



**WORLD
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Emerging Strategies to Manage Changing Risks:

**An Examination of Private Sector, NGO
and Government Initiatives**

**2014 Improving Risk Regulation
IRGC Annual Conference**

Terry F. Yosie, President & CEO

World Environment Center

October 14, 2014

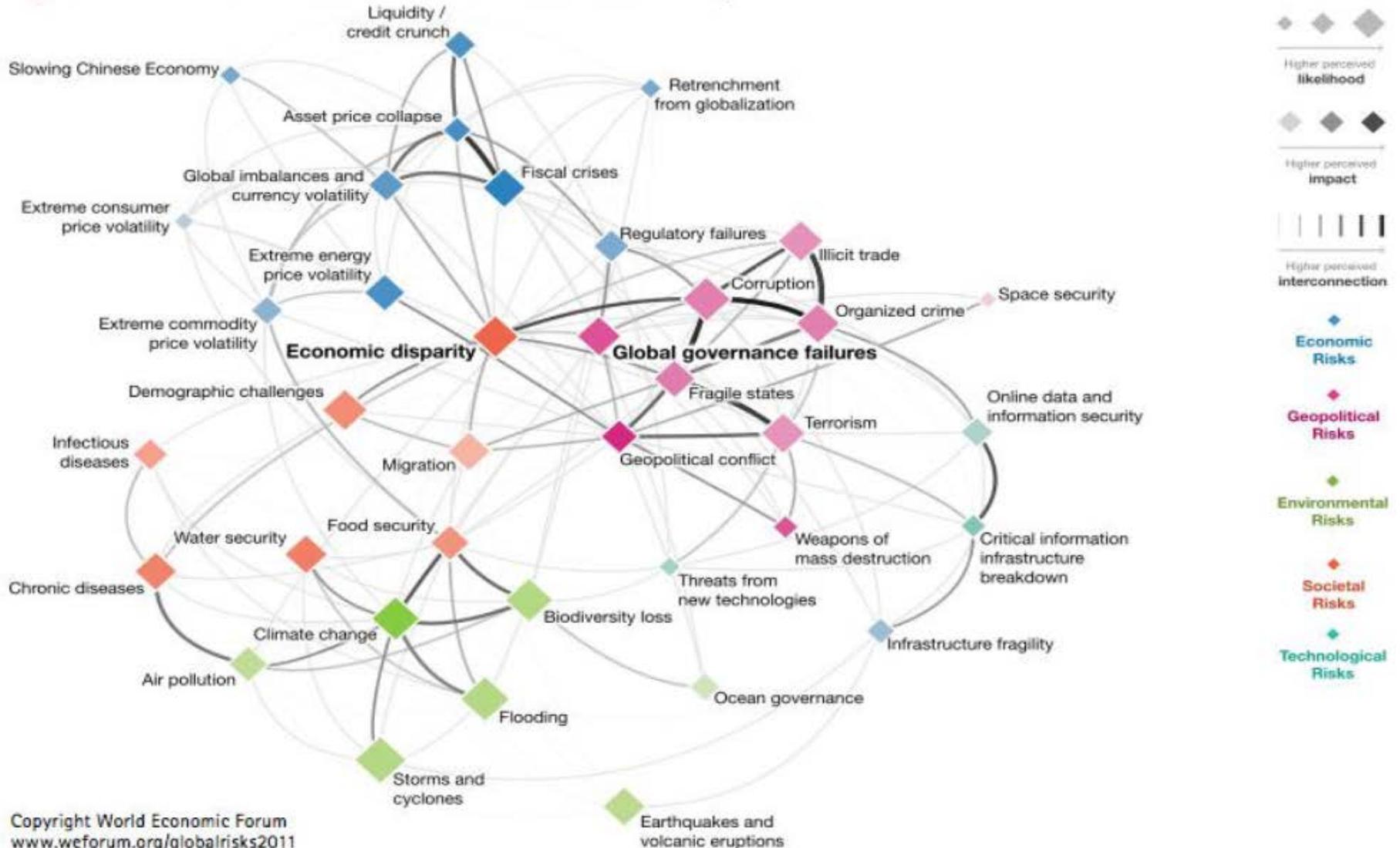
Today's discussion

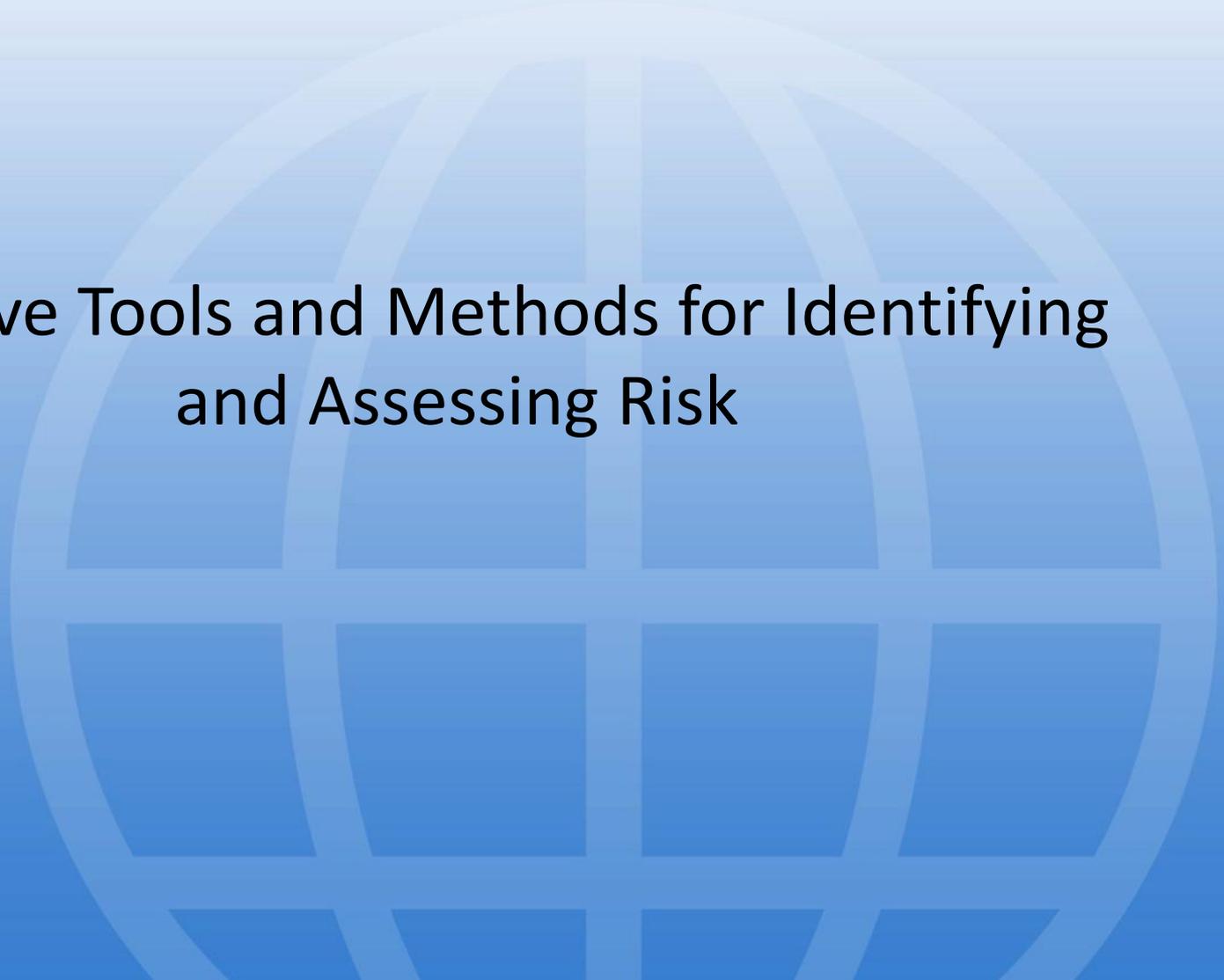
- **Changing risk context**
- **Innovations for risk management**
- **Emerging risk management strategies**
- **Implications for regulatory policy**



The Risk Context: Everything's Connected

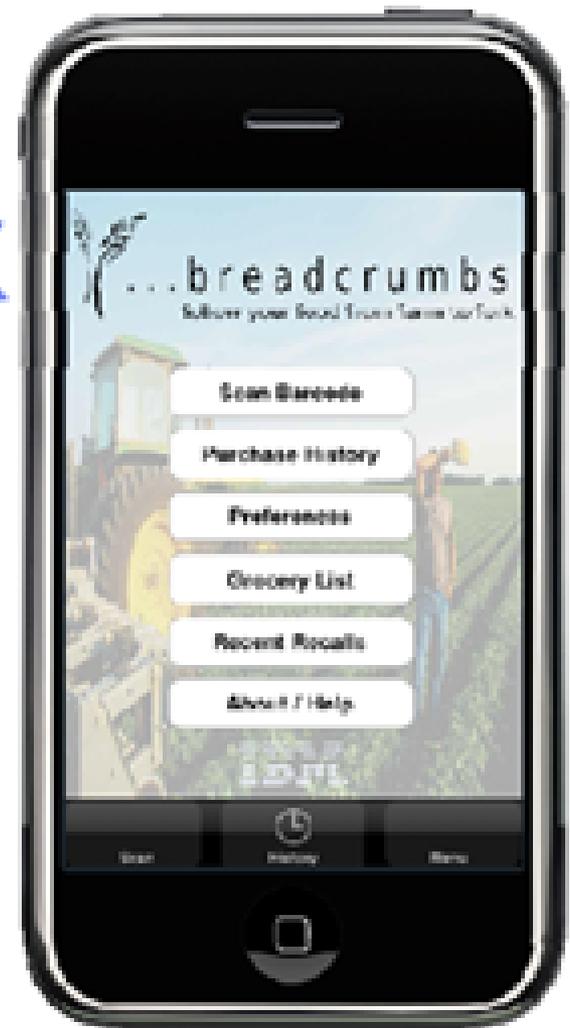
Figure 1: World Economic Forum: Risks Interconnection Map 2011





Innovative Tools and Methods for Identifying and Assessing Risk

Businesses and Consumers will be Empowered



- **Where was this product manufactured and distributed?**
- **How do I know if this product genuine or counterfeit?**
- **Does this product contain prohibited substances?**
- **What is the genealogy of material of interest in this product?**
- **How do I know if this product is on the recall list?**
- **Has this product been mislabeled and contains a ingredient I am allergic to?**
- **How can I trust that this food in fact 'organic'?**
- **How can I remember to eat this product before it expires?**

MATERIALITY ASSESSMENT - CONTEXT

Financial Reporting

- "Material issues" those that have affected, or are reasonably likely to affect the company's reputation, liquidity, capital resources or results of operations and stakeholder decisions.
- Drives disclosure to shareholders and strategic planning.

Sustainability Reporting

- Material issues reflect the organizational significant economic, environmental and social impacts across the company value chain.
- Profile issues that would substantively influence assessments & decisions of stakeholders
- Establishes framework to assess issues from BOTH company and stakeholder point of view.
- Enables formal stakeholder engagement process to inform reporting strategy and operational priorities.

Regulatory and Institutional Frameworks which inform Materiality and Sustainability Materiality Assessments





Examples of Innovative Risk Management
Strategies from the Private Sector, Non-
Governmental Organizations and
Governmental Agencies

Managing Risk Beyond the Fenceline: Coca-Cola's Global Water Strategy

Strategy, Goals and Partners

Strategic Framework

- 1**

Plant Performance
- 2**

Watershed Protection
- 3**

Sustainable Communities
- 4**

Global Awareness & Action

Goals

- **Reduce:** improve water efficiency 20% by 2012 compared with a 2004 baseline.
- **Recycle:** 100% fully treated effluent water.
- **Replenish:** "give back" to communities and nature as much water as we use by 2020.
- **Sustain:** source water protection plans in all plants by the end of 2012.
- **Agriculture:** water use, soil health and biodiversity, focus on sugarcane, oranges, corn.

Key Partners



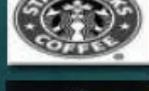
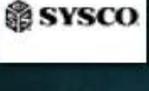
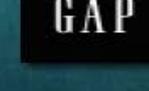
The Coca-Cola Company Classified – Internal Use 14

Unilever's Challenge in Managing its Global Environmental Footprint

OUR FOOTPRINT



WWF: Transformation of Risk Governance

beef	cocoa	coffee	palm oil	sugar	soy	cotton	shrimp	whitefish
								
								
								
								
								
								
								
								
								

Source: Jason Clay, WWF, "Feeding 9 Billion"

Valuing Natural Capital Initiative

The new BUSINESS IMPERATIVE: VALUING NATURAL CAPITAL

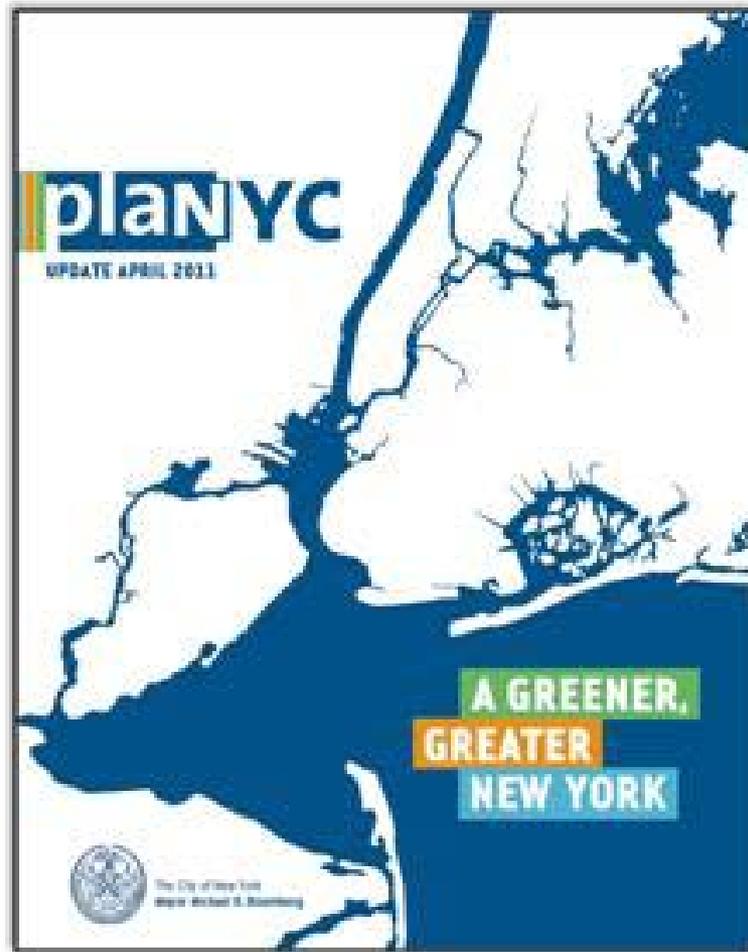
2012

CEO PERSPECTIVES
THE BUSINESS IMPERATIVE
FRAMEWORK FOR ACTION
COMPANY COMMITMENTS
TOOLS AND RESOURCES

FEATURING 24 BEST PRACTICE COMMITMENTS BY:



Comprehensive Sustainability Plan for NYC



 Housing and Neighborhoods

 Parks and Public Space

 Brownfields

 Waterways

 Water Supply

 Transportation

 Energy

 Air Quality

 Solid Waste

 Climate Change

Climate Change Impacts on NYC

	Baseline (1971- 2000)	2020s		2050s	
Scenario		Middle Range (25 th -75 th percentile)	High End (90 th percentile)	Middle Range (25 th -75 th percentile)	High End (90 th percentile)
Average Temperature	54°F	+ 2.0 to 3.0 F	+ 3.0 F	+ 4.0 to 5.5 F	+ 6.5 F
Precipitation	50.1 in.	+ 0 to 10%	+ 10%	+ 5 to 10%	+ 15%
Sea Level Rise	0	+ 4 to 8 in.	+ 11 in.	+ 11 to 24 in.	+ 31 in.

Source: A Stronger, More Resilient New York

Risk Profiles

- Summarize risk to Sea Level Rise for asset managers
- Provides information to inform most appropriate adaptation strategies
- Includes data on:
 - ‘vital characteristics’ of the physical and operational functionality
 - Sensitivity
 - Exposure to SLR (depth of inundation at 6 different scenarios)
 - Vulnerability and risk rating

Asset Risk Profile

West Oakland BART Station (T-03)

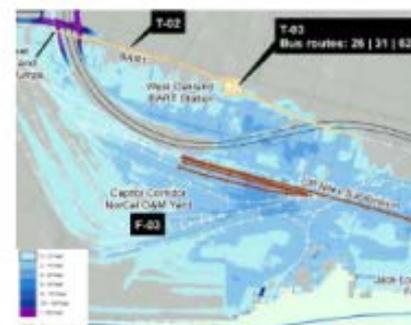
Asset Location / Jurisdiction Oakland / BART	
Summary West Oakland BART Station is a transit facility serving West Oakland neighborhoods and includes bus transfer and parking facilities. Due to lack of data, this asset was not rated with respect to sensitivity. Exposure is rated low, due to inundation under only 100-year SWEL + wind/waves for both the 16" and 55" SLR scenarios. No adequate alternative station exists for West Oakland BART Station, resulting in a medium vulnerability rating. Consequence is rated high for capital improvement costs, commuter use, and socioeconomic impact, moderate for time to rebuild; and low for public safety and goods movement, which does not apply. The overall consequence rating for this asset is 3.33, making this a medium-risk asset.	
Characteristics:	
<ul style="list-style-type: none"> • Elevated • Commuter route • Transit routes [4 BART lines: AC Transit: 28, 31, 62] 	

Sensitivity	
Data unavailable in project timeframe.	
Annual O&M	\$3.43 million
Liquefaction Susceptibility	Medium
Exposure: Low	
Maximum Inundation Depths	
16" + MHHW	0 ft
16" + 100-yr SWEL	0 ft
16" + 100-yr SWEL + wind waves	YES
55" + MHHW	0 ft
55" + 100-yr SWEL	0 ft
55" + 100-yr SWEL + wind waves	YES
Inadequate Adaptive Capacity (16" SLR): High No adequate alternative station	
Vulnerability Rating (mid century): Medium	

* The BART station is elevated, hence no inundation at the 55" + 100-yr SWEL scenario, although access to the station will be impacted



Projected Inundation with 16 inch SLR + 100-yr SWEL



Projected Inundation with 55 inch SLR + 100-yr SWEL

U.S. National Academy of Sciences

EPA's New Sustainability Road Map



BEST

Board on Environmental Studies and Toxicology

Sustainability Concepts in Decision-Making: Tools and Approaches for the US Environmental Protection Agency

September 10, 2014

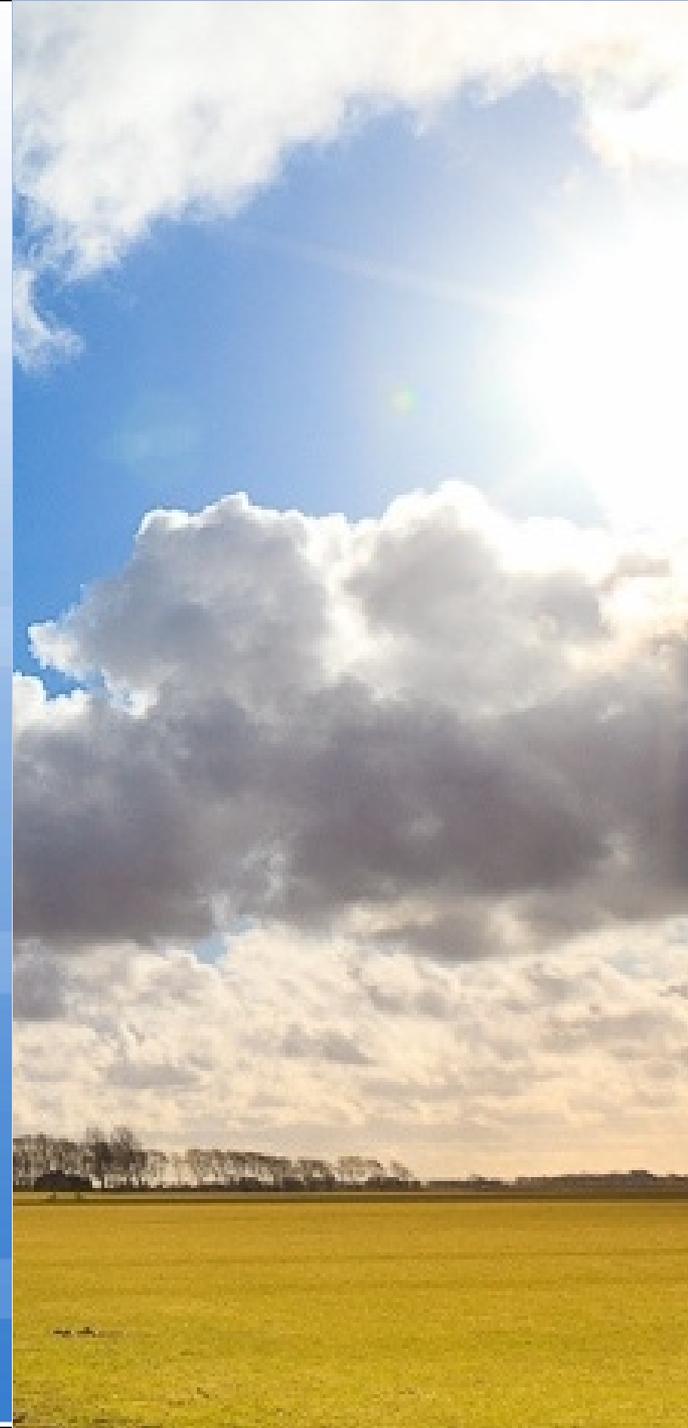
Preparing the Next Generation of Leaders—WEC Initiative



- Creating a sustainability road map for business, engineering and social science education
- Integrating sustainability concepts and practices with curriculum development and classroom instruction
- Integrating “action-based learning” into the classroom experience
- Accelerating the transfer of business knowledge to universities
- Filling the employment pipeline with new talent
- Achieving scale

Implications for Regulatory Policy

- Policies should embody a “systems approach” to effectively assess and manage risks
- Need for integrated tools and methodologies—e.g., life cycle analysis/risk assessment, improved economic valuation methods
- Transition to regulation of value chains
- Achieve market scale in policy frameworks
- New skills and competencies required





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Thank you

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