage Growth- Plastics Project

| Parameters                      | 2008-09  | Baseline 2010-11 | Percentage growth over two years pre project phase (2010-11 against 2008-09) | Baseline 2010-11 (Start of project intervention) | 2012-13 | Achievement Percentage growth over two years (2012-13 against Baseline 2010-11) | April – Dec 2013 | Expected 2013-14 | Achievement Percentage growth over three years (2013-14 against Baseline 2010-11) | End-term project growth targets: |
|---------------------------------|----------|------------------|--|--|---------|---|------------------|------------------|---|----------------------------------|
| Production in value (In Lakhs)* | 76823.97 | 115536           | 50.39%   | 115536   | 173583  | 50.24%  | 131650           | 175566           | 52%   | 50%                              |
| Exports (In Lakhs)              | 5754.01  | 9389.10          | 63.17%   | 9389.10  | 15033.5 | 60.12%  | 11942.4          | 15923.24         | 69.5%   | 30%                              |

**\*1 lakh = 100,000**

| Employee Productivity  | Baseline 2010-11 (Start of project intervention) | 2012-13 | Achievement Percentage growth over two years (2012-13 against Baseline 2010-11) | Expected 2013-14 | Achievement Percentage growth over three years (2013-14 against Baseline 2010-11) |
|------------------------|--|---------|---|------------------|---|
| Production (In Lakhs*) | 115536   | 173583  | 22%   | 175566           | 22%   |
| No of Employees        | 5036   | 6150    |   | 6348             |   |
| Employee Productivity  | 23   | 28      |   | 28               |   |



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**UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION**

**TERMS OF REFERENCE**

Independent Final Evaluation of the UNIDO Project:

**Operational phase of the International Centre  
for Advancement of Manufacturing Technology**  
US/GLO/08/010 and SF/GLO/08/009

**I. BACKGROUND AND CONTEXT**

Efforts to establish the International Centre for Advancement of Manufacturing Technology (ICAMT) started with a comprehensive feasibility study carried out in 1997/1998. At that time the vision for ICAMT was that of an international centre at the service of developing countries a sort of a “Global Centre of Excellence” within the UNIDO framework. The pilot phase of the ICAMT was launched in October 1999 and was followed by the two operational phases, starting in August 2002 and in May 2008 respectively. However, for the second operational phase, the regular project staff members (Project Director and National Programme Officer), were appointed only in December 2009.

The ICAMT is one of several International Technology Centres (ITCs) of UNIDO and operates within UNIDO’s ITC network. Its Headquarters are located in Bangalore with an extension office for interaction with Government and business delegations in New Delhi.

The ICAMT was created to assist India and other developing countries, including economies in transition, in enhancing the technological performance and productivity of manufacturing industry, quality of goods and competitive position at global markets.

The ICAMT basically caters to the needs of small and medium sized companies and institutions in the field of awareness raising, market development and technical assistance. It focuses on the promotion of manufacturing technology and thus far has mainly served the machine tools, plastic manufacturing, foundry, light engineering and auto components industries. ICAMT conducts technology assessments and provides technical assistance and advisory services to individual enterprises. It also engages in business partnership development through the organization of visits of Indian producers to national and international trade fairs or companies. In the course of these activities, manufacturers from India get exposed to international markets and companies and can share knowledge and learn from each other. ICAMT also provides training in India on issues of manufacturing technology. Most of the ICAMT activities have been taking place within India or for Indian clients (e.g. study tours abroad).

The pilot and first operational phase (TF/IND/95/001, XP/GLO/99/048, SF/GLO/99/005 and SF/GLO/02/004) of ICAMT were evaluated in 2006 and the main recommendations of the report were as follows:

- The ICAMT should not continue to operate in the current form but major changes in strategy have to be implemented
- Focus on sectors with a real technology need and/or an outward-bound technology-transfer potential
- Increase sustainability and capacity-building effects by turning the ICAMT into a fully-fledged institution (longer-term orientation instead of project-by-project implementation, long-term staff including a director)
- In order to ensure the long-term build-up of capacity through the ICAMT as an institution, the financial structure of the ICAMT should be changed. The financing should contain both long-term institutional funding as well as project funding. The institutional funding should be provided by the Indian government, and if possible, in the long run also by other stakeholder governments

Consequently a revised framework of ICAMT was prepared by the national counterpart, the Department of Industrial Policy and Promotion (DIPP) and UNIDO. In the Project Document of the second operational phase which started in 2008 with a planned duration of five years, the immediate objectives are described as follows:

- To develop and implement sectoral projects and programmes aimed at enhancing the productivity and export growth of small- and medium sized enterprises in manufacturing industry of developing countries or countries with economies in transition and India (as the hosting country) through technology-led interventions
- To strengthen technical capacity and manufacturing capability in the recipient countries through facilitating transfer and adaptation of new and relevant technologies and innovations
- To cater to the needs of enterprises in selected manufacturing sectors by providing assistance on technology sourcing, assessment, transfers and absorption, project execution, technical consultancy and technology information services
- Increase awareness and impact of Intellectual Property Rights (IPRs) on the manufacturing sector from a development perspective. Conduct training programs on IPR, for different types of IPR stakeholders (business, industry, academic institutions, etc.)

The second operational phase is implemented through the following projects and budgets (USD):

| <b>UNIDO projects</b>            | <b>Allotment</b>    | <b>Expenditure</b>  | <b>% implemented</b> |
|----------------------------------|---------------------|---------------------|----------------------|
| US/GLO/08/010                    | 1,061,947.00        | 1,036,361.00        | 97.6 %               |
| SF/GLO/08/009                    | 878,589.00          | 776,742.13          | 88.4 %               |
| <b>Total</b>                     | <b>1,940,536.00</b> | <b>1,813,103.13</b> | <b>93.4 %</b>        |
| <i>As of 25 September 2013..</i> |                     |                     |                      |

The project is expected to come to an end in May 2014 and an independent evaluation is planned for the first quarter of 2014. A mid-term evaluation was conducted in the end of 2011.

The mid-term evaluation was to provide up-to-date information on the performance of ICAMT and to enable mid-course correction. The main recommendations were as follows:

- fi Related to ICAMT operations, it is recommended to already now consider a no-cost extension to make up for long delay in starting the project; alternatively, the targets to be achieved should be reduced proportionally.
- fi The exact and detailed responsibilities and communication system should be clarified between ICAMT, on the one hand, and the UNIDO representative in Delhi and the UNIDO allotment holder in Vienna, on the other hand.
- fi Consolidated financial information, combining expenditures from different funding sources of ICAMT, should be readily made available to all partners in order to improve mutual transparency and ease of comparison. Also, it is advised to perform an audit of the ICAMT accounts, as this apparently has not been done so far, despite the fact that the project is now operational since some 10 years.
- fi Next to continuing to properly plan and implement the industry sector projects in India, albeit with slight adjustments, substantially more emphasis is required on south-south international activities in the remaining phase period; to this end, it is proposed to seek additional qualified and experienced expertise in designing and negotiating such projects, and considerably increase the budgets for these south-south ventures.
- fi For the medium-term future of ICAMT, the core issue to be addressed is its overall orientation and place within the wider UNIDO ITC network. The decision to be taken is whether ICAMT is to become a 'full-fledged' UNIDO ITC, controlled and managed by UNIDO or, alternatively, a UNIDO Partner ITC that only maintains a "mutually beneficial relationship" with UNIDO and is controlled and managed by its host institution.
- fi Related decisions to be taken are (i) whether ICAMT's modus operandi can be changed from the present phase-based and project-type financing to a long-term institutional funding structure, as well as (ii) the exact nature of its collaboration and task distribution with the 'sister' organisation UCSSIC.

In addition, some of the recommendations from the evaluation of the first phase of ICAMT are worth to reiterate as well as to follow up on:

- fi Focus on sectors with a real technology need and/or an outward-bound technology-transfer potential
- fi Increase sustainability and capacity-building effects by turning the ICAMT into a fully-fledged institution (longer-term orientation instead of project-by-project implementation, long-term staff including a director)
- fi In order to ensure the long-term build-up of capacity through the ICAMT as an institution, the financial structure of the ICAMT should be changed. The financing should contain both long-term institutional funding as well as project funding. The institutional funding should be provided by the Indian government, and if possible, in the long run also by other stakeholder governments

At the ICAMT Steering Committee Meeting, held on 29 August 2013, it was agreed that a final evaluation should be conducted in November 2013, in line with the provision in the Project Document. However, consultations with the UNIDO Evaluation Group (EVA) indicated that more time needed in the planning of the evaluation and that January 2014 was a more realistic date.

This evaluation will be crucial because the main counterpart and donor, DIPP, has decided that a) a new framework be shaped and implemented by mid-May 2014 at the latest and b) the new project be of an open-ended nature insofar as the end date is concerned. Regarding the latter, DIPP would like to have a long-term relationship with UNIDO, with ICAMT continuing to be a UNIDO Centre for an “indefinite” period of time. The evaluation will assess the feasibility of this proposal and make recommendations for the future functioning of ICAMT.

## **II. RATIONALE AND PURPOSE**

The purpose of the final evaluation is to have up-to-date information on the performance of ICAMT which will feed into decisions on its future operation and in particular the long-term relationship with UNIDO. In line with the UNIDO Evaluation Policy Paragraph 8, the evaluation aims at determining the relevance, impact, effectiveness, efficiency and sustainability of the project.

More specifically the final evaluation will;

- (a) assess the past and continuous relevance of ICAMT, of the activities promoted, outputs produced and outcomes achieved;
- (b) Assess the extent to which mid-course corrections as per the provided recommendations in the mid-term evaluation report were adhered to;
- (c) assess the past and continuous relevance of UNIDO’s support to ICAMT;
- (d) suggest corrections/improvement in the areas of project strategy, implementation, policies, approach etc. which ICAMT should pursue in a possible future project;
- (e) assess the extent to which the past operational phase, based on a revised framework and strategy, of ICAMT have improved its performance;
- (f) assess the efficiency of implementation: quantity, quality, cost and utilization of resources, timeliness of UNIDO/counterpart inputs and activities, and ICAMT management and coordination, including the roles of the Steering Committee;
- (g) assess the extent to which outputs have been produced and outcomes achieved, as compared to those planned (effectiveness);
- (h) assess the extent to which, in the projects implemented by the Centre, which all are demonstration projects and thus involve a limited number of companies, the results can be expected to be replicated to achieve higher impact;
- (i) assess whether possible market distortions have been considered, e.g., whether beneficiary companies were selected based on transparent, fair and appropriate criteria and/or whether companies have been subsidized by the programme. In case of detected market distortions, assess whether measures were introduced to prevent such distortions;
- (j) assess the impact and sustainability of results, effects and benefits.

The final evaluation will produce a set of recommendations to UNIDO, the Indian Government and other stakeholders (if applicable) with a view to improved relevance, performance and sustainability, all with special reference given to a new framework and attendant future long-standing institutional relationship between the Government of India and UNIDO with respect to ICAMT. The proposal for a long-term relationship between

UNIDO and DIPP and ICAMT will be reviewed. It will identify lessons learned and good practices, applicable to other UNIDO interventions, in particular international technology centres.

### **III. EVALUATION ISSUES AND KEY EVALUATION QUESTIONS**

The final evaluation will assess to what extent:

#### **Relevance**

- the ICAMT mandate, function and activities have been and are in line with the strategies and priorities of India and other developing countries (if applicable) in general
- the ICAMT mandate, function and activities have been and are in line with the strategies and priorities of UNIDO
- there is a clear thematic linkage to UNIDO's substantive programmes
- activities of ICAMT are relevant for the promotion of inclusive sustainable industrial development and for target beneficiaries;
- the manufacturing technologies promoted and transferred are being demanded, used and beneficial for developing countries;
- the ICAMT complements efforts of other national or international institutions, public as well as private;
- The value added of ICAMT to UNIDO, the Government of India and other key stakeholders.

#### **Design and programmatic coherence**

- the design was based on a comprehensive process of consultations involving all relevant stakeholders and the incorporations of findings from the previous evaluation conducted in 2011
- a clear intervention logic exists, including a causal chain from activities to outcomes, explicit assumptions and risks, measurable indicators and means of verification;
- the ICAMT's organizational structure and administrative setup were appropriate with regard to the objectives of ICAMT.

#### **Coordination and management**

- UNIDO's back-stopping support has been appropriate and is in line with ICAMT requirements;
- the counterparts support the ICAMT;
- UNIDO and DIPP roles and functions are clearly defined;
- the ICAMT uses a network of partner institutions in academia and industry;
- systems for monitoring (Advisory Committee), reporting and self-evaluation are in place and produce useful information, based on suitable indicators for outputs, outcomes and impact.

#### **Efficiency**

- UNIDO and Government/counterpart inputs have been provided as planned and were adequate to meet requirements;
- there has been cooperation with other international technology centres and, programmes of the Government of India and UNIDO;

- synergies with the UNIDO Centre for South-South Industrial Cooperation in India (UCSSIC) and the UNIDO Regional Office (as envisaged in the Project Document) and other UNIDO project/programmes have been exploited
- the least costly resources and processes were used in order to achieve the objectives.

### **Effectiveness**

The final evaluation will assess to what extent:

- objectives established in the project document were achieved;
- the ICAMT's activities - such as development and implementation of projects, training, workshops, publications, establishment of model units and fellowships - are effective means to produce outcomes and contribute to impact;
- the ICAMT's activities have an international outreach and ICAMT is effective at the international level.

### **Sustainability**

- there is a potential for the continuation of benefits after the project has been completed.

### **Impact**

- long term developmental changes or benefits (economic, environmental, social and developmental) are likely to occur as a result of the ICAMT's activities;

### **Cross cutting issues**

Attention will be given to whether the ICAMT has been mainstreaming the following issues:

- gender equality
- environmental sustainability
- South-South cooperation

## **IV. EVALUATION APPROACH AND METHODOLOGY**

The final evaluation will be conducted in compliance with UNIDO's Evaluation Policy and its Technical Cooperation Guidelines. It will assess the achievements of the Centre against its objectives, as established in the project document and in annual Work Programmes and include a re-examination of the relevance of the objectives and of the design. It will also try to identify factors that have facilitated or impeded the achievement of the objectives.

The emphasis of the analysis will be on the period covering the end of the mid-term evaluation until the final evaluation (January 2012 until end of 2013).

In terms of **data collection** the evaluation team will use different methods ranging from a desk review (annual reports, progress reports, work programmes, ICAMT publications, self-evaluation reports, survey data, reports of Expert Group Meetings, records and documents from workshops and training programmes, training material, feed-back forms of participants in workshops/seminars, minutes of meetings of the Steering Committee) and above all from discussions with beneficiaries, individual interviews with key

informants, focus group discussions, statistical analysis, literature research, survey and direct observation.

An internet **survey** will be conducted, targeting past beneficiaries of ICAMT activities and partners of ICAMT.

The final evaluation team will also visit beneficiary enterprises and partner institutions of the ICAMT in India (such as the UNIDO Centre for South-South Industrial Cooperation) in order to assess actual or potential interactions, benefits and synergies with these institutions and to draw from the experience gained by them.

The evaluation team should ensure that the findings are **evidence based**. This will be ensured through **triangulation** of sources, methods, data, and theories.

While maintaining independence, the evaluation will be carried out based on a **participatory approach**, which seeks the views and assessments of various stakeholders. These include government counterparts, private sector representatives, representatives of other UN organizations, multilateral organizations, bilateral donors, and beneficiaries as well as UNIDO- regular and project staff.

## V. TIME SCHEDULE AND DELIVERABLES

The final evaluation is scheduled to take place in January/February 2014. A two-week mission (including travel) to India is planned to take place in January 2014.

The consultant will hold meetings with stakeholders in New Delhi and Bangalore. Visits to other stakeholders and beneficiaries in India are planned and will be decided during the inception phase.

The evaluation will include the following steps and deliverables (bold):

| <b>Activity</b>  | <b>Estimated date</b> |
|--|-----------------------|
| Contracting of consultants                                     | November 2013         |
| Collection of documentation                                    | December 2014         |
| Desk Review by members of evaluation team                      | January 2014          |
| Briefing by ODG/EVA, and UNIDO management and interviews at HQ | January 2014          |
| <b>Inception report</b>  |                       |
| Design and launching of internet survey                        | January 2014          |
| Mission to India (2 weeks including travel)                    | January 2014          |
| Presentation of preliminary findings in India                  | January 2014          |
| Presentation of preliminary findings at HQ                     | February 2014         |
| Preparation of <b>draft report</b>                             | February 2014         |
| Issuance of draft report and collection of comments            | February 2014         |
| Incorporation of comments                                      | February 2014         |
| Issuance of <b>final report</b>                                | February 2014         |

## VI. EVALUATION TEAM COMPOSITION

The evaluation team will be composed of

- an international evaluation consultant with extensive experience in evaluation and industrial development
- a national evaluation consultant, familiar with evaluation techniques and industrial development issues

An ODG/EVA staff member will act as evaluation manager.

The international and national consultant will be contracted and selected by UNIDO. This is in accordance with the UNIDO Evaluation Policy, Paragraph 57, which stipulates that; “EVA prepares and manages the evaluation budget, drafts the job descriptions for consultants and selects and recruits the evaluation team”. The Indian Government will be provided with a short list of potential evaluation consultants and their CVs and be able to provide feedback on these. The Indian Counterpart Agency has the possibility to propose independent evaluation consultants for inclusion in the team. The tasks of the consultants are specified in the respective job descriptions, attached to this ToR (Annex A).

All members of the evaluation team must not have been involved in the design and/or implementation, supervision and coordination of ICAMT or any of its activities or outputs and/or have benefited from the project under evaluation.

The UNIDO Evaluation Group will be responsible for the quality control of the evaluation process and of the report.

## VII. GOVERNANCE AND MANAGEMENT OF THE EVALUATION PROCESS

The evaluation of the ICAMT will be managed by the UNIDO Evaluation Group, responsible for the independent evaluation function at UNIDO.

The evaluation team will use a participatory approach and involve various stakeholders in the evaluation process. The ICAMT, the DIPP, the UNIDO Regional Office as well as the Investment and Technology Unit at UNIDO Headquarters will provide support to the evaluation team.

The evaluation team will present its preliminary findings to the Government of India, to the UNIDO Representative, and ICAMT staff and to staff at UNIDO Headquarters.

A draft evaluation report will be circulated for comments. The reporting language will be English.

**Review of the Draft Report:** The draft report will be shared with UNIDO, the Government and ICAMT for initial review and consultation. They may provide feedback on any error or fact and may highlight the significance of such errors in conclusions. The evaluators will take comments into consideration when preparing the final version of the evaluation report.

The Final Report will be submitted 4 weeks after the mission to India.

## VIII. QUALITY ASSURANCE

**Quality Assessment of the Evaluation Report:** All UNIDO evaluations are subject to quality assessments by UNIDO Evaluation Group. These apply evaluation quality assessment criteria and are used as a tool for providing structured feedback. The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality (Annex 2).

## Annex C. Organisations visited and people met

|                                   |  |
|-----------------------------------|--|
| <b>Government of India</b>        |  |
| Atul Chaturvedi                   | Joint Secretary, DIPP, MCI   |
| Avinash Joshi                     | Joint Secretary, Min. of Chemicals and Fertilizers                 |
| Ramesh K. Pandey                  | Joint Dev. Commissioner, Min. of Micro, Small & Medium Enterprises |
| M. Ali Rahman                     | Dep. Director, MSME  |
| Gauri Karol                       | Director, DIPP   |
| <b>UNIDO</b>                      |  |
| Margareta de Gois                 | Director, Evaluation Group   |
| Ayumi Fujino                      | Unido Repr. for India  |
| Anders Isaksson                   | Project Manager, UNIDO HQ  |
| Henry Hutton Mills                | Project Officer, UNIDO HQ  |
| Gerardo Pataconi                  | Unit Chief, Cluster and Business Link. Unit, HQ                    |
| Deepak Ballani                    | National Programme Officer ICAMT                                   |
| Bhavana                           | Senior Project Assistant ICAMT                                     |
| Shubhangi Kitchloo                | Senior Project Assistant ICAMT                                     |
| V. K. Subramanya                  | National Consultant ICAMT Bangalore                                |
| Vikas S. Bhavsar                  | National Consultant ICAMT Pune                                     |
| Madhav M Karbelkar                | National Consultant, ICAMT, Mumbai                                 |
| B.S. Govind                       | National Consultant, ICAMT, Bangalore                              |
| Gurjit Singh Batra                | Custer Coordinator, ICAMT, Ludhiana                                |
| <b>Company &amp; Associations</b> |  |
| Indradev Babu                     | Managing Director, UCAM, Bangalore                                 |
| Vinay Javali                      | Dep. Managing Director, UCAM                                       |
| Manoj. P.U.                       | Manager Design, UCAM   |
| Prashanth Thankachan              | Chief Tech. Officer, UCAM  |
| Rajesh Gawhale                    | Ass. General Manager, UCAM   |
| H.K. Sridhara                     | Chairman & Director, Precitec, Banagalore                          |
| H.S. Sridhara                     | Executive Director, Precitec                                       |
| H.S. Nikhila                      | Managing Director, Precitec  |
| V. Anbu                           | Director General, IMTMA, Bangalore                                 |
| Sreedhara                         | Advisor, Technology, IMTMA   |
| M. Krishnamoorthy                 | Director-Training, IMTMA   |
| V.Anbu                            | CEO, Bangalore Int. Exhibition Centre (IMTMA)                      |
| P.V. Shashi Kumar                 | Director in Charge, CMTI, Bangalore                                |
| Ram Bhandare                      | Chairman & Man. Director, AKP Foundries, Belgaum                   |
| Ashok Sadalage                    | Belgaum Foundry Cluster, Belgauml                                  |
| Raghvendra R. Mallaya             | Executive Director, The Allied Foundries, Belgaum                  |
| RamR. Mallaya                     | Executive Director, The Allied Foundries                           |
| Shailesh Mangale                  | Partner, Hindustan Engineers, Belgaum                              |
| Prakash Durve                     | CFO, AVI Global Plast, Mumbai                                      |
| Akhilesh Bhargava                 | Man. Director, Avi Global Plast                                    |
| Sukhdeep Sethi                    | Director, Avi Global Plast   |
| Manish Dedhia                     | Executive Director, Mitsu Chem Pvt.Ltd, Mumbai                     |
| Jagdish Dedhia                    | Executive Director, Mitsu Chem                                     |
| Arvind M. Mehta                   | Chairman-AIPMA Governing Council, Mumbai                           |

|                          |   |
|--------------------------|---|
| Anandilal J. Oza         | President, AIPMA  |
| Jayesh K. Rambhia        | Chairman, AIPMA   |
| Hiten Bheda              | Director, Vinit Performance Polymers, PVT. LTD. Mumbai                                  |
| S. Manjit Singh Matharoo | Gen. Secretary, Ass. Of Ludhiana Machine Tool Industries                                |
| Sukhdial Singh           | President, Cons. of Ludhiana Machine Tool Man. Mg. Partner<br>Rattan Hammers, Ludhiana, |
| Tarlochan Singh          | Man. Director, R.S. Hydraulics, Ludhiana  |
| Bhupinder S. Gahir       | Managing Director, Bhagwansons, Ludhiana  |
| B.S. Sangha              | General Manager, Inst. for Auto Parts & Hand Tools<br>Technology, Ludhiana              |

## ANNEX D - Bibliography

(2008) UNIDO HQ, UNIDO-ICAMT Project Document

(2013) UNIDO-ICAMT, Key Performance Indicators – up until 2013

(Various) UNIDO-ICAMT, Steering Committee Minutes: First Steering Committee April 2010; Second Steering Committee January 2011; Third Steering Committee August 2011; Fourth Steering Committee April 2012; Fifth Steering Committee November 2012; Sixth Steering Committee August 2013

(2014) UNIDO-ICAMT, Presentation Evaluation Power point presented at Bangalore HQ April 7, 2014

“INSPIRE” –Success Stories and Winning Strategies of Indian SMEs – UNIDO ICAMT 2014. Draft Edition

(2013) UNIDO ICAMT, Unit Satisfaction Surveys,

(2006), UNIDO Evaluation Group, International Centre for the Advancement of Manufacturing Technology (ICAMT), Final Report of the Independent Evaluation Team

(2011), UNIDO Evaluation Group, Mid-Term Evaluation of UNIDO-ICAMT

(2011), UNIDO Evaluation Group, Mid-Term Evaluation of UNIDO South-South Centre for Industrial Cooperation

(2011), UNIDO Evaluation Group, Independent UNIDO Country Evaluation, India

(2011), UNIDO Evaluation Group, Thematic Evaluation of UNIDO’s International Technology Centres

(2006), UNIDO Secretariat, UNIDO Evaluation Policy

(2013), UNIDO XX, Terms of Reference for Independent Final Evaluation of the UNIDO Project

(2013), Country Programme of Technical Cooperation with India