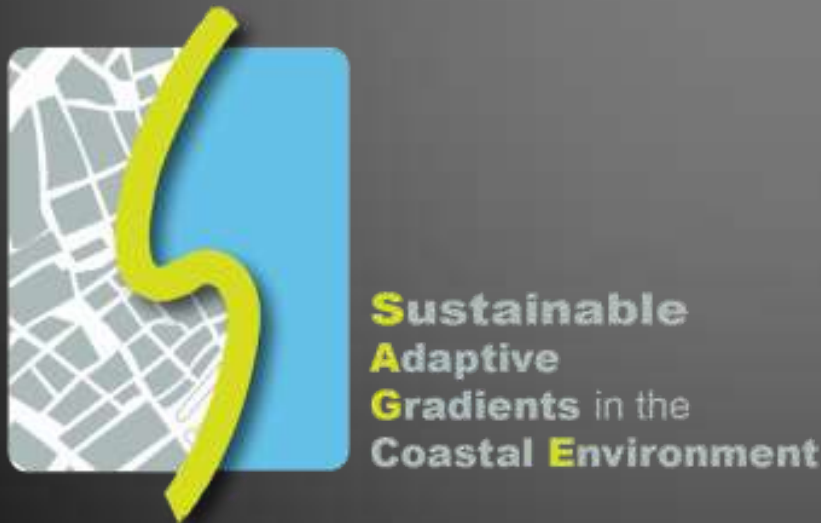


Adaptive Gradients and the SAGE RCN

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SAGE RCN: Sustainable Adaptive Gradients in the coastal Environment Research Collaboration Network

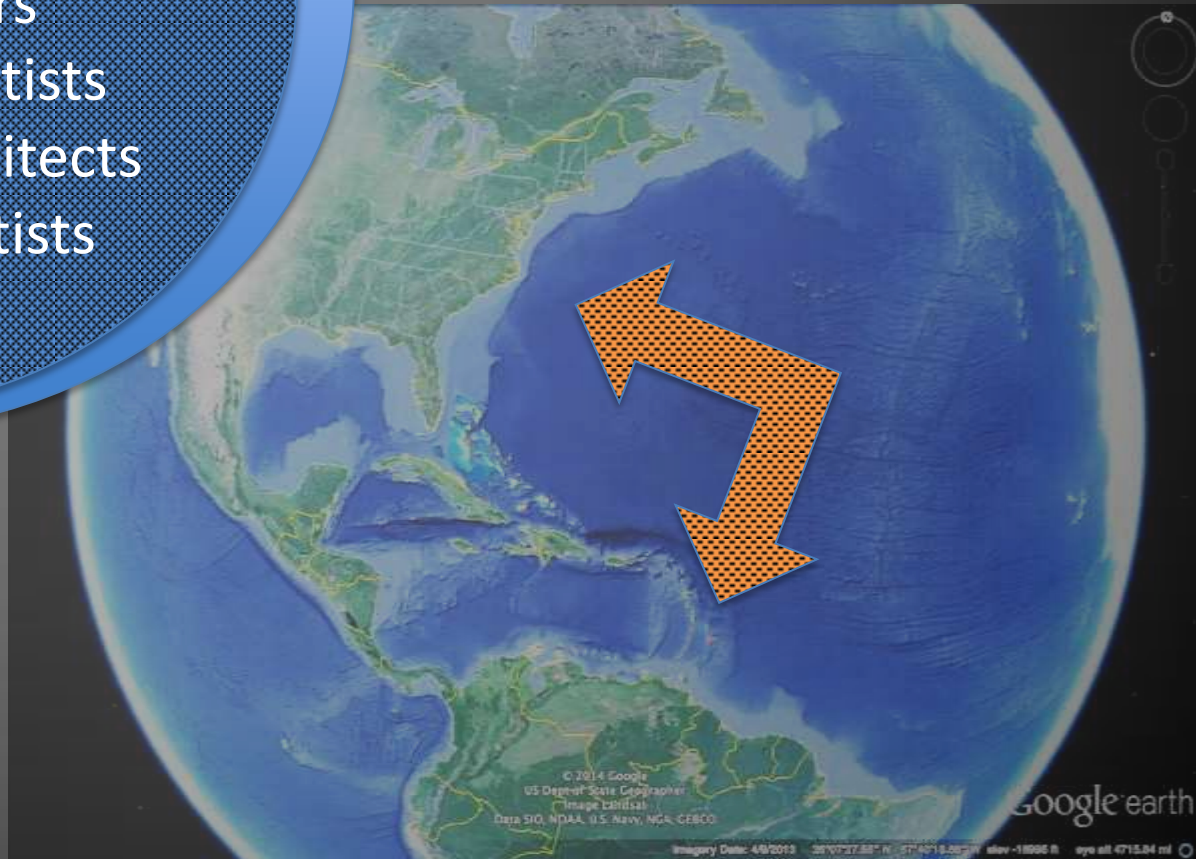


*Funded by: NSF Research Collaboration Network (RCN): SEES. Award
Number: ICER-1338767. Project period: 1/2014-9/2019.*

Elisabeth Hamin, PI; Melissa Kenney, Don DeGroot, Tom Sheahan, co-PIs

Co-Learning Project

Civil Engineers
Coastal Ecologists
Land Use Planners
Policymakers
Decision Scientists
Landscape Architects
Climate Scientists



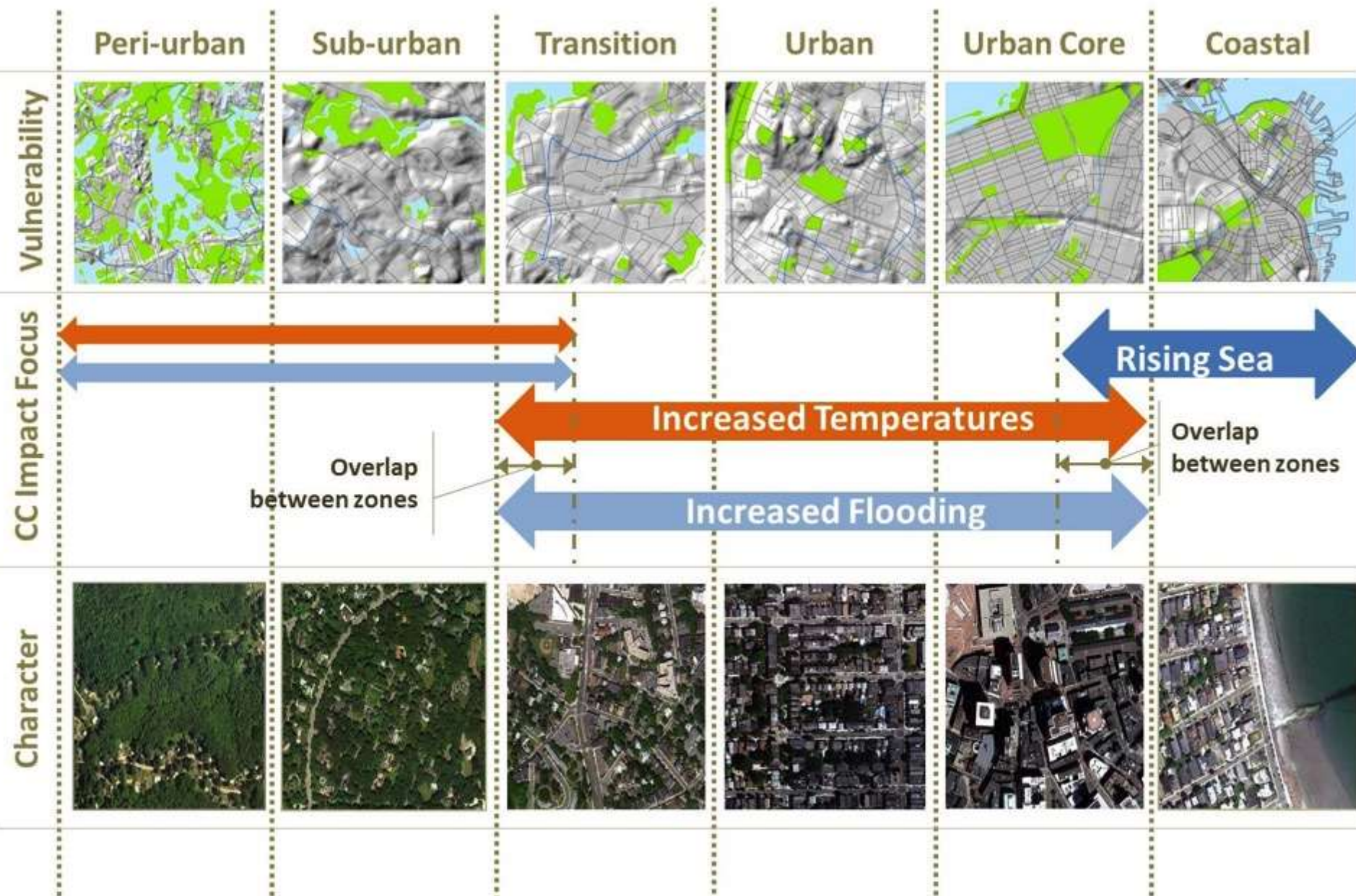
Two goals



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graph LR; A[Two goals] --- B[Meta: Build interdisciplinary and inter-geographic research group]; A --- C[Practice: Overcome barriers to widespread adoption of greener, more just infrastructure];
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Meta: Build interdisciplinary and inter-geographic research group

Practice: Overcome barriers to widespread adoption of greener, more just infrastructure



Early meetings findings

- Greener infrastructure provides many co-benefits
- Co-benefits are not well captured in current project evaluation tools
- Developed and refined Adaptive Gradients Framework: Project assessment tool capturing wide range of possible benefits

Developing the Gradients: 2014 - 2017



Phase 1	Network survey 1: Relevant factors & barriers
Objective	<ul style="list-style-type: none"> Identify the universe of factors that influence infrastructure decisions
Action	<ul style="list-style-type: none"> Categorize responses, eliminate duplicates, unify terminology (surveys = 28); completed May 2015. Result is 38 factors that influence infrastructure project decisions.
Validation	<ul style="list-style-type: none"> Workshop Discussion: Generating the categories -- group discussion of survey 1 results.
Results	<ul style="list-style-type: none"> Assure that categories represent participant views (participants = 31); completed June 2015.
Phase 2	Network survey 2: Ranking the factors
Objective	<ul style="list-style-type: none"> Identify the most important factors that influence infrastructure decisions; use this to develop initial gradients
Action	<ul style="list-style-type: none"> Retain items selected by at least 50% of experts and categorize; completed August 2015. Results in 5 factors / gradients.
Validation	<ul style="list-style-type: none"> Workshop Discussion: Testing the categories -- group discussion of survey 2 results with input from policymakers in network.
Results	<ul style="list-style-type: none"> Gradients expanded to 7 for clarity, preliminary definitions developed for each category.
Phase 3	Gradients applied to case studies
Objective	<ul style="list-style-type: none"> Test and refine gradient framework
Action	<ul style="list-style-type: none"> Prepare case study protocol based on gradients defined in phase 2
Validation	<ul style="list-style-type: none"> Case study tests: 4 project cases prepared using case study protocol; In-person writing workshop tests preliminary gradients by evaluating case studies.
Results	<ul style="list-style-type: none"> Refine gradients definitions and add Greenhouse Gas Reduction (completed February 2018). Final test: BVI case study with hosts.

Applying the Gradients: 2017-2018

- Site: ENLACE neighborhood in Puerto Rico
- Site: Shoreline project in Maryland
- Four other desk eval cases



Eight Gradients for Project Evaluation

- Exposure Reduction
 - Cost Efficiency
- Institutional Capacity
- Ecological Enhancement
 - Adaptation Over Time
- Greenhouse Gas Reduction
 - Participatory Process
 - Social Benefits

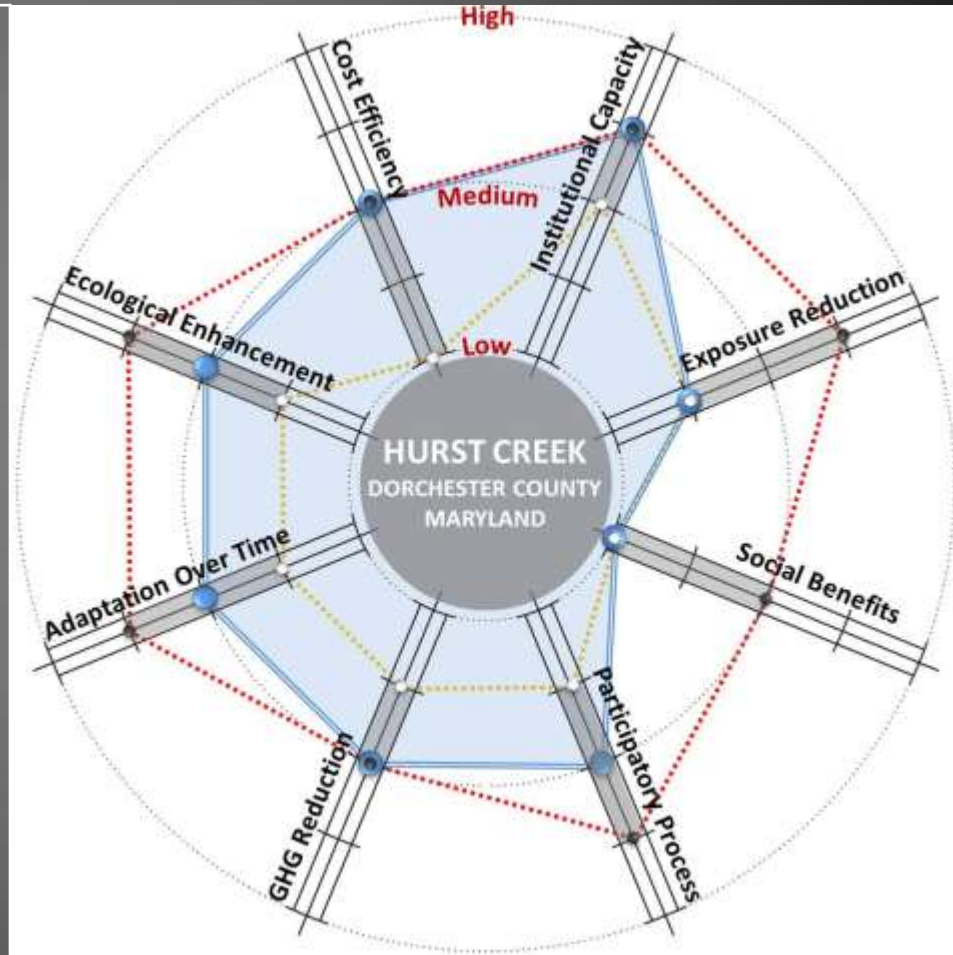
How do you use the gradients to evaluate a project?



1. Form an evaluation team
2. Collect relevant information
3. Develop a scoring rubric (if needed)
4. Score and rescore the project until consensus
5. One to two page summary of findings

Example: Hurst Creek, MD

<u>Gradient</u>	<u>Final Gradient Score</u>
Exposure Reduction	Medium-Low
Cost Efficiency	Medium
Institutional Capacity	Medium-High
Ecological Enhancement	Medium
Adaptation Over Time	Medium
Greenhouse Gas Reduction	Medium
Participatory Process	Medium
Social Benefits	Low



Expert team final gradient scores.

Take-Aways

- There is power in a simple but sufficient evaluation tool
- Framework isn't just coastal
- Public and non-profit sector entities can adopt the Gradients freely
- Private/consulting groups -- please see us
- Development is on-going and collaborations are welcome!



Products

- Practitioners' Guide
- Technical Guide
- Research Article
- Website with case studies and reference materials:
www.resilient-infrastructure.org

Please cite as:

Hamin, E.M., Y. Abunnasr, M.R. Dilthey, et al. (2018).

"Pathways to coastal resiliency: The Adaptive Gradients Framework."

Sustainability, 10(8), 2629