

# Building climate-resilient smallholder farming communities with Cropin's advisory dissemination system



Cropin®



Foreign, Commonwealth & Development Office



THE WORLD BANK

adpc

## Introduction

By 2050, parts of Asia may see increasing average temperatures, lethal heat waves, extreme precipitation events, severe hurricanes, drought, and changes in water supply. Several Asian societies and economies will be increasingly vulnerable to physical climate risk without adaptation and mitigation. Climate risks can directly affect crop production, by reducing agricultural yields for some crops, increasing production volatility, and destabilising farmers' incomes. Oversupply could result in farmers facing lower prices for their crops, while undersupply could lead to food shortages and price spikes.

## AgTech Intervention - Cropin

A primary challenge for farmers in terms of susceptibility to climate change and extreme weather conditions is the lack of access to timely information. Cropin's technology-driven approach takes advantage of the **increased mobile phone penetration to deliver tailored advisory services** to individual farmers at scale.

## The Project

Cropin's core service modules of SmartFarm will enable smallholder farmers in **Bangladesh and Sri Lanka** to adopt sustainable best practises, such as the best sowing window, early disease detection, and more. Together, these will help them to 'grow more' and 'grow better'. The platform can also raise awareness of climate change and the need for resilience.

Identified and equipped **Lead Farmers** will use **SmartFarm app** on their mobile phones to capture farm-level data for each farmer. Based on this information, curated advisories tailored to individual farms will be sent out as SMS to the farmer's registered mobile number. The Advisory Services will include:

- POP and Good Agricultural Practice-based advisories
- Input advisories for the right usage of fertilisers and chemicals
- Pest and disease advisory through SMS
- Climate-smart advisory (predictive and prescriptive using AI/ML models)

SF On-field data, Remote sensing and weather data



Agronomist devising recommendations based on data evaluation



Configurable advisories subject to preset rules are automatically triggered



SMS notification to farmer



Efficient use of agro-chem products



Crop protection against weather, pest & diseases



## Advisory Dissemination System

- Cropin's unique model uses various data inputs to provide curated, timely, and automated crop advisories.
- The platform uses a proprietary disease early warning system to predict diseases in crops like tea and rice based on weather conditions.
- By integrating with IBM Weather to obtain hyperlocal weather forecasts, the platform delivers climate-smart advisories for each crop variety and its current growth stage.
- Configurable advisories subject to preset rules are automatically triggered through SMS, helping farmers prevent crop loss due to pests and diseases.
- Cropin's remote sensing capabilities give satellite-imagery based plot-level insights on crop health and yields at a local level.

## Implementation and Adaptation: Power of Partnerships

- AgriThmics and Oxfam**, our local partners in Sri Lanka and Bangladesh, respectively, are already engaging with farmers. They will help identify Lead Farmers at community level to use Cropin's mobile app.
- Local Agronomy Experts** will help configure locally relevant agronomic advisories and set up weather-based rules for advisory dissemination.

## Cropin's Objectives Through This Project

- Create awareness** among smallholder communities about climate risk and benefits of early warning systems
- Simplify climate science** into relevant information for local communities
- Provide robust tech** model to transfer information from local administration to communities
- Develop a Decision Support System** for local governments through a centralised platform
- Detect crop health and forecast yield** at the plot level with advanced remote sensing technology
- Analyse on-field data and **trigger automated early warning messages** at a local level.