Smart greenhouses for Indian small farmers

Can a simple greenhouse transform lives, arming small farmers against unpredictable weather and reducing income variability? That’s what a start-up based in Hyderabad is trying to prove. The social enterprise, named Kheyti, designs, produces, provides access to financing and sells a modular, low-cost 5,000 square-foot greenhouse that is bundled with support services to assist the growing, harvesting, and selling stages of production from end to end. We are funding Kheyti for one year to build their case and track record, helping small farms adapt to climate change and increase their yield, ultimately improving livelihoods.

**DURATION**: 2018-2019
**CHALLENGE**: Sustainable Livelihoods and Ecosystems
**COUNTRY**: India
**PARTNER**: Kheyti

**CONTEXT**
India’s farming sector is in crisis. Agriculture has become increasingly un-remunerative despite providing food for the whole country and still constituting the biggest national source of employment (one in four Indians is a farmer or agricultural worker).

**ACTION**
Greenhouses have long been used in India for commercial flower and vegetable production, but standard designs are too large and expensive for small farmers.

Kheyti provides a pathway out of poverty for small farmers, designing, producing and selling a “greenhouse-in-a-box” that includes:

- A modular greenhouse that occupies just 2-5% of the average land area used by small farmers and costs 50% less than regular greenhouses.
- A drip-irrigation system that allows farmers to use 90% less water on average.
End-to-end support services (high quality seeds, fertilizer, training and mobile-based advisory, flexible loans, and connections to vendors and markets).

The high-tech greenhouses are covered on all sides using a breathable netting that prevents pests and protected on the top by shade cloth that reflects some of the sunlight, reducing the temperature inside. As a result, farmers can protect crops from excess heat, pests and unseasonal rain, and increase their yields seven-fold.

Kheyti has also built a community of farmers that are “independent yet interdependent”. Every farmer has a greenhouse on his /her land and the benefits are driven by their own efforts. However, input and market connections achieve economies of scale as they are planned for the entire community.

LONG-TERM STRATEGY

Kheyti is currently operational only in Telangana, a drought-prone state in south-central India. It plans to reach 150 farmers by the end of 2018 and gradually scale up to 42,000 farmers over five years. The team is also exploring options of collaborating with the government and the community organizations supported by the World Bank to extend their reach, being careful to maintain the community trust they have built so far.