Gita Surie, Ph.D., is professor and department chair in management, with a special interest in technological innovation, organizational evolution, globalization, entrepreneurship, emerging economies and leadership. She's a 2014 Fulbright-Nehru Senior Research Scholar and author of *Knowledge, Organizational Evolution, and Market Creation: The Globalization of Indian Firms from Steel to Software* (Elgar, 2008).

ELECTRIFYING REMOTE VILLAGES

The role of social entrepreneurship in developing countries

Renewable energy technologies bring the promise of a better life to rural villages in developing countries, but establishing those technologies in the lives of underserved populations is not a simple task. According to Gita Surie, Ph.D., it requires the development of a new innovation ecosystem composed of complex networks.

Through her research on renewable energy technologies in India, she has identified the multiple interconnecting elements needed to develop an ecosystem capable of serving remote, off-the-grid locations. Central to this development is the role of social entrepreneurs, as large firms are seldom interested in small, decentralized markets.

"The adoption of new renewable energy technologies in rural villages requires thinking about commercialization strategies, how to get the technology to users and encouraging this population to adopt the technology," said Dr. Surie, chair of the department of management and professor of strategy and innovation in the Robert B. Willumstad School of Business. "Users in rural villages represent a totally different type of target market than users in developed areas, so a different approach is needed."

To study the challenges involved, Dr. Surie traveled to New Delhi, Jaipur and Bangalore on a Fulbright fellowship. The focus of her research was social entrepreneurship and the way it fosters development of an innovation ecosystem for renewable energy within the larger context of the national innovation system of a developing economy. India is an ideal laboratory for study, as renewable energies are an emerging sector in the country and electrifying rural villages is a vital national initiative designed to promote economic growth and alleviate poverty.

Dr. Surie published her findings in "Creating the Innovation Ecosystem for Renewable Energy via Social Entrepreneurship: Insights From India," which appeared in *Technological Forecasting and Social Change,* August 2017. The paper, which presents a conceptual model of the mechanisms needed to create an innovation ecosystem, was the first to study the role of social entrepreneurship organizations, which are self-sufficient and organized around a social mission, in establishing renewable energies among poor populations in developing countries.

Dr. Surie employed concepts from research on national innovation systems, social entrepreneurship, complex systems and natural ecosystems in developing her conceptual framework. She collected case study data through more than 55 interviews conducted over a period of two years with business executives, government officials and renewable energy researchers. She also made on-site visits and reviewed published materials.

Her work revealed that building an innovation ecosystem for renewable energy requires action at multiple levels. At the national level, governmental initiatives must establish new institutions to spotlight the importance of renewables, create favorable programs and policies including financial incentives, and support links between the various players to facilitate access to resources and knowledge exchange. Needed at the local level are social entrepreneurship organizations, new technology platforms, and linkages to local and national organizations to facilitate collaborations and access to information and resources.

Players include government agencies, academic institutions, research institutes, public sector organizations, state and local governments, nongovernmental organizations, social entrepreneurs, and nonprofit and for-profit ventures. Complex connections between the players, as well as links to external resources, such as industry associations, international institutions and foundations, help drive the ecosystem processes.

Various facets of an ecosystem may not exist at first but must be launched and incorporated for eventual success. "All the elements need to be included because, without them, we cannot have a system that works. Each element has a specific role to play," Dr. Surie said.

This framework can be applied to ecosystems for other new technologies or in other developing and industrialized countries, she said. "Lessons can be learned from this research for other kinds of new technologies or in new regions," she explained. "Similar kinds of ecosystems can be developed to enable successful technology diffusion. Putting an ecosystem in place is important. My paper explains the mechanisms necessary to make it work."

Dr. Surie plans to continue her research on renewable energy ecosystems serving populations in underdeveloped economies, focusing on measuring results and mapping performance.