Weather Risk Management for Agriculture

Module 1 - Weather Risk and International Weather Markets

Weather is an important factor in production decisions of agricultural producers. While farmers can manage weather risk, weather shocks have the potential to overpower household- and community-level strategies. This module reviews how catastrophic risk coverage can complement household- and community-level strategies and lists the benefits of catastrophic risk insurance. The module explains why catastrophic risk coverage historically is not offered in lower income countries and makes references to special international risk transfer arrangements that address correlated risk, the main characteristic of agricultural risk. While most of the reviewed mechanisms are not suitable for implementing in developing countries, weather index insurance seems to be the best option for connecting households with international weather markets. Although weather index insurance in lower income countries is a fairly new endeavor, the general success of these programs seems to be a positive indicator for their future.

Session 1 - Farmer's Perspective

Session 2 – Insurer's Perspective

Case Study 1- Morocco - Weather Index Insurance and Climate Change

Morocco has a long history of climate change and presents an excellent case to illustrate how households manage changing weather risk and how government initiated programs to improve the coping capacity of farmers. We learn that in the last century Morocco experienced declining trend in rainfall followed by ample of rain for citrus and olive crops. These changing weather conditions coupled with unsustainable land-use practices contributed to desertification challenging the future of agriculture. The case study showcases the coping and adaptation strategies pursued by agricultural producers and small scale farmers. It also presents the government-sponsored agricultural insurance program with its benefits and limitations that was introduced in 1995. In the early 2000s a weather insurance pilot was designed, however due to declining rainfall trends, the estimated reinsurance was too expensive, preventing the implementation of the rainfall index insurance program.

Module 2 - Weather Risk Assessment and Design of Weather Index Insurance

This module looks at steps insurers take to develop a weather index insurance program. Generally, a program development is divided into two components, the feasibility analysis and the market development. The presentations review the phases of feasibility analysis from risk assessment through analysis of weather and household loss data, to estimates of base insurance payouts on household losses in order to price the weather risk. In case the feasibility analysis indicates that the weather index insurance is appropriate and it can be sold at an affordable price, insurers move to market development. All six components of the market development process are introduced: demand assessment, contract structure, delivery mechanisms, risk financing, legal and regulatory environment, and client education.

Session 1 - Risk and Feasibility

Session 2 - Market Development

Case Study 1- Mongolia - Public Private Partnership for Layering Risks

The case study on Mongolia represents an informative illustration of the innovative and dynamic processes involved in developing an index based insurance program. The feasibility analyses determined whether the weather event, associated index, and household losses were appropriate for weather index insurance. The paper also describes the difficulties in finding an appropriate index to proxy certain types of weather risk, such as dzud risk. In addition the case study illustrates the unique public-private risk layering approach of the Index-Based Livestock Insurance Program which is discussed more in depth in Module 3 presentation.

Module 3 - Developing Sustainable Weather Insurance

The module reviews the processes involved in introducing an insurance product, such as pilot testing in a limited geographic area, and a full scale offering, following the successful pilot. It references to opportunities and challenges brought by Climate Change e.g. to long term change in global weather conditions. The development community is deeply concerned how poor households in developing countries could cope with changing climate risk, therefore look at insurance as a promising tool in protecting the poor against increased weather risk. The module argues that weather index insurance is not an adaptation tool and its use might be limited within the climate change context. It also acknowledges that policies encouraging the development of weather index insurance markets contribute to better livelihood options for farmers and in this way provide incentive to adapt.

Session 1 - Implementation of Weather Index Insurance

Session 2 - Weather Index Insurance and Climate Change

Case Study 1 - India - From Pilot Programs to Market Development for Weather Index Insurance

India's experience with weather index insurance provides insights into the development and implementation of insurance programs and the growth of the weather index insurance market. As case study illustrates, during the market development phase, the delivery of the ICICI Lombard insurance product relied on the existing networks created by BASIX. The success of BASIX resulted from several factors, most importantly from scalability, from taking into account customer feedback to product development, and from reducing transaction costs by creating a generic insurance product that underwrites all types of crops. As the weather index insurance market grew, the state insurer, AICI, had gained an increasingly larger role in guiding the future of rainfall insurance in India. The case study ends with review of major challenges of the weather index insurance market and how these issues may affect long-term sustainability.

Readings