



1042-2587
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Note to Instructors: Building a Better Rat Trap

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This case examines technological entrepreneurship and human capital in a remote village in southeast India. Sethu Sethunarayanan, director of the nongovernment organization (NGO) Center for Development of Disadvantaged People (CDDP), uses technology to improve the lives of impoverished people, focusing in particular on the indigenous Irula tribe. The Irulas' rat catching activities constitute a primary source of income and food. However, the Irulas are often unsuccessful in catching rats and suffer many health problems from mouth-blowing a clay pot filled with smoke. Sethu developed a "better rat trap," improving success rates and income and eliminating health hazards. In parallel, CDDP established a factory and self-help, micro-credit collectives to enable other villagers to improve their socioeconomic condition. The case chronicles the project's development, including opportunity recognition, and new technology development and implementation. An overview of the skills and experience of Sethu and the CDDP team, and the national, local, and community context is also provided.

Key Issues and Discussion Points

The case raises a number of issues, including the use of technological entrepreneurship, human capital, micro-credit, and sustainable development.

Technological Entrepreneurship

To date, most research and cases on technological entrepreneurship focus on extremely high technology ventures in developed countries, for example, the biotechnology and software sectors in the United States. An estimated one-third of the world's population lives below the poverty line (less than \$2 a day). Poverty and other societal problems are market failures which create opportunities for entrepreneurs (Coase, 1974; Dean and McMullen, 2006).

Schumacher (1973) and others use the term "appropriate technology" to describe technology that is suitable to the environment and culture it is intended to support, and is not excessively mechanized, which triggers human displacement, resource depletion, or increased pollution.

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Key discussion questions include:

- What makes Sethu's new trap an appropriate technology?
- What are some examples of societal problems and market failures that present an opportunity for entrepreneurs?
- What technologies and entrepreneurial efforts could help the disadvantaged in your community?

Human Capital: A “Noble” Nobel Contribution

University of Chicago Professor Gary Becker received the 1992 Nobel Prize of Economics for his contributions to human capital theory. In contrast to earlier thinking of men as machines and labor power as given, Becker's research revealed that labor power is augmentable and investments in human capital provide increasing returns. He also distinguished two types of human capital: general (applicable in a range of situations and across organizations) and specific (e.g., to a firm, organization). Becker assumed that individuals can decide to invest in education, training, medical care, and other additions to knowledge and health, and that this human capital is cumulative and can impact productivity in both market and nonmarket sectors. Becker also examined the relationship between human capital and inequality, using “discrimination coefficients” to describe the prejudice and hostility to members of particular groups. The amount of distribution against such a group depends on the combined discrimination by employers, workers, governments and schools. The perception of the minority members as less productive can be self-fulfilling with minorities under-investing in education, training, and work skills, and thus less productive.

A discussion can be facilitated about the human capital required to implement the rat trap projects, the investments in human capital and the resulting contributions to human capital and economic development. Key discussion questions include:

- What characteristics of Sethu, CDDP, and the Irula villagers enabled their success?
- What skills did the Irula villagers develop from their training in health awareness, manufacturing, and business?
- What might be the implications of this training on other aspects of the Irulas' lives?

Another Nobel Idea: Micro-Credit

Dr. Muhammad Yunus and the micro-credit Grameen Bank he founded were the recipients of the 2006 Nobel Peace Prize. The Grameen Bank has issued more than US\$5.1 billion to 5.3 million borrowers in developing countries, of whom 97% are women. To ensure repayment, the bank uses a system of micro-credit groups who apply together for loans and act as co-guarantors of repayment, supporting one another's efforts at economic self-advancement. The Norwegian Nobel committee's announcement read, “Lasting peace cannot be achieved unless large population groups find ways in which to break out of poverty. Micro-credit is one such means. Development from below also serves to advance democracy and human rights.”

Students could read more about the Grameen Bank and micro-credit, reflecting on the following:

- Why was micro-credit so effective for the Irula village women?
- What other needs could micro-credit collectives fulfill?
- How could micro-credit activities be expanded to other parts of the economy?

Sustainable Development

There are three major successive approaches to sustainable development in indigenous communities: (1) modernization or assimilation, (2) dependency, and (3) contingency (Anderson, Peredo, Galbraith, Honig, & Dana, 2004). Modernization theory implies that in order to develop, traditional societies must become more modernized. Quality of life is measured by monetary income and economic growth. The model also assumes that individuals will be motivated by self-interest or rational economic behavior, and that traditional culture and structures can be barriers to progress. Most programs following the modernization model failed. The dependency model viewed the developed world's actions (e.g., conquest and colonization) as the drivers of continued underdevelopment, but led to import substitution and other programs which have also been largely unsuccessful. The contingency model emerged in the last part of the twentieth century and focuses on human agency and creating social relations, incorporating experience, perspectives and culture.

A growing stream of research examines the role of community based enterprise, defined as “a community acting corporately as both entrepreneur and enterprise in pursuit of the common good” in which the community creates and operates “a new enterprise embedded in its existing social structure” (Peredo & Chrisman, 2006, p. 310).

Sethu and his team are interested in developing projects that will be self-sustaining after the international funding is depleted. The Irula village community takes a lead role in organizing activities. Students could explore the following ideas:

- How can poverty alleviation programs evolve from charity to building local, sustainable self-reliance?
- How can NGOs work in villages without weakening or replacing local conventions?
- Think of a community you belong to. What entrepreneurial activities could your community initiate to improve itself?

Potential Uses and Audience

The case calls attention to technological entrepreneurship and human capital, making it suitable for students of entrepreneurship, strategy, and leadership classes, particularly those with a special interest in technology, economic development or social entrepreneurship.

Suggested Teaching Approach

Please contact the author for a complementary, digital 3-minute video of the village, factory, and a rat catching expedition. The case can be divided into several parts, including opportunity recognition, development of technology solutions and implementation. The case can also be used in a unit on the contributions of Nobel Prize winners in peace and economics to our understanding of entrepreneurship. Finally, combined with an overview of Gandhi's philosophy on the development of human capital and potential, the case is also suitable for a discussion on leadership.

RECOMMENDED READINGS

Anderson, R.W., Peredo, A.M., Galbraith, C., Honig, B., & Dana, L.P. 2004. Toward a theory of indigenous entrepreneurship. *International Journal of Entrepreneurship and Small Business*, 1(1), 1–20.

Becker, G. (1993). Nobel lecture: The economic way of looking at behavior. *Journal of Political Economy*, 101(3), 385–409.

Bornstein, D. (2004). *How to change the world: Social entrepreneurs and the power of new ideas*. New York: Oxford University Press.

Center for the Development of Disadvantaged People (CDDP). Available at <http://www.cddponline.org>.

Coase, R. (1974). The lighthouse in economics. *Journal of Law and Economics*, 3, 1–44.

Dean, T.J. & McMullen, J.S. (2006). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, 22(1), 50–76.

Fast Company annual list of social entrepreneurs. Available at <http://www.fastcompany.com/social/>.

Krueger, N., Jr., Kickul, J., Gundry, L.K., Verma, R. & Wilson, F. (2007). Discrete choices, trade-offs & advantages: Modeling social venture opportunities and intentions. *International Perspectives on Social Entrepreneurship Research* Palgrave, in press.

Peredo, A.M. & Chrisman, J.J. (2006). Toward a theory of community-based enterprise. *Academy of Management Review*, 31(2): 309–328.

San Jose Tech Museum Awards. Available at <http://www.techawards.org>.

Schumacher, E.F. (1973). *Small is beautiful: A study of economics as if people mattered*. London: Blond & Briggs.

World Bank Development Marketplace. Available at <http://www.developmentmarketplace.org>.

Yunus, M. (1999). *Banker to the poor: Micro-lending and the battle against poverty*. New York: Public Affairs.

Role of the Author

The author gathered data from several sources. First, she reviewed extant electronic and print media and research about the rat trap project, Irula people, and southeast India. Second, CDDP and the World Bank provided access to project documentation. Third, the author interviewed key stakeholders by telephone every 6 months during the period of April 2004 to July 2007. She also followed up with regular e-mails. Finally, the author visited the project, including a factory demonstration, village tour, rat-catching expedition, and distribution ceremony. She met Sethu, CDDP team members, and Irula villagers and was invited to distribute traps to 25 villagers and give a lesson at the school. Using a Tamil translator, she conducted interviews with Irula villagers.

REFERENCES

Anderson, R.W., Peredo, A.M., Galbraith, C., Honig, B., & Dana, L.P. (2004). Toward a theory of indigenous entrepreneurship. *International Journal of Entrepreneurship and Small Business*, 1(1), 1–20.

Coase, R. (1974). The lighthouse in economics. *Journal of Law and Economics*, 3, 1–44.

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Peredo, A.M. & Chrisman, J.J. (2006). Toward a theory of community-based enterprise. *Academy of Management Review*, 31(2), 309–328.

Schumacher, E.F. (1973). *Small is beautiful: A study of economics as if people mattered*. London: Blond & Briggs.

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The author is grateful for the hospitality of Sethu, Karthick, and the Irula villagers during her visit. The case benefited from many conversations with Sethu, Karthick, and other CDDP team members, as well as the Irula villagers, Dr. Rachel Golden, representatives of the World Bank, and leaders of local and international NGOs operating in the region.