TOWARDS A STRATEGY FOR MANAGING AGRICULTURAL WEATHER RISKS

World Bank
Non-Lending Technical Assistance
Agriculture Risk Management in the Caribbean

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• Weather Risks Layering
• Public Sector Role
  – Catastrophic Insurance for small farmers
  – Supporting the development of the commercial insurance market
  – Public Investments
• Final Remarks & Next Steps
Agriculture is sensitive to hurricanes

- Note: X axis = years; Y axis = boxes of production; JBM = Jamaican Blue Mountain; and NBM = Non Blue Mountain (Low lands)
Considerable losses & need for Government and donors mobilization

Disaster Recovery Funding for the Agricultural Sector (2004-2008)

<table>
<thead>
<tr>
<th>Year</th>
<th>Disaster</th>
<th>Total Damage to the sector (Billons)</th>
<th>Government Support (MOA)</th>
<th>Donor Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Hurricane Ivan</td>
<td>$6.70</td>
<td>Due to system problem, unable to access records</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Hurricanes Emily, Dennis and Tropical Storm Wilma</td>
<td>$0.99</td>
<td>Bilateral: Canada (Hurricane Ivan Reconstruction) C$800,000 / J$44 million</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>2007</td>
<td>Hurricane Dean</td>
<td>$3.76</td>
<td>$102,099,629.60</td>
<td>-</td>
</tr>
<tr>
<td>2008</td>
<td>Tropical Storm Gustav</td>
<td>$1.63</td>
<td>$25,000,000.00</td>
<td>EU's Hurricane Assistance Programme €2.2 million / J$222 million</td>
</tr>
</tbody>
</table>

Totals $13.08 $127,099,629.60 $266,000,000.00

We estimate that over the past 5 years the Government and Donors have spent a yearly average of US$1.5 to 2 Million to respond to agriculture sector losses post-disaster.
Is current system response to disaster in the agricultural sector satisfactory?

- In terms of:
  - Cost effectiveness
  - Efficiency in delivery
  - Transparency
  - Protection
  - Coverage

The answer depends on what it can be substituted for!
Current weather risk management system

1. Catastrophic coverage for small vulnerable farmers is ex-post, and with slow response.

2. Commodity Boards have no instruments for transferring risks for commercial farmers.

→ High vulnerability to natural disasters !!
Is there a different way how to administer agricultural weather risks?
### Objectives
- Agricultural and rural economic growth
- Poverty Reduction

### Constraints
- Financial sector little penetration in agriculture
- Unexperienced insurers in agriculture
- Agricultural sector dominated by small farms
- Government fiscal limitations
- Frequent natural disasters

### Operational Principles
- Segment independent versus correlated risks
- Minimize rent seeking that creates market distortions
- Risk Layering for Risk Management
- Risk transfer cost optimization - reduce transaction costs

### Policy Instruments
- Mechanism for transferring catastrophic risk layers
- Public investments in information
- Contingent fundings for disaster relief & enhanced social safety nets
- Supporting private insurance market
What Public Policy is Needed?

1. Catastrophic coverage for small vulnerable farmers (by macro-regions)

2. Supporting market development for commercial insurance
   - Financial Intermediaries (meso)
   - Commodity Boards (micro)

3. Public Investments
Catastrophe Insurance for Small Vulnerable Farmers / Policy holder: GOJ

**International level**
- Reinsurance and capital markets
- Contingent Line of Credit / development agencies (i.e. World Bank, IADB, EU)
- Ad-hoc Donors Assistance

**Domestic level**
- Government budget
- MOA
- Emergency Fund

**Delivery channel level**
- RADA: Agriculture Risk Management System + MOA
  - Agriculture Data Management Services
  - Through Commodity Boards
  - Through RADA Registry System & PMOs
  - Conditional Cash Transfers through NGOs

**Beneficiary level**
- Small Vulnerable farmers under Commodity Board Registry, but not commercially insured
- Small Vulnerable farmers in multi-crop systems at national level
- Ad hoc needs of affected communities
Catastrophe Insurance for Small Vulnerable Farmers / Policy holder: GOJ

Reinsurance and capital markets

Emergency Fund

Government budget

Social Safety Net System for Rural Areas Parish level
Beneficiary level

International level
Domestic level

Delivery channel level

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Social Safety Net System for Rural Areas Parish level
And what are their risks?
Index-based Commercial Insurance for the Coconut Board: An aggregate index trigger to secure reinsurance

The local insurer can be omitted and go directly to reinsurance market and buy a derivative
For Public and Commercial insurance to happen, it needs **Public Investments**

### Jamaica: Calendar of Activities for Public Support in Developing Weather Risk Instruments for Agriculture

<table>
<thead>
<tr>
<th>Activities</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Catastrophic weather risk index-insurance (small farmers)</strong></td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Public Investments</strong></td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
</tr>
<tr>
<td>- Training and capacity transfer to stakeholders</td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Modernizing weather stations</td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Improving JMS capacity and efficiency</td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Improving farmers information system</td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Integrating ag insurance with other risk management tools</strong></td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
<td>xxxx</td>
</tr>
<tr>
<td><strong>Commercial index-insurance for coffee</strong></td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commercial index-insurance for coconut</strong></td>
<td></td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Commercial index-insurance for other commodities</strong></td>
<td></td>
<td>xxxx</td>
<td>xxxx</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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Some examples of **concrete steps** to be taken in the short term:

1. Recover Pre-1992 Weather data.
2. Clean existing data series.
3. Invest in expanding the density of weather stations to agriculture production areas.
4. Review the regulatory framework for agriculture insurance.
5. Make available the 2006 agricultural census data.
6. Improve agricultural yield statistics at the local level.
7. Mediate an Agreement between insurers and JMS for access to weather data and contract monitoring.
Final Remarks

1. Jamaica has the opportunity to support a more transparent and efficient financing of natural disaster response to the agricultural sector, both for commercial and small farmers.

2. The presence of large number of small farmers with multi-cropping systems and/or subsistence agriculture, calls for strong public sector intervention in securing some type of weather protection.

3. A communication strategy will be needed to facilitate the understanding and introduction of any new mechanism for weather risk management.
Design and structure a public-private partnership under an agreed detailed work plan to develop the different products and delivery channels for transferring weather risks out of agriculture.