Disaster Risk Management Conference
At the Brookings Institution

Strategies for Mainstreaming Disaster Risk Management in Development Assistance

Enterprise Resilience Rated Loan Program
—Growth & Resilience—

May 10, 2013

Yoshiki Hiruma

Director
Enterprise Resilience Rated Loan Program
Development Bank of Japan
Presentation agenda:
Growth & Resilience for Enterprises, Cities and the Nation

1. Building enterprise resilience
   Enterprise Resilience Rated Loan Program

2. Building urban resilience
   COMMON DISASTER INFORMATION PLATFORM for Urban Resilience

3. Building national resilience
   National resilience to global risks
Central question:
Crisis is the new normal / Resilient dynamism

How should we manage tail risks and global risks?

Can we minimize preventable death and losses?
1. Enterprise Resilience Rated Loan Program
Building enterprise resilience
Impacts of the triple disaster to enterprise

The default number due to March 11th = 1,157
An about 4.3 times as many pace as the Great Hanshin-Awaji Earthquake*

■ Direct damage type = 6%
■ Indirect damage type = 94%
■ Total liabilities = over 1 trillion yen.
(1兆3966億円)

* The time of two years having passed after disaster

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Out of the disaster on March 11th, the default number is 1,157, which is about 4.3 times the pace of the Great Hanshin-Awaji Earthquake.

Direct damage type: 6%
Indirect damage type: 94%
Total liabilities: over 1 trillion yen.

(1兆3966億円)
Building enterprise resilience

Product philosophy

Dynamic change in business conditions
- Diversification of needs
- Innovation for growth
- Social responsibility
- Hyperconnected resources

Purpose
- Creation of resilient companies
- Creation of market-supporting, proactive investment for social resilience

Financial market
Tail risks, global risks (Natural disasters, terrorism…)

Advanced companies
- Earthquake-resistant. Decentralized facilities.
- System backup.
- Risk finance etc…

Enterprise value evaluation
- ROA
- ROE
- DCF

Evaluation based on financials and tangibles

Enterprise resilience
- Preparedness
- Mitigation
- Resilience
- Business continuity
Enterprise Resilience Rated Loan Program

Enterprise resilience is…

Resilience curve (as is)

Resilience curve (to be)

Minimizing stalled capability

Ensuring appropriate recovery

① Robustness (Preparedness, mitigation)

② Resilience (Recovery, reconstruction)

Software

Hardware
## Enterprise Resilience Rated Loan Program

### Rating enterprise resilience ; 100 questions

<table>
<thead>
<tr>
<th>Enterprise resilience</th>
<th>Issues</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Robustness</strong> (Preparedness, mitigation)</td>
<td>Disaster prevention plan</td>
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<tr>
<td></td>
<td>Emergency response and operations</td>
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<tr>
<td></td>
<td>Secondary disaster prevention plan</td>
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<tr>
<td></td>
<td>Compliance</td>
</tr>
<tr>
<td><strong>Resilience</strong> (Recovery, reconstruction)</td>
<td>Durability of important property</td>
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<td></td>
<td>Distribution and fungibility of head office and important branches</td>
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<td></td>
<td>Security of information systems</td>
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<tr>
<td><strong>Hardware</strong></td>
<td>Principles of business continuity and crisis management plan</td>
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<td></td>
<td>Risk assessment for business continuity (business impact analysis)</td>
</tr>
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<td></td>
<td>Understanding and time series analysis of bottlenecks to business continuity</td>
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<td></td>
<td>Target restoration time based on supply and delivery responsibilities</td>
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<td></td>
<td>Strategy of business continuity from the stakeholder management perspective</td>
</tr>
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<td></td>
<td>Awareness and training programs in business continuity</td>
</tr>
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<td></td>
<td>Resilience of supply chain and value chain</td>
</tr>
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<td></td>
<td>Communication to stakeholders in times of crisis</td>
</tr>
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<td></td>
<td>Disclosure of information on business continuity</td>
</tr>
<tr>
<td></td>
<td>Financial stability (risk finance, insurance)</td>
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</tbody>
</table>
Enterprise Resilience Rated Loan Program
Signals to stakeholders
Enterprise Resilience Rated Loan Program
Signals to stakeholders and the market

CSR report

Stockholder communication

HP, press

Financial report

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Business card

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Enterprise Resilience Rated Loan Program
Signals to stakeholders and the market

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Business card

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Enterprise Resilience Rated Loan Program
Feedback: Visualization of enterprise resilience

RANK 【A】
Company with Excellent Resilience

TOTAL SCORE [100]
Robustness (Preparedness, mitigation) [25]
Resilience (Recovery, reconstruction) [50]

<table>
<thead>
<tr>
<th></th>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL SCORE</td>
<td>75.3</td>
<td></td>
</tr>
<tr>
<td>Robustness</td>
<td>23.9</td>
<td></td>
</tr>
<tr>
<td>Resilience</td>
<td>16.1</td>
<td>35.3</td>
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</tbody>
</table>
Enterprise Resilience Rated Loan Program
Feedback: Enterprise resilience chart

Total Assessment
Disaster Prevention Plan
Emergency Response and Operations
Secondary Disaster Prevention Plan
Compliance
Durability of Important Property
Distribution and Fungibility of the Head Office and Important Bases
Redundancy of Information Systems
Principle of Business Continuity and Crisis Management Plan
Risk Assessment for Business Continuity (Business Impact Analysis)
Understanding and Time Series Analysis
Target Restoration Time Based on Supply Delivery Responsibility
Strategy of Business Continuity from a Viewpoint of Stakeholder Management
Awareness and Training Programmes of Business Continuity
Resilience of Supply Chain and Value Chain
Information Disclosure about Business Continuity
Crisis Communications to Stakeholders
Financial Stability (Using Risk Finance)

Sample Company
Aggregated Assessed Companies 2011 Fiscal Year Average
Enterprise Resilience Rated Loan Program
Track record: 102 deals, 100 billion yen (2006 FY~2012 FY)

(million yen) (No. of deals)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of deals</td>
<td>10</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>25</td>
<td>48</td>
</tr>
<tr>
<td>Million yen</td>
<td>6,300</td>
<td>300</td>
<td>3,900</td>
<td>400</td>
<td>1,900</td>
<td>1,500</td>
<td>30,400</td>
<td>47,400</td>
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</tbody>
</table>

Scope
- Disaster preparedness/ mitigation
- Enterprise resilience
Enterprise Resilience Rated Loan Program
Track record: All industries, all areas of Japan

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alps Electric</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Fujita Kanko</td>
<td>Construction</td>
</tr>
<tr>
<td>NRS</td>
<td>Construction</td>
</tr>
<tr>
<td>Ooka</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Halows</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Sea</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Toto</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Daicel Construction</td>
<td>Construction</td>
</tr>
<tr>
<td>Toyo Gosei</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Kenedix</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Showa</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Japan Air Terminal</td>
<td>Construction</td>
</tr>
<tr>
<td>Nippon Steel</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Shintetsu</td>
<td>Construction</td>
</tr>
<tr>
<td>JR System</td>
<td>Transportation</td>
</tr>
<tr>
<td>Daifuku</td>
<td>Logistics</td>
</tr>
<tr>
<td>Sg Holdings</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Western Gas</td>
<td>Utilities</td>
</tr>
<tr>
<td>Sanyo</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Shionogi</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>Seiwa</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Terrada</td>
<td>Construction</td>
</tr>
<tr>
<td>Showa Denko</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Nissei</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Showa Denko</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Nitto</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Kowa</td>
<td>Pharmaceuticals</td>
</tr>
<tr>
<td>Nippon Steel</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Toyo Engineering</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Opto Electronics</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>Nagashima Resort</td>
<td>Hospitality</td>
</tr>
<tr>
<td>Miyazaki Airport</td>
<td>Transportation</td>
</tr>
</tbody>
</table>

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Enterprise Resilience Rated Loan Program
Networking: The Enterprise Resilience Rating Club

ISO 22301:2012
Supply chain risk management
Education, training and public relations
Resilience as CSR

ISO22301 Social security
TOTO

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Enterprise Resilience Rated Loan Program
World’s first: Proactive and responsible finance

“Influence on a worldwide scale. An effective and innovative financial product.”
World Economic Forum 2012

Global Risks 2012
Seventh Edition
An Initiative of the Risk Response Network

World Economic Forum in collaboration with:
Marsh & McLennan Companies
Swiss Reinsurance Company
Wharton Center for Risk Management, University of Pennsylvania
Zurich Financial Services

The Development Bank of Japan became the first in the world to offer more advantageous borrowing terms to companies that took steps to increase resilience in case of an emergency. This policy offers one indication that risk recognition may be improving. The bank screens 18 metrics on business continuity, preparedness and mitigation before deciding on loan premiums (see Figure 24).
Urban resilience:
Connecting the dots: a society-wide approach

Individual resilience

- Corporate
- Corporate group
- Gov’t. / local gov’t.
- Public institution
- NPO, NGO
- etc.

Chain and network resilience

- Customer
- Supply chain
- Administration
- Economic organization
- etc.

Urban/social resilience

- Local community
- Public-private
- Urban/social security
- Urban/social competitiveness
- etc.

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About ICUS:
Mission and activities
About ICUS:
The ICUS network

Over 100 organizations based in Asia
Urban resilience: Resilience cycle

I: Risk Management

1. Risk Assessment
2. Preparedness
3. Mitigation
4. Disaster prediction, Early warning

Disaster

II: Crisis Management

5. Disaster Assessment
6. Disaster response
7. Optimum recovery
8. Reconstruction
Urban resilience: whole societal approach
Urban resilience
Business analysis

Business continuity plan

Business continuity in action

Comparison

WHAT (Business)

WHO

TIME

Number of businesses

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Urban resilience: The COMMON DISASTER INFORMATION PLATFORM
Urban resilience: The COMMON DISASTER INFORMATION PLATFORM

Medical capacity

Blackout area

Traffic congestion
3. Building National Resilience to Global Risks

Global Risks 2013
Risk Response Network
Resilient dynamism
World Economic Forum Annual Meeting 2013

50 Global risks

Source: World Economic Forum
Global risks: Perceived likelihood over the next 10 years

Top 5 Global Risks in Terms of Likelihood

<table>
<thead>
<tr>
<th>Year</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012*</th>
<th>2013*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Breakdown of critical information infrastructure</td>
<td>Asset price collapse</td>
<td>Asset price collapse</td>
<td>Asset price collapse</td>
<td>Meteorological catastrophes</td>
<td>Severe income disparity</td>
<td>Severe income disparity</td>
</tr>
<tr>
<td>2nd</td>
<td>Chronic disease in developed countries</td>
<td>Middle East instability</td>
<td>Slowing Chinese economy (&lt;6%)</td>
<td>Slowing Chinese economy (&lt;6%)</td>
<td>Hydrological catastrophes</td>
<td>Chronic fiscal imbalances</td>
<td>Chronic fiscal imbalances</td>
</tr>
<tr>
<td>3rd</td>
<td>Oil price shock</td>
<td>Failed and failing states</td>
<td>Chronic disease</td>
<td>Chronic disease</td>
<td>Corruption</td>
<td>Rising greenhouse gas emissions</td>
<td>Rising greenhouse gas emissions</td>
</tr>
<tr>
<td>4th</td>
<td>China economic hard landing</td>
<td>Oil and gas price spike</td>
<td>Global governance gaps</td>
<td>Fiscal crises</td>
<td>Biodiversity loss</td>
<td>Cyber attacks</td>
<td>Water supply crises</td>
</tr>
<tr>
<td>5th</td>
<td>Asset price collapse</td>
<td>Chronic disease, developed world</td>
<td>Retrenchment from globalization (emerging)</td>
<td>Global governance gaps</td>
<td>Climatological catastrophes</td>
<td>Water supply crises</td>
<td>Mismanagement of population ageing</td>
</tr>
</tbody>
</table>

Source: World Economic Forum
Global risks: Perceived impact if manifested

Top 5 Global Risks in Terms of Impact

<table>
<thead>
<tr>
<th>Year</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Asset price collapse</td>
<td>Retrenchment from globalization (developed)</td>
<td>Interstate and civil wars</td>
<td>Pandemics</td>
<td>Oil price shock</td>
</tr>
<tr>
<td>2008</td>
<td>Asset price collapse</td>
<td>Retrenchment from globalization (developed)</td>
<td>Slowing Chinese economy (&lt;6%)</td>
<td>Oil and gas price spike</td>
<td>Pandemics</td>
</tr>
<tr>
<td>2009</td>
<td>Asset price collapse</td>
<td>Retrenchment from globalization (developed)</td>
<td>Oil and gas price spike</td>
<td>Chronic disease</td>
<td>Fiscal crises</td>
</tr>
<tr>
<td>2010</td>
<td>Asset price collapse</td>
<td>Fiscal crises</td>
<td>Chronic disease</td>
<td>Asset price collapse</td>
<td>Extreme energy price volatility</td>
</tr>
<tr>
<td>2011</td>
<td>Fiscal crises</td>
<td>Climatological catastrophes</td>
<td>Geopolitical conflict</td>
<td>Water supply crises</td>
<td>Extreme volatility in energy and agriculture prices</td>
</tr>
<tr>
<td>2012*</td>
<td>Major systemic financial failure</td>
<td>Water supply crises</td>
<td>Food shortage crises</td>
<td>Chronic fiscal imbalances</td>
<td>Failure of climate change adaptation</td>
</tr>
<tr>
<td>2013*</td>
<td>Major systemic financial failure</td>
<td>Water supply crises</td>
<td>Chronic fiscal imbalances</td>
<td>Diffusion of weapons of mass destruction</td>
<td></td>
</tr>
</tbody>
</table>

50 Global Risks

5 Categories:
- Economic
- Environmental
- Geopolitical
- Societal
- Technological

Source: World Economic Forum
Global risk interconnectivity 2013

Source: World Economic Forum
National resilience framework (Beta version)
Risk management effectiveness and global competitiveness ranking

Source: World Economic Forum
Executive opinion survey:
Risk management effectiveness

- Politicians’ ability to govern
- Business-government relations
- Greater efficiency in implementation
- Public trust in politicians
- Wasteful government spending
- Measures to combat corruption and bribery
- Government services for improvement of business performance

Source: World Economic Forum
National resilience
to global risks
Social responsibility:
2 shared social value drivers for sustainability
Thank you for your time.

Enterprise Resilience Rated Loan Program  
—Growth & Resilience—

Yoshiki Hiruma  
Director, Enterprise Resilience Rated Loan Program  
Development Bank of Japan
Resilience is...
Resilience is...