De-risking assets

MCII/GIZ Workshop on "Innovative Insurance Solutions for Climate Change"
Bonn, May 12-13 2014

Vladimir Stenek
Climate Business Department
Dynamic change in hazard profile, static assets

Range | Population in range | Expected frequency outside range
--- | --- | ---
$\mu \pm 1\sigma$ | 68.2689492137% | 31.7310507863%
$\mu \pm 2\sigma$ | 95.4499736104% | 4.5500263896%
$\mu \pm 3\sigma$ | 99.7300203937% | 0.2699796063%
$\mu \pm 4\sigma$ | 99.9936657516% | 0.0063342484%
$\mu \pm 5\sigma$ | 99.9999426697% | 0.0000573303%
$\mu \pm 6\sigma$ | 99.999998027% | 0.0000001973%

Sources: NASA 2012
Rising risks and damages

Sources: NASA 2012
Port Muelles el Bosque, Colombia: loss reduction

Storm surge height, 1:300 year return period

Observed sea level, Bahía de Cartagena (1951-1993), linear trend +5.6mm/yr.

Seawater flooding, 2050, observed and accelerated SLR scenarios

Business interruption costs:
- Water level 0-30 cm - loss of US$50,000 / full day
- If over 30 cm, US$250,000 / full day
  - <= 2 hours: no cost
  - > 2h but < 6h: 20%
  - > 6h but < 12h: 40%
  - > 12h but < 18h: 60%
  - > 18h: 100%

www.ifc.org/climaterisks

Sources: IFC 2011, Escuela Naval CIOH 2010
Enabling Environment: a systemic approach

- G20 Dialogue Platform on Inclusive Green Investment
- Practical and implementable interventions
- Significant potential for the creation of an enabling environment for private sector adaptation and the promotion of climate resilient development paths

Data and information
1. Climate and hydrological projections
2. Direct and indirect impacts
3. Adaptation measures, costs and benefits
4. Community vulnerability, risk and adaptation

Institutional arrangements
5. Institutions and forums

Policies
6. Building standards and/or codes
7. Public infrastructure
8. Local zoning rules
9. Permitting and impact assessments
10. Investor relations and/or stakeholder management

Economic incentives
11. Government incentives
12. Finance
13. Full-cost accounting for water and energy
14. Environmental trading markets

Communication, technology and knowledge
15. Information and communication technologies
16. Technology and knowledge

Source: IFC 2014
### Enabling Environment for Private Sector Adaptation

#### INDICATOR 1: Climate and Hydrological Projections

<table>
<thead>
<tr>
<th>Description</th>
<th>Measures</th>
<th>Costs</th>
<th>Benefits</th>
<th>Business case summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>National climate (e.g., temperature, precipitation, humidity, solar radiation, cloud cover, and wind) and/or hydrological (e.g., soil moisture, groundwater, runoff, evaporation, flood/drought) projections based on calibration and validation of climate and hydrological models</td>
<td>Free access to data/information from a national or international body (e.g., government department, public agency, research centers, donor organization)</td>
<td>Installation, operation, and maintenance of hydro-meteorological observation network and climate modeling models.</td>
<td>Avoided loss and damage from climate-related hazards</td>
<td>The costs of producing climate and hydrological projections are likely outweighed by potential avoided costs and environmental benefits.</td>
</tr>
</tbody>
</table>

#### INDICATOR 6: Building and Infrastructure Standards and/or Codes

<table>
<thead>
<tr>
<th>Description</th>
<th>Measures</th>
<th>Costs</th>
<th>Benefits</th>
<th>Business case summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building standards and/or codes incorporating climate change impact and adaptation considerations (e.g., redrafted maximum temperature design criteria) and/or building standards/code promoting climate change adaptive design</td>
<td>National and/or local building standard/code updated to incorporate climate change impact and adaptation considerations (e.g., redrafted maximum temperature design criteria) and/or building standards/code promoting climate change adaptive design</td>
<td>Costs to update building standards and/or codes, enforcement and training costs, and compliance costs (e.g., administrative and technical, specialized training)</td>
<td>Improved property value, Avoided loss and damage from climate-related hazards, Lowered maintenance and operation costs over time, as well as improved environmental and economic performance.</td>
<td>Codes and standards increasing resilience against hazards have achieved reductions in loss and damage—American National Standards Institute.</td>
</tr>
</tbody>
</table>

#### INDICATOR 8: Local Zoning Rules

<table>
<thead>
<tr>
<th>Description</th>
<th>Measures</th>
<th>Costs</th>
<th>Benefits</th>
<th>Business case summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Localized rules incorporating climate change impact and adaptation considerations for new and/or existing infrastructure/buildings in areas vulnerable to climate change (e.g., floodplains, coastal)</td>
<td>Zoning rules with climate change impact/adaptation considerations (e.g., sea level rise estimates, revised flood zones) and absence of zoning rules promoting inappropriate practices (e.g., reduced coastal protected areas which could increase vulnerability to sea level rise and storm surge) and zoning rules with climate change impact/adaptation considerations (e.g., floodplains, coastal)</td>
<td>Costs to develop and/or amend local zoning regulations, compliance costs (e.g., staff, design and construction requirements), and possibly higher capital costs</td>
<td>Increased government revenue opportunities due to higher attractiveness (e.g., local tax base), Improved property value, Increased revenues thanks to emerging opportunities (e.g., engineering services), Expected project asset useful life maintained, Avoided loss and damage from climate-related hazards</td>
<td>The costs of developing and enforcing new/improved zoning are outweighed by the protection of developments against rising weather-related loss and damage.</td>
</tr>
</tbody>
</table>

#### INDICATOR 12: Finance

<table>
<thead>
<tr>
<th>Description</th>
<th>Measures</th>
<th>Costs</th>
<th>Benefits</th>
<th>Business case summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public and/or private finance instruments (e.g., loans, equity, guarantees) for climate change adaptation, including planning, implementation, purchase of equipment and materials, and innovation (R&amp;D), in the private sector</td>
<td>Finance instruments for the private sector (e.g., loans, equity, and/or guarantees) in support of one or several of the following: Climate change adaptation planning (e.g., risk assessment, strategies/plans, implementation), Climate change adaptation measures (e.g., construction of climate resilient assets, improvements to existing assets to maintain/increase asset useful life and/or reduce vulnerability, insurance policy), Purchase of equipment or material (e.g., cooling, equipment for hydro-meteorological monitoring)</td>
<td>Opportunity cost of investing in climate change adaptation, Transaction and collection costs, and risk of default.</td>
<td>Increased investment flows towards adaptation, Increased revenue opportunities (e.g., new investment vehicles and investment markets), Increased uptake of adaptation practices reduces loss and damage from climate-related hazards and lowers maintenance, operation and post-disaster repair costs over time, Meeting political commitments on climate change adaptation finance</td>
<td>Provision of finance in the amounts necessary and at a competitive cost is critical to successfully promote private sector adaptation—indeed, private financial institutions have started providing capital for adaptation projects/activities that revenue opportunities exist.</td>
</tr>
</tbody>
</table>
Thank you!

Vladimir Stenek
vstenek@ifc.org