RISING WATER

Tackling Flood Damage Austin, Cynthia, Emme, Ideliya MTS 2021 @ UNC

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Cathalawa Olivia (shown here, carried by a National G after Hurricane Matthew





Coast Guard rescues hounds in Riegelwood, NC 🌼





Lumbee Tribe-organized food drive after Hurricane Matthew

Seoul, SK highway converted to greenspace

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Science & Background

Problems caused by flooding:

- Destruction of wildlife
- Contamination (ex: hog farms in NC)
- Erosion bad for agriculture
- Loss of property/property damage

Why are these challenging to prevent?

- Urbanization □>more impermeable surface
 □>higher temperatures □>more flooding
- Financial restrictions cut sustainability first





\$24,000,000,000

Cost of damage from Hurricane Florence alone



ICEBERG MODEL

PROBLEM

Flooding + Property Damage

STRUCTURES

Insurance-driven moral hazards Structural inequality Lack of community-based political agency and trust

PATTERNS

Unequal impacts from climate change, land use patterns, and historic injustices

MENTAL MODELS

Short-term thinking Lack of innovation Ties to land Economic viewpoint Lack of empathy

OUR MAP

https://kumu.io/cxd00/ris ing-waters





CENTERING COMMUNITIEEVERS

Increasing local bureaucratic capacity

Creating connections within the community

Localized education and information dissemination

Federal recognition of the Lumbee Tribe INFRASTRUCTURE

Adaptive, localized infrastructure along with reactive planning

Dutch Model

Insurance-driven mitigation strategies (a la NCIUA)

Political advocacy and engagement for trusted funding

SMART BUYOUTS

Contiguous buyouts with local relocation

Empty-lot conversion into wetlands

Carbon offset credits

KEY INSIGHTS

INEQUALITY

Current solutions often exacerbate systems of racism and cycles of poverty

PSYCHOLOGY

Long-term, high-risk lowprobability thinking is needed

TRUST

Historical and current injustices can only be overcome with local engagement

PLANNING

Investment in resiliency and adaptation instead of resistance and mitigation

POLITICAL W

Political interests hinder reforms, especially when marginalized communities don't get a voice

HOPE

Not an intractable problem!

BROADER IMPLICATIONS



Flood structures in Russia Source: Ideliya Khismatova Melting ice on frozen river in Russia Source: Ideliya Khismatova

THANK YOU!

Shoutout to Dr. Don Hornstein for his incredible knowledge, and a very inspirational pep talk.

Questions?



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