

Welcome!

The Architect's Role in Mitigating Climate Change: Design in the Era of Risk and the Post-Sandy Environment

Wed, June 17, 2015 1:30 PM - 2:30 PM EDT

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THE AMERICAN
INSTITUTE
OF ARCHITECTS

Moderator



Daniel Williams, FAIA, APA

Daniel E. Williams, FAIA, APA is a practicing architect and planner in Seattle and Miami and an internationally recognized expert in sustainable design. Mr. Williams is a member of the experts team for the Clinton Climate + Initiative, advising on projects in Toronto and London. He served as 2006 chair of the AIA's Sustainability Task Group and sat on the national advisory council for United States Environmental Protection Agency - NACEPT. His book *Sustainable Design: Ecology, Architecture and Planning*, published Earthday 2007 by John Wiley & Sons, was called a top 10 book on sustainable design by the Royal Academy of Architects and top 5 in sustainable design and planning by Planetizen. Dan has taught and lectured in architecture and planning for over 30 years and is on the Master of Sustainable Design faculty at the University of Florida's extension in Singapore. He is working on a book that illustrates the designs connectivity between science and art.



Speaker



Lance Jay Brown, FAIA, DPACSA

Lance Jay Brown, FAIA, DPACSA is an architect, urban designer, educator, author, and world-traveling lecturer. 2014 President of AIANY, he has launched the theme of “Civic Vision: Civic Spirit.” He founded the post 9/11 task force in concert with Illya Azaroff in 2011 into DfRR. He is an ACSA Distinguished Professor in the Bernard and Anne Spitzer School of Architecture at the City College of New York. Lance has served in the Design Arts Program at the National Endowment for the Arts and advised the World Trade Center Site 9/11 International Memorial Design Competition. His awards include the national AIA/ACSA Topaz Medallion for Excellence in Architectural Education and AIA New York State President’s Award for Excellence in Non-Traditional Architecture. He recently co-edited *Beyond Zucotti Park: Freedom of Assembly and the Occupation of Public Space* and *The Legacy Project: Via Verde*.

Speaker



Illya Azaroff, AIA

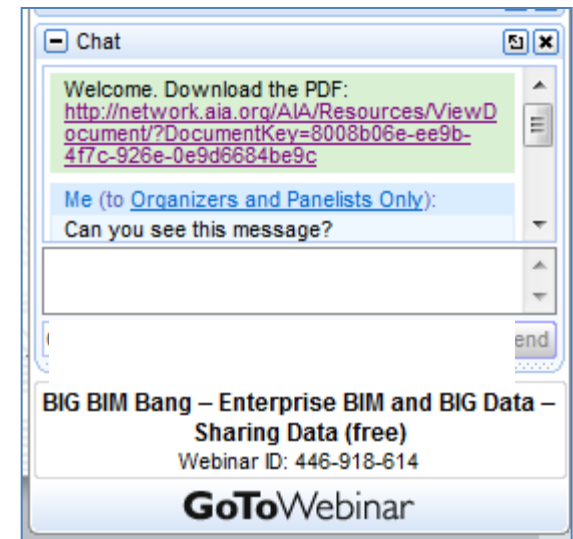
Illya Azaroff, AIA is director +LAB architect PLLC, and Associate Professor at New York City College of Technology (CUNY). He is a recognized expert in disaster mitigation and building strategies serving as an advisor to the Federal Government working with DHS, FEMA and HHS. Regionally he works with RCPT, OEM, RAMP and the Sandy Recovery Office. He contributed to the New York DCP Housing Retrofit Guidelines, FLASH Resilient Housing Guidelines, and AIA Post Sandy Initiative. Illya is the National Advocacy Director for the YAF, and on the Board of the AIANY. He is founding Co-chair of DfRR along with Lance Jay Brown, receiving the 2014 AIA National Collaborative Achievement Award. Illya received the 2014 AIANY Presidential Citation and the 2015 AIA National Component Award for leading the AIARRWG. His recent lectures can be found via TEDx, We are not alone, and ArchNewsNow: What Does Recovery Look Like?



Questions?

Submit a question to the moderator via the chat box.

Content-related questions will be answered during the Q&A portion as time allows.



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*PLEASE NOTE: Each AIA member or IDP record holder needs to fill out their own survey **individually** to receive AIA CES credits*



AIA/CES Reporting Details

All attendees at your site will submit for credit by completing the webinar survey/report form **at the conclusion of the presentation.**

In order to receive credit, you will need to follow the link provided:

- **in the Chat box** at the conclusion of the live presentation;
- **in the follow-up email** you will receive one hour after the webinar.



Course Description

This webinar explores how design and other professionals, working collaboratively, can address the new normal of climate change, sea level rise, seismic risks, extreme heat and other emerging risks. Discussions will focus on the creation of principles for action, awareness raising, pre- and post-disaster professional training programs, and New York's ongoing responses to Superstorm Sandy.



Learning Objectives

1. Understand the challenges and opportunities for the design professions being caused by climate change and other forces.
2. Plan and execute training programs to help design professionals know how to design for and respond to disasters.
3. Organize local and regional communities to plan for and respond to emerging risks.
4. Find knowledge based information useful for designing in times of increased risk.



And now for our presentation:

The Architect's Role in Mitigating Climate Change: Design in the Era of Risk and the Post-Sandy Environment



DFRR



AIANY Design for Risk and Reconstruction

The Architects Role in Mitigating Climate Change: Design in the Era of Risk and the Post-Sandy Environment

Lance Jay Brown FAIA, DPACSA, and Illya Azaroff, AIA, Co-Founders

AIANY Design for Risk and Reconstruction Committee

RUDC Webinar June 16, 2015

PRE - SANDY INITIATIVE



Design for Risk and Reconstruction Committee

Mission Statement and Objectives

- The mission of the committee is to **foster awareness within the profession and public** at large the necessity of anticipating risk to the built environment and identifying “at risk” scenarios. **To further integrate risk management strategies to the design process** from the scale of buildings up to and including the surrounding region and associated geographies.
- The goals of the committee are to **formulate programs and partnerships** that provide a professional-public forum for greater risk awareness and to **share knowledge** based recourses with like minded organizations, professionals and industries. The sequence, from designing for risk, including potential natural and man-made disasters and catastrophes, disaster preparedness, disaster relief response and recovery, reconstruction and mitigation will be examined, analyzed, and explained in order to **improve and increase the ability of the designed environment to aesthetically, functionally, technically, and economically serve and protect the health, safety and welfare of its inhabitants.**
- **City Resilience** (100 Resilient Cities, Rockefeller foundation)
- Is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

An aerial photograph of a city that has been almost completely destroyed by a disaster, likely a tsunami. The image shows a vast expanse of rubble and debris covering the ground. In the background, some multi-story buildings remain standing, but many of the houses in the foreground have been reduced to ruins. The sky is overcast, and the overall tone is somber and desolate.

RECIPIE FOR RISK AND EMINENT DISASTER

IN THE PAST

30 YEARS

THE WORLD HAS LOST

<

2.5 MILLION

PEOPLE

>

\$ 4 TRILLION

TO NATURAL DISASTERS

Number of Climate-related Disasters Around the World (1980-2011)



3455

FLOODS



2689

STORMS



470

DROUGHTS



395

EXTREME TEMPS



UNISDR

The United Nations Office for Disaster Risk Reduction

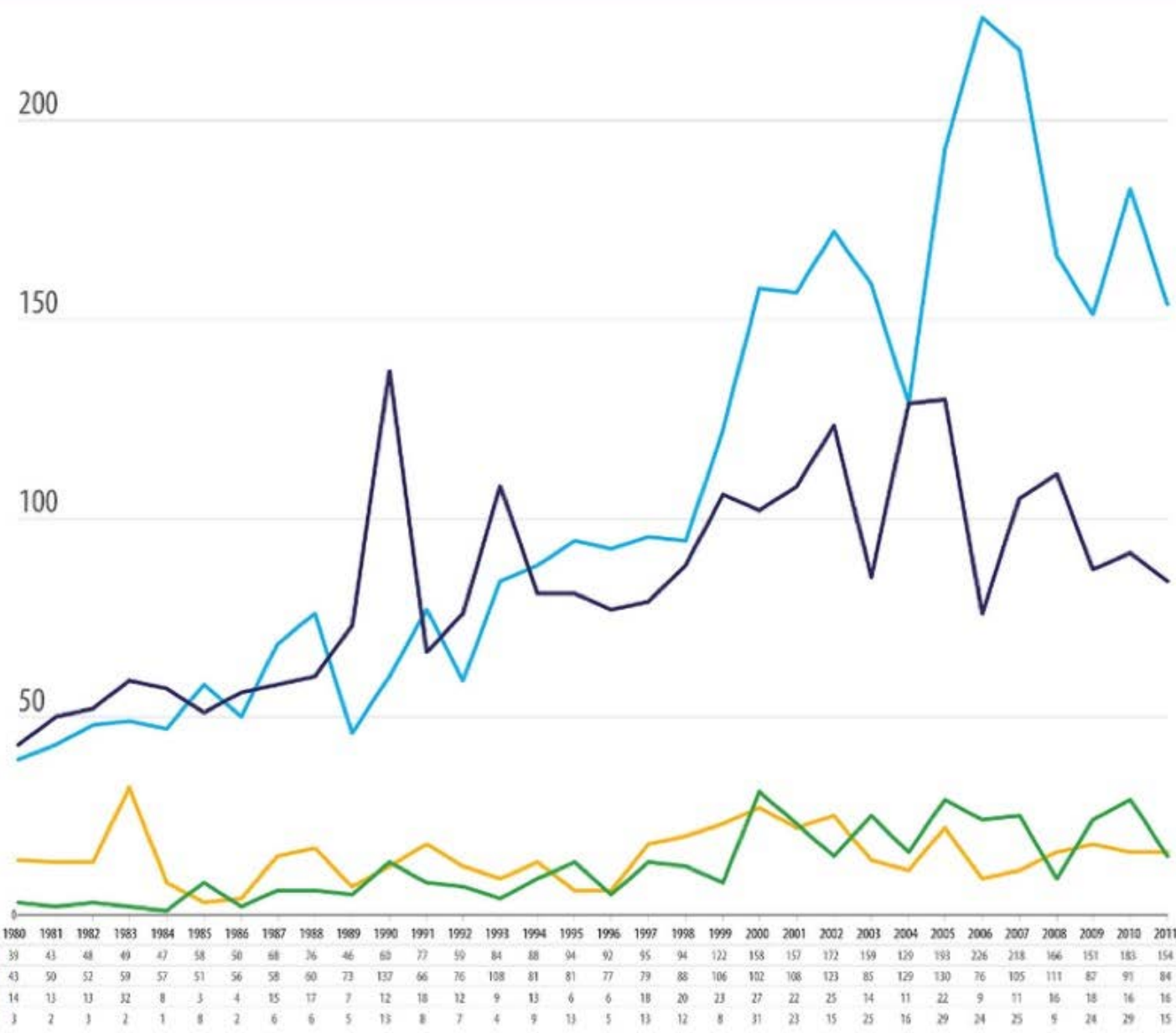
<http://www.unisdr.org>

Version: 13 June 2012

DATA SOURCES

EM-DAT - <http://www.emdat.be/> - The OFDA/CRED International Disaster Database, Data version: 13 June 2012 - v12.27

Humanitarian Symbol Set (2008): <http://www.unhcr.org/refugees/symbols.html>



RAPID URBANIZATION



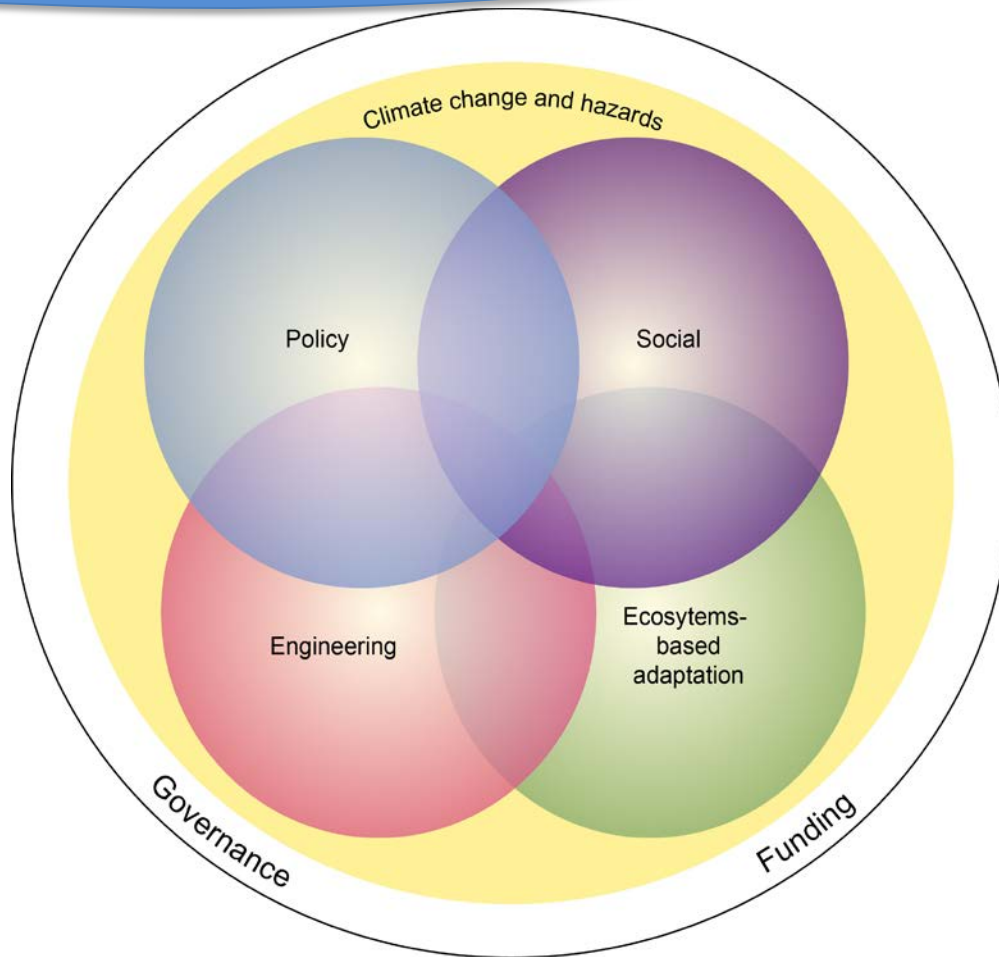
cc UNHABITAT a city with a population of more than 10 million

Credit: +lab architect PLLC

Approaches to Resilience Action

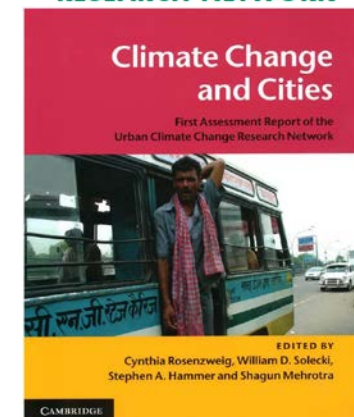
Cynthia Rosenzweig

NASA Goddard Institute for Space Studies/Columbia University



Flexibility
Redundancy
Resourcefulness
Safe Failure
Responsiveness
Learning

UCCRN
URBAN CLIMATE CHANGE
RESEARCH NETWORK



Policy, social, engineering, and ecosystems interact to respond to changing climate and coastal hazards. Overlapping areas illustrate opportunities for adaptation and resilience strategies that combine components of each domain.

SOURCE: ACCRN, 2012

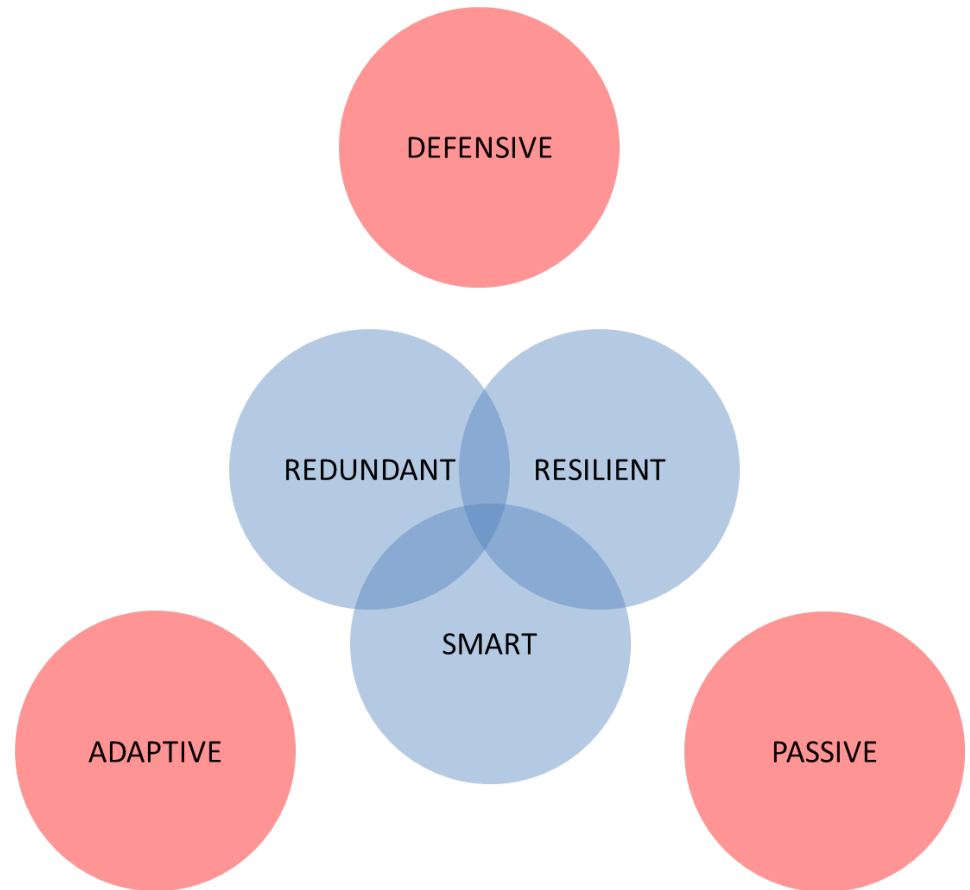
Extreme Climate Events

Temperature
Precipitation
Wind
Sea Level Rise
System Failure

Similar Extreme Events

Earthquakes
System Failure
Security Attacks

Response

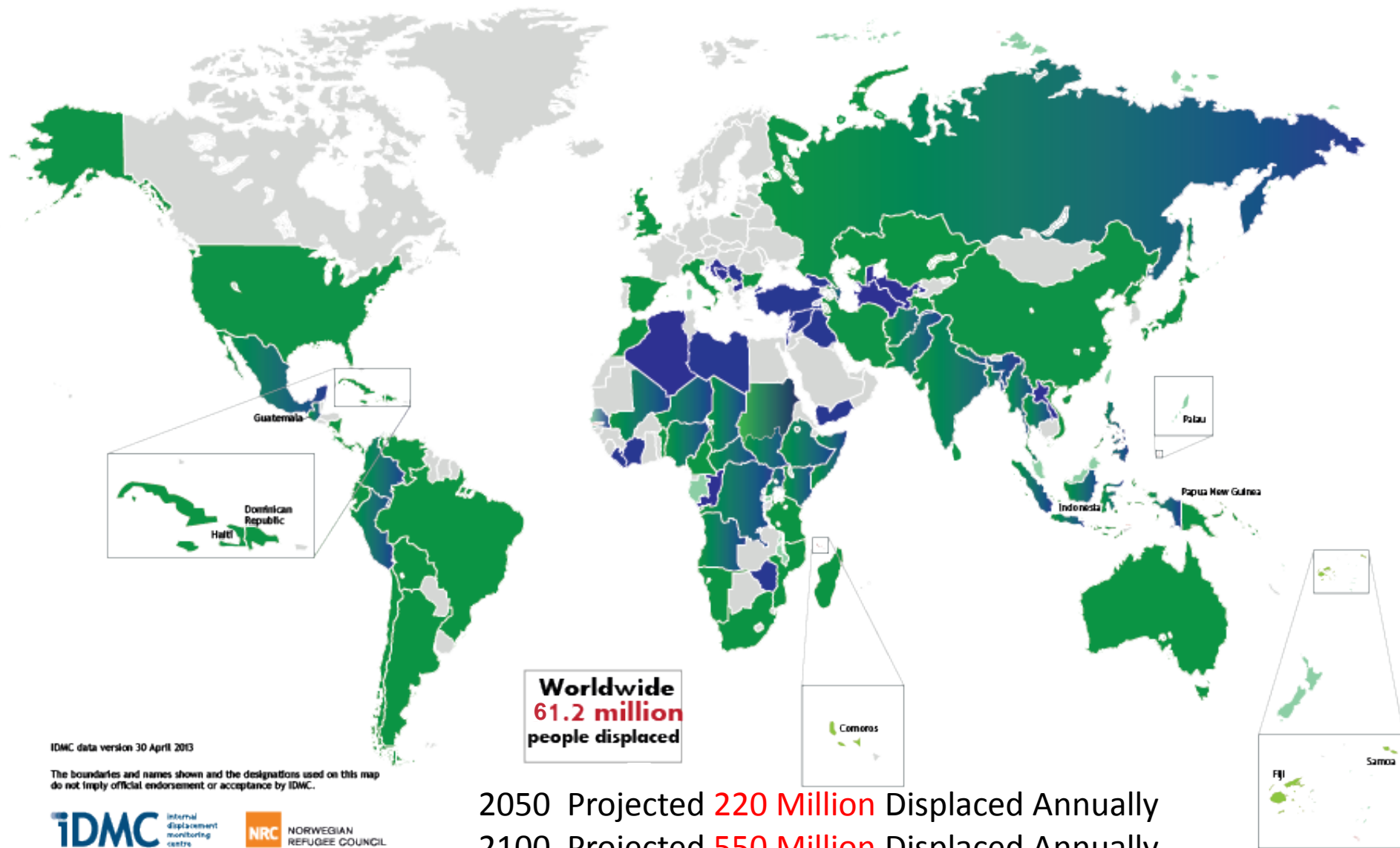


**DISASTER PREPAREDNESS RESOURCE LIBRARY -
DIGITAL DATABASE CATEGORIES**

NYC' s Defined Hazards:

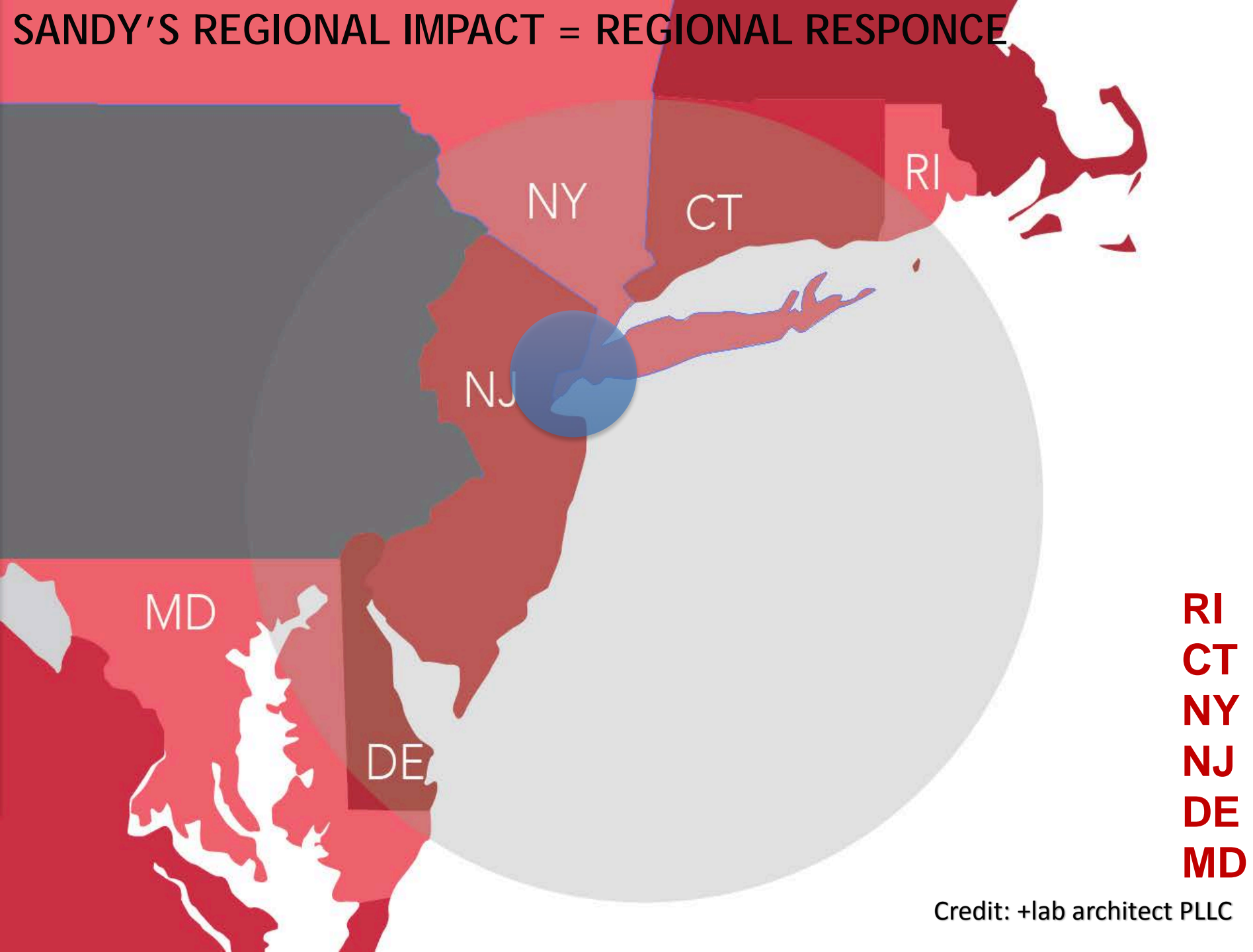
**Biological Events
Coastal Flooding
Disease Outbreak
Extreme Heat
Fires
High Winds
Hurricanes
Nor' easters
Radiation Exposure
Severe Weather
Terrorism
Transportation Accidents
Utilities Disruption
Water Supply Failure
Winter Weather
Migration**

VIOLENCE AND NATURAL DISASTER INDUCED DISPLACEMENT WORLDWIDE 2012



Credit: +lab architect PLLC

SANDY'S REGIONAL IMPACT = REGIONAL RESPONSE



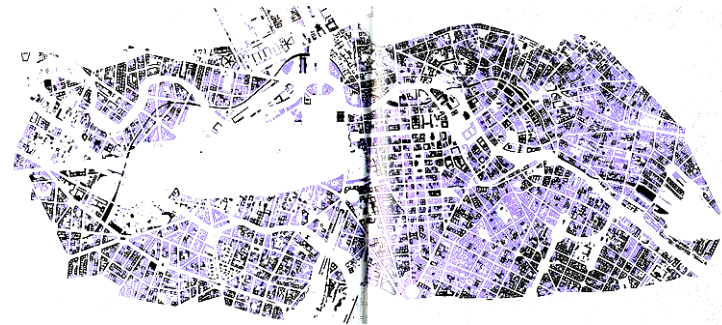
Credit: +lab architect PLLC



KATRINA
8.29.05

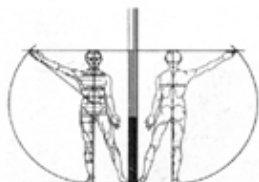


SANDY
11.29.12



First Projects in Careful Urban Renewal

IBA



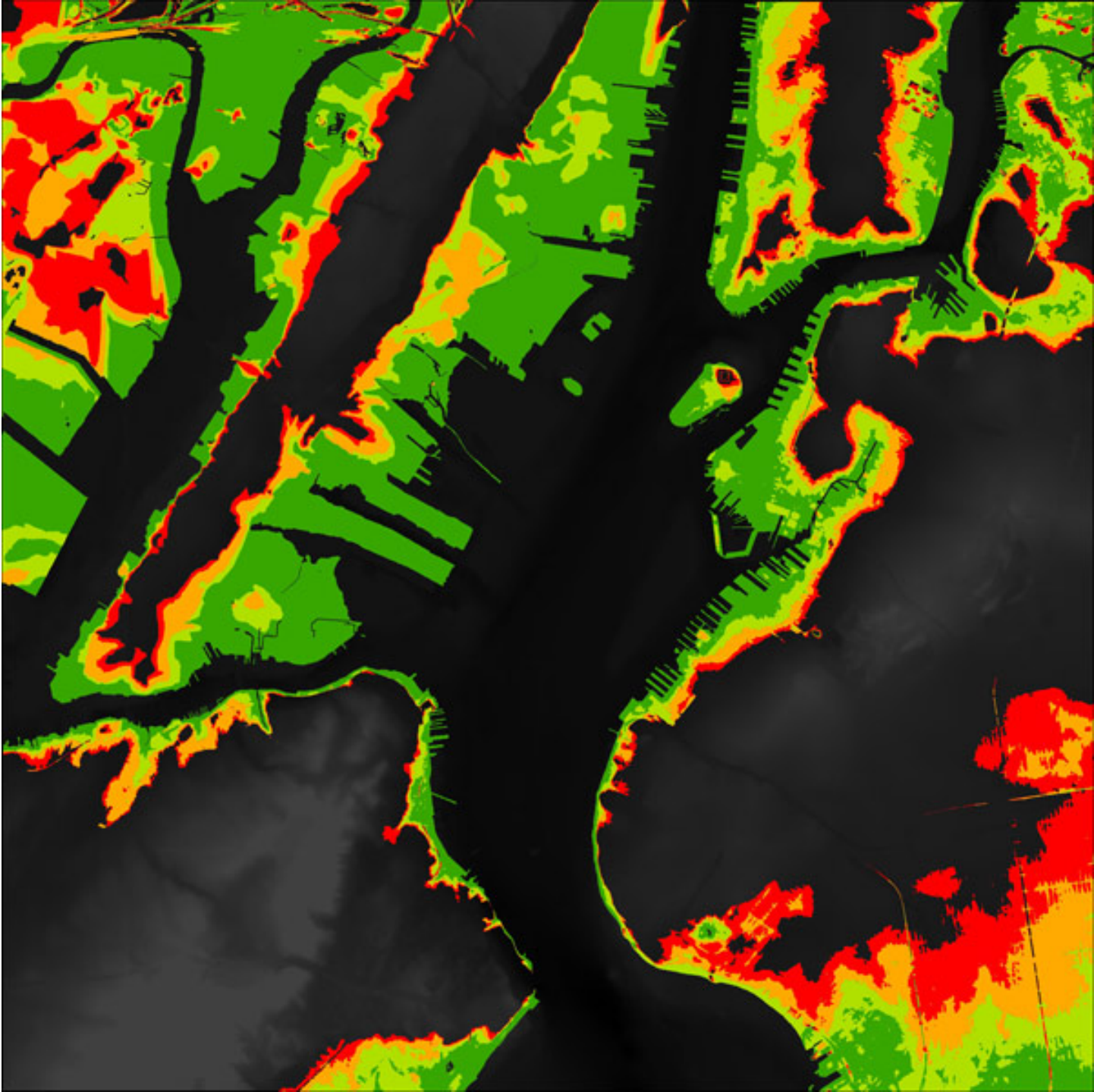
International
Building Exhibition
Berlin
1984

The 12 Basic Principles of Careful Urban Renewal are as follows:

1. Planning and realization of the renewal must be carried out together with the present inhabitants and business and tradesmen, and must preserve the building stock.
2. Planners, inhabitants, business and trades people must be in agreement about the aims and renewal measures. Technical and social planning must go hand in hand.
3. The special character of Kreuzberg should be retained, trust and confidence in the endangered parts of the city must be re-awakened. Damage which threatens the building stock must be dealt with immediately.
4. Careful changes in the ground plan should enable the development of new forms of living.
5. The renewal of dwelling units and buildings should be carried out in stages and gradually extended.
6. The structural situation should be improved by few demolitions, provision of greenery in the block interior and facade design.
7. Public facilities such as streets, squares and green areas must be renewed and extended in accordance with needs.
8. Participation and material rights of those affected must be clarified at the social planning stage.
9. Decisions concerning urban renewal must be openly made and, if possible, discussed on site. Representation of those affected should be intensified.
10. Urban renewal which creates confidence, must have guaranteed financial backing. Money must be quickly and directly available.
11. A new type of executive body must be developed. There must be a clear division of the tasks of the executive redevelopment agency (services), and of the developers (construction).
12. Urban renewal in accordance with this concept must be guaranteed beyond 1984.

(Summarized version)

**SEA
LAKE &
OVERLAND
SURGE FROM
HURRICANES**





Charrette
New York Department
of City Planning,
designing for sea
level rise.

80 design
professionals,
engineers, code
consultants explore
the implications on
sea level rise and the
impact on building
code and zoning

Results released
June 17th 2013



INSPECTED

LAWFUL OCCUPANCY PERMITTED

This structure has been inspected (as indicated below) and no apparent structural hazards has been found.

☐ Inspected Exterior Only

☐ Inspected Exterior and Interior

Report any unsafe condition to the local authorities; re-inspection may be required.

Inspector comments:

Facility Name and Address: _____

Inspector ID / Agency: _____

Date: _____

Time: _____

(Caution: Aftershocks since inspection may increase damage and risk.)

This facility was inspected under emergency conditions for: _____

(Jurisdiction)

Do Not Reoccupy After or Before Inspection until Authorized by Government Agency

GOOD SAMARITANS

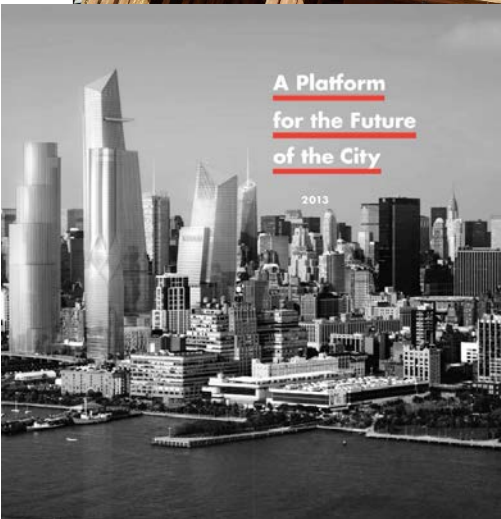
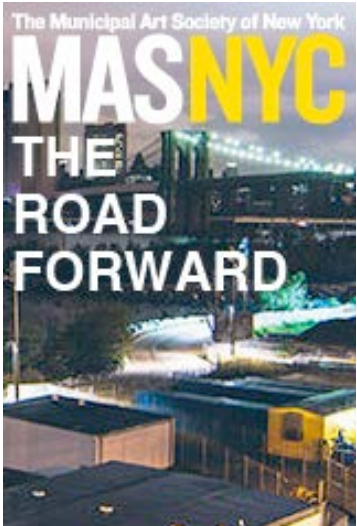
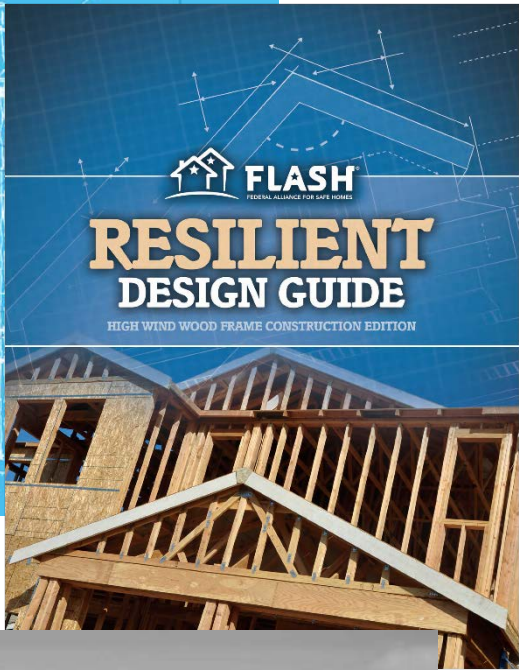
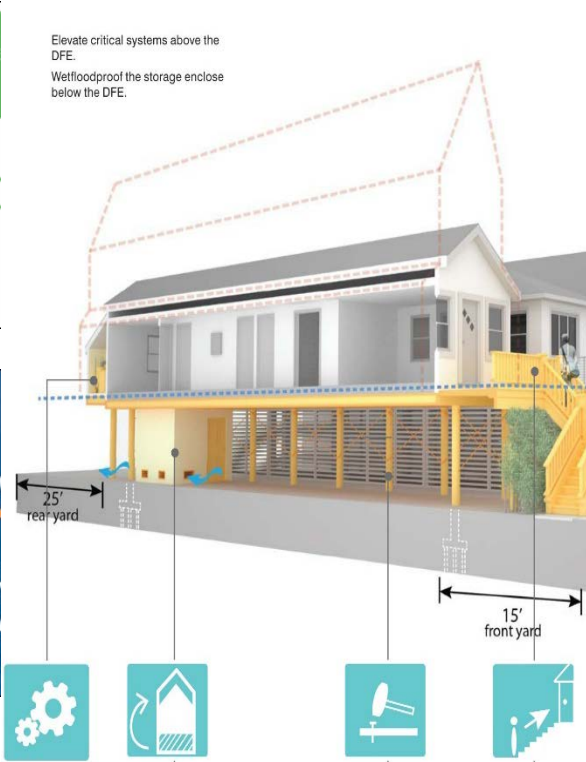
SANDY





Iwan Ban

RESOURCES LEADERSHIP AND ENGAGEMENT



POST-SANDY

INITIATIVE

**Building Better,
Building Smarter:
Opportunities
for Design
and Development**
May 2013

16'7" Projected Year 2080 Flood Height with Sea Level Rise

14'5" Projected Year 2050 Flood Height with Sea Level Rise

14' Post-Sandy Advisory Base Flood Elevation
with Residential Freeboard

13' 2012 Sandy Surge Level

12' Post-Sandy Advisory Base Flood Elevation

8'10.8" Pre-Sandy Base Flood Elevation

8' Nominal Ground Level

0' Sea level datum NAVD 88

POST SANDY INITIATIVE

TRANSPORTATION
& INFRASTRUCTURE

WATERFRONT

CRITICAL
& COMMERCIAL
BUILDINGS

HOUSING

ADAPTATION & ADVOCACY

AIA National
2014
Collaborative
Achievement Award

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AIA National
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CAN THIS BE YOUR TEMPLATE?

The background of the slide features a dark, monochromatic pattern of overlapping, three-dimensional rectangular blocks or cubes, creating a complex, architectural texture. A solid, vibrant blue horizontal band cuts across the middle of the image, serving as a backdrop for the text.

AIA NEW YORK Post-Sandy Task Force

Post-Sandy Task Force for a Resilient NYC

Post-Sandy Task Force
AIA New York / DfRR

Communications
Work Group

Advocacy
Work Group

Housing
Work
Group

Codes &
Zoning
Work
Group

Transportation &
Infrastructure
Work Group

Buildings
& Building
Technology
Work Group

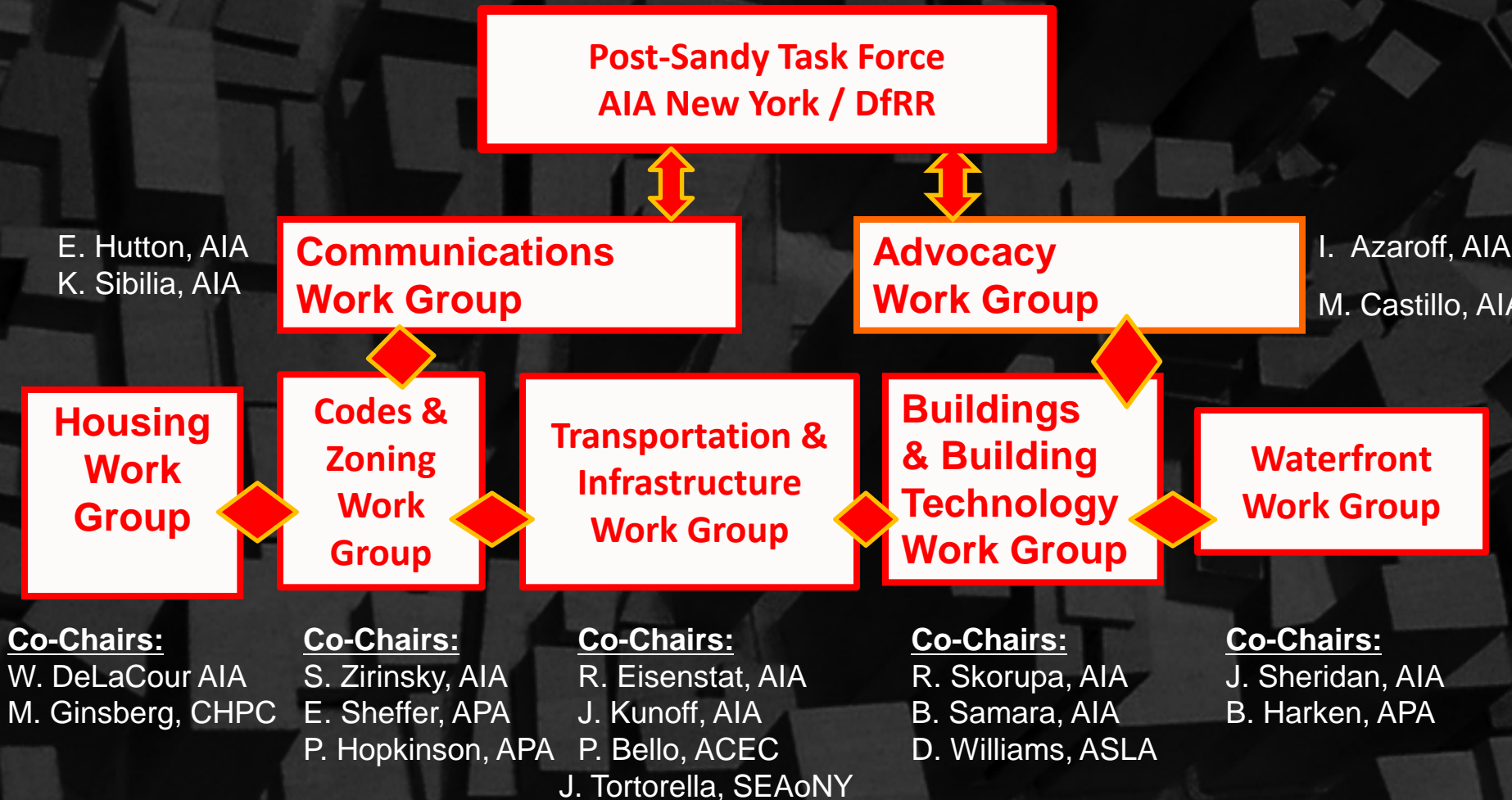
Waterfront
Work Group

Post-Sandy: Designing a Resilient New York

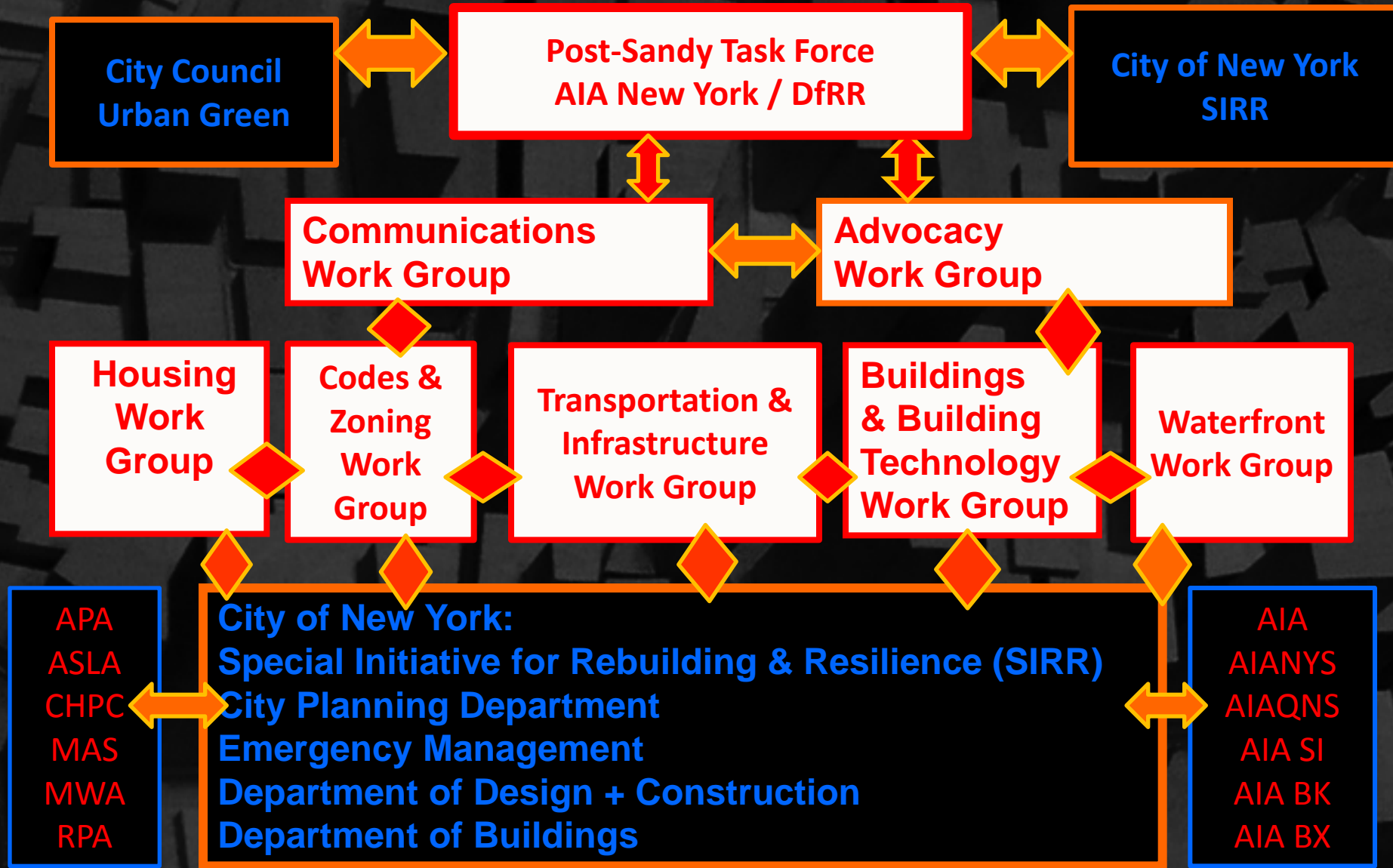
Vision: “a more resilient, better designed, better prepared, and more equitable city for the coming century”

Mission: to work together to generate and share information leading towards a more resilient city

Post-Sandy Task Force & Affiliations



Post-Sandy Task Force & Linkages



Post-Sandy Task Force: Objectives

OBJECTIVES AND ACTION PLAN

- Short Term
 - post-Sandy damage assessment at all scales from buildings to districts
 - train professionals in post-disaster damage assessment and neighborhood and district evaluations
- Long Term
 - technical issues
 - policy and regulation issues of code and zoning
 - housing issues (short, medium, and long term)
 - coastal resiliency systems (soft, hard, dynamic, etc.)
 - transportation and infrastructure systems

ft.

POST-SANDY

INITIATIVE

**Building Better,
Building Smarter:
Opportunities
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May 2013

Projected Year 2080 Flood Height with Sea Level Rise

16'7"

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8'10.8"

Nominal Ground Level

8'

Sea level datum NAVD 88

0'

ft.

▶ INTRODUCTION

▶ TRANSPORTATION
& INFRASTRUCTURE

▶ HOUSING

▶ CRITICAL
& COMMERCIAL
BUILDINGS

▶ WATERFRONT

▶ ADAPTATION,
ADVOCACY
& NEXT STEPS

A group of people are gathered around a table, looking at documents and discussing. The image is overlaid with a solid red color. The text is white and positioned in the upper left and lower left areas.

TRANSPORTATION & INFRASTRUCTURE

Regional coordination and planning for redundancy can ensure that our transportation and infrastructure networks will operate before, during, and after severe weather events.



KEY CONCEPTS AND FINDINGS

- ▶ **Planning for Redundancy:**
 - ▶ Transportations and infrastructure networks are interdependent.
 - ▶ Multiple and alternative power sources can keep them functioning during severe weather events.
 - ▶ Robust, multiple-system communication plans can alert the public to evolving conditions

KEY CONCEPTS AND FINDINGS

- ▶ **Planning Smart:**
 - ▶ For each situation, scenario-planning exercises and other research are needed to suggest whether **hard infrastructure** (with a constructed resiliency) or **simpler, softer solutions** will best protect the community.
 - ▶ Planning with three distinct strategic approaches-**defensive, adaptive, and passive.**



OPPORTUNITIES AND NEXT STEPS

- ▶ Assess the infrastructure and transportation systems at greatest risk.
- ▶ Identify strategies for their **redundancy** and **resiliency**.
- ▶ Educate the public about challenges ahead to ensure realistic expectations and support for required expenditures.



HOUSING

The image shows a group of people in a library or study setting. In the background, there are tall bookshelves filled with books. In the foreground, several people are gathered around a table. One man is standing and looking at a document, while others are seated, some looking at a laptop and others at papers. The entire image is overlaid with a semi-transparent red color.

Local and national regulations related to housing in flood zones do not address the conditions of a dense urban place like New York City.

CRITICAL & COMMERCIAL BUILDINGS

A man in a dark jacket is standing at a podium, gesturing with his right hand towards a large screen. The screen displays a presentation with the word "Prezi" visible in the top left corner. The audience, seen from behind, is seated in rows of chairs, facing the speaker. The room has a warm, reddish-orange lighting. The overall scene is a professional presentation or lecture.

The challenges of adapting the vast inventory of existing critical buildings to withstand the effects of extreme climate events are distinct from the relatively easier task of designing new structures for resiliency.

WATERFRONT

The future of New York as a waterfront city depends on respecting our changing environment and building on the unifying strength of our dynamic harbor and waterways in creative ways.

We would like to express appreciation to the many volunteers who gave their time and knowledge to the Post-Sandy Initiative.

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2013 AIANY Vice President,
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AIANY Executive Director

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COLLABORATING ORGANIZATIONS

American Council of
Engineering
Companies (ACEC
New York)

American Society of
Landscape
Architects New York
Chapter (ASLA-NY)

Citizens Housing &
Planning Council
(CHPC)

New York State
Association
for Affordable Housing
(NYSFAFH)

American Planning
Association
New York Metro
Chapter (APA-NYM)

Regional Plan
Association (RPA)

Glossary

An abbreviated glossary
of important terms*

Adaptation

Adaptation is the set of adjustments that society or ecosystems make to limit negative effects of climate change. It can also include taking advantage of opportunities that a changing climate provides.

<http://www.epa.gov/climatechange/impacts-adaptation/adapt-overview.html>

Disaster

A serious disruption of the functioning of a community or a society involving widespread human, material, economic, or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

<http://www.wcpl.org/node/26996>

Mitigation

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Mitigation is taking action now—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, insuring against risk). Effective mitigation requires that we all understand local risks, address the hard choices, and invest in long-term community wellbeing. Without mitigation actions, we jeopardize our safety, financial security, and self-reliance.

Preparedness

Preparedness is achieved and maintained through a continuous cycle of planning, organizing, training, equipping, exercising, evaluating, and taking corrective action. Ongoing preparedness efforts among all those involved in emergency management and incident response activities ensure coordination during times of crisis. Moreover, preparedness facilitates efficient and effective emergency management and incident response activities.

Prevention

Encompasses activities designed to provide permanent protection from disasters. This includes engineering and other physical protective measures, as well as legislative measures controlling land-use and urban planning.

<http://www.wcpl.org/node/26996>

Recovery

A focus on how best to restore the capacity of the government and communities to rebuild and recover from crisis, and to prevent relapses into conflict. In so doing, recovery seeks not only to catalyze sustainable development activities, but also to build upon earlier humanitarian programs to ensure that their inputs become assets for development.

<http://www.wcpl.org/node/26996>

Regenerative Design

Regenerative design (sometimes referred to as cradle-to-cradle design) is a process-oriented systems theory based approach to design. The term “regenerative” describes processes that restore, renew, or revitalize their own sources of energy and materials, creating sustainable systems that integrate the needs of society with the integrity of nature. (NNB)

Resilience

Ability of systems, infrastructures, government, business, communities, and individuals to resist, tolerate, absorb, recover from, prepare for, or adapt to an adverse occurrence that causes harm, destruction, or loss.

Response

Activities to address the immediate and short-term effects of an emergency or disaster. Response includes immediate actions to save lives, protect property, and meet basic human needs. Based on the requirements of the situation, response assistance will be provided to an affected state under the National Response Plan (NRP) using a partial activation of selected Emergency Support Functions (ESFs) or the full activation of all ESFs to meet the needs of the situation.

Risk

Risk is Hazard + Vulnerability. Risk is potential impact to people, environment, and economy of a community (FEMA 2004). Vulnerability is measured by identifying exposure, sensitivity, and ability to cope. Hazard is a natural process with the potential to harm people or property (FEMA 2001).

Risk Assessment

Methods used to quantify risks to human health and the environment.

Sustainable Design / Development

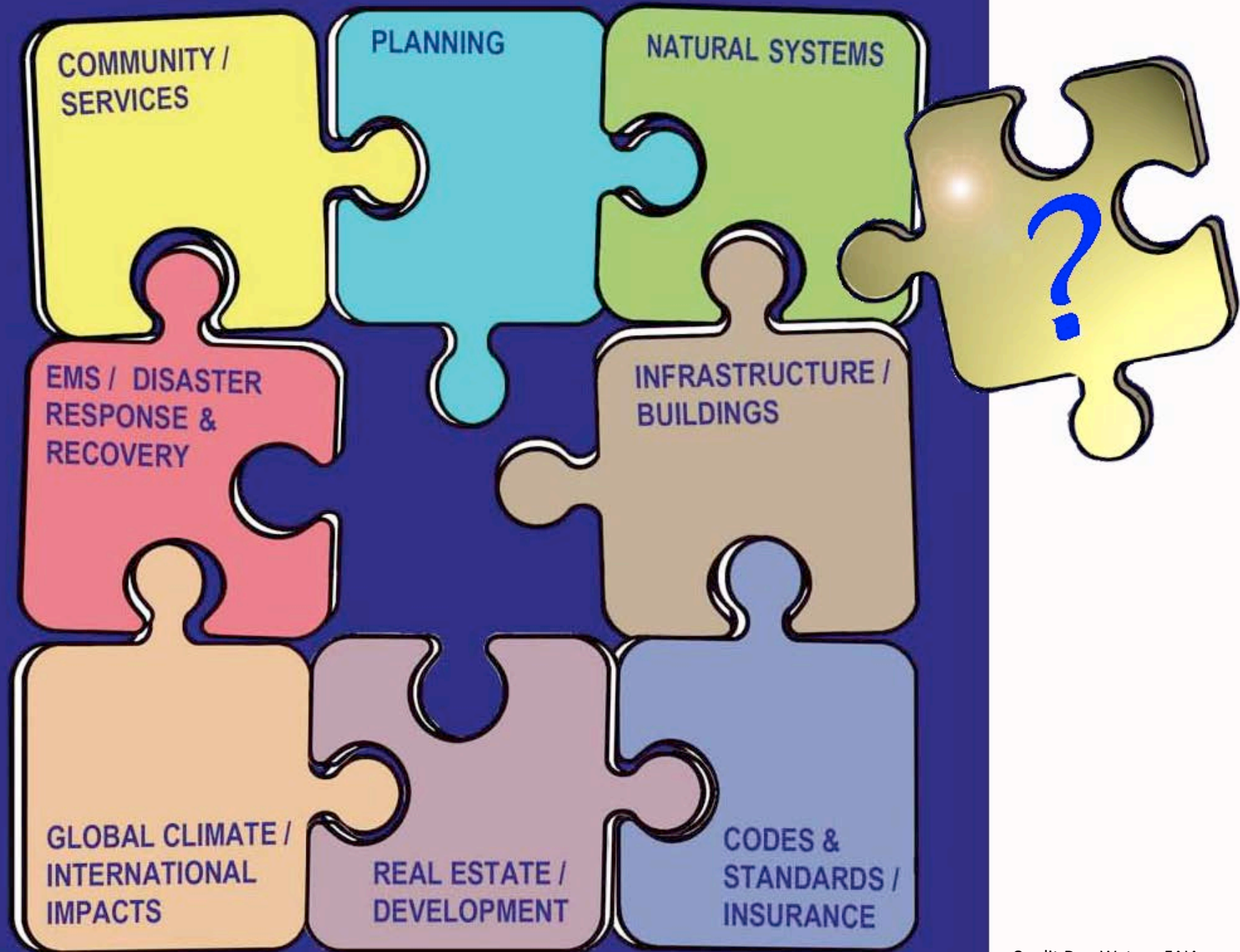
Involves activities that meet the needs of the present without compromising the ability of future generations to meet their own needs.

<http://www.wcpl.org/node/26996>

SWOT Analysis

A process used to identify Strengths, Weaknesses, Opportunities, and Threats in business organizations, public agencies, and other entities. Can be useful as applied to determining building resilience.

*All are FEMA definitions unless noted otherwise.



RESOURCES



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LINKS

- AIANY.org
- www.designforrisk.com
- www.rebuildbydesign.org
- www.mas.org
- www.aia.regional.recovery.working.group

DOWNLOADS

<http://postsandyinitiative.org>

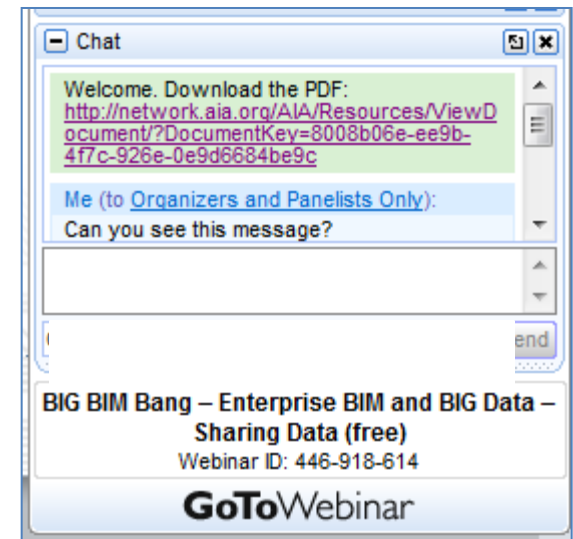
<http://www.nyc.gov/html/dcp/html/retrofitting/index.shtml>

<http://www.flash.org>

Questions?

Submit a question to the moderator via the chat box.

Content-related questions will be answered during the Q&A portion as time allows.



Thank you for joining us!

This concludes the AIA/CES Course #2015RUDC02. The webinar survey/report form URL is listed in the chat box **and** will be included in the follow-up email sent to you in the next hour.

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