The Connecticut Institute for Resilience and Climate Adaptation (CIRCA)

Jessica LeClair

SIPRAC Meeting

December 9, 2014

The Resilience Challenge

Record flooding, March 2010
Tropical Storm Irene, August 24, 2011
October Snowstorm, October 30, 2011
Superstorm Sandy, August 2012

AMERICA'S OLDEST CONTINUOUSLY PUBLISHED NEWSPAPER

Hartford Courant

COURANT.COM • MOBILE.COURANT.COM

SANDY FURY UNLEASHED

OUTAGES: More than 600,000 power failures in Connecticut as of Monday night.
EVACUATIONS: National Guard called out, helping in Greenwich and Darien.
FATALITIES: One person killed, two hurt in Mansfield when a tree fell on them.
ECONOMY: $10 billion to $20 billion expected in damage to the U.S. economy.

SANDY STRIKES

Call to Action

Governor's Two-Storm Panel

Shoreline Preservation Task Force

Special Act 13-9: *AN ACT CONCERNING CLIMATE CHANGE ADAPTATION AND DATA COLLECTION*

Department of Energy and Environmental Protection and The University of Connecticut shall…establish a **Connecticut Center for Coasts**…that shall include, at a minimum, conducting research, outreach and education projects to guide the development of technologies and regulatory provisions that increase the protection of ecosystems, coastal properties and other lands and attributes of the state that are subject to the effects of rising sea levels

CIRCA

Creation of CIRCA

- February, 2012: Formation of Shoreline Preservation Task Force
- January, 2013: Report of Task Force
- June, 2013: Special Act 13-9
- December, 2013: Unilever settlement
- January, 2014: Gov. Malloy at Avery Point
- February, 2014: Report to the Joint Standing Committee on the Environment
- May, 2014: UCONN- CTDEEP MOU Signed
- July, 2014: Exec. Director Appointed
- August, 2014: Director of Community Engagement

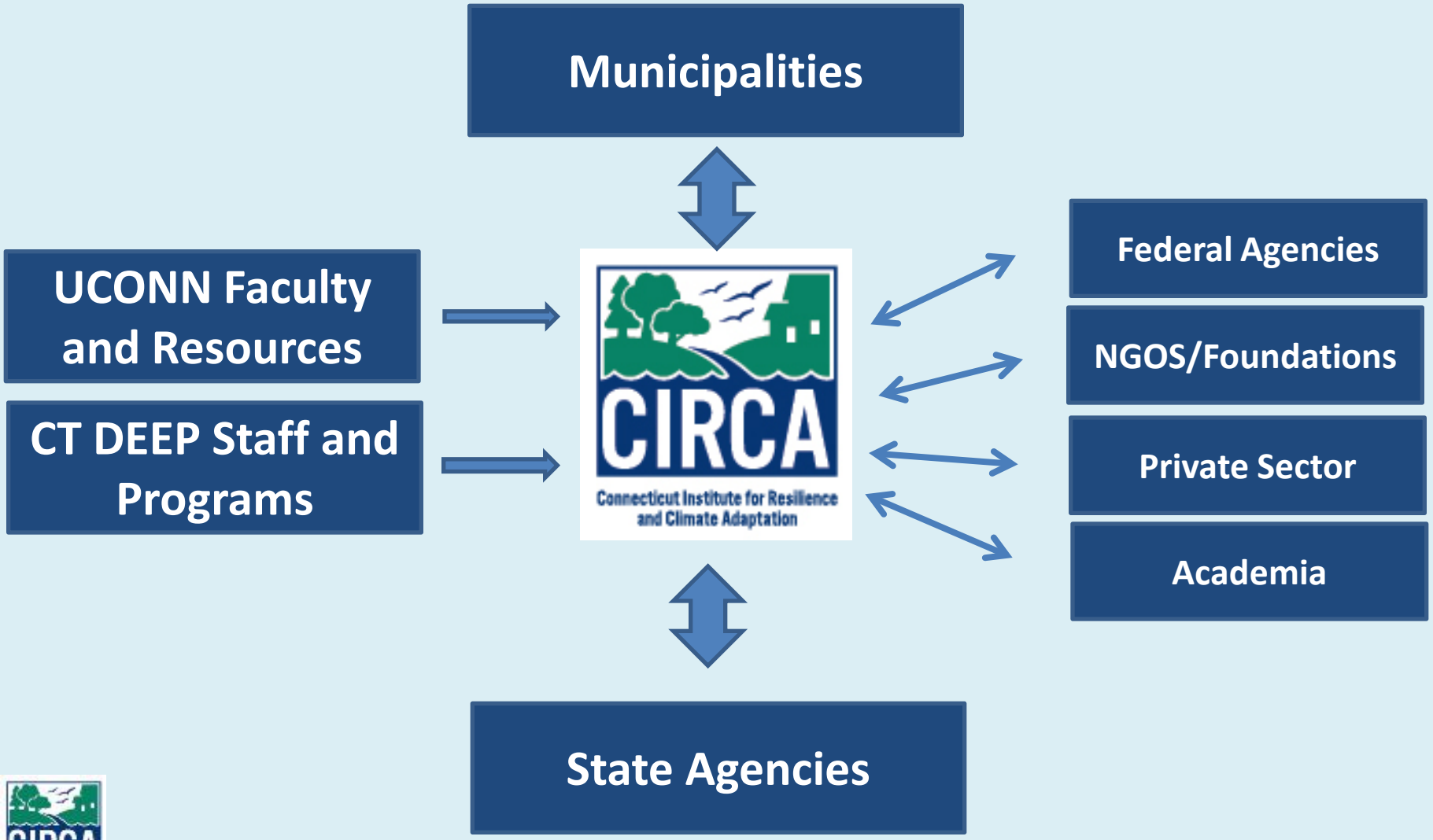
Mission

Increase the resilience and sustainability of vulnerable communities in Connecticut's coastal and inland areas to severe storms and the growing impacts of climate change on the natural, built, and human environment in response to critical, identified needs and priorities.

Approach

- Bring together the world-class and multi-disciplinary research and outreach capabilities of UConn with the extensive practical experience of CTDEEP
- Actively engage with communities to establish needs and priorities
- Conduct multi-disciplinary applied research and outreach in response to needs
- Develop and disseminate practical and sustainable strategies including analysis tools, best practices, pilot projects, policy analysis and recommendations

Strategy


Municipalities
UCONN Faculty and Resources
CT DEEP Staff and Programs
CIRCA
Connecticut Institute for Resilience and Climate Adaptation
Federal Agencies
NGOS/Foundations
Private Sector
Academia
State Agencies

Structure


UCONN Vice President for Research and CTDEEP Commissioner
Executive Steering Committee: UConn and CTDEEP Appointees
Advisory Committee: Stakeholders and Users
Executive Director
Directors of Applied Research
Director Community Engagement
Program Manager

The Challenges

Priorities

- Environment, Climate and Coasts
- Infrastructure Resilience
- Policy Analysis and Design

CIRCA Research Projects:

NOAA Crest Grant

NOAA Coastal Resilience Networks (CREST) Grant

- CIRCA partner, University of Connecticut awarded nearly $500,000
- 2-year grant: March 2014 – February 2016
- Part of the Sandy Supplemental funds distributed as a result of the FY2013 Disaster Relief Appropriations Act for Coastal Resilience Networks
- Goal – increase coastal resiliency in CT

NOAA CREST: Enhancing Coastal Resilience in Connecticut

- **Objective to increase CT's coastal resiliency by**:
  - Assisting with the creation of the Connecticut Institute for Resilience and Climate Adaptation (CIRCA)
  - Performing focused research
  - Creating a decision support tool for public use
- **Research Areas:**
  - Mapping Shoreline Change
  - Mapping Coastal Protection
  - Mapping Coastal Waves & Sea Level During Storms
  - Living Shorelines
- **Education and Outreach**

Projects

CIRCA Projects underway or planned:

- Regional impacts of climate change and sea level rise
- Inland and coastal flooding maps at high resolution and improved visualization capability
- Evaluation of coastal protection strategies for the natural and built environment (living shorelines)
- Community Resilience Plans
- Assess vulnerability of municipal infrastructure
- Innovative financing and incentives for resilience

Priority Area: Environment, Climate and Coasts

Environment, Climate and Coasts

- Simulations of regional impacts of climate change and sea level rise
- Development of inland and coastal flooding maps at high resolution and improved visualization capability
- Maps of coastal and inland vulnerabilities to severe storms
- Evaluation of coastal protection strategies for the natural and built environment
- Stormwater infrastructure (including green infrastructure)

Priority Area: Infrastructure Resilience

Energy and Infrastructure

- Resilient design and hardening of public utility infrastructure (electric systems, natural gas, pipelines, water distribution, wastewater treatment plants, cell towers, etc.)
- Microgrids and energy storage
- Resilient design and hardening of transportation infrastructure (roads, bridges, culverts, train tracks, etc.)
- Resilient building designs
- Sustainable shoreline construction engineering (docks, seawalls, etc.)
- Living shorelines and natural habitat protection
- Green infrastructure

Priority Area: Policy Analysis and Design

Policy Analysis and Design

- Planning & zoning law in flood-prone areas
- Insurance law and policy in flood-prone areas
- Financing for improvements in resiliency (investments in resilient roofs and windows, raising structures above the flood zone, etc.)
- Flood zone buyout programs
- Decision support tools / web portals for targeted audiences (e.g., contractors, homeowners, businesses, zoning boards)
- Risk communication

Thank you!

Jessica LeClair
CT Institute for Resilience and Climate Adaptation
jessica.leclair@uconn.edu
860-405-9214

Find us on the web at: circa.uconn.edu