

REBUILD BY DESIGN

Promoting Resilience
Post-Sandy
Through Innovative
Planning and Design

An Initiative Of
The President's
Hurricane Sandy
Rebuilding Task Force

No plan, it is about us...

In Collaboration With
Institute for Public Knowledge, NYU
Municipal Art Society
Regional Plan Association
Van Alen Institute

Lead Supporter
The Rockefeller Foundation

With Additional Support From
Deutsche Bank Americas Foundation
The JPB Foundation
The New Jersey Recovery Fund

365waterproject.org

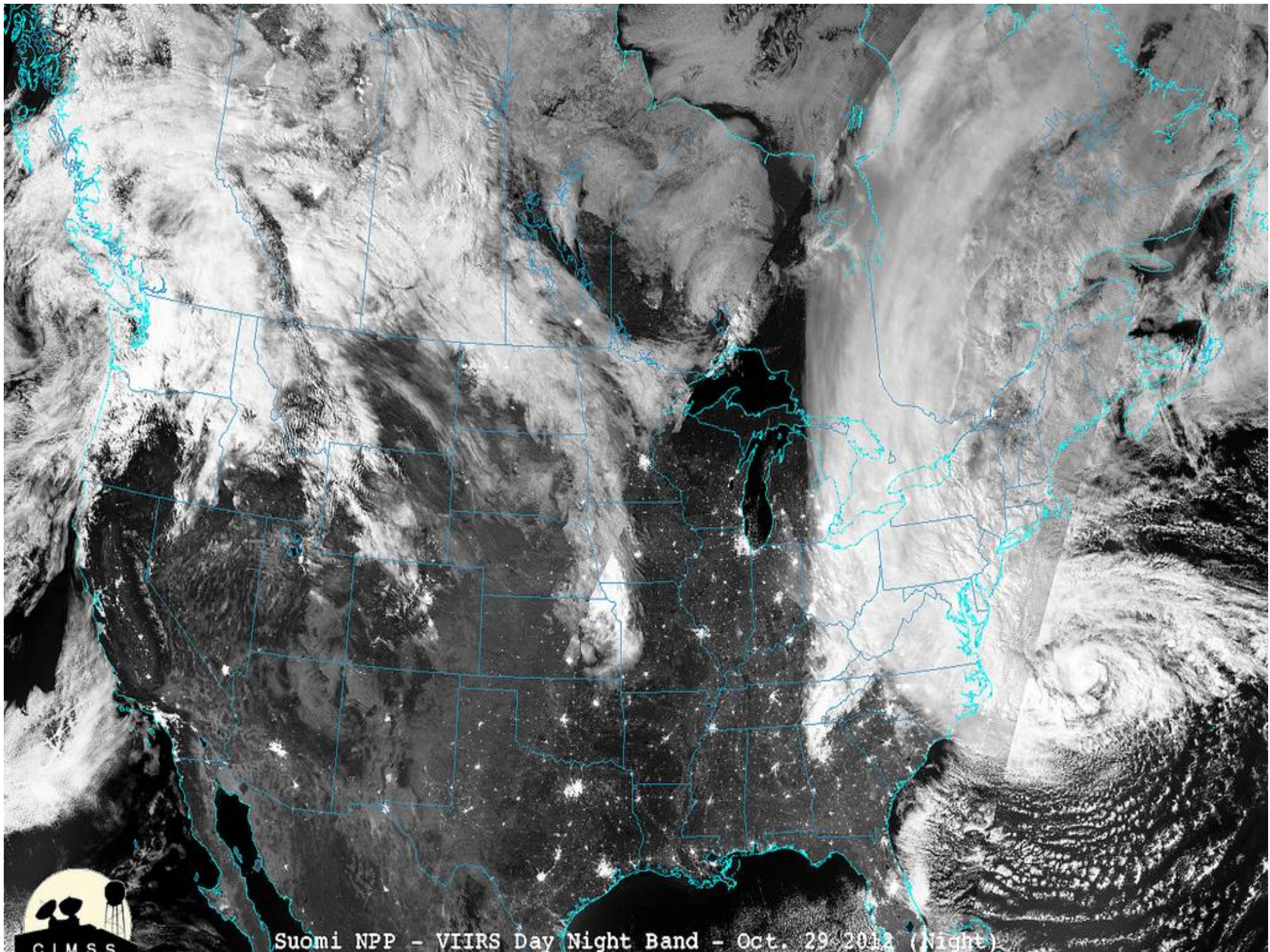


36.5

San Francisco Bay
Aquatic Park
August 15, 2014
9:26am – 10:31pm

standing face to face with global sea-level rise

by Sarah Cameron Sunde @scsunde



Suomi NPP - VIIRS Day Night Band - Oct. 29, 2012 (Night)

CIMSS

SAN FRANCISCO - 2020



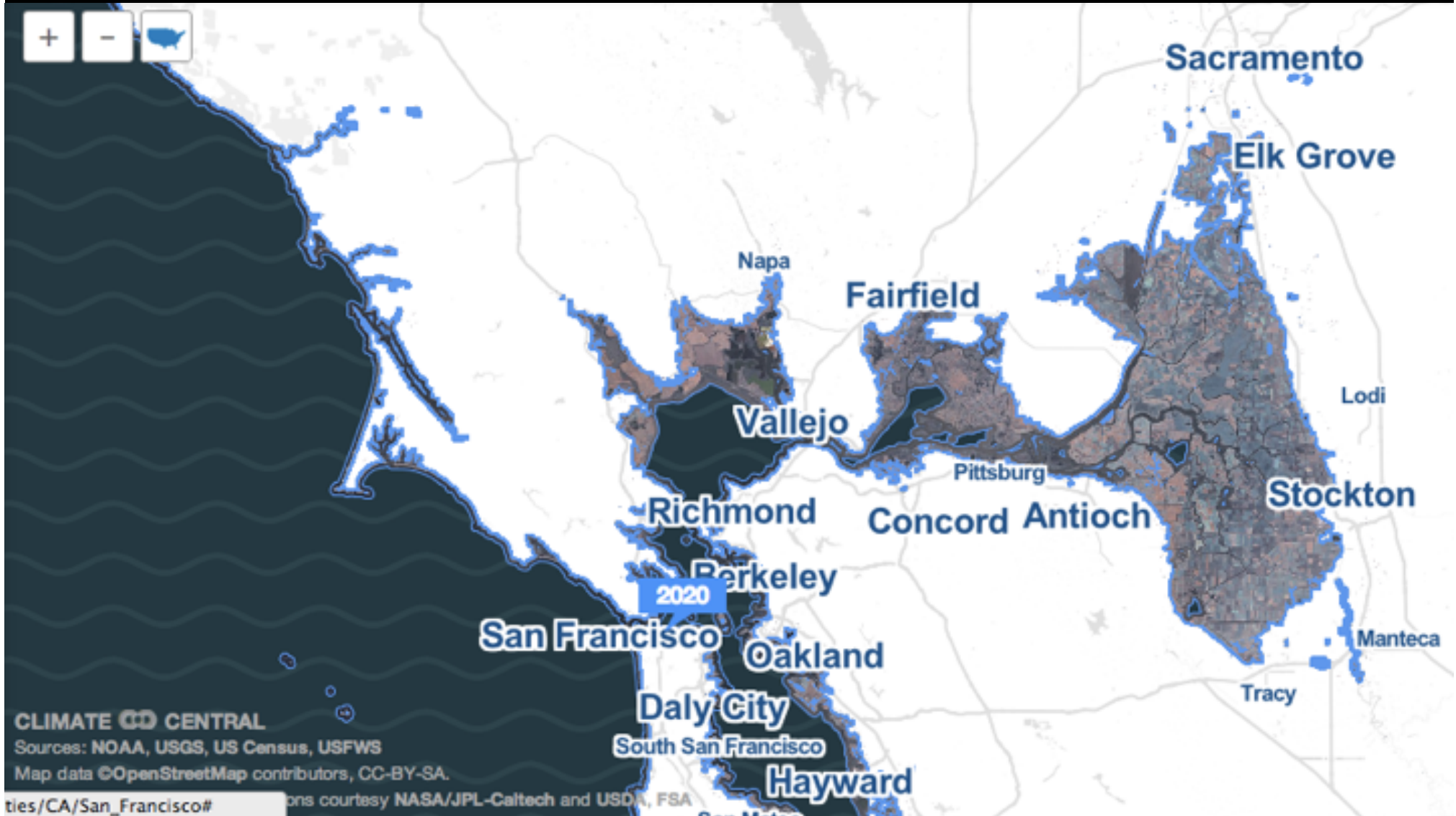
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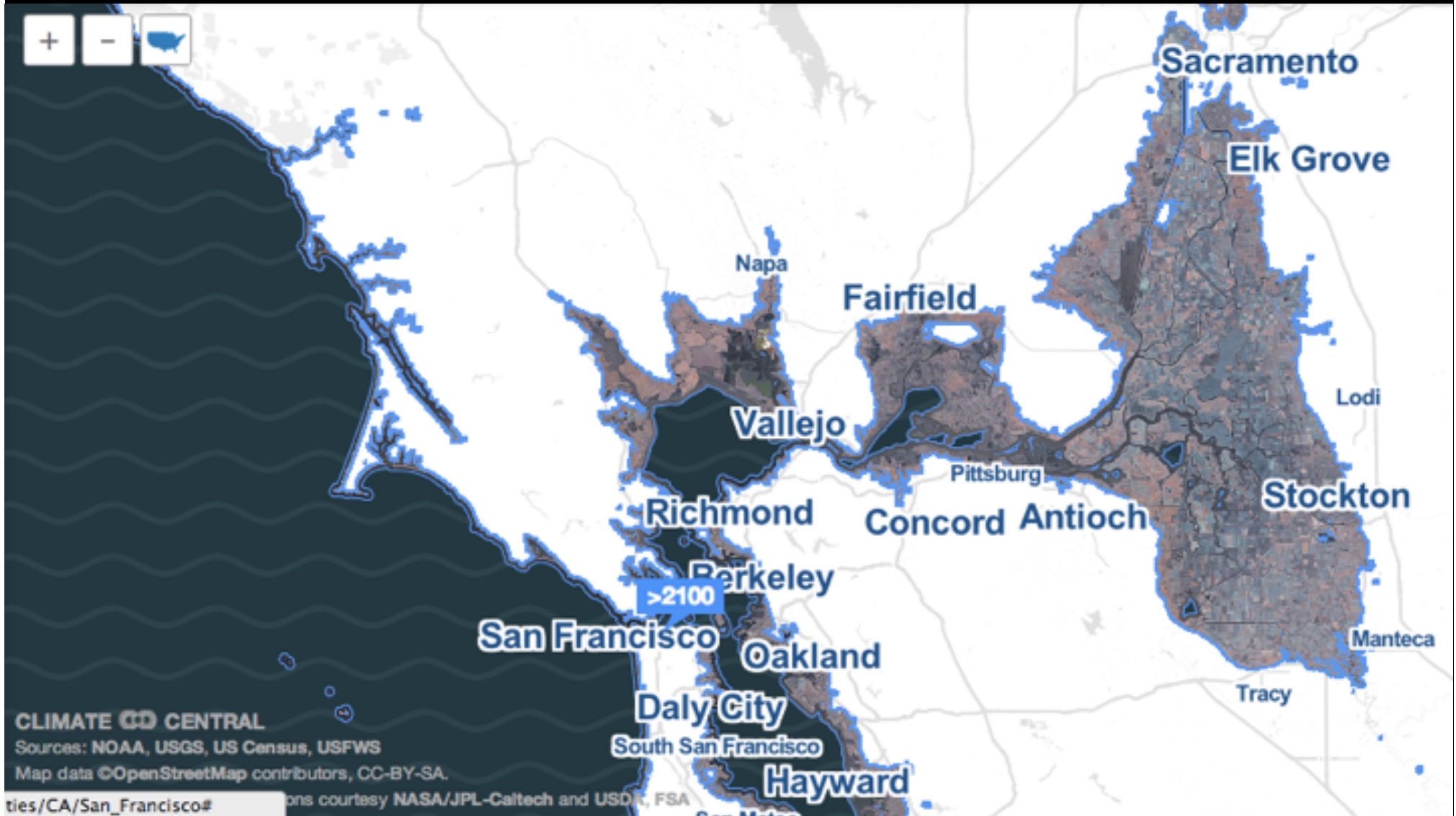
SAN FRANCISCO - 2100



REGION, BAY AREA, 2020



REGION, BAY AREA, 2100



AT&T PARK, SAN FRANCISCO



From Climate Central, "Picture This: U.S. Cities Under 12 feet of Sea Level Rise"

CRISSY FIELD, SAN FRANCISCO



From Climate Central, "Picture This: U.S. Cities Under 12 feet of Sea Level Rise"

CRISSY FIELD - UP CLOSE, SAN FRANCISCO



From Climate Central, "Picture This: U.S. Cities Under 12 feet of Sea Level Rise"

Climate Change

“Climate change is the worst kind of problem for the human brain to cope with — something that is too slow moving to give us the rush of adrenaline that signals ‘emergency’, something that is so diffuse in its causes that it requires collective action at a scale that humanity has never managed. We all put it out of our minds most of the time. We all live life as normally as we can under the shadow of an increasingly uncertain ‘long run’.”

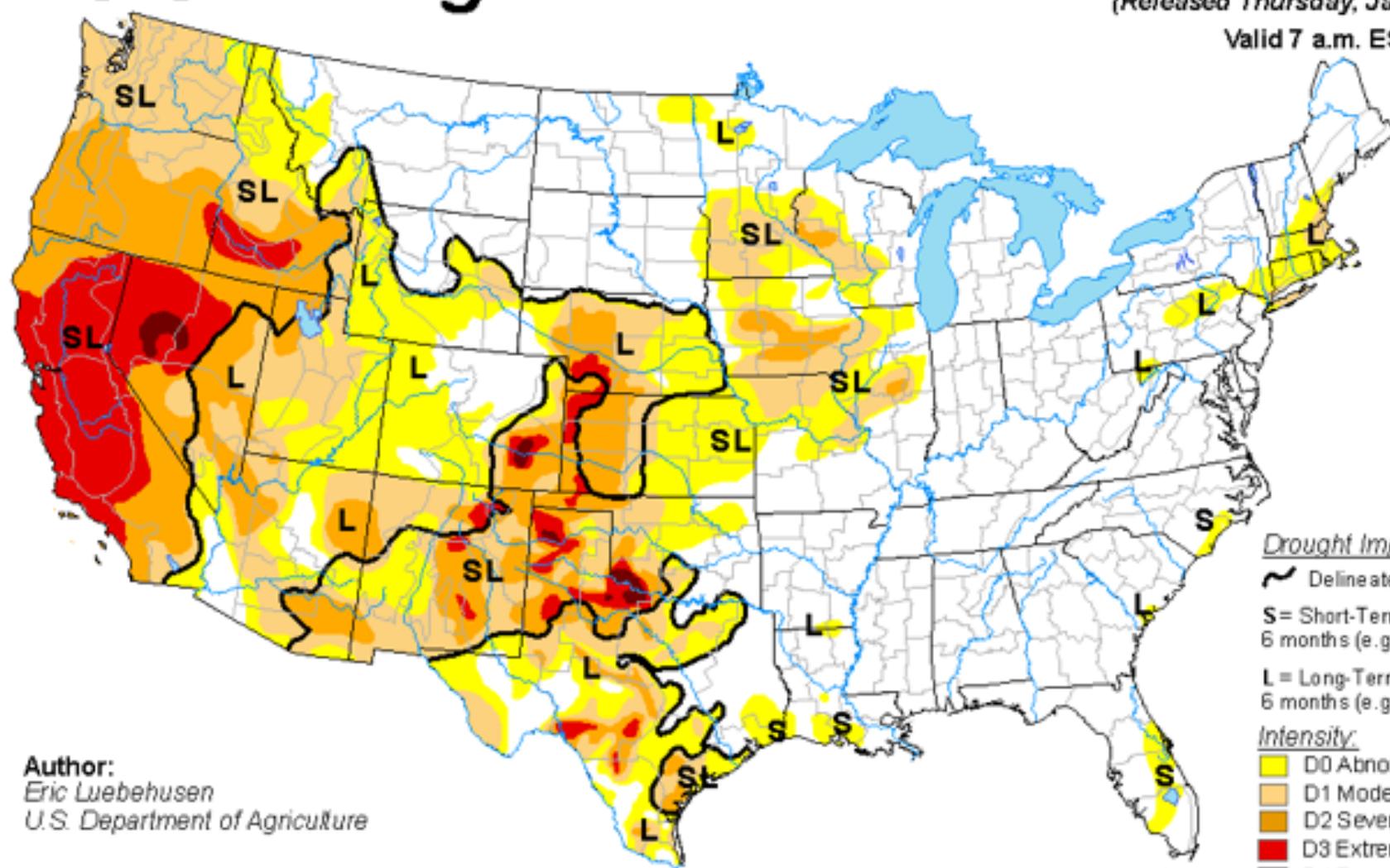
Gabriel Metcalf

U.S. Drought Monitor

January 14, 2014

(Released Thursday, Jan. 16, 2014)

Valid 7 a.m. EST



Author:
Eric Luebbehusen
U.S. Department of Agriculture

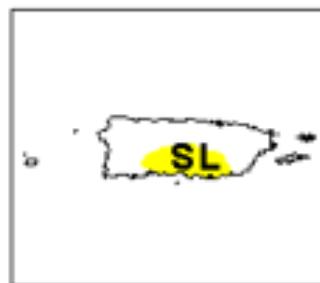
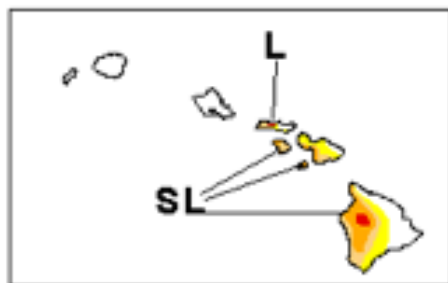
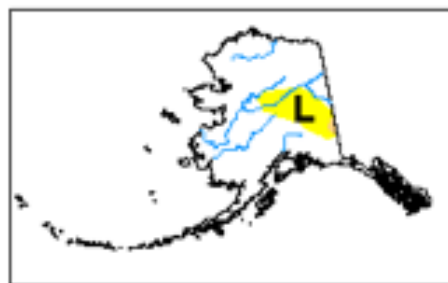
Drought Impact Types:

- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.



<http://droughtmonitor.unl.edu/>

A photograph showing Barack Obama and a woman standing in front of a dilapidated, two-story house. The house has a grey roof, green siding, and a large wooden door that is boarded up with plywood. A chain-link fence is in the foreground. Obama is wearing a dark jacket and khaki pants, and the woman is wearing a dark coat. They appear to be in a residential neighborhood with other houses visible in the background.

"You can ignore the facts; you can't deny the facts."

"So the question is not whether we need to act. The overwhelming judgment of science, accumulated and measured and reviewed and sliced and diced over decades, has put that to rest. The question is whether we have the will to act before it's too late. Because if we fail to protect the world we leave our children, then we fail in the most fundamental purpose of us being here in the first place."

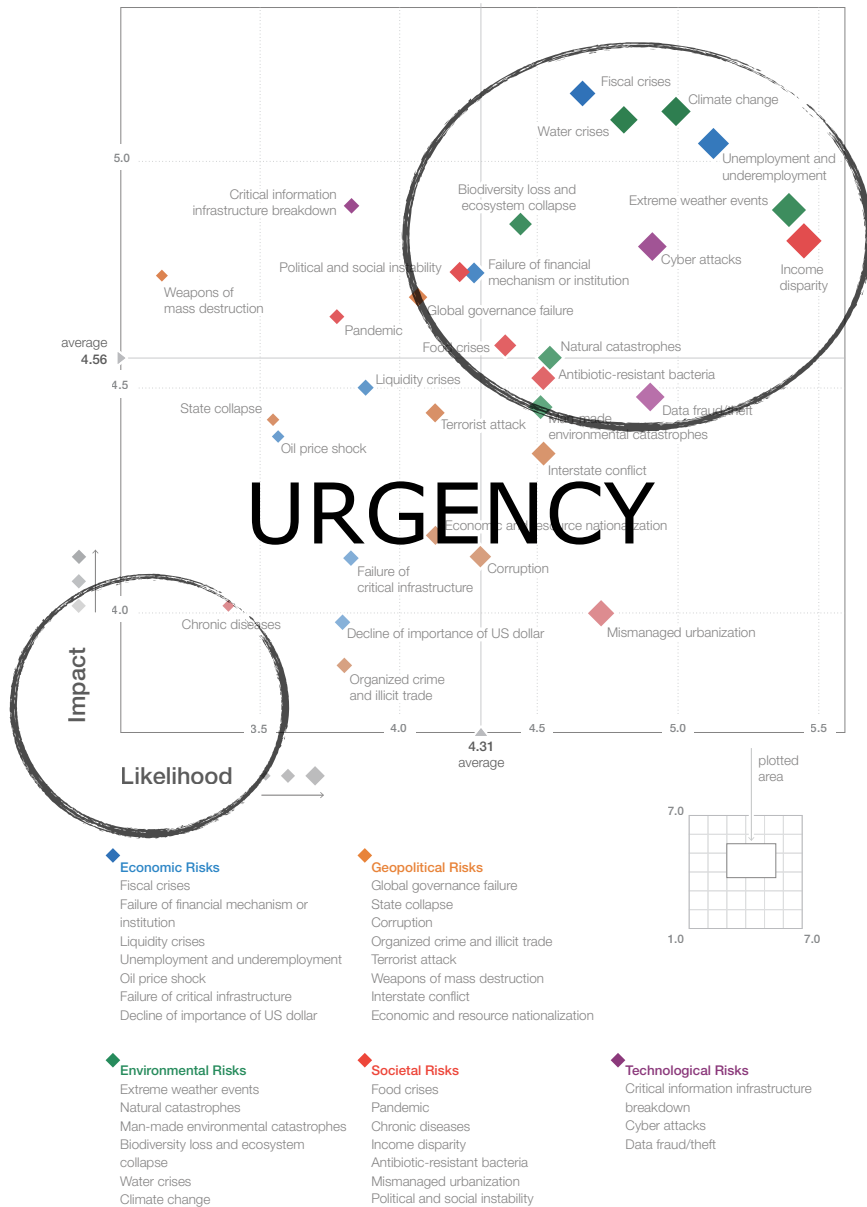
TEN INDICATORS OF A WARMING WORLD



"You can ignore the facts; you can't deny the facts."

According to NOAA, seven of these indicators would be expected to increase in a warming world and observations show that they are, in fact, increasing. Three would be expected to decrease and they are, in fact, decreasing.

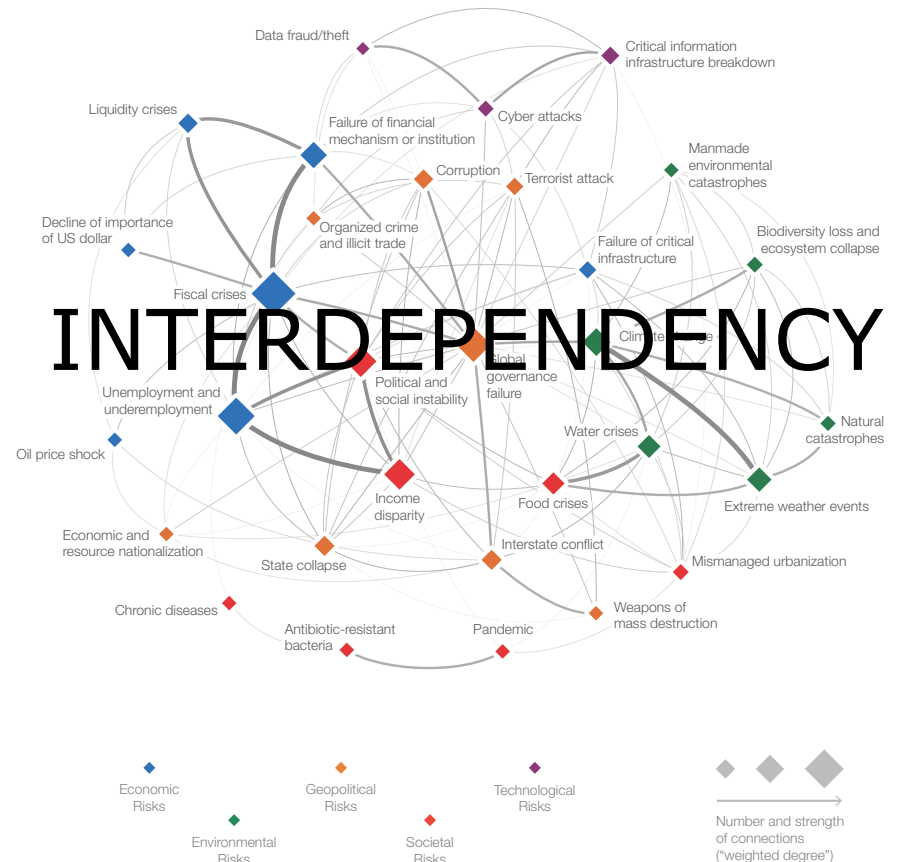
Figure 1.1: The Global Risks Landscape 2014



Source: Global Risks Perception Survey 2013-2014.
 Note: Survey respondents were asked to assess the likelihood and impact of the individual risks on a scale of 1 to 7, 1 representing a risk that is not likely to happen or have impact, and 7 a risk very likely to occur and with massive and devastating impacts. See Appendix B for more details. To ensure legibility, the names of the global risks are abbreviated. Please see Appendix A for the full name and description.

- climate change
- water crises
- biodiversity loss and ecosystem collapse
- extreme weather events
- natural catastrophes
- man made environmental catastrophes

Figure 1.4: The Global Risks 2014 Interconnections Map

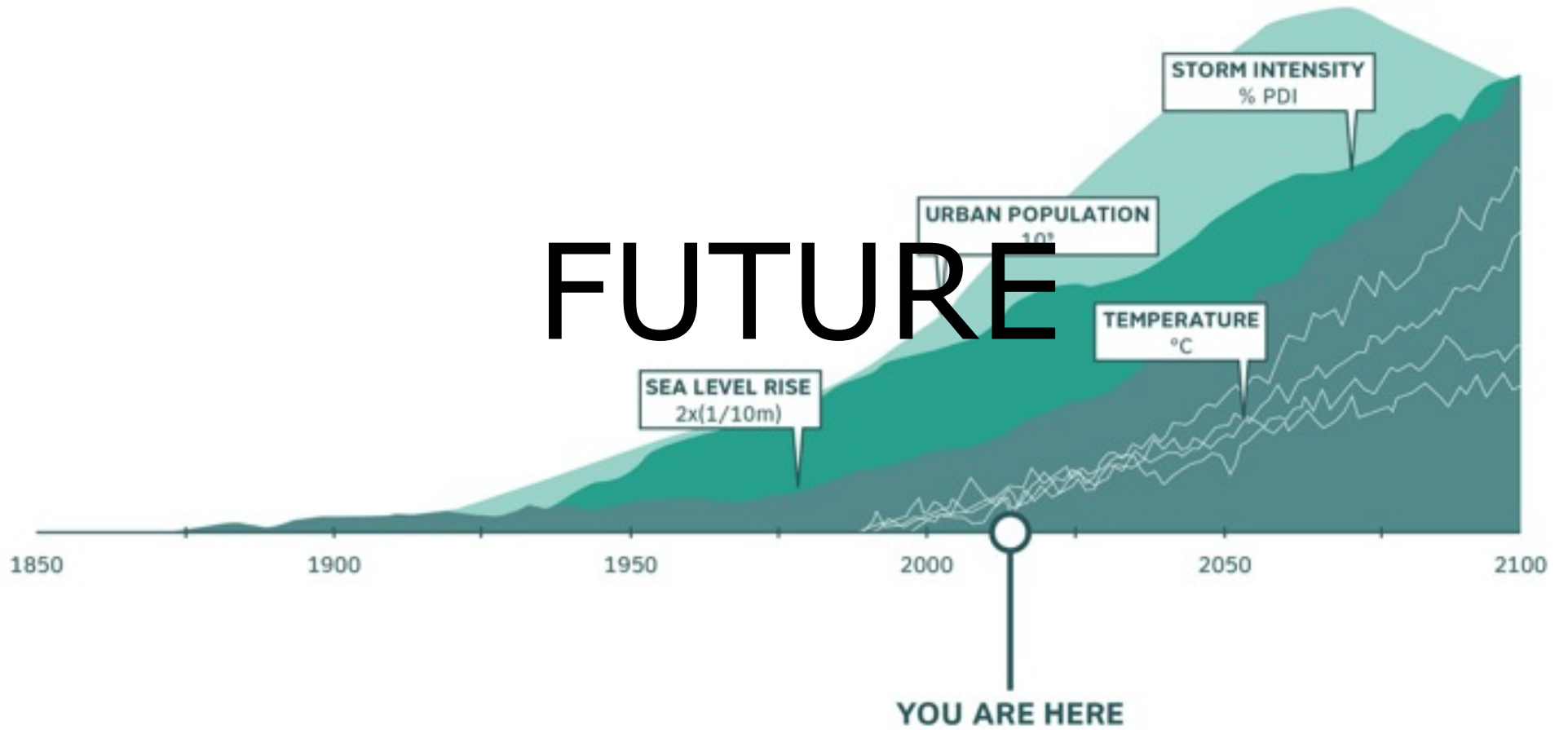


Source: Global Risks Perception Survey 2013-2014.
 Note: Survey respondents were asked to identify between three and six pairs of global risks they believe to be most interconnected. See Appendix B for more details. To ensure legibility, the names of the global risks are abbreviated. Please see Appendix A for the full name and description.

AT RISK

ATLANTIC HURRICANE TRACKS 1980-2005

FUTURE



WE ALL
HATE YOU
SANDY

Disastrous spending: Federal disaster-relief expenditures rise amid more extreme weather

In 2011 and 2012 the United States experienced an onslaught of floods, storms, droughts, heat waves, and wildfires. We estimate that the federal government spent \$136 billion total from 2011 to 2013 on disaster relief, which adds up to nearly \$400 per household per year. These costs will continue to increase as extreme weather becomes more frequent and/or severe due to climate change. We must act now to reduce the industrial carbon pollution responsible for climate change and help communities become more resilient to extreme weather.

Funding for disaster recovery and relief for 3 major events (in billions of dollars)

Flooding in Mississippi and Missouri rivers
Disaster Supplemental Appropriations 2012



Superstorm Sandy
Disaster Supplemental Appropriations 2013



Federal spending on disaster recovery and relief by department (in billions of dollars)

FY 2011–2013



Widespread drought

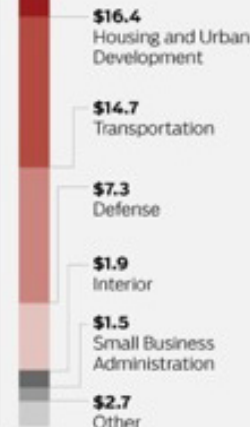


Total federal spending on disaster recovery and relief:

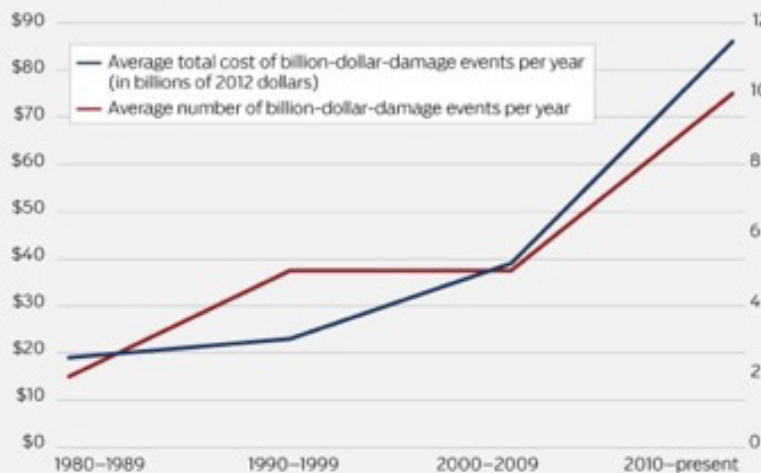
\$136 BILLION

Total cost per household per year:

\$396



Billion-dollar-damage extreme weather events increasing in frequency and cost, 1980–2012



Investments in resiliency pay off

Every \$1 spent on disaster resiliency yields \$4 in future benefits



Sandy proved that rebuilding copy-paste is no option



ALL ISSUES, social, economic, cultural,
ecological, HAVE A SPATIAL IMPACT



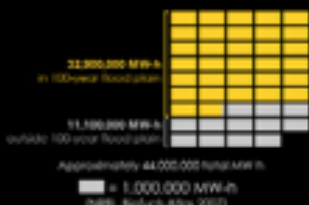
... AND MEET, INTERACT AND CAN BE MITIGATED ON THE REGIONAL SCALE

POWER SUPPLY

63 Power generation stations are in the immediate New York City/Northern New Jersey area

27 of these are located WITHIN the 100-year flood plain

75% of the total net annual generation (MW-h) from these 63 stations comes from these 27



CRITICAL NODES ON THE GRID

1 IN 4 Electric substations are located in the flood plain

LIQUID FUEL STORAGE

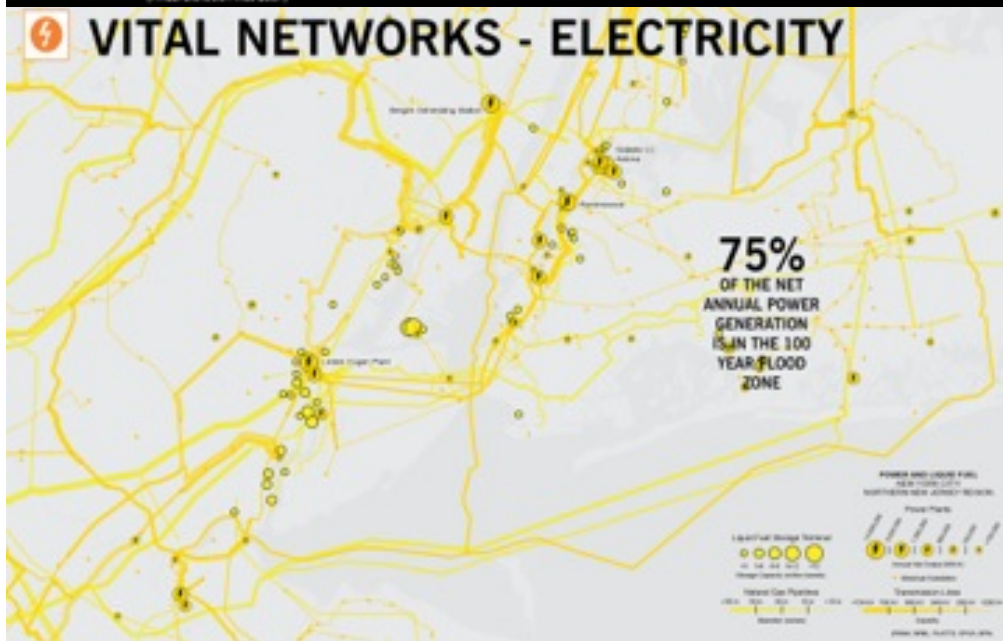
52 Liquid Fuel Storage Terminals are in the New York/ New Jersey area



39 are located WITHIN the flood plain

and they contain roughly **80%** of the total area fuel

The **REMAINDER** is *directly* adjacent to the flood plain



Sandy surfaced the link between social and physical vulnerability

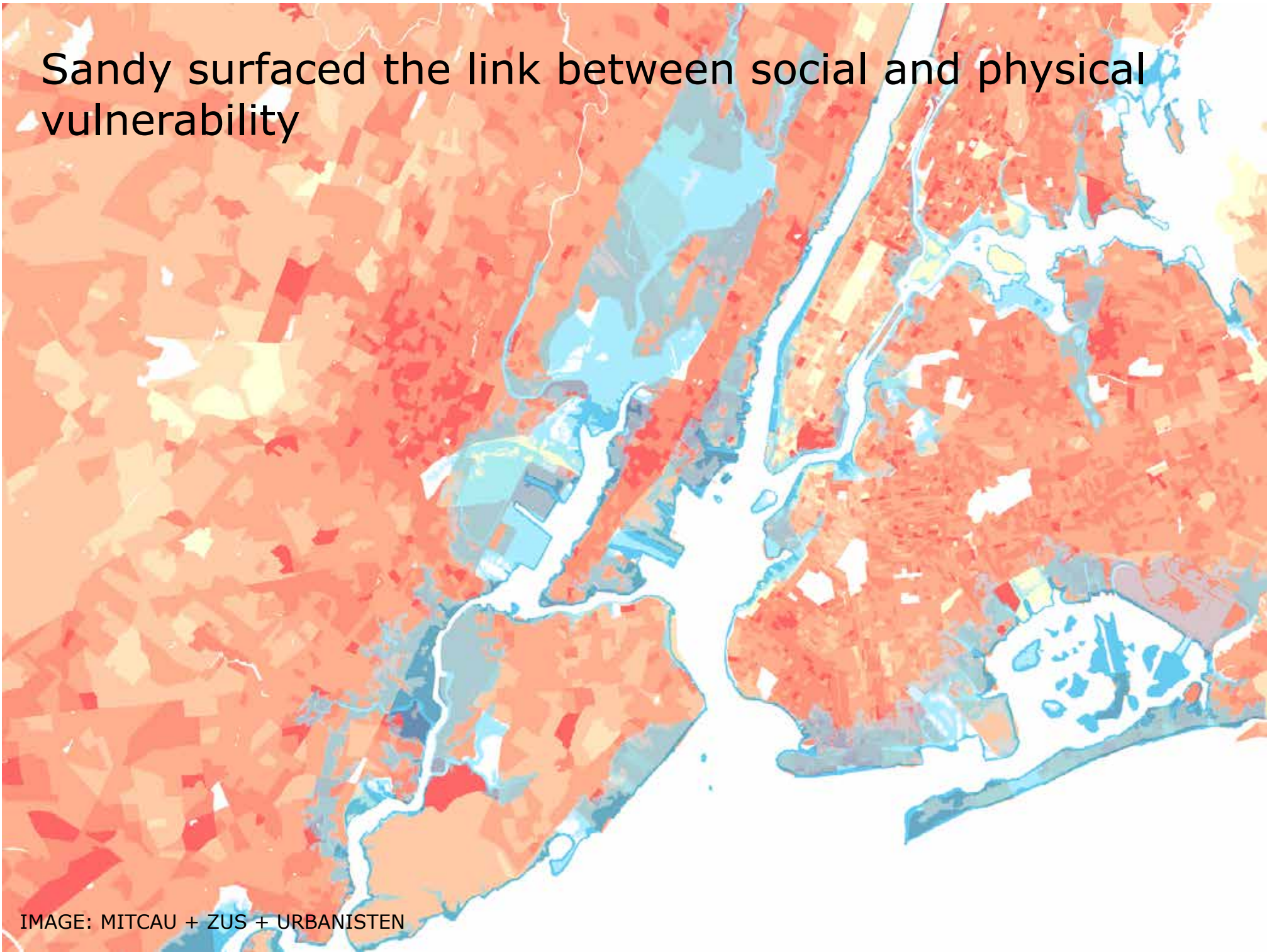


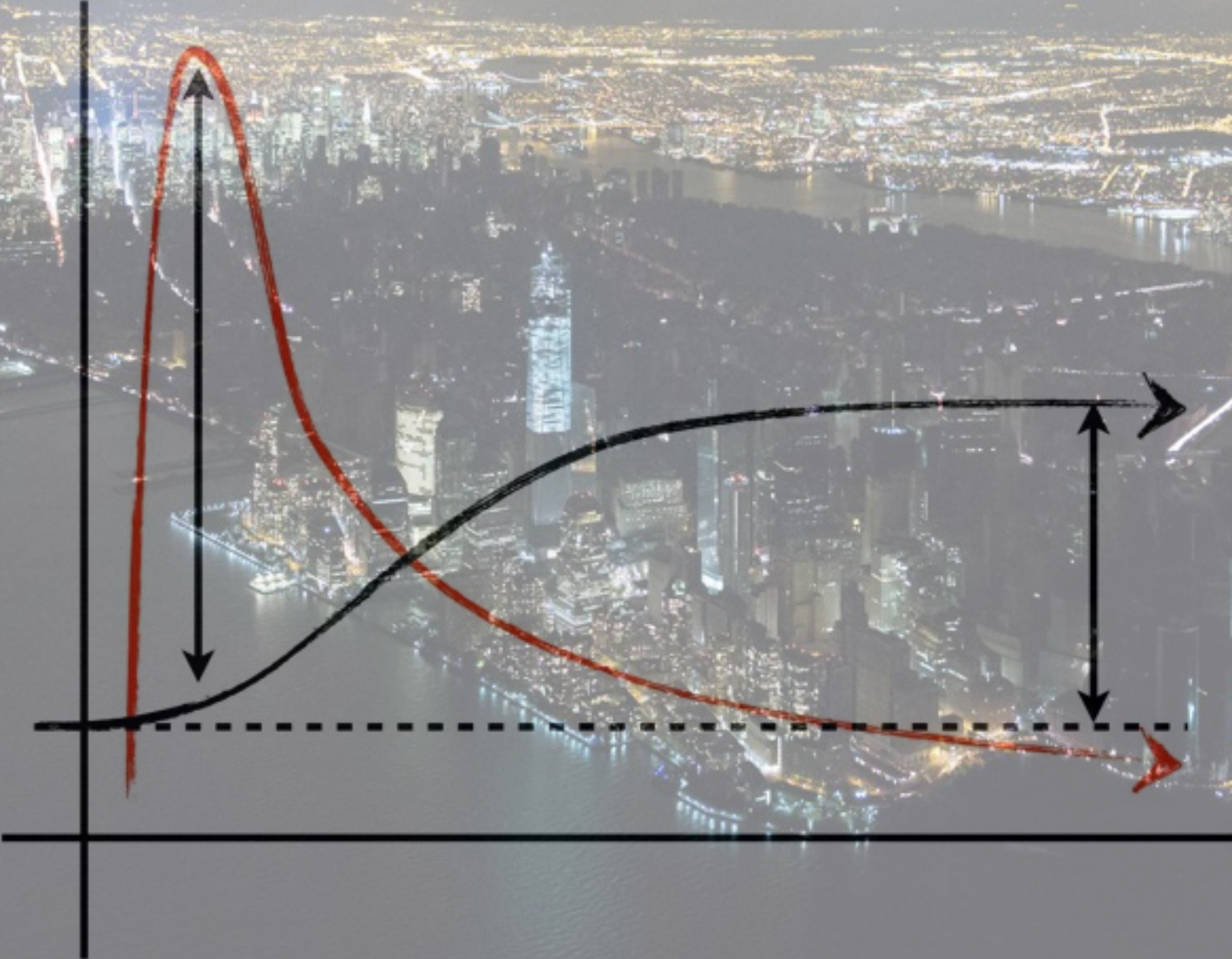
IMAGE: MITCAU + ZUS + URBANISTEN

Sandy showed the vulnerabilities and interdependencies across the region



Image by Iwan Baan

MOMENTUM



TASK FORCE





HOLLAND - culture of living with water

Trade, negotiations and crafts
Stubbornness, luck and faith.

Managing risks and
uncertainties.

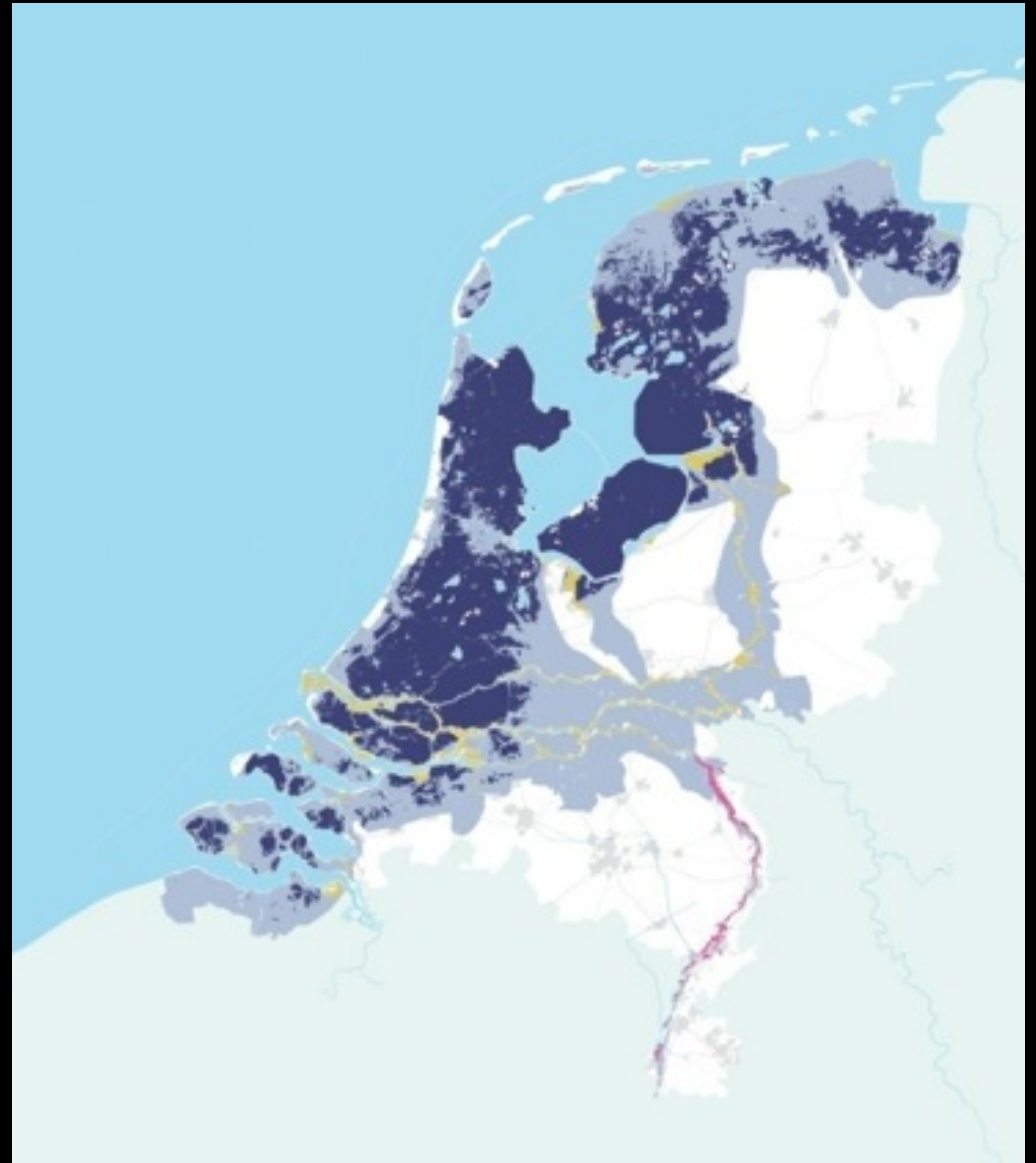
The Netherlands is made out
of water



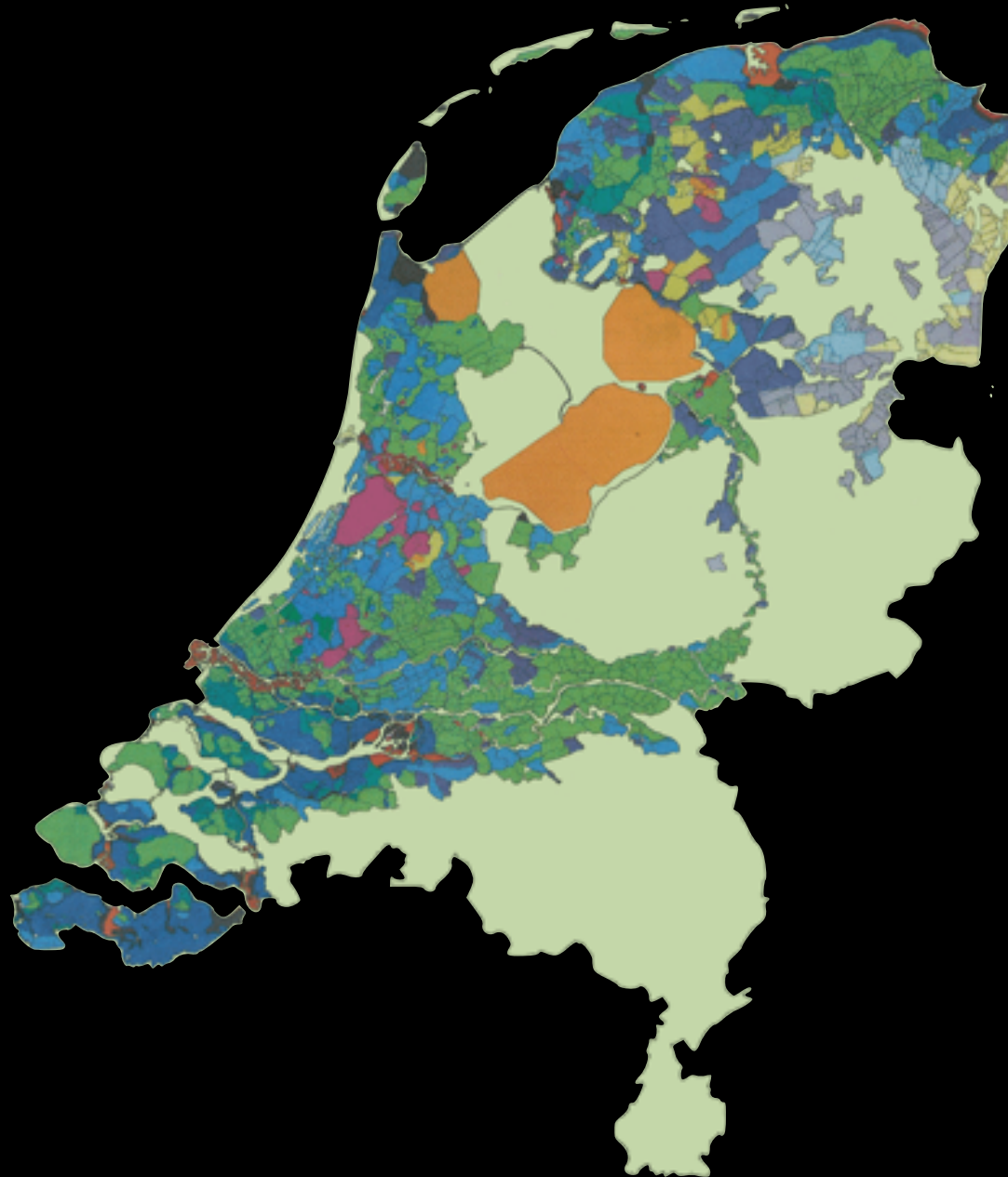
THE NETHERLANDS - FACTS

- Below sea level: 26%
 - Above sea level: 29%
 - Outside the dykes: 3%
 - Meuse outside the dykes: 1%
- Liable to flooding: 59%

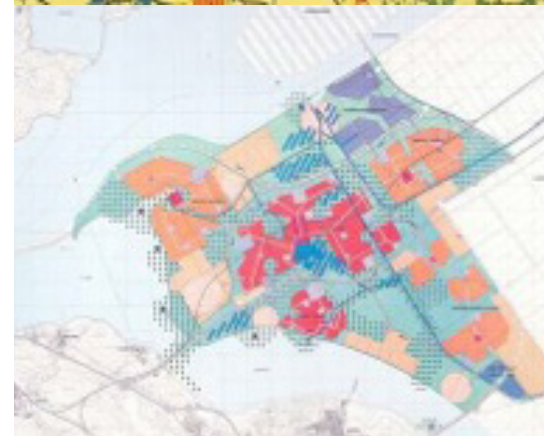
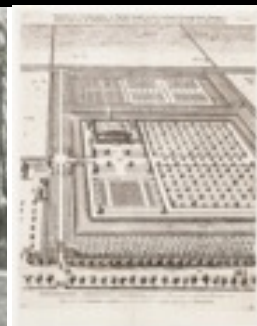
The Netherlands is the delta of Rhine, Meuse, Scheldt and Eems.



MAKING LAND: 3500+ DUTCH POLDERS



MAKING LAND: 3500+ DUTCH POLDERS



COLLECTIVE

MAN MAKING LAND: 3500+ DUTCH POLDERS

1222 - the first collaboration started in the Utrecht area, where 20 communities worked together on the local embankment



1953



'53 MADE US REMEMBER - DUTCH APPROACH



Multi-layered approach:

3. RESPONSE:

Disaster management

2. PLAN

Land use planning
(new developments, vital infrastructure)

1. PROTECT

Dam's, dikes, levees, dunes,....



[Home](#) > [Onderwerpen](#) > Deltaprogramma

Deltaprogramma

Het Deltaprogramma heeft als doel ons land nu en in de toekomst te beschermen tegen hoog water en de zoetwatervoorziening op orde te houden. Daarbij spelen veel aspecten een rol, zowel op het gebied van leefomgeving en economie als op het vlak van natuur, landbouw en recreatie.

Nederland is een laaggelegen, welvarende en dichtbevolkte delta, die kwetsbaar is voor overstromingen. Als er iets gebeurt, zijn het leed en de schade - ook economisch - niet te overzien. Onze delta is te kostbaar om niet de benodigde maatregelen te treffen. We zijn in het verleden al een paar keer verrast doordat we onze veiligheid niet goed op orde hadden. Het Deltaprogramma moet ervoor zorgen dat we niet nog een keer verrast worden. Daarnaast is de zoetwatervoorziening van belang voor onze economie en ook die moet voor de toekomst op orde blijven.



Het Deltaprogramma wordt uitgevoerd onder regie van de deltagoedkoopster. De Deltawet is op 1 januari 2012 in werking getreden.



Zie ook

[Deltaprogramma op Rijksoverheid.nl](#)

- > Achtergrond
- > Commissie Veerman
- > Deltaprogramma
- > Deltawet
- > Deltafonds en Deltaplannen
- > Deltacommissaris
- > Deltabeslissingen
- > Adaptief Deltamanagement
- > Markt & Innovatie
- > Deelprogramma's
- > Deltaviewer
- > Internationaal
- > Het Delta-atelier
- > Jongeren en het Deltaprogramma
- > Kennis
- > Veelgestelde vragen

It's cultural



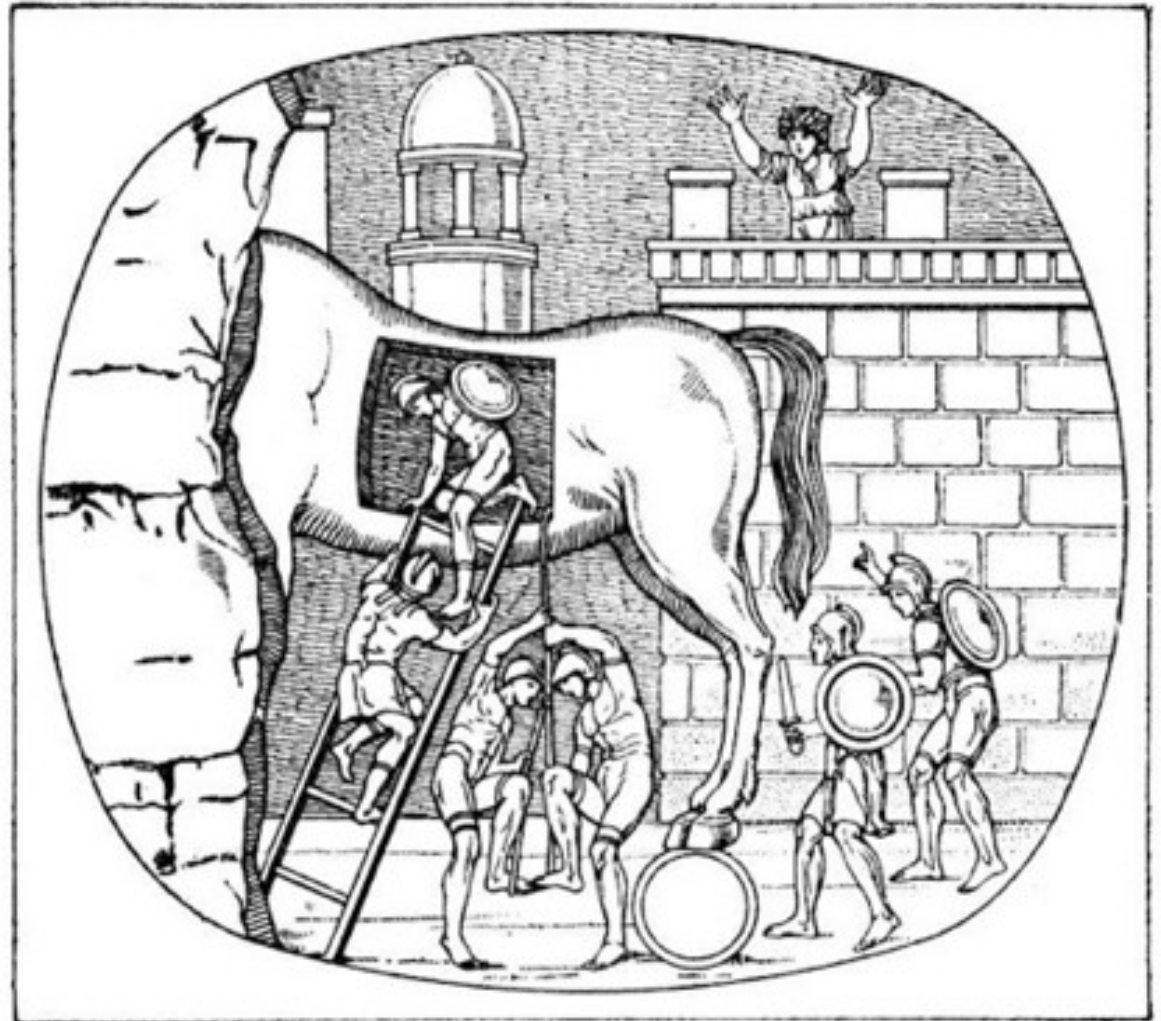
Managing risks and uncertainties



Münchhausen

O. Herforth pinx

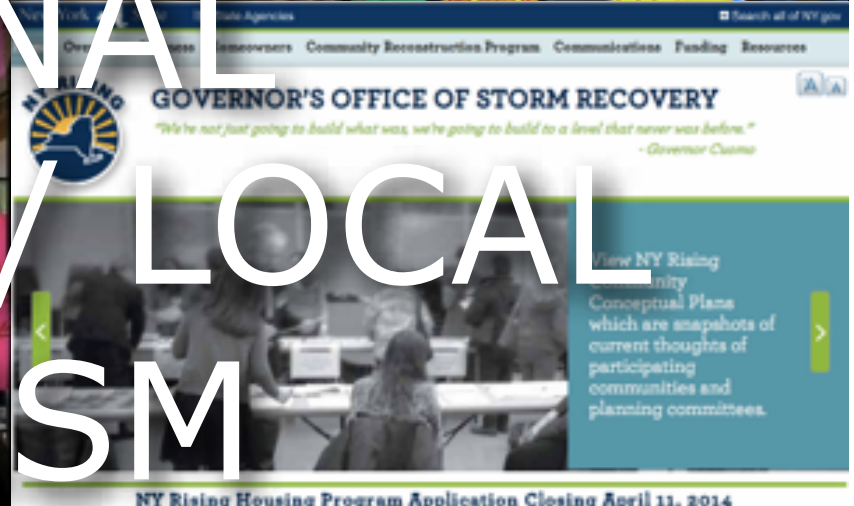
projects



process

Can it be cultural?





REGIONAL APPROACH / LOCAL ACTIVISM



PHYSICAL RESILIENCE