IPReM

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IDENTIFICATION | PROTECTION | RESTORATION | MANAGEMENT

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Science and technology for sustainablebeaches in a climate change scenario

Knowledge, Attitudes and Practices of a Vulnerable Coastal Community in Trinidad about Ecosystem-based Approaches for Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA): A Validation Study

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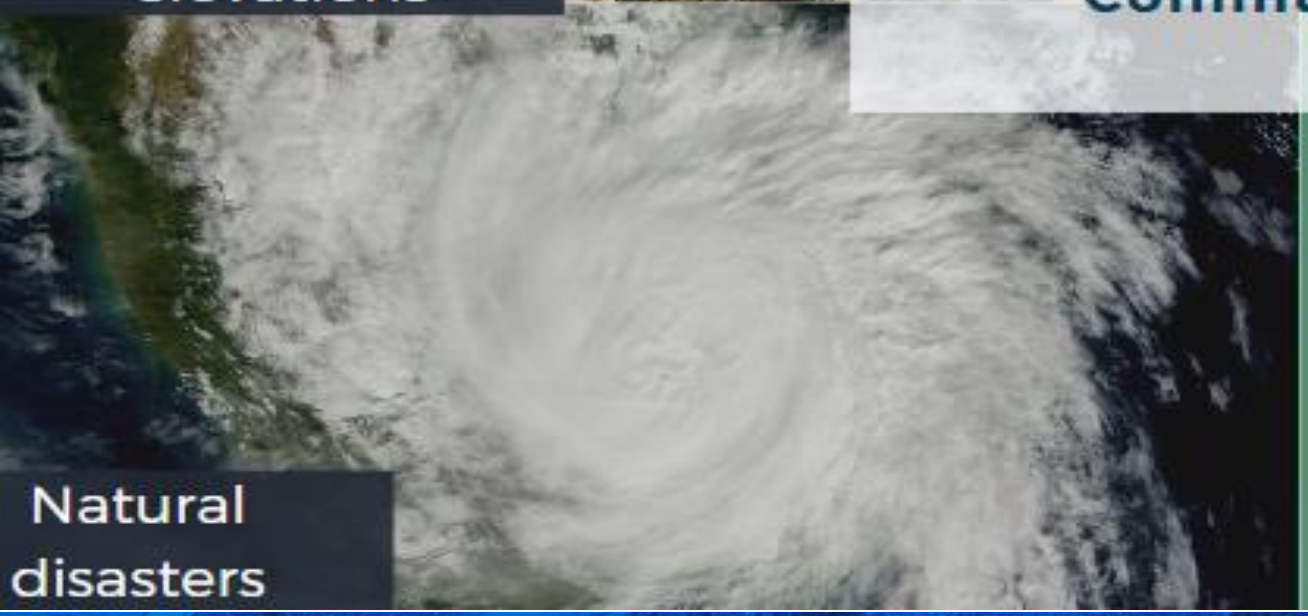
Introduction

Lower geographic elevations

Higher population densities

MPD (2019)

Vulnerable Coastal Communities



Natural disasters

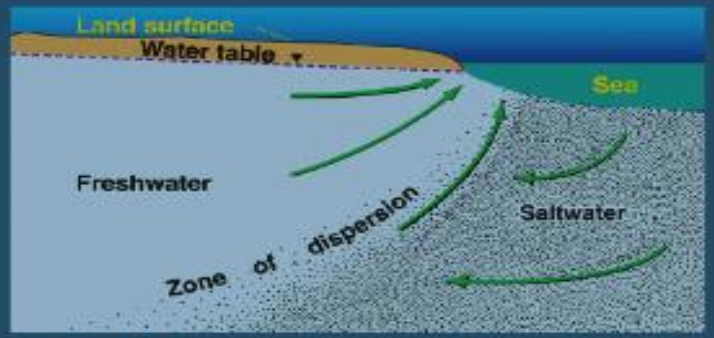
Climate Change

Climate-related Disaster Impacts

Accelerated sea level rise

Increased flooding

Tidal inundation

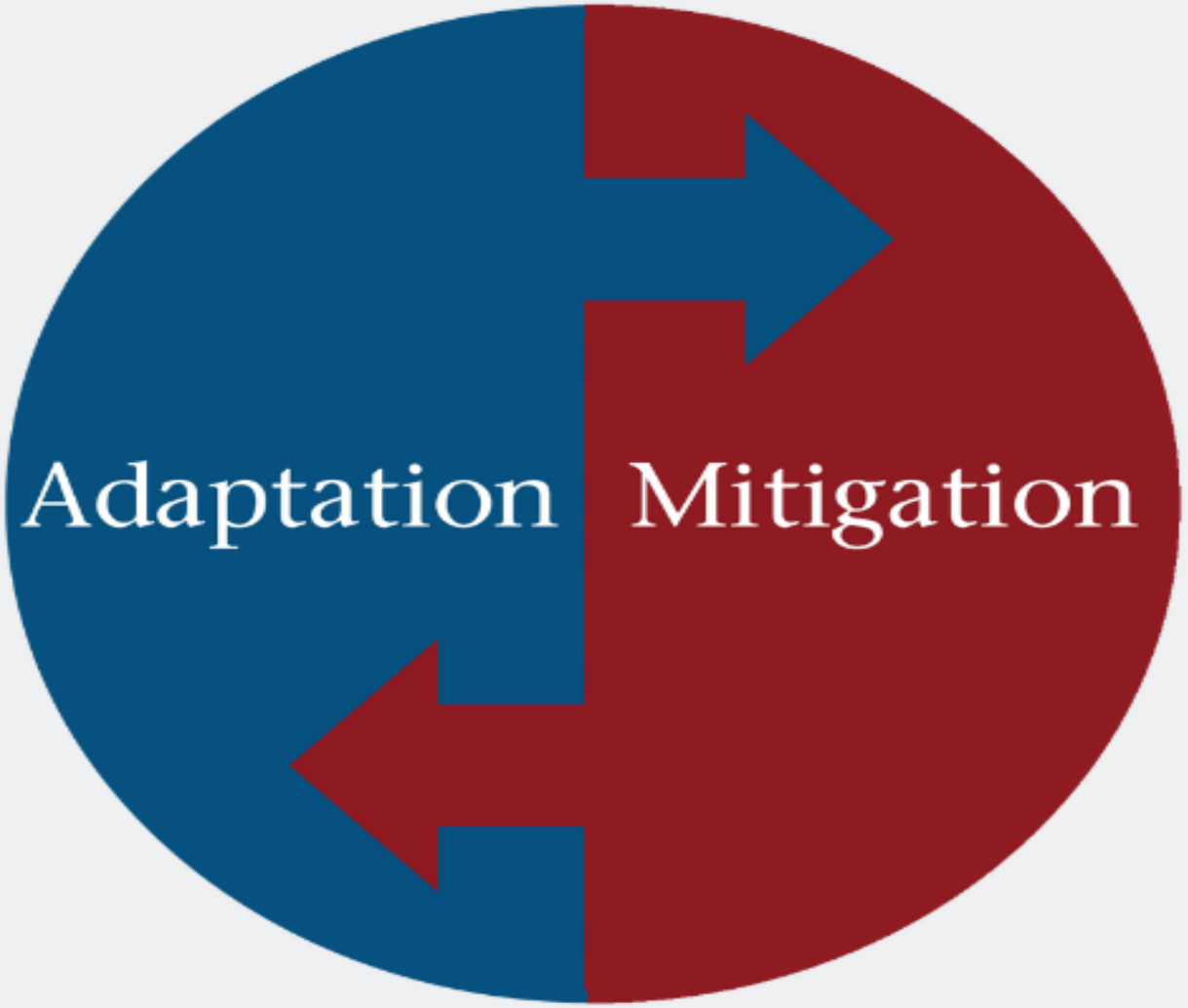


Saltwater intrusion

Rising water table

Climate Action

Responding to Climate Change



Reducing emission sources

Climate Wise (2016)

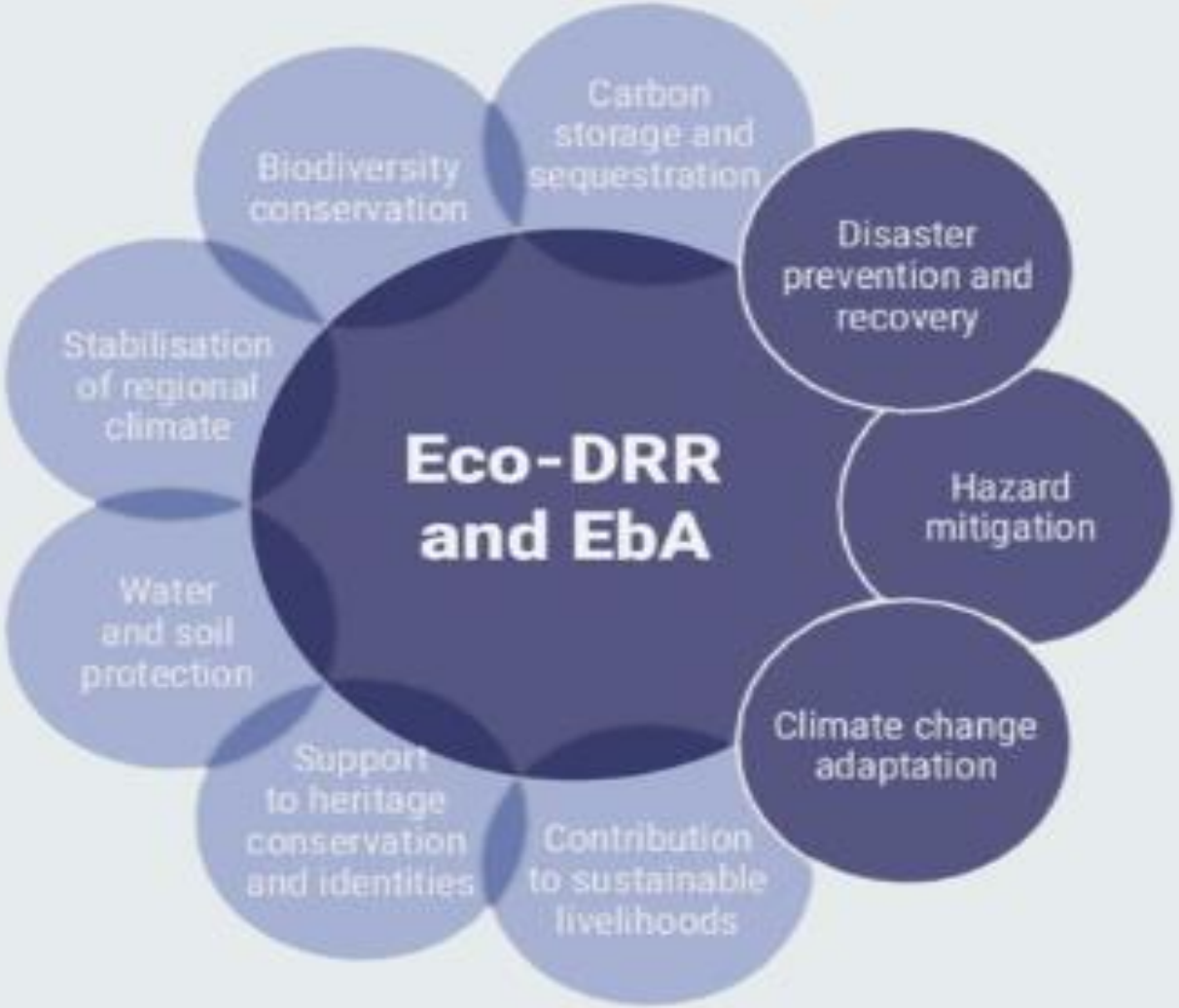
Ecosystem-based approaches

The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way

- *Convention on Biological Diversity (2004)*

Ecosystem-based Approaches for Disaster Risk Reduction and Climate Change Adaptation

Potential Co-benefits



Main Targets

Nehren (2019)


Community engagement
+
Project onset
=
Knowledge, Attitudes & Practice (KAP)

IFRC (2019)

Aim

To validate a Knowledge, Attitudes and Practices instrument on Ecosystem-based approaches for Disaster Risk Redution and Climate Change Adaptation in a Vulnerable Coastal Community in Trinidad

Methodology

Systematic review of literature formulated into 4 domains

↓ 1

Instrument Development

- Demographic domain - 4 items (gender, age, education, occupation)
- Knowledge domain - 14 items (multi-option, three option, open-ended) eg. *'Do you think coastal ecosystems reduce impacts to climate change and disasters ?'*
- Attitude domain - 8 items (Likert scale, open-ended) eg. *'I believe that rehabilitating coastal ecosystems can reduce my community's risk to disaster and climate change'*
- Practice domain - 7 items (three option, open-ended) eg. *'Have you ever attended a seminar or workshop or read/viewed any informational content on coastal ecosystems, climate change or disasters?'*

Panel of 7 experts - Ecosystem-based approaches, disaster risk, and climate change

Content Validity

1

Rating the clarity and relevance of the items (1-4 Likert scale)

2

Calculation of Item-Content Validity (I-CVI) and Scale Content Validity (S-CVI/Ave) S-CVI/UA) - 0 to 1

3

Revision of questionnaire

4

Questionnaire modification

- Exclusion of 1 item
- Rephrasing items
- Format improvement
- Additional questions

Table 1: I-CVI Interpretation (Davis 1992)

< 0.70	Delete
0.70 - 0.79	Revise
> 0.79	Acceptable

S-CVI Interpretation

min. 0.80 and greater (Polit and Beck 2006)

Ethics Approval

Research was exempt from review (Ref CREC-SA.1879/11/2022)

1

Sample Size

- Community of St. Margaret's Claxton Bay (2335 pop; CSO 2011)
- Minimum of 32 participants were targeted

2

Face Validity

- Readability, and understandability
- Inclusion criteria
- Comments from both content and face validity informed iterations of final questionnaire

Reliability

Cronbach's alpha measures internal consistency of an instrument - 0 to 1 (>0.6 acceptable; Ursachi et al 2015)

Statistical Analysis

- Data was inputted and cleaned before data analysis
- Microsoft excel - content validity indices
- SPSS version 29.0 - frequency and descriptive statistics, Cronbach's alpha

Results and Discussion

Content Validity

Item Content Validity (I-CVI)	All items (29) > .70 for relevance One item < 0.70 for clarity - Item revised not deleted One item > 0.70 for both elements but was deleted

Table 2: Summary of S-CVI/Ave and S-CVI/UA for KAP

	Relevance		Clarity	
	S-CVI/Ave	S-CVI/UA	S-CVI/Ave	S-CVI/UA
Knowledge	0.9	0.57	0.84	0.36
Attitude	1.0	1.0	0.91	0.5
Practice	0.94	0.5	0.94	0.5

KAP - Knowledge, Attitude, Practice
S-CVI/Ave - Average of all I-CVIs
S-CVI/UA - Total or universal agreements

Content Validity

- S-CVI/Ave for both elements scored above the minimum of 0.8
- S-CVI/UA for both elements scored below the minimum of 0.8 with exception
- Low values could be advocated to high number of experts.
- Increase in number = makes consensus difficult (Zamanzadeh et al 2015)
- Overall, content validity constitute appropriate level for KAP domains
- Recommended to repeat process until saturation is achieved (Rodrigues et al 2017)

Face Validity

- Revisions to 3 items in Knowledge domain
- Process necessary to gauge respondent's readability and understandability (Zamanzadeh et al 2015)
- Informed final iterations of the questionnaire

Demographics

- 32 residents with a mean age of 34.12 ± 13.81.
- Average time of 16 minutes to complete the questionnaire
- Most were female (62.5%) and in the age range of 23-38 (50%; millennials).
- KAP domain mean
  - K - 26.13 ± 5.12 | Minimum 17 | Maximum 37
  - A - 30. 22 ± 4.01 | Minimum 23 | Maximum 39
  - P - 4.06 ± 0.91 | Minimum 2 | Maximum 5

Reliability

- KAP domains had Cronbach alphas of (0.79), (0.55) and (0.61) respectively
- Both Knowledge and Practice domains were interpreted as having an acceptable internal consistency (Ursachi et al 2015)
- Attitude domain was considered low = smaller number of items/weak intercorrelation amongst the items (Tavakol and Dennick 2011)
- Entire KAP had Cronbach alpha of 0.77 = a good reliability of instrument
- Improved reliability can be accompanied by exploratory factor analysis
- Questionnaire is recommended to be rolled out to other coastal communities and used as a building block for future research

Limitations

- **Content validity**
  - rigorous and iterative process
  - time constraints
  - subjective process
- **Cronbach's alpha**
  - assumes items within a scale are consistent
  - exploratory or confirmatory factor analysis is recommended
  - 200 + sample size

Conclusion

- In this study a newly developed questionnaire was validated
- The final iterations of the questionnaire had 4 domains: Demographic (4 items), Knowledge (13 items), Attitudes (10 items) and Practices (6 items)
- It has quantifiably demonstrated the 33-item KAP to be overall content valid and reliable
- This instrument can be used as a foundation for future research and be rolled out in other coastal communities

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Questions?