

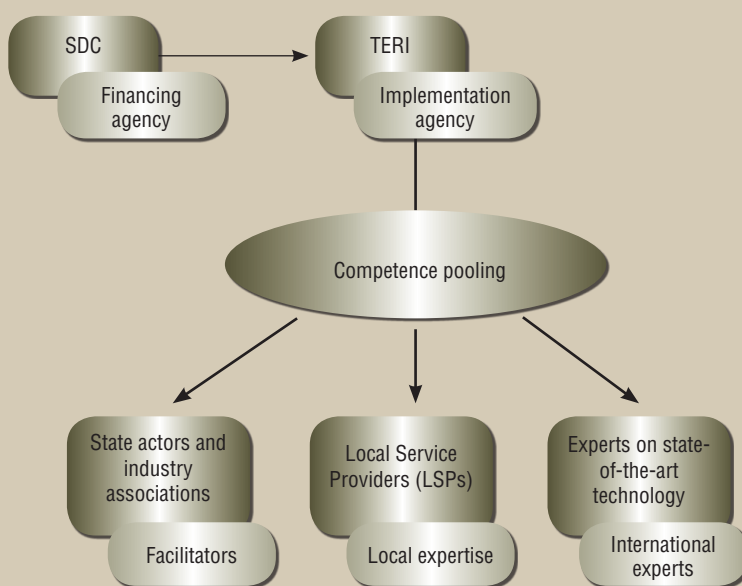
Public Finance for Clean Technology Development: a case study from India

The critical role of international technology development in combating climate change is unquestionable. However, recent efforts have not achieved the expected results. Technology transfer through IPR has largely made acquisition and transfer of technology more difficult for developing countries. With the urgency for action increasing, there is a need for designing novel approaches that ensure benefits for not just the beneficiary, but the innovator as well.

A unique technology development and dissemination project was carried out by TERI in partnership with the Swiss Agency for Development and Corporation (SDC) in late 1990s. The project presents exemplary *technology development* and *collaborative* action between developed and developing country partners, impacting more than several hundred thousand lives in the Small and Medium scale Enterprises' (SMEs) glass industry cluster of Firozabad, a small town on the outskirts of the famous city of Agra in India.

Technology development through a non-IPR route: a novel approach

The flow chart explains the alternative framework for technology development adopted in the TERI-SDC intervention. Unlike IPRs where innovation precedes financing requirements, in this case, finance is provided up front, with clear project objectives of technology development and transfer. For this, TERI brought together international experts, local expertise, and a pool of facilitators (including from within industry), resulting in a technology, which was state-of-the-art yet affordable and locally adaptable. Also, the intervention was a good example of an innovation that identified a missing market, the SME sector in the developing world, for technology innovation and transfer.



SMEs and technology development in developing nations: key pointers for effective adoption

- Affordability of technology
- Innovation to have minimum impact on the workforce requirement
- Adaptability to local resources/expertise
- Sense of ownership towards the technology

IPR and technology development

- Literature review reveals that in certain circumstances IPRs may slow rather than hasten technology transfer.
- Strong IPR protection hinders rather than facilitates technology development.

Summary

TERI-SDC's intervention in the Firozabad bangle-making SME cluster has not just been a successful research initiative, but the technology is also being successfully used in the cluster. The onus of this success is on the new approaches used for the intervention; participatory technology development through local and foreign competence pooling. This case study reveals that even outside the domain of IPR, far more effective methods of technology transfer and deployment exist. Further, this case study might help in devising pathbreaking frameworks of technology development, including technology markets or technology centres. However, the case study has definitely shown that public finance can also play an effective role in technology transfer and development.

For further information contact:

Arnab Bose, TERI

Tel. +91 11 24682111 or 4150 4900

Email: arnab.bose@teri.res.in

Web: www.teriin.org

FIROZABAD BANGLE-MAKING SME CLUSTER



Why? The glass industry in Firozabad produces approximately 50 million bangles per day, employing 150,000 people. Objectives of the intervention were:

- Incorporating energy efficient technologies in bangle-making industry.
- Pollution reduction and increasing profitability of operations.

What? The research dealt with replacement of traditional and inefficient coal-based pot furnaces used in the bangle-making industry with energy efficient gas-based recuperative pot furnaces.

Key success drivers of the intervention

- Non-tied finance from Switzerland
- Development of a *participatory technology* tailor-made for the cluster
- *Competence pooling* from India, UK, and Switzerland
- *Local expertise* through local consultants/Local Service Providers (LSPs)
- *Government/judicial support* in the form of replacement of coal-based furnaces with gas-run models
- *Inspiring innovation* in local entrepreneurs

Results Achieving a penetration rate of near 50%, the intervention was a huge success, benefitting the innovators as well as the cluster.

Quantitative Benefits

Energy savings: 25%–50% lower than conventional technologies

Simple payback: ~ 1–2 year

Qualitative Benefits

Improved work environment: reduced health risks to workers as well as neighbouring areas

Improved economic conditions: increased profitability and sustainability of the sector

Reduced pollution