



## COMBINING TECHNOLOGICAL AND INSTITUTIONAL INNOVATIONS FOR RISK MANAGEMENT AND RISK COPING BY SMALLHOLDER FARMERS IN BANGLADESH

### Background

Uninsured risks for smallholder farmers and rural inhabitants in Bangladesh are a major constraint on investment and a cause of reproduction of poverty. Bangladeshi farmers and rural inhabitants are exposed to high production risks due in particular to recurrent floods and droughts. They are also exposed to health and disability risks. These uninsured risks take a heavy toll on welfare, productivity, income, and asset ownership. They are a main cause of impoverishment when shocks occur, and they keep people in chronic poverty due to the high cost of self-insurance. Crop insurance, particularly index-based insurance, has been explored as a possible risk transfer instrument, but success has been limited due to incomplete coverage of risk, high cost due to insurance company loadings, lack of trust in insurance providers, etc.

Perhaps already known micro-finance institutions can adapt their traditional financial products to meet farmers' demands for risk management and risk coping. Financial products would need to be made more flexible, and not compromise clients' willingness or ability to save and repay loans, and contingent on exposure to verifiable health and weather shocks. If, then, these products can be combined with technological innovations - such as improved seed varieties - perhaps these combined risk-handling instruments could better reach and protect farmers.

The Feed the Future Innovation Lab for Assets and Market Access is supporting a collaborative research project between the University of California Berkeley, BRAC and IRRI to explore how risk-reducing technology, motivated and dedicated savings, and indexed pre-approved lines of credit can be combined to provide protection against risk.

### Project Summary

In this project, AMA Innovation Lab researchers will work together with BRAC and IRRI partners in Bangladesh to design and offer a portfolio of risk-handling instruments to smallholder farmers and rural inhabitants. In particular, this research will explore the implications and impacts of combined risk-reducing technological innovations (drought-tolerant rice varieties) with risk-handling financial instruments (flexible dedicated savings and indexed contingent pre-approved lines of credit).

Drought tolerant seeds have the potential to handle less extreme weather stresses, such as low rainfall, but these crops will still fail in extreme drought conditions. Risk beyond this level will be handled with the new financial instruments. The flexible credit will be tied to a trigger, such as an index for covariate weather shocks or a verifiable event for idiosyncratic shocks such as a medical expenditure. For borrowers with high credit scores, access to emergency contingent credit would be triggered by these indexes and events. A savings account for risk management would be held for precaution, restricted to verifiable emergency conditions in order to create an incentive not to withdraw for other reasons. In this way, the financial and agricultural technologies will create layers of risk management for vulnerable farmers and rural populations.

### Anticipated Impacts

If this new risk management portfolio, using both financial and technological instruments, proves effective, this would be a breakthrough in the capacity of smallholder farmers and rural inhabitants to handle risk. There could be massive diffusion throughout the BRAC network and the microfinance industry more broadly.

### PROJECT OVERVIEW

#### Lead PI

Elisabeth Sadoulet, University of California Berkeley

#### Partners

BRAC, IRRI

#### Timeline

2014 - 2017

#### Funding

\$575,000

#### Region

South Asia

#### Key Innovation

Combined technological and financial innovations for risk management

#### Commodity

Rice

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