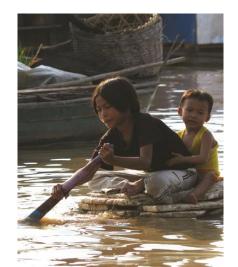
Resilient
Chicago:
Climate
Planning
for the Future



#### Research to Action: Themes

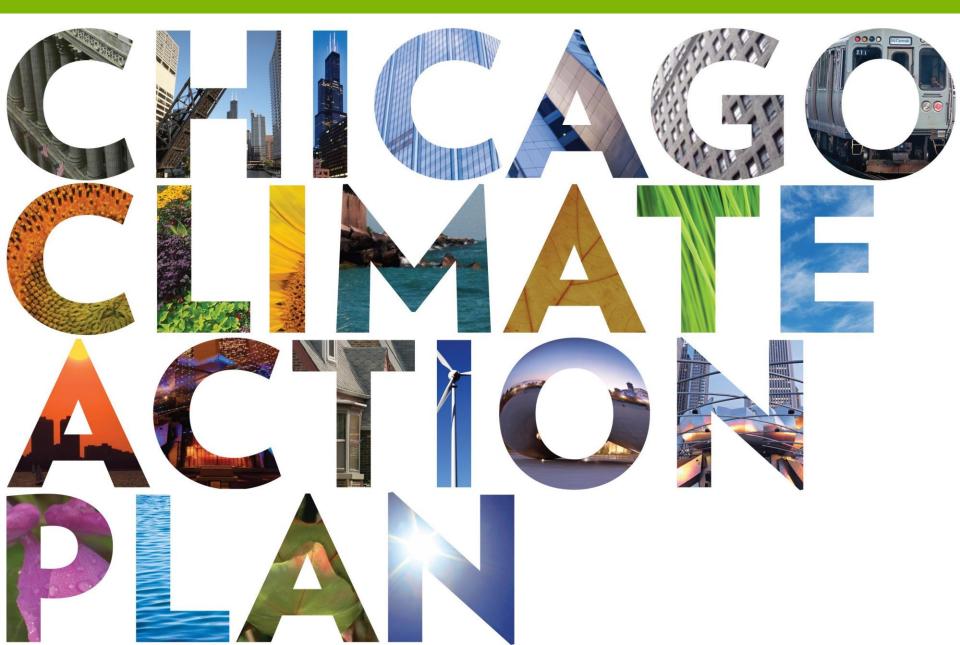
- Collateral Benefits
- Business Case
- Humanitarian Issue



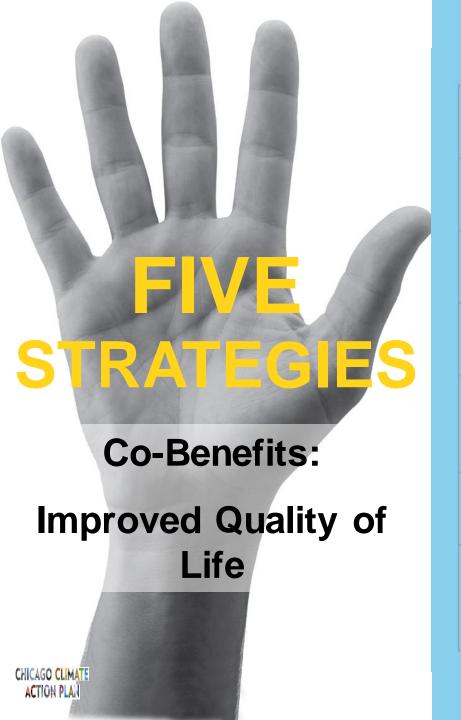












#### ADDRESSING THE CHALLENGE OF CLIMATE CHANGE

ENERGY EFFICIENT BUILDINGS
8 ACTIONS

CLEAN & RENEWABLE ENERGY SOURCES
5 ACTIONS

IMPROVED TRANSPORTATION OPTIONS
10 ACTIONS

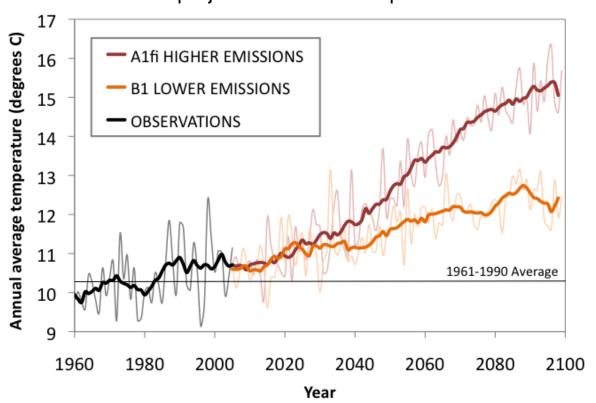
REDUCED WASTE &
INDUSTRIAL POLLUTION
3 ACTIONS

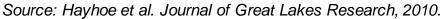
PREPARATION
9 ACTIONS

35 WAYS
TO ENSURE A RESILIENT CITY

#### **Temperature: A warmer Chicago**

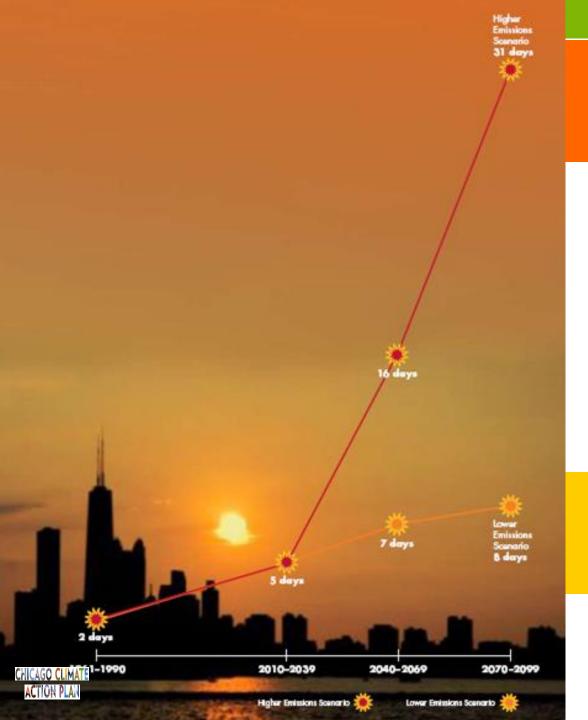
## Chicago Metropolitan Area Annual Average Temperatures Observations and projections under multiple emissions scenarios











# Higher Emissions: 31 days

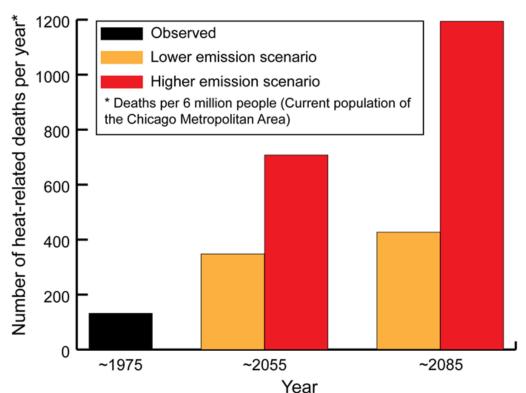
**Projected** number of 100degree days per year in Chicago **Lower Emissions:** 8 days

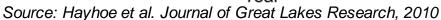


#### **Health: Increasing heat-related risks**

#### **Chicago Metropolitan Area Heat-Related Deaths**

Observations and projections under multiple emissions scenarios









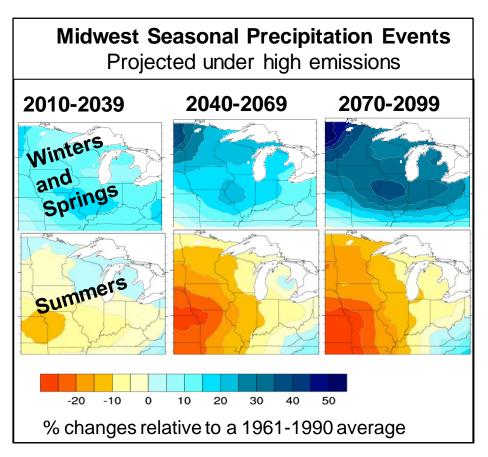
## Climate Matters: Emergency Services



Increased demand on first responders

Chicago Fire Dept. EMS 43 Chicago,IL May 3rd, 2006

#### Impacts of Chicago's Changing Climate

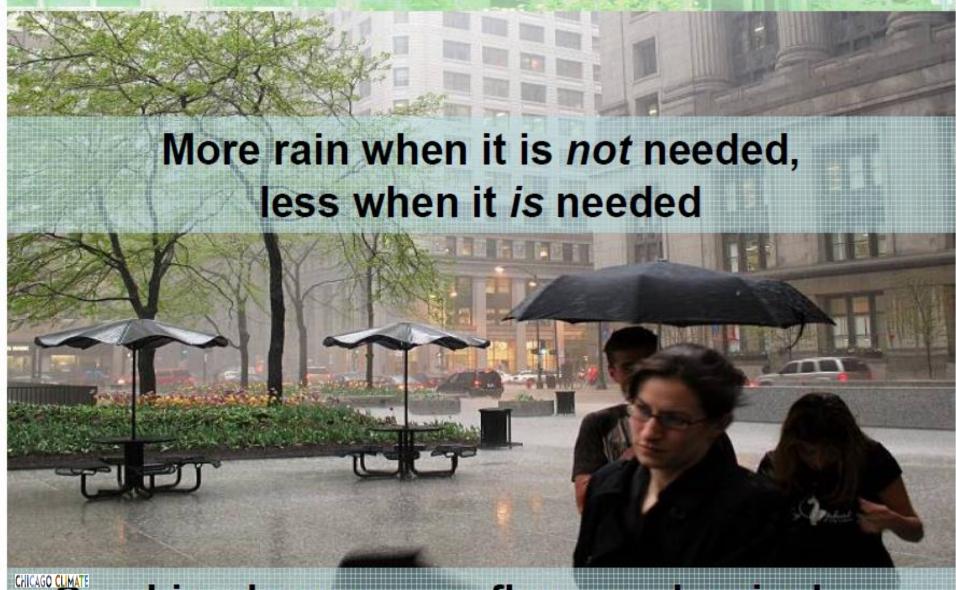


Source: Hayhoe, U.S. Global Change Research Program, 2009



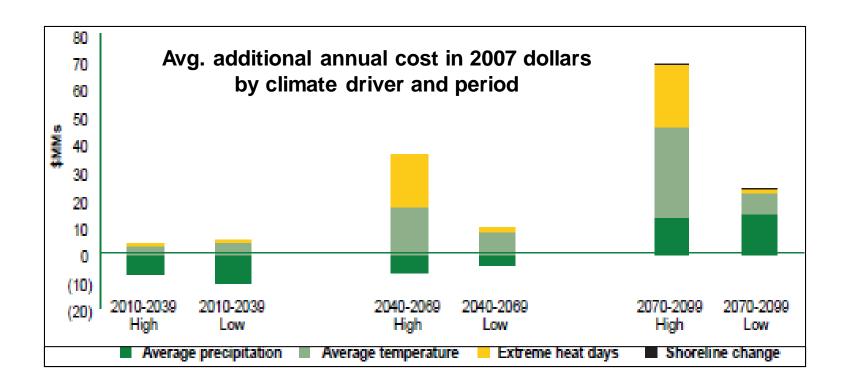


# Climate Matters: Extreme Precipitation



ACTION PLAN Ombined sewer overflows and swim bans

#### **Economic Risk of Climate Impacts**





#### Mitigation-Adaptation Overlap

#### Mitigation

- Improve residential, commercial, and industrial energy efficiency
- International standard for Chicago Energy Efficiency Code
- Required green commercial/residential renovations
- · Expand appliance trade-in programs
- · Improve water efficiency in buildings
- · Increase trees and rooftop gardens
- Promote no or low cost mitigation actions to public
- · Procure renewable electricity generation
- · Upgrade 21 Illinois power plants
- Implement 2001 Energy Plan to expand distributed generation and other projects
- · Boost power generation efficiency standards
- Household-scale renewable power and solar domestic hot water
- Invest in transit
- Provide incentives for transit use
- Plan and design around transit hubs
- Increase car sharing
  - Increase walking and bike trips
  - · Increase vehicle alternative fuel use
  - · Improve fleet energy efficiency
  - Advocate for higher federal fuel efficiency standards
    - · Foster more efficient freight movement
      - . Support intercity high-speed rail plan
        - · Reduce, reuse, recycle
          - · Promote alternative refrigerants
            - Manage stormwater with Green Infrastructure

#### Adaptation

- Innovative cooling strategies
- · Urban Heat Island reduction
- · Energy reduction program
- · City Tree Fund
- . Thermal environment map
- · Flexible labor agreements
- · High reflectivity pavement
- · Citywide storm water management plan
- · Private sector green roofs
- · Performance-based landscape ordinance
- · Green alley design
- · "Single-lot" storm water ordinance
- · Energy resource management plan
- · City building natural ventilation
- · Improved recommended plant list
- · Urban forest management plan
  - · Increased public education

procurement

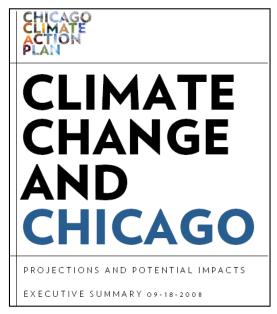
- · Climate change DSS in planning
- · Benchmarking against other cities
- Future climate benchmarking against other cities
  - Climate sensitive
    - City-wide climate change design

- · City heat response plan
- · Ozone response activities
- · Alternate school schedules
- Temperature trigger studies
- Indoor air quality evaluation
- MWRD watershed studies
- · Water quality testing
- · Permeable paving requirements
- Catch basin retrofits
- City-operated mosquito control
- · Power vulnerability study
- · Water pricing strategy
- · Future-climate adapted City fleet
- Utility burial for street/traffic lighting
- · Utility trenches
- Urban wetland management plan
- · Ecosystem diversity index
- Emergency response planning and coordination
- Extended beach/boating season
- Restaurant and food supply research

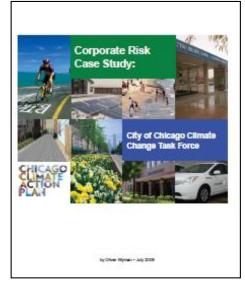




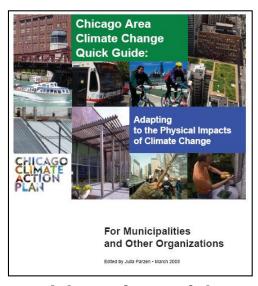
#### **Adaptation Resources**



Projections and potential impacts



Corporate risk analysis



Adaptation quick guide

www.chicagoclimateaction.org







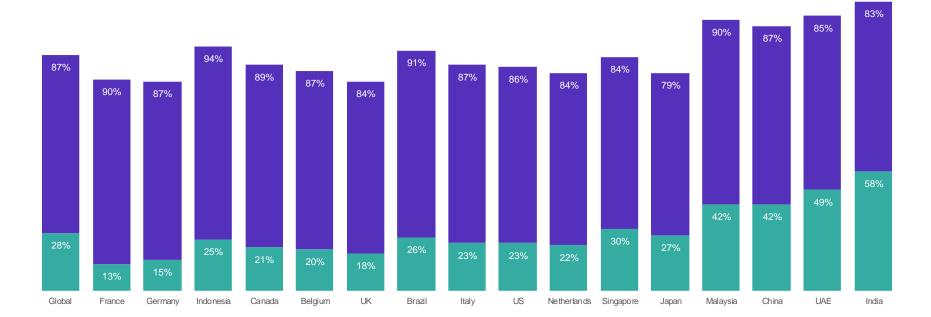
# Edelman Business + Social Purpose



# Business is Struggling to Address Corporate Responsibility Issues

What Business Should Do

Current Performance







# But there is a Shift in Trust-Building From Operational to Societal

#### **16 TRUST BUILDING ATTRIBUTES**

- SOCIETAL
- OPERATIONAL

#### SOCIETAI

attributes more important to building future trust

- Listens to customer needs and feedback
- High quality products or services
- 3 Treats employees well
- 4 Places customers ahead of profits
- Takes actions to address issue or crisis
- 6 Has ethical business practices
- Has transparent and open business
- Communicates frequently and honestly
- 9 Works to protect/ improve environment
- Addresses society's needs
- Positively impacts the local community

#### CURRENT TRUST

Edelman driven by operational attributes

- 2 Innovator of new products
- Highly regarded, top leadership
- Delivers consistent financial returns
- Ranks on a global list
- Partners with third parties

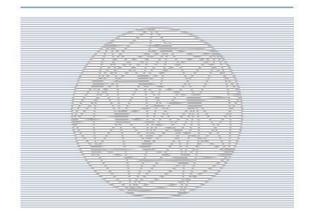






Insight Report

#### Global Risks 2014 Ninth Edition



#### Table 1: Ten Global Risks of Highest Concern in 2014

No.	Global Risk				
1	Fiscal crises in key economies				
2	Structurally high unemployment/underemployment				
3 (	Water crises				
4	Severe income disparity				
5	Failure of climate change mitigation and adaptation				
6	Greater incidence of extreme weather events (e.g. floods, storms, fires)				
7	Global governance failure				
8	Food crises				
9	Failure of a major financial mechanism/institution				
10	Profound political and social instability				

Source: Global Risks Perception Survey 2013-2014.

Note: From a list of 31 risks, survey respondents were asked to identify the five they are most concerned about.



More than 70% of corporate respondents saw risks to their supply and value chains from climate disruption



Cdp.net/supplychain



#### Millennials' Expectations

• 88% believe the for-profit sector should address social and environmental issues

Source: 8095 survey

Almost 90% would
 choose an employer with
 corporate responsibility values
 that echo their own and 90%
 would consider leaving if a firm's
 corporate responsibility values no
 longer matched their
 expectations.

Source: 2010 Net Impact







#### **Environmental Cost Impact of Supply Chains**

On average, US firms saw supply chain accounting for 60% of environmental costs



Food and Beverage Sector: 92% of environmental costs in supply chain



# CORPORATE RESPONSIBILITY A BUSINESS STRATEGY

90% companies note that sustainability is a part of business strategy

 61%: sustainability measures added to company's profit when on the agenda of top management





# Unlocking Global Adaptation Solutions

Country Resiliency Index to Inform Decision-Making





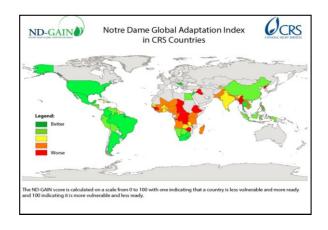
Country Rankings 2012

ND-GAIN INDEX		VULNERABILITY	READINESS	
				0
Rank ▼	Country	,	Trend	Score
119	Swazila	nd	=	53.5
120	India		<b>A</b>	53.4
121	Tajikista	n	=	53.3
122	Syria		▼	52.6
123	Libya		▼	52.1
124	Microne	sia	▼	51.8
125	Cuba		▼	51.1
126	Senegal		=	50.9
127	Benin		<b>A</b>	50.8
128	Zambia		<b>A</b>	50.6
129	Gambia		=	50.5
130	Rwanda		<b>A</b>	49.9
131	Djibouti		<b>A</b>	49.6
132	Pakistar	1	=	49.4
133	Camboo	lia	<b>A</b>	49.3
134	Lesotho		=	49.0
134	Maurita	nia	=	49.0
136	Malawi		<b>A</b>	48.7
137	Mozami	pique	=	48.6
137	Uganda		=	48.6
139	Laos		<b>A</b>	48.5
140	Tanzania	a	<b>A</b>	48.3
141	Burkina	Faso	=	48.2
142	Sao Ton	ne & Principe	<b>A</b>	48.1
143	Camero	on	=	47.9
144	Comoro	s	<b>A</b>	47.5
145	Banglad	lesh	•	47.3

8	United Kingdom	•	79.7
11	Germany	=	79.3
13	United States	•	79.0
23	Spain	=	76.1
66	Thailand	=	64.2
105	Philippines		57.4
112	Viet Nam	=	55.9
139	Laos		48.5



ND-GAIN Users 24













#### Water

Precipitation change

Freshwater withdrawal

Access to improved water supply







## Food

Crop yield change
Food import dependency
Agriculture capacity, including
irrigation and fertilizer







#### Health

Climate-change-induced disability adjusted life years

External health resource dependency

Health workers per capita









# Coastal Infrastructure

Land area less than 10m above sea level

Population living less than 10m above sea level



# ND-GAIN Vulnerability Sectors

Water

Food

Health



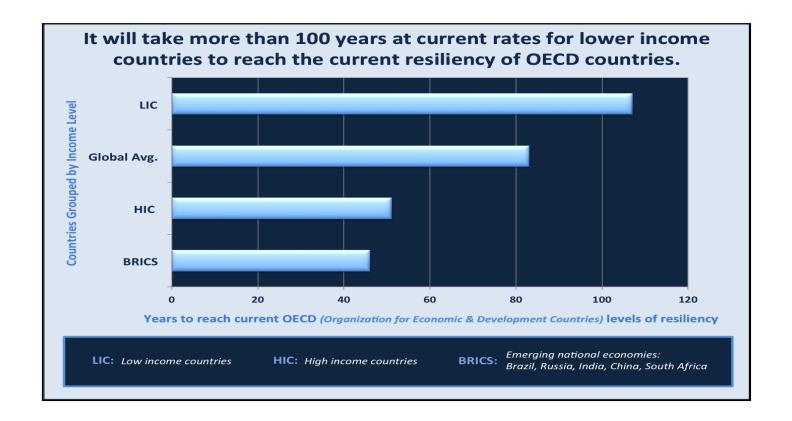
**Ecosystems** 

Coastal

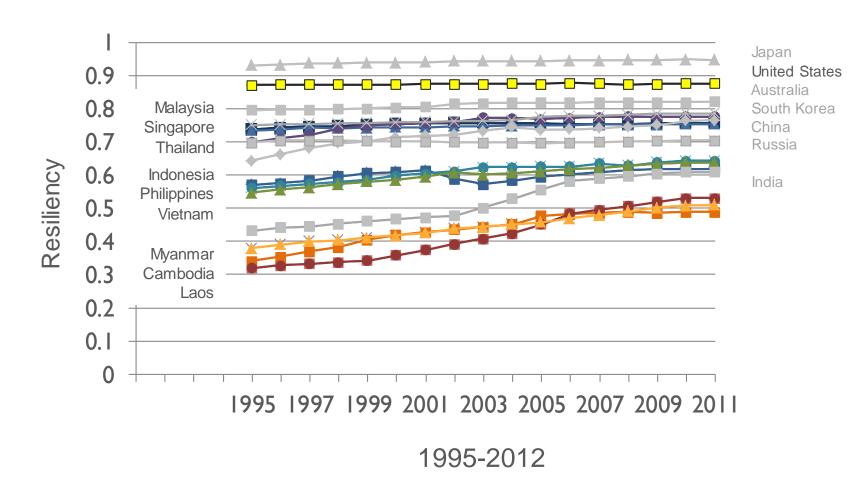
Energy

Transportation







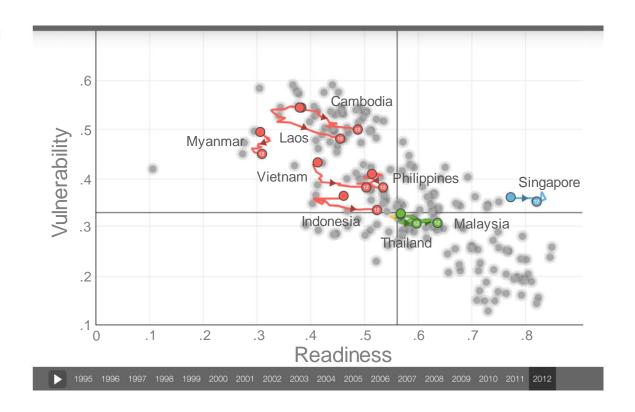




**ND-GAIN Matrix** 

# The ND-GAIN Matrix

Great Greatest Challenges, Challenges but and VULNERABILITY Adopting Urgency to Solutions Act Well-**Few Present** Challenges, Positioned with Few Time to Get Challenges Ready **READINESS** 





- Multinational or local corporation
- Local partner
- ND-GAIN Country rank
   below 60
- Measureable resiliency
- http://gain.org/nd-gainprize







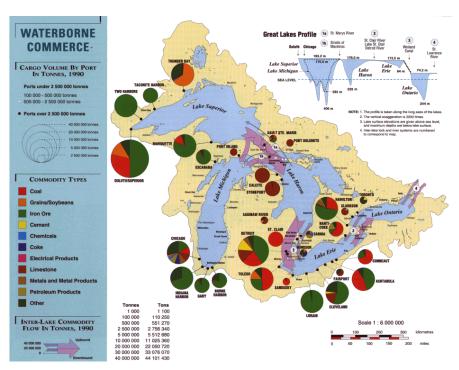




#### Regional Assessments

Sector Assessments

**Urban Assessments** 



Readiness \* Vulnerability \* Corporate Stakeholders

- Joyce Coffee
- Managing Director
- Notre Dame Global Adaptation Index
- www.nd-gain.org
- jcoffee@nd.edu
- 1 (574) 807-9322



Joyce Coffee
Managing Director
Notre Dame Global Adaptation Index
<a href="https://www.nd-gain.org">www.nd-gain.org</a>
<a href="mailto:jcoffee@nd.edu">jcoffee@nd.edu</a>

1 (574) 807-9322

