Towards Cleaner Technologies

A process story in small-scale foundries

SWISS AGENCY FOR DEVELOPMENT AND COOPERATION

teri

FOREWORD

Very few people know that small-scale foundry units in India make the manhole covers used in Kolkata and New York City, the chassis of ABB electric motors, and several parts of the Mercedes Benz car. These are just a few examples of the range of products made by the Indian foundry industry for markets within the country and abroad.

Energy is one of the important inputs in a foundry unit. It is used for melting iron in a cupola, and constitutes about 12%–15% of the total cost of production. Hence, optimal utilization of energy is vital for the profitability of a foundry's operations. However, a majority of small-scale foundries in India use outmoded, low-efficiency cupolas that in addition generate considerable quantities of greenhouse gases and particulate emissions. Public awareness about the dangers of air pollution has greatly increased in the last few decades—particularly after the Stockholm Conference of 1972 and subsequent conferences at the global level. In response to public interest litigation, the Supreme Court of India has ordered various small-scale industries—including foundries—to meet emission norms by adopting pollution control measures, or else face closure.

TERI (The Energy and Resources Institute), with the support of SDC (Swiss Agency for Development and Cooperation) and in collaboration with Indian and international experts, has demonstrated an energy-efficient divided-blast cupola and a most effective pollution control system for Indian foundries. The demonstration unit at Howrah has yielded coke savings of 35% and reduced particulate emissions to levels far below the most stringent norms. To date, TERI has provided technical assistance to almost a dozen small-scale foundry units in different parts of the country for replicating the improved cupola. A foundry unit located in West Bengal has successfully averted the threat of closure by adopting the project's new pollution control system.

The credibility attained through these technology interventions has allowed TERI and SDC to broaden the scope of their activities beyond energy and environment issues, to include the socio-economic dimensions related to the well-being of the workforce. Rather than adopt an activist mode of social intervention, the project partners have consciously chosen a middle path that strikes a balance between technological and social dimensions. The project has been successful in creation of a worker–owner forum at Howrah so that sensitive issues such as work environment, skills-upgradation, and medical benefits for the workforce can be brought to the discussion table. The project has also promoted knowledge-sharing platforms among stakeholders, and has collaborated with the Institute of Indian Foundrymen in strengthening its website.

All these achievements have been made possible through the pooling of competence in diverse areas—foundry technology, marketing, energy management, environmental technology, and social issues. SDC has shown great flexibility during the course of the interventions carried out. This has enabled the project to adapt its action plan on an ongoing basis to overcome the challenges posed by rapid changes in the external environment and to meet the needs of the target group.

In 2005, TERI and SDC launched an initiative titled CoSMiLE (Competence Network for Small and Micro Learning Enterprises). CoSMiLE brings the various interventions by SDC and TERI in the SMiE (small and micro enterprises) sector under a common umbrella. In essence, CoSMiLE is a dynamic and informal network, comprising players bound together by a keenness to learn and share knowledge in order to bring about socio-economic development in the SMiE sector. In the years to come, efforts will be made to strengthen and extend CoSMiLE to enable widespread adoption of the improved cupola and pollution control technologies, and to bring socio-economic benefits to the foundry workforce.

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