

ADAPTATION IMPLEMENTATION: RESEARCH TO IMPACT IN THREE SECTORS

Resilient
Chicago:
Climate
Planning
for the Future



Research to Action: Themes

- Collateral Benefits
- Business Case
- Humanitarian Issue



CHICAGO
CLIMATE
ACTION
PLAN



FIVE STRATEGIES

Co-Benefits:

Improved Quality of Life

ADDRESSING THE CHALLENGE OF CLIMATE CHANGE

ENERGY EFFICIENT BUILDINGS
8 ACTIONS

CLEAN & RENEWABLE ENERGY SOURCES
5 ACTIONS

IMPROVED TRANSPORTATION OPTIONS
10 ACTIONS

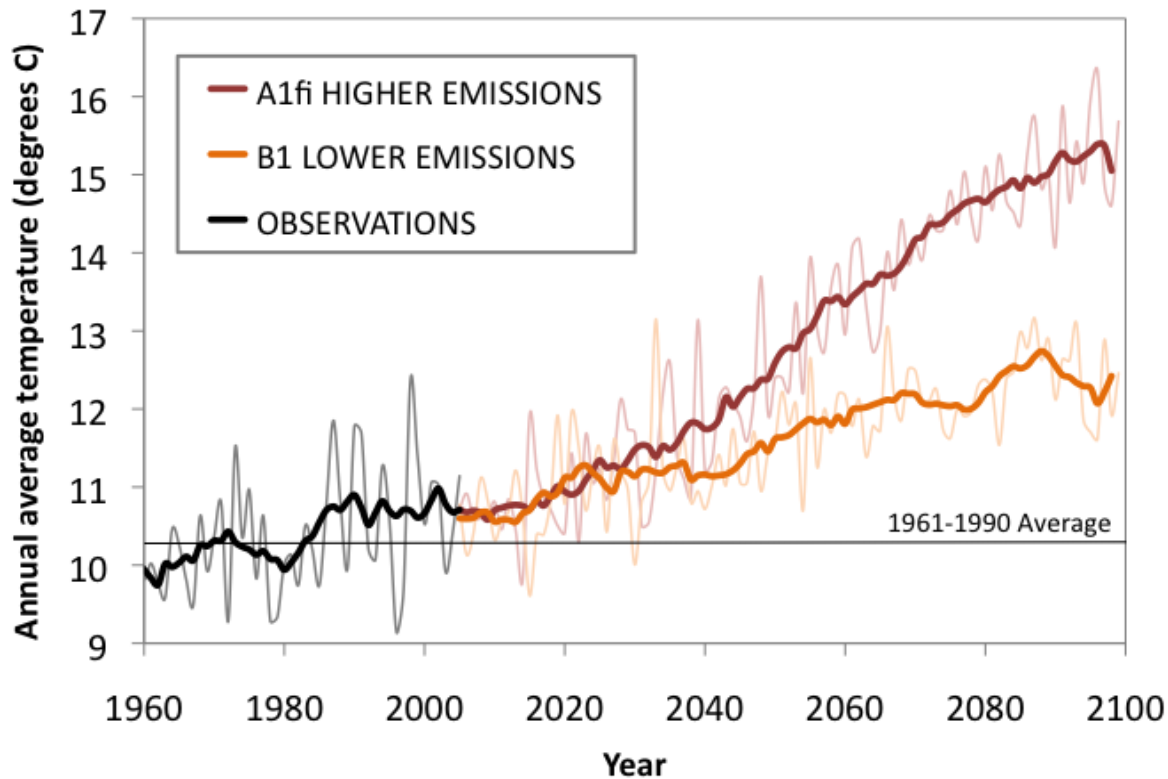
REDUCED WASTE & INDUSTRIAL POLLUTION
3 ACTIONS

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



Source: Hayhoe et al. *Journal of Great Lakes Research*, 2010.



Higher Emissions:
31 days

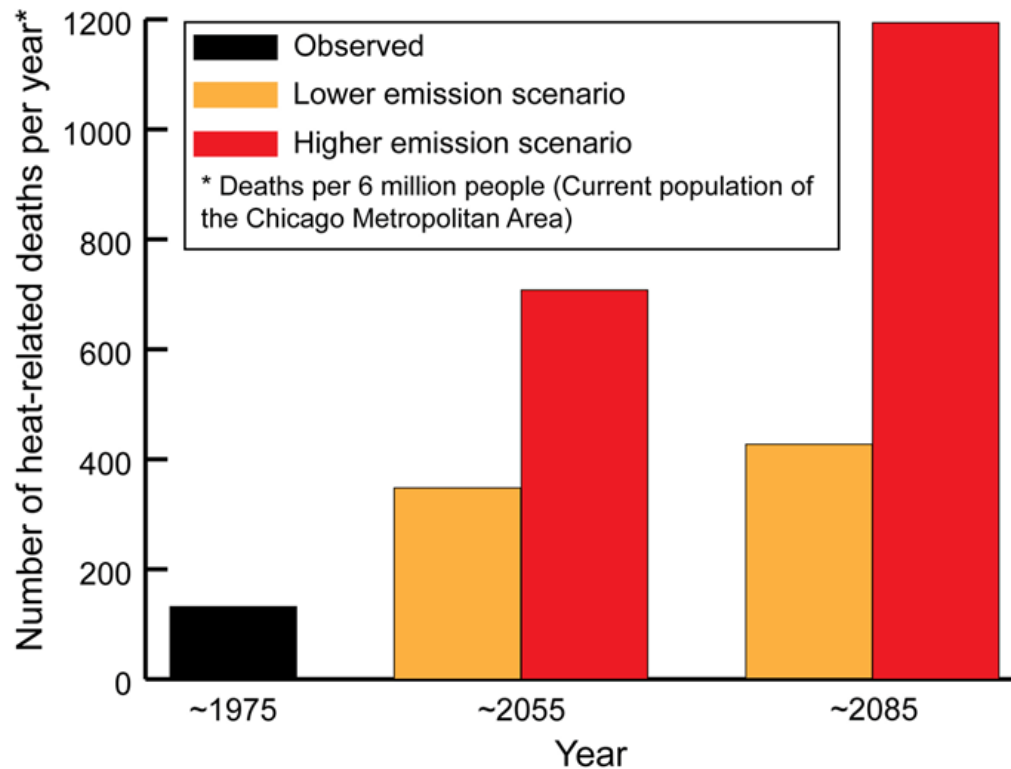
Projected
number of 100-
degree days
per year in
Chicago

Lower Emissions:
8 days

Health: Increasing heat-related risks

Chicago Metropolitan Area Heat-Related Deaths

Observations and projections under multiple emissions scenarios



Source: Hayhoe et al. *Journal of Great Lakes Research*, 2010

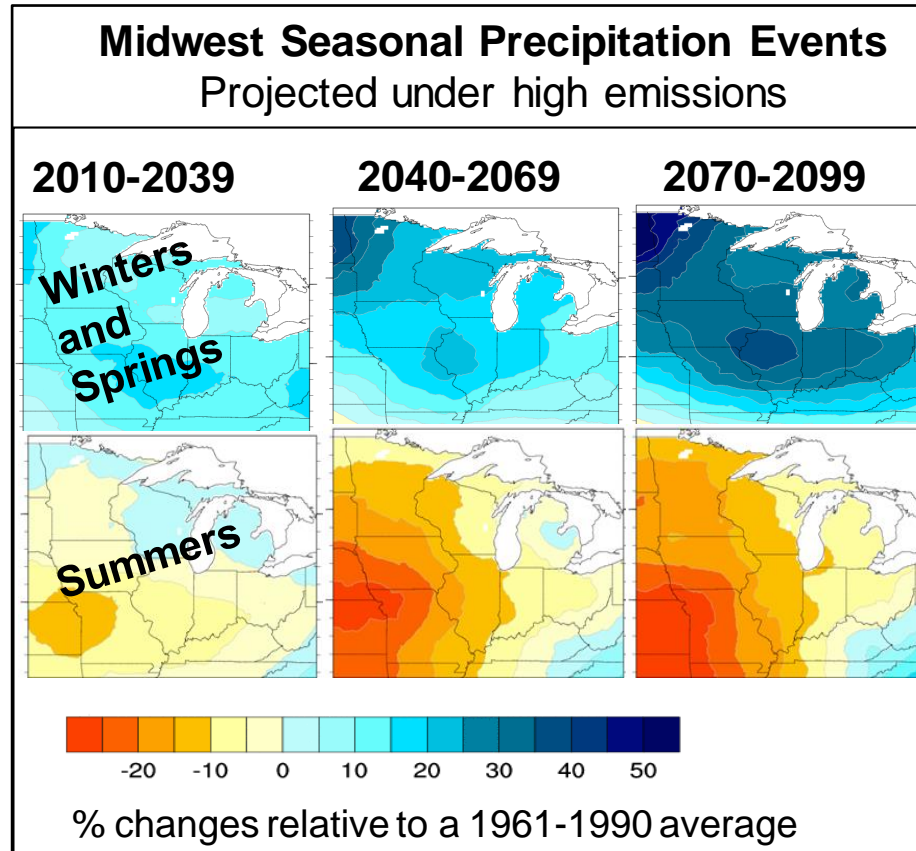
Climate Matters: Emergency Services

**More heat emergencies...
More storms...More fires**



Increased demand on first responders

Impacts of Chicago's Changing Climate



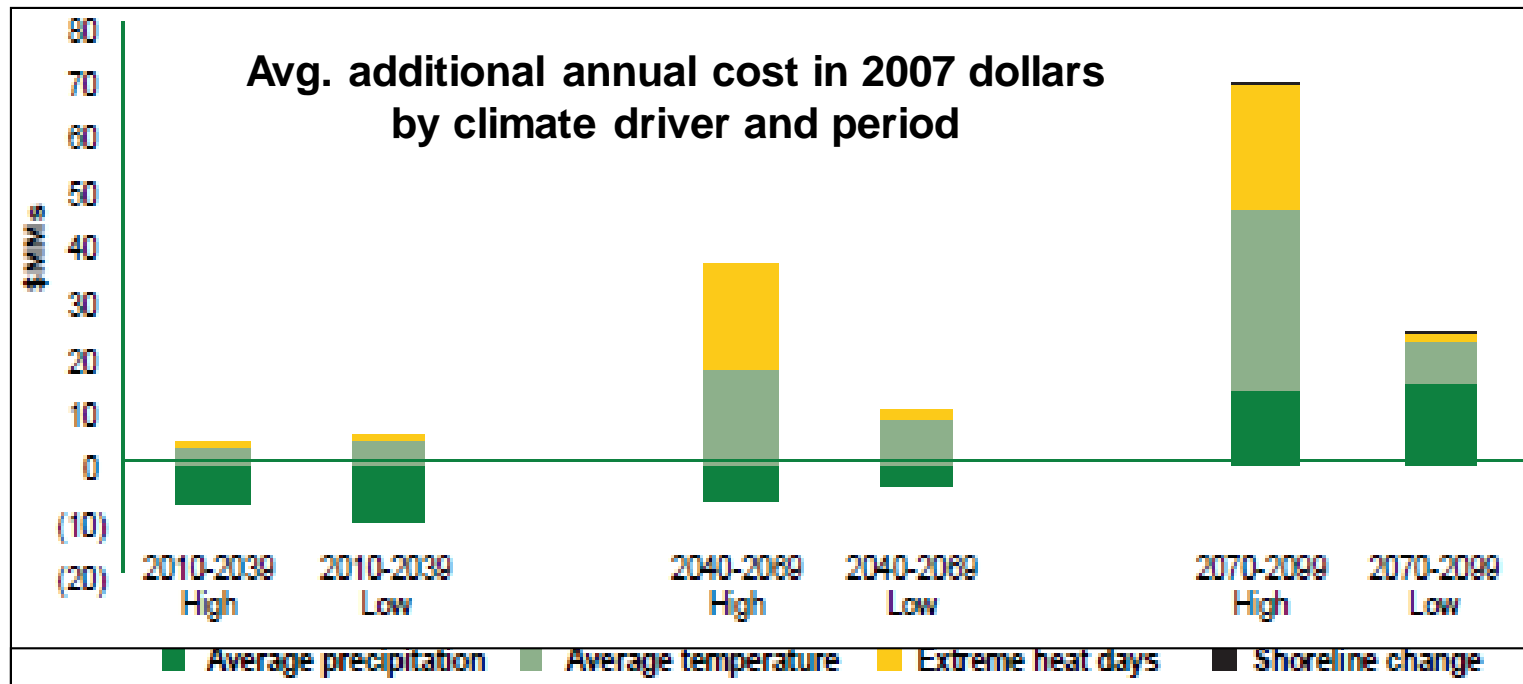
Source: Hayhoe, U.S. Global Change Research Program , 2009

Climate Matters: Extreme Precipitation

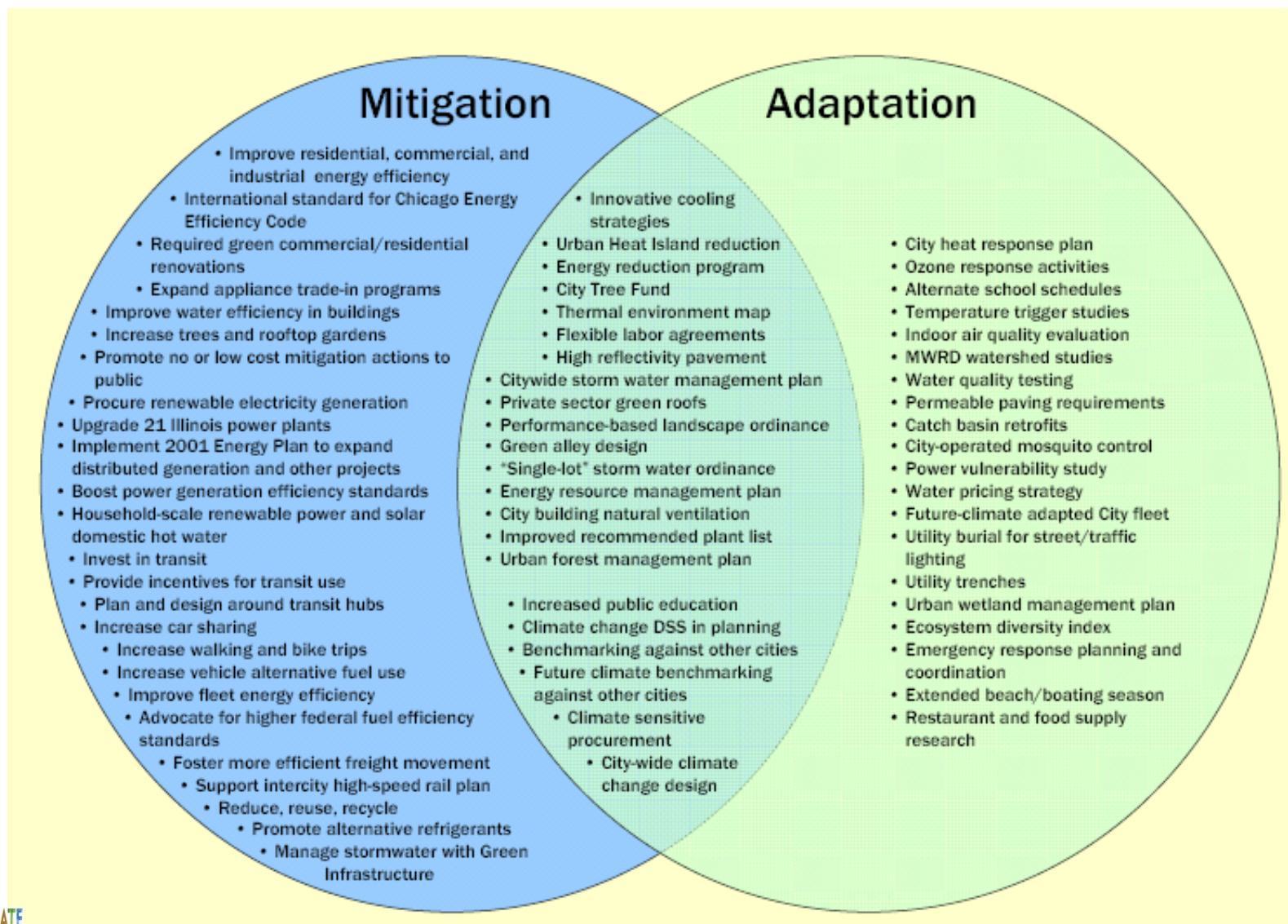


More rain when it is *not* needed,
less when it *is* needed

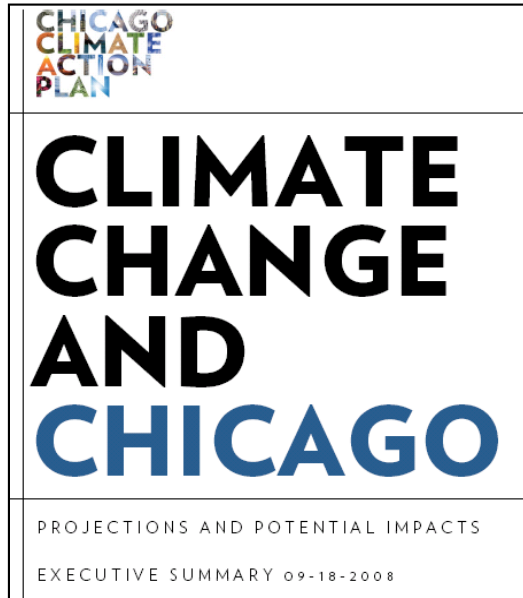
Economic Risk of Climate Impacts



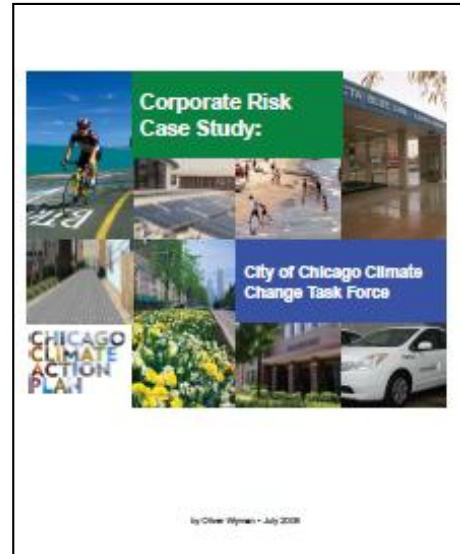
Mitigation-Adaptation Overlap



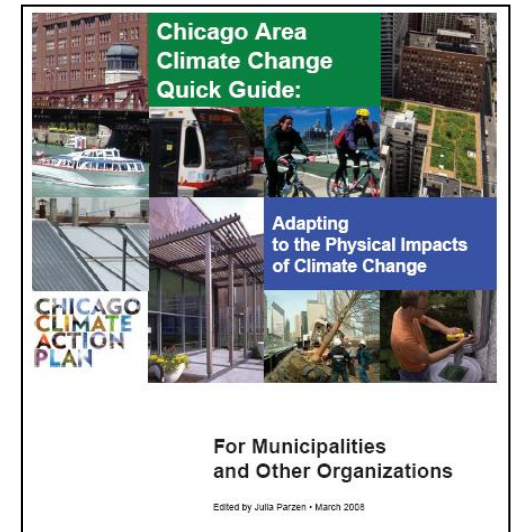
Adaptation Resources



Projections and potential impacts



Corporate risk analysis



Adaptation quick guide

www.chicagoclimataction.org

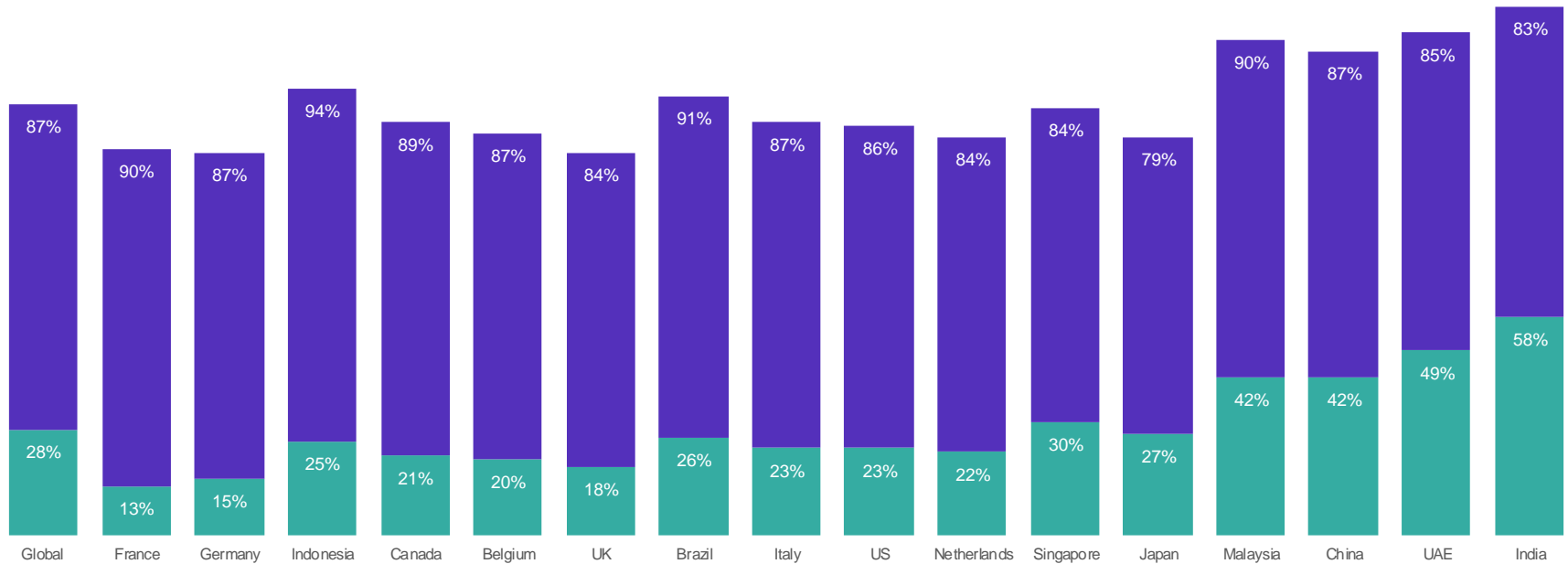


Edelman

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

SOCIETAL
attributes more important
to building future trust

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

CURRENT TRUST

driven by operational
attributes

- 12 Innovator of new products
- 13 Highly regarded, top leadership
- 14 Delivers consistent financial returns
- 15 Ranks on a global list
- 16 Partners with third parties



Insight Report

Global Risks 2014 Ninth Edition

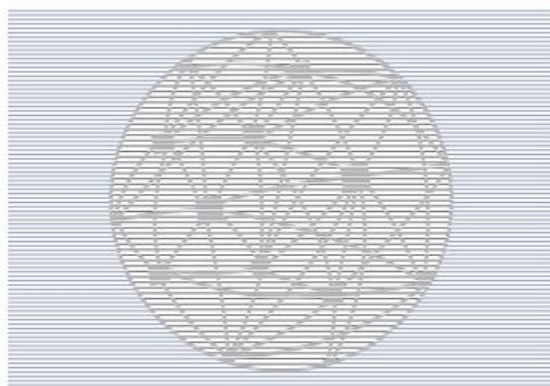


Table 1: Ten Global Risks of Highest Concern in 2014

| 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



Why must supply chains collaborate to combat climate risk?
CDP Global Supply Chain Report Launch, see how leading companies are catalyzing change

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

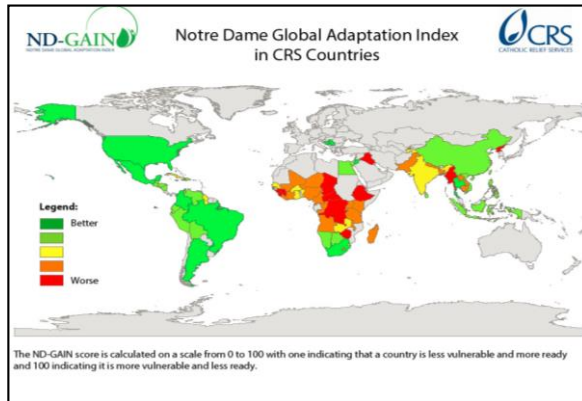
*Country Resiliency Index
to Inform Decision-
Making*



Country
Rankings
2012

| ND-GAIN INDEX | | | | VULNERABILITY | | | | READINESS | | | |
|---------------|---------------------|-------|-------|---------------|---------|-------|-------|-----------|---------|-------|-------|
| Rank | Country | Trend | Score | Rank | Country | Trend | Score | Rank | Country | Trend | Score |
| 119 | Swaziland | = | 53.5 | | | | | | | | |
| 120 | India | ▲ | 53.4 | | | | | | | | |
| 121 | Tajikistan | = | 53.3 | | | | | | | | |
| 122 | Syria | ▼ | 52.6 | | | | | | | | |
| 123 | Libya | ▼ | 52.1 | | | | | | | | |
| 124 | Micronesia | ▼ | 51.8 | | | | | | | | |
| 125 | Cuba | ▼ | 51.1 | | | | | | | | |
| 126 | Senegal | = | 50.9 | | | | | | | | |
| 127 | Benin | ▲ | 50.8 | | | | | | | | |
| 128 | Zambia | ▲ | 50.6 | | | | | | | | |
| 129 | Gambia | = | 50.5 | | | | | | | | |
| 130 | Rwanda | ▲ | 49.9 | | | | | | | | |
| 131 | Djibouti | ▲ | 49.6 | | | | | | | | |
| 132 | Pakistan | = | 49.4 | | | | | | | | |
| 133 | Cambodia | ▲ | 49.3 | | | | | | | | |
| 134 | Lesotho | = | 49.0 | | | | | | | | |
| 134 | Mauritania | = | 49.0 | | | | | | | | |
| 136 | Malawi | ▲ | 48.7 | | | | | | | | |
| 137 | Mozambique | = | 48.6 | | | | | | | | |
| 137 | Uganda | = | 48.6 | | | | | | | | |
| 139 | Laos | ▲ | 48.5 | | | | | | | | |
| 140 | Tanzania | ▲ | 48.3 | | | | | | | | |
| 141 | Burkina Faso | = | 48.2 | | | | | | | | |
| 142 | Sao Tome & Principe | ▲ | 48.1 | | | | | | | | |
| 143 | Cameroon | = | 47.9 | | | | | | | | |
| 144 | Comoros | ▲ | 47.5 | | | | | | | | |
| 145 | Bangladesh | ▲ | 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 |





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





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Coastal Infrastructure

Land area less than 10m above sea level

Population living less than 10m above sea level

ND-GAIN Vulnerability Sectors

Water



Ecosystems

Food



Coastal

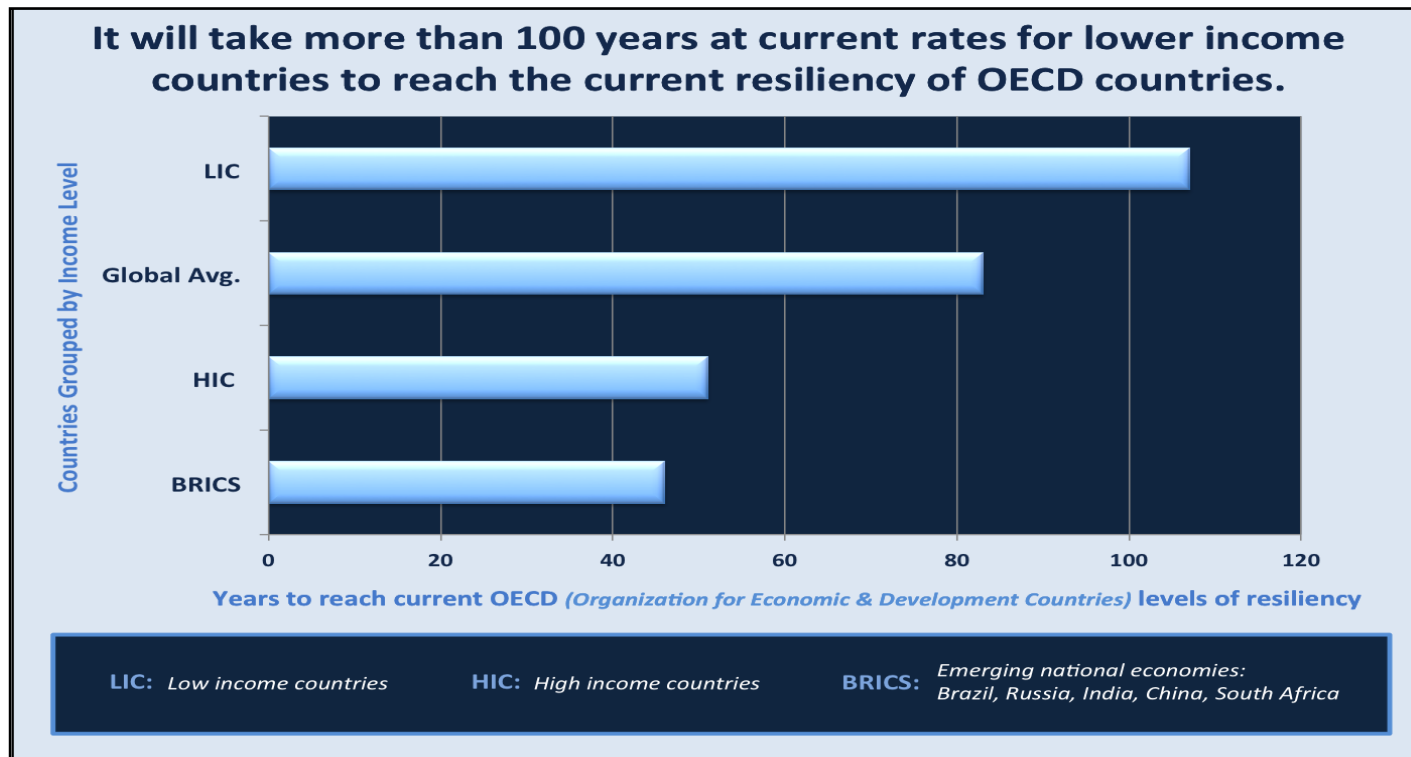
Health

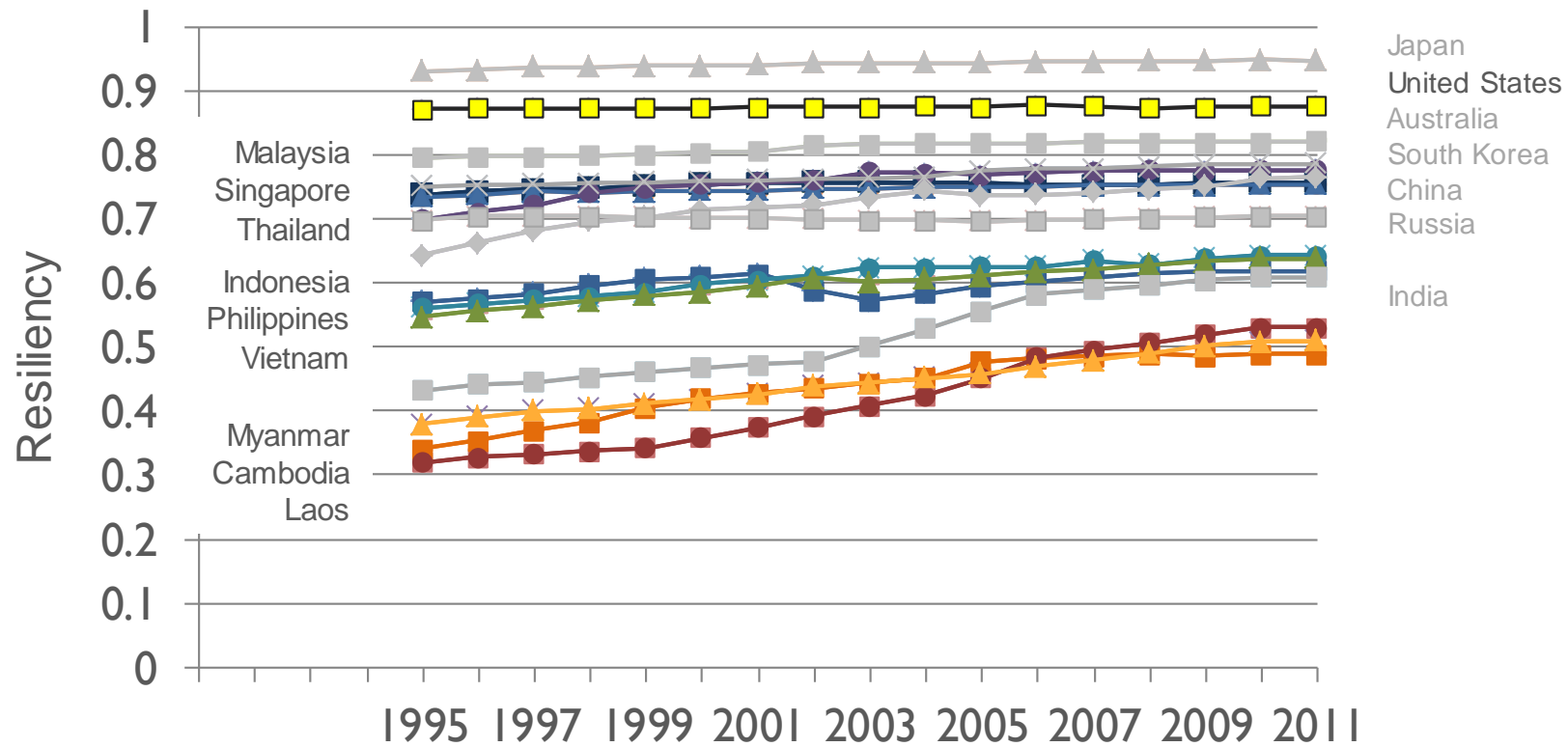


Energy



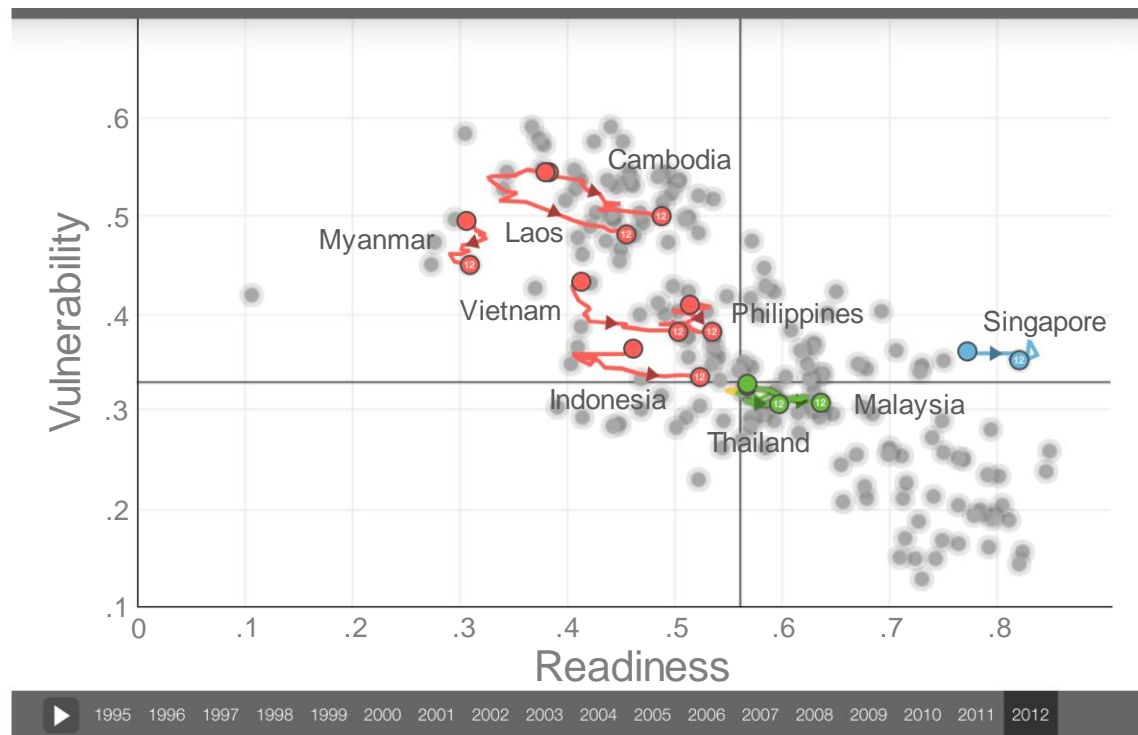
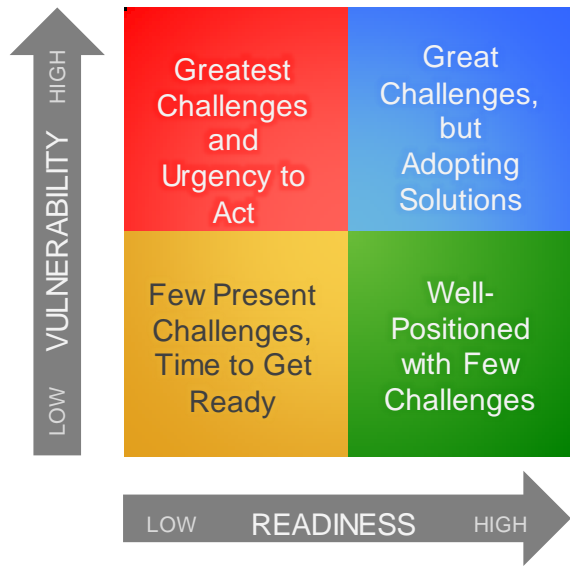
Transportation





1995-2012

The ND-GAIN Matrix



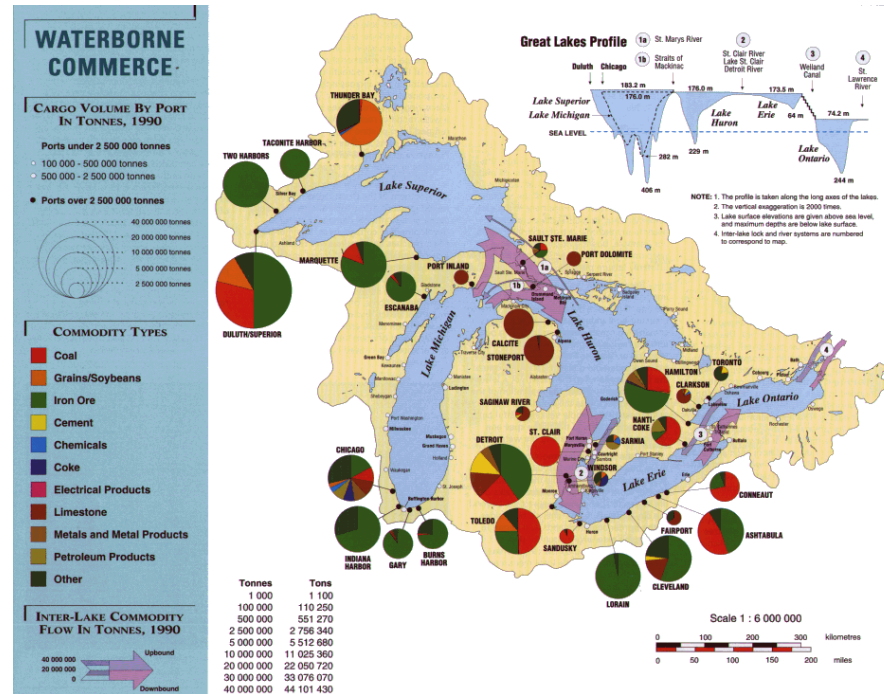
- Multinational or local corporation
- Local partner
- ND-GAIN Country rank below 60
- Measureable resiliency
- <http://gain.org/nd-gain-prize>



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

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Managing Director
Notre Dame Global Adaptation Index

www.nd-gain.org

jcoffee@nd.edu

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