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# Market-Based Agricultural Risk Management in the Caribbean

**Caribbean countries are highly vulnerable to natural disasters** (between 1990 and 2010, Caribbean countries affected by weather hazards had lost on average between 9 and 1 percent of its GDP every year) and exposed to commodity price fluctuations because of the openness of their economy. At the same time, agriculture remains an important source of income for many of them, as well as a significant employer (around 20 percent of total employment in the region, with higher peaks in countries like Grenada and Haiti, where it represents 50 percent).

**Despite this high vulnerability, however, apart from a few exceptions<sup>1</sup>, the Caribbean agricultural sector does not have access to market-based agricultural risk management instruments (insurance and hedging) in case of major shocks such as international price fluctuations and disasters.** Farmers and agribusinesses must rely on a combination of informal (crop diversification, off-farm income), traditional financing (saving, borrowing), as well as more formal risk management tools (government support, mutual funds and other forms of risk-sharing through commodity boards) to deal with these type of shocks. As a consequence, most of the costs from weather hazards and commodity price shocks are absorbed by farmers, local agribusinesses, and/or governments, lowering income levels, increasing rural poverty and reducing economic growth and competitiveness. It is important to emphasize the role of the government given the small size of the average farmer in the region and the fact that the agricultural sector is subject to frequent and intense weather events.

**The difficulties in making affordable insurance available to small farmers have to do with:** (i) a multi-cropping structure of smallholder farming (some small farmers in Jamaica have up to 15 crops on 1 plot of land), which complicates the evaluation of exposure of different crops to the various production shocks; (ii) the lack of affordable delivery mechanisms for insurance companies to offer insurance to small individual farmers; (iii) the insufficient quality of the information available about the agro-climate to undertake probabilistic analysis at a disaggregated level; (iv) the insufficient capacity to design and administer agricultural insurance contracts; and (v) the provision of ex-post support programs, which reduces farmers' willingness to pay for insurance.

**Between 2009 and 2012 the World Bank provided advisory services on market-based agricultural risk management to a total of six countries in the Caribbean: Jamaica, Haiti, Guyana, Belize, Grenada, and the Dominican Republic.** The World Bank first began in the early 2000s providing advisory services in the area of agricultural risk management by financing pilot projects related to agricultural insurance and commodity price risk management. In 2007, a more regional approach to risk transfer of weather events started in the Caribbean with the launch of the Caribbean Catastrophic Risk Insurance Facility (CCRIF)<sup>2</sup>. More recently, technical assistance has also incorporated a more country-specific and comprehensive approach towards agricultural risks based on the countries' particular demands. The technical assistance described here has taken into account these two approaches: considering a regional approach but also local country conditions in the implementation of agricultural risk management instruments.

<sup>1</sup>The Windward Island Crop Insurance (WINCROP) provides insurance for banana growers in the Eastern Caribbean and a public agricultural insurance company that has been able to reach 7 percent of the area cultivated under multi-peril insurance in the Dominican Republic.

<sup>2</sup>CCRIF is a risk pooling facility designed to limit the financial impact of catastrophic hurricanes and earthquakes to Caribbean governments by quickly providing short term liquidity when a policy is triggered. It is the world's first and, to date, only regional fund utilizing parametric insurance, which allows Caribbean governments to purchase catastrophe coverage with lowest-possible pricing.

**Given the importance of the agricultural sector and the heterogeneity of its production structure across the Caribbean, a country-specific approach was an essential part of the technical assistance.**

The primary objective was to support the development of country-specific risk management strategies for the agricultural sector. In order to achieve this objective, the Bank facilitated rapid sector-wide risk assessments, and, where appropriate, the feasibility studies for the design of innovative risk management mechanisms, with a focus on market-based instruments targeted to reducing the vulnerability of small and medium-sized producers. The coordination with the private sector was an important element of the program. The approach included the following basic principles:

•**Multi-sectoral collaboration:** the Bank ensured the participation of a multi-sectoral team that was able to bring an integrated approach including sectoral knowledge, regional perspectives and financial sector expertise.

•**Public-Private Partnership:** the Bank worked jointly with the public and the private sectors providing technical assistance to local insurance companies, banks, governments, agro-industry groups, and donors to help assess the countries' particular challenges and finding common approaches to design and implement market-based solutions in the agricultural sector.

•**Comprehensive risk management framework:** the Bank used a comprehensive risk management framework in order to assess the countries' agricultural risks. Those risks mainly included vulnerabilities related to short-term weather events as well as long-term hazards, including price risks and animal and plant health threats. The framework incorporates the different actors and phases (mitigation/prevention, transfer, and coping/response) in the risk management spectrum. The final objective was to improve current public sector risk management strategies from reactive responses (ad-hoc or ex-post) to more proactive approaches (ex-ante) to weather events.

•**Demand-driven:** an important principle for delivering the technical assistance was the implementation of a demand-driven approach. The central purpose was to implement market-based strategies and tools based on countries' demands with the final objective of possible mainstreaming and scaling up successful experiences. Although most of the work was country-specific, the NLTA also provided capacity building at the regional level, through institutions like IICA and CaFAN (Caribbean Farmer Association).

•**Potential for scaling up:** It was important to quickly identify the potential to provide valuable lessons at the regional level. For example, similar projects in Central America proved to be a good channel for further developments in commodity risk management policies (e.g. agricultural technology, micro-finance and climate change).

**The technical assistance was implemented in four stages.** Stages one and two were conducted in all six countries with different participation and constituted an overall evaluation and a public sector strategy for coping with systemic agricultural risks. During stage three, a feasibility study was conducted, based on specific requests from two countries, in order to evaluate the possibility of implementing market-based risk management instruments; finally, stage four built on the work done in previous stages by implementing specific pilot projects.

<b>Stage 1 Agricultural Risk Assessments</b>	Initial rapid assessment to appraise public and private capacities to manage risks as well as the availability of market-based instruments (Belize, Grenada). Additional rapid assessments conducted for specific supply chains (ex. coffee in Haiti and rice in Guyana) <sup>3</sup>
<b>Stage 2 Development of Public Sector Strategies for Coping with Systemic Agricultural Risks</b>	Bank engaged in conversations with the public sector to facilitate the development of a strategy to manage systemic risks at the micro, meso and macro level, focusing mainly on weather risks (hurricane, tropical storms, etc). These strategies were developed in Jamaica and Haiti
<b>Stage 3 Feasibility Studies for Market-based Risk Management and Transfer Instruments.</b>	In-depth feasibility studies, including a modeling exercise for weather risks to correlate farm losses with weather variables and determine trigger variables for index-based insurance, as well as an assessment to evaluate the type of coverage and transfer mechanisms (public/private) to reach farmers. The pre-feasibility studies were done for insurance products in Guyana, Jamaica and Dominican Republic. <sup>4</sup>
<b>Stage 4 Implementation of Pilot Projects</b>	Based on the feasibility studies, additional support provided to facilitate the design of market-based instruments or mechanisms on a pilot basis (i.e. Jamaica index-based insurance pilot for the coffee industry)

# Conclusions

Some regional level lessons have emerged from this engagement.

**Market-based financial agricultural risk management instruments are difficult to implement in the Caribbean region at the farm level** because of the high proportion of small farmers (ranging from 1.4 ha in Haiti and Jamaica to around 2 ha in Belize) with a very diverse production structure. Assessing the particular production losses at the individual level is technically challenging. Furthermore, commercial banks and/or insurance companies usually do not have the infrastructure to reach small farmers in remote areas.

**Farmers in the Caribbean tend to use informal risk management approaches, which can be successfully complemented by more formal, market-based instruments, as well as other public or private risk transfer mechanisms.** Informal risk management strategies include personal savings, household buffer stocks, community savings and non-formalized cooperatives (i.e. commodity boards). A more formal risk management approach implemented by the government involving risk mitigation, risk transfer and risk coping mechanisms would be very beneficial for small farmers as well as for the efficiency and effectiveness of public expenditures in response to natural disasters and crisis in the sector. This approach would provide farmers with an additional source of financing to manage both weather and production risks without solely relying on their own savings and farm income.

<sup>3</sup>A short note with more information on supply chain risk assessments in the Caribbean can be found online at [http://siteresources.worldbank.org/INTLAC/Resources/257803-1269390034020/EnBreve\\_182\\_Eng\\_web.pdf](http://siteresources.worldbank.org/INTLAC/Resources/257803-1269390034020/EnBreve_182_Eng_web.pdf)  
<sup>4</sup>A short note with more information on the agricultural risk insurance market in the Caribbean can be found online at [http://siteresources.worldbank.org/INTLAC/Resources/257803-1269390034020/EnBreve\\_183\\_Eng\\_web.pdf](http://siteresources.worldbank.org/INTLAC/Resources/257803-1269390034020/EnBreve_183_Eng_web.pdf)

**Public intervention in past catastrophic events has been necessary to cover extreme agricultural losses for small farmers. While these public interventions are crucial, they can be made more effective and efficient.** In particular, disaster payments to farmers can be structured through clear ex-ante rules for triggering and distributing public sector assistance, and a clear process for registering and becoming eligible for such ex-post support should also be considered. In addition, for an adequate financing of the farmer's disaster support system, it is essential to improve the financial structure behind such a program by allowing the Government to transfer part of its fiscal exposure to the international market and thus, leveraging public resources in bad years.

**A risk layering approach could be used to finance public interventions in the agricultural sector in response to systemic shocks.** For example, low cost (high frequency) events could be financed with reserves and personal savings, while more catastrophic (lower frequency) events could be financed with contingent credit lines and/or insurance instruments. A macro-level risk transfer mechanism was introduced in the region through the implementation of the CCRIF in 2007. The optimal mix of risk financing strategies is country-

specific, but the fact that Caribbean countries are very indebted economies limits their capacity of using additional financing through credit lines, so CCRIF insurance makes up a big part of the countries' risk financing structure for natural disasters. Additional analysis is required for the development of instruments to cover agriculture sector risks (e.g. non-cyclonic rainfall and droughts). The CCRIF recent announcement of the future launch of a new excess rainfall product to supplement its earthquake and hurricane policies is a step in the right direction.

**Awareness by the public and private sector on the potential benefits of market-based products, as well as technical capacity, needs to be strengthened in the medium and long-term.**

The fact that market-based instruments are mostly absent in the Caribbean is partly explained by the fact that public sector officials, the financial sector (lending to agriculture) and agribusinesses do not have access to or know of the potential benefits of agriculture insurance or commodity price risk hedging. Moreover, currently the region lacks technical capacity in the public sector and in the insurance and financial sectors to design and offer these instruments, which constrains the development of such instruments.

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