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# EVALUATING CLIMATE RESILIENCE IN VISION 2030 PLANS

CARIBBEAN URBAN FORUM  
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# PLANNING FOR CLIMATE RESILIENCE IN THE CARIBBEAN

- Climate change is a complex emergency for the Caribbean Region needing integrated, flexible, adaptive solutions
- Plans codify long range visions, goals, objectives, strategies to encourage proactive action
- Growing number of comprehensive / spatial development plans for Caribbean nations to build resilience to climate effects
- How are these resilience principles operationalized in the plans?

# DEFINING CLIMATE RESILIENCE

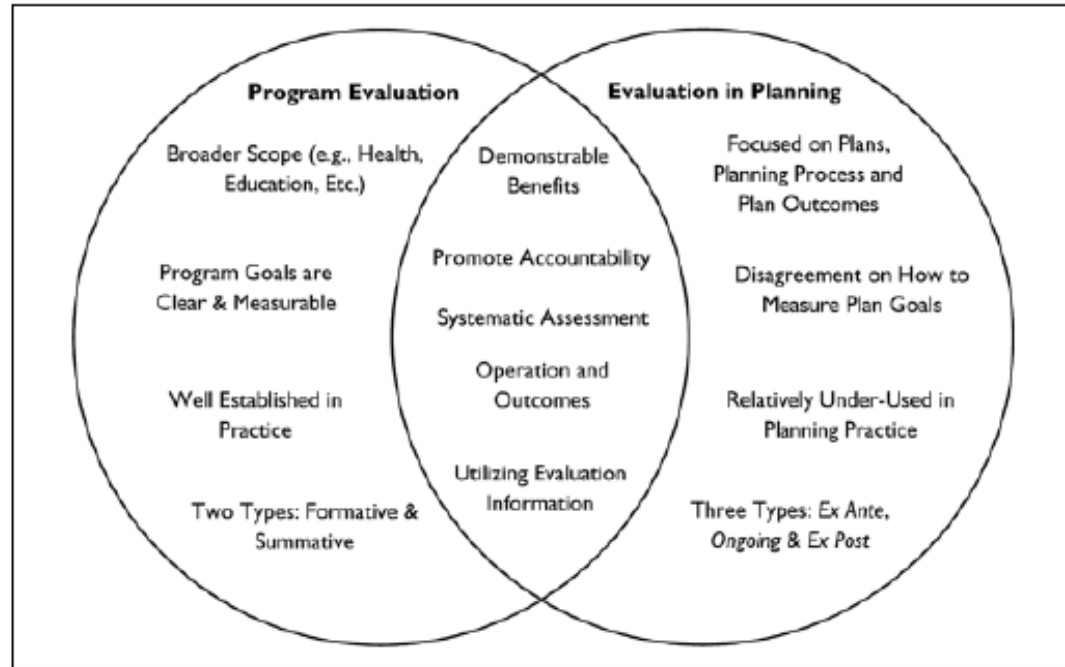
*“The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity of self-organization and the capacity to adapt to stress and change” (IPCC 2007)*

Focus on innovation and change to recover from stresses in the face of dynamic change and uncertainty

- Elements of urban resilience (Tyler and Moench 2012; Meerow et al. 2016)
  - Systems; Agents; Institutions
- Characteristics (Walker and Salt; Resilience Alliance)
  - Diversity, redundancy, connectivity, slow variables and feedbacks, adaptive systems, learning, participation, polycentric governance

# ROLE OF EVALUATION IN PLANNING

- Verify plan quality to ensure internal and external validity
- Ensure goals and objectives capture desired outcomes
- Develop high quality plans to ensure effective implementation
- Identify limitations / gaps
- Promote learning, transparency, accountability and participation



# PLAN QUALITY EVALUATION

(LYLES AND STEVENS 2014; BERKE ET AL. 2013; BERKE ET AL. 2006; BERKE AND GODSCHALK 2009; GODSCHALK ET AL. 1999; KAISER 1995)

## • Vision/Goals

- P1.1 environment
- P1.2 equity
- P1.3 economic

## • Fact Base

- P2.1 projections of hazards
- P2.2 current land use supply
- P2.3 future land use needs

## • Policies

- P3.1 regulations
- P3.2 incentives
- P3.3 land acquisition
- P3.4 infrastructure

Direction Setting

## • Implementation

- P4.1 timeline to act
- P4.2 org. responsibility
- P4.3 funding

## • Monitoring

- P5.1 measurable indicators
- P5.2 evaluation

## • Inter-governmental Coordination

- P6.1 info. sharing
- P6.2 inter-gov't agreements

## • Public Participation

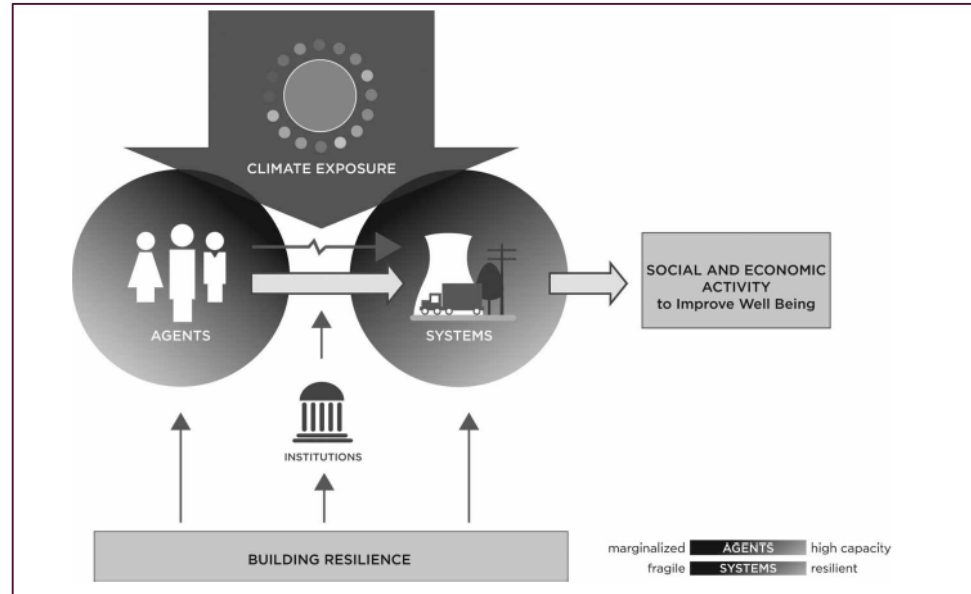
- P7.1 id. stakeholders
- P7.2 id. engagement techniques

Action-Oriented

# PLAN EVALUATION AND CLIMATE CHANGE

Tang et al. 2010; Preston et al. 2011; Tyler and Moench 2012; Baker et al. 2012; Berke et al. 2012; Baynham & Stevens 2014; Berke et al. 2015; resilientcities.org; GOAL 2015; Meerow et al. 2016; Guyadeen 2019

- How is climate resilience operationalized in Vision 2030 development plans in the Caribbean?
- What factors influence how climate resilience is addressed in these plans?



# METHOD

- Literature reviews
- Development of evaluation tool with focus on local context
- Content analysis of national plans
- Supplementary review of websites, videos, social media presence

Questions to Consider		
Who?		Who determines what is desirable for an urban system? Whose resilience is prioritized? Who is included (and excluded) from the urban system?
What?	T	What perturbations should the urban system be resilient to?
	R	What networks and sectors are included in the urban system?
	A	Is the focus on generic or specific resilience?
When?	D	Is the focus on rapid-onset disturbances or slow-onset changes?
	E	Is the focus on short-term resilience or long-term resilience?
	O	Is the focus on the resilience of present or future generations?
Where?	F	Where are the spatial boundaries of the urban system?
	F	Is the resilience of some areas prioritized over others?
	S	Does building resilience in some areas affect resilience elsewhere?
Why?	?	What is the goal of building urban resilience? What are the underlying motivations for building urban resilience? Is the focus on process or outcome?

# EVALUATION FRAMEWORK (BRODY 2003; KAISER GODSCHALK & CHAPIN 1995)

## RESILIENCE CHARACTERISTICS

Diversity, redundancy and connectivity

Participation

Complex adaptive thinking and learning

Polycentric governance

P  
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Vision, goals

Information fact base

Policies and strategies

Implementation

Monitoring and evaluation



# PROPOSED EVALUATION FRAMEWORK

■ Guyadeen et al. 2019

- |                                    |   |
|------------------------------------|---|
| 1. Climate Change Awareness        | Does the plan include a description of the causes of climate change?  |
| 2. Climate Change Context          | Does the plan frame climate change as both a global and local issue?  |
| 3. Emissions Inventory             | Does the plan include an emissions inventory, such as greenhouse gases (GHG) and hydrofluorocarbons (HFCs)?   |
| 4. Emissions Inventory Breakdown   | Does the plan include a breakdown of the emission inventory, such as providing an inventory of emissions by sector?   |
| 5. Base Year Emissions             | Does the plan include the base year for emissions?  |
| 6. Emission Trends Forecast        | Does the plan include the emissions forecast (e. g. carbon footprint reduction in the future, etc.)?  |
| 7. General Climate Change Impacts  | Does the plan include a discussion of the general impacts of climate change (e.g., sea level rise, increasing temperature, storm frequency, impact on quality of life, local air quality, etc)?                 |
| 8. Specific Climate Change Impacts | Does the plan include a discussion of the specific impacts of climate change to the jurisdiction (e.g., identifies specific locations in the jurisdiction that are vulnerable to the effect of climate change)? |

## Policies

Indicator	Description
Communication	Does the plan include at least one policy for public awareness, education, and participation?
Land Use	Does the plan include at least one policy for efficient land use (e.g., compact development, mixed use, infill, and brownfield)?
Transportation	Does the plan include at least one policy on transportation, including transportation strategies, transit-oriented development, pedestrian-friendly, and bicycle-friendly transit?
Energy	Does the plan include at least one policy on renewable energy (e.g., solar energy and wind energy)? Does the plan include at least one policy on energy efficiency (e.g., energy star ratings and green buildings)?
Waste Management	Does the plan include at least one policy on reducing waste (e.g., landfill methane strategies, recycling strategies, and other strategies for reducing waste)?
Natural Resource Management	Does the plan include at least one policy on resource management conservation, such as protecting critical environmental areas and conservation zones (e.g., watersheds, lakes, streams, and tree canopy)?
Water Management	Does the plan include at least one policy on the conservation of water demand and supply (e.g., water metering, greywater reuse, and water restrictions)?
Food & Agriculture	Does the plain include at least one policy on food security and agriculture (e.g., conservation of agricultural lands, support for local farmers, and support for organic food)?

## **Diversity, redundancy, connectivity**

**1.1 Are there overlaps between different sections of the plan?**

**1.2. Are there overlapping climate resilience infrastructures or programs incorporated in the plan?**

**1.3. Are there a diverse set of ways to address climate change in the plan?**

**1.4. Is there mention of the need for a diverse livelihoods in the community?**

**2.5. Does the plan mention concurrent ways in which the plan will be implemented in the community?**

**2.6. Is there a clear relationship between the different sections of the plan?**

**2.7 Does the plan discuss the organizations who will be involved and how they will interact?**

## Complex adaptive systems and learning

**3.8 Does the plan emphasize inter-organizational flexibility?**

**3.9 Does the plan mention early warning systems?**

**3.10 Does the plan mention contingency planning and/or account for new vulnerable groups?**

**3.14 Does the plan use best available science to calculate what the variables are in disaster situations?**

**3.15 Does the plan monitor and assess how different climate variables can interplay?**

**4.16 Does the plan mention hazard risk data and assessment?**

**4.17 Does the plan define how the hazard risk data and assessment will be handled and by who?**

## **Participation**

**5.21 Does the plan discuss the importance of informing residents?**

**5.22 Does the plan discuss how it will go about informing residents?**

**5.23 Does the plan discuss the importance of local knowledge and capacities being passed formally and informally from one generation to the next?**

**5.24 Does the plan mention the community's cultural attitudes and values and how they will affect the ability to adapt and recover from shocks and stresses?**

**5.25 Does the plan include community mapping of any sort of data that is presented?**

## **Polycentric governance**

**7.40 Does the plan discuss the legal obligations of government and other stakeholders?**

**7.41 Does the plan discuss the relationship between the plan objectives and wider community goals?**

**7.42 Does the plan integrate itself with other current policies or plans?**

**7.43 Does the plan mention or list specific sources of costs and funding?**

**7.44 Are there clear, agreed and stable partnerships between community organization and other actors (NGOs, businesses, etc.) suggested in the plan?**

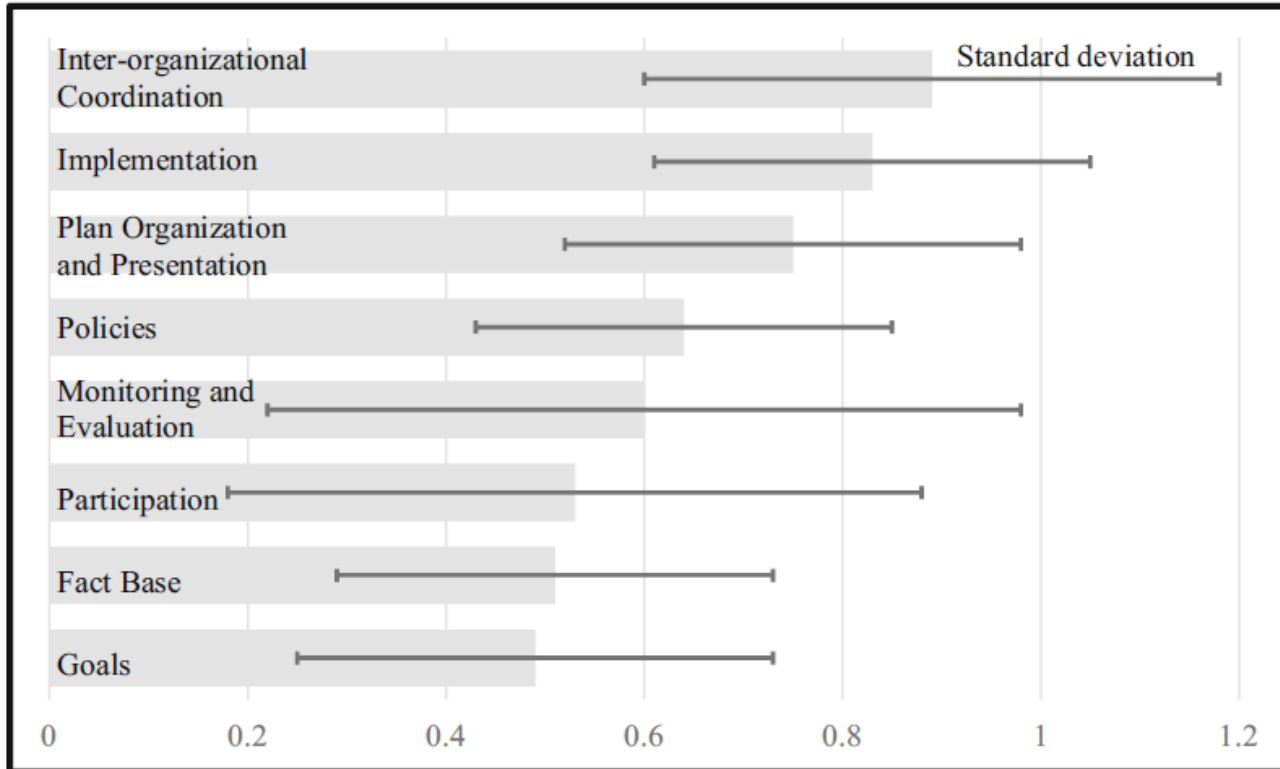
**7.45 Are the vulnerable groups in the community included/ represented in the plan's decision making and management of risk?**

**7.46 Does the plan mention women's participation in community decision making and management of risk?**

# DATA ANALYSIS

- Assumptions for equal weight
- Scoring: Binary 0- No; 1-Yes or Scaled:
  - 0 – No evidence
  - 1 – Acknowledged but lacks definition and detail
  - 2 – Mentioned and includes limited level of specificity but still largely descriptive
  - 3 – Detailed analysis and addressed in a specific manner
- Multiple reviews to increase consistency and reliability
- Composite index score

# DATA VISUALIZATION





# PILOT TEST (JAMAICA AND TRINIDAD & TOBAGO)



## VISION 2030 JAMAICA

### NATIONAL DEVELOPMENT PLAN

"PLANNING FOR A SECURE & PROSPEROUS FUTURE"



Government of the  
Republic of Trinidad and Tobago

# VISION 2030

# CASE SELECTION RATIONALE

- Trinidad & Tobago

- Visionary document
- Priorities and themes

- At first glance:

- Principles emphasized: Diversity, connectivity, redundancy, governance
- Uncertain of which principles dominate, in what parts of the plan, why is this the case?

**THEME I** - Putting People First: Nurturing Our Greatest Asset;

**THEME II** - Delivering Good Governance and Service Excellence;

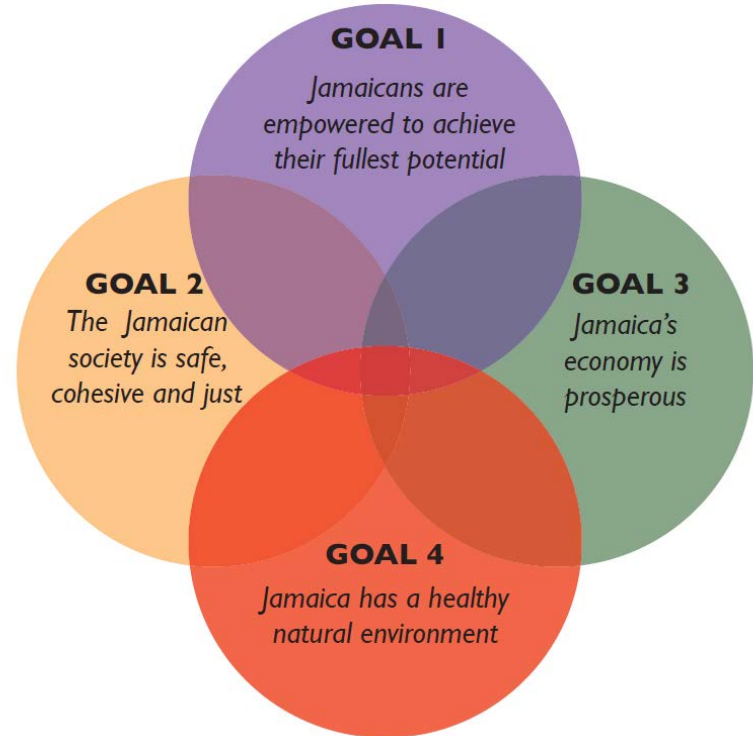
**THEME III** - Improving Productivity through Quality Infrastructure and Transportation;

**THEME IV** - Building Globally Competitive Businesses; and

**THEME V** - Placing the Environment at the Centre of Social and Economic Development.

# CASE SELECTION RATIONALE

- Jamaica
  - Strategic planning document
  - Priorities and themes
  - At-First-Glance:
    - Principles emphasized: Diversity, connectivity, participation, governance
    - Uncertain which sections can be improved



## LIMITATIONS

- Qualitative subjectivity of content reviews
- Refinement of metrics as representative indicators of resilience principles
- Moving beyond content to measuring process and outcomes
- Downscaling questions to local contexts

## IMPLICATIONS

- Bridging between plan evaluation theory and practice
- Variability of climate resilience characteristics across plan components and conceptualizations across plans
- Understanding the central role of the plan in building climate resilience
- Integration of findings to improve planning processes and outcomes

## PHASE II

- Conduct surveys/interviews with planners and policy makers to fill in gaps and understand factors
- Apply to pilot cases
- Refine framework and apply to other islands

# QUESTIONS?

- Thank you!