

Climate Smart-Kochi: Innovative Digital Adaptation Techniques

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Global South Academic Conclave on WASH and Climate linkages
2nd - 4th February 2024, Ahmedabad

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Contents

1.0 Introduction & Theoretical Framework

2.0 Objective and Methodology

3.0 Major Findings

4.0 Discussion: Current Approaches and Suggested Solutions

5.0 Conclusion

Introduction and Theoretical Framework

Climate Change in India

8
Asian
countries

China,
Bangladesh,
India,
Vietnam,
Indonesia,
Thailand, the
Philippines,
Japan

Have
More than
70%
of the total
number of people
currently
living on
affected lands
worldwide

*Asian Countries severely affected by Climate Change
(DH, 2019)*

- Ranked **6th among the 10 most affected countries** in the world
- The country accounts for **about 7% of the global greenhouse gas (GHG) emissions**
- India has declared in its Intended Nationally Determined Contribution (INDC), to **reduce greenhouse emissions by 33-35% by 2030 as compared to the 2005 levels.**

Case Study



- Tropical monsoon with seasonally **excessive rainfall** and **hot summer.**
- Due to the geographic locations and climate change-related issues, **the state is prone to several natural disasters.**

Introduction and Theoretical Framework

Case Study



*Aerial view during 2018 floods
(Upadhyaya, 2018)*



*A man sails his boat at a flooded locality of Aluva in Kochi
(RSTV, 2018)*

- In the year **2018**, it battled one of the **worst floods in history**.
- Its **failure** to deal with it effectively was blamed on the **government, rampant urbanization, and unplanned infrastructure**.
- Can potentially continue to be **adversely affected by sea level rise** being in the frontline of the western seaside.

Objective and Methodology

Research Question

How digital solutions can help the coastal city of Kochi adapt to climate change?

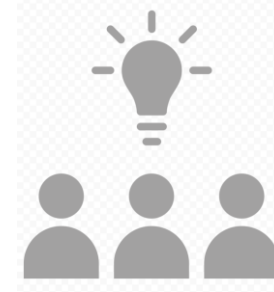
Methods



Social media and
web communication



Literature
Review – ongoing GIZ project



Analysis of several
stakeholders' works

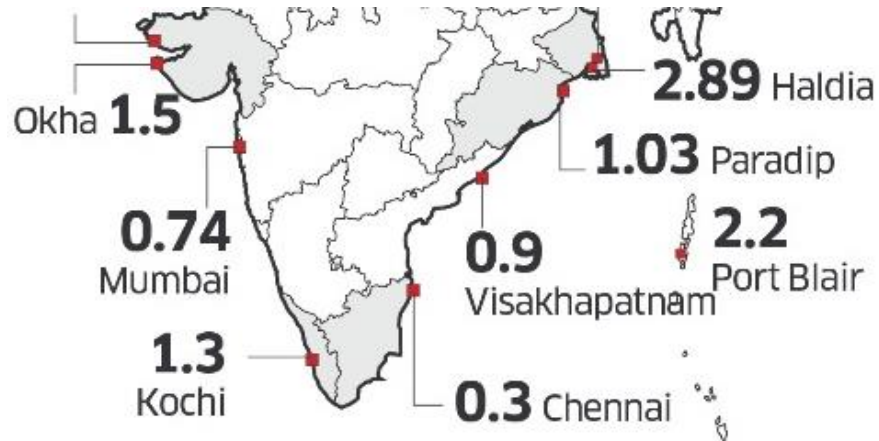
Online portal by GIZ

- Along with **the support of the Ministry and several national, and international research organizations**; extensive projects are being carried out.
- Under the thematic areas of **green buildings, urban green spaces, and stormwater drains**.
- **Knowledge transfer, experience exchanges, and dissemination of German and International experiences** have been the core principles

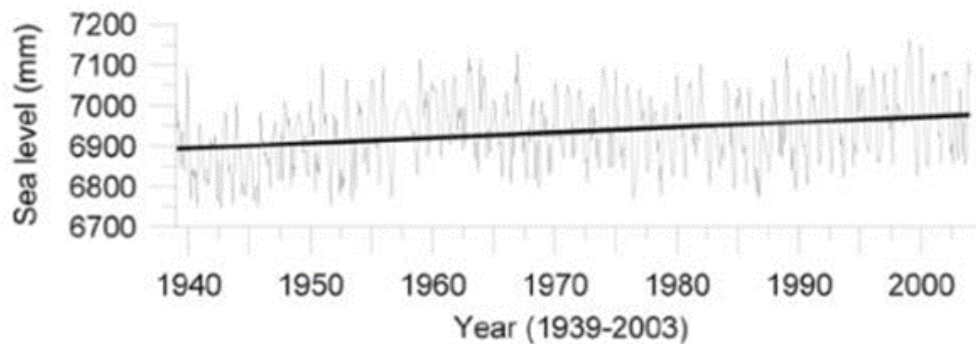
Major Findings

Issues

- Sea-level rise, **unscientific planning**, development, and growth, **severe potable water scarcity**, and high levels of air pollution.
- Respirable Suspended Particulate Matter (**RSPM**) is above the permissible limits, intermittent precipitation, and increase in temperature.



Estimated annual sea-level rise at various Indian ports (Ray, 2019)



Historic sea level rise in Kochi coast (Savith et.al, 2018)



1st plan prepared in 2014:

- Incomplete data
- didn't consider the actual situation in Kerala lacking a consultative approach

2nd plan prepared in 2019:

- more focus on adaptation methods

Discussion

Current Approaches

1. **Atal Mission for Rejuvenation Urban Transformation (AMRUT):** creating infrastructure, providing basic household services, building amenities, and improving the quality of life
2. **Swachh Bharat Mission (SBM):** mass cleaning of water bodies
3. **Pradhan Mantri Awas Yojna (PMAY):** “Housing for All by 2022”
4. **Smart City Mission (SCM):** urban infrastructure projects and area-based developments

Vision: “To transform Kochi into an inclusive, vibrant city of opportunities with efficient urban services, sustainable growth, and ease of living”

Concerns:

- lacks clear-cut proposals which are climate-oriented
- parallel missions and strategies carried out in a very haphazard manner without any coordination



Discussion

Current Approaches



- In Kochi, GIZ is **encouraging data-driven decision-making procedures**.
- Data is essential because it allows for well-informed, empirically-based decision-making that produces better results.
- But frequently, this can be too much to handle.
- Large volumes of data are usually scattered over several places, making it challenging to compile and thoroughly examine the data that is accessible.
- It is collaborating with partners to implement the "**Kochi Urban Observatory - Data Repository and Data Governance Strategy**" to address this problem.
- The plan seeks to give Kochi a **data-driven framework** for tackling the major issues facing the city and enacting improvements for the environment, the city, and its citizens.



- **The union government has extended the deadline for all pending Smart City Projects in Kochi to June 2024.**
- **Thirty projects have already entered the implementation phase, while two projects are presently undergoing the tendering process.**

Discussion

Suggested Solutions

“Digital Governance and Policy Coherence”



to ensure efficiency, good management, effectiveness



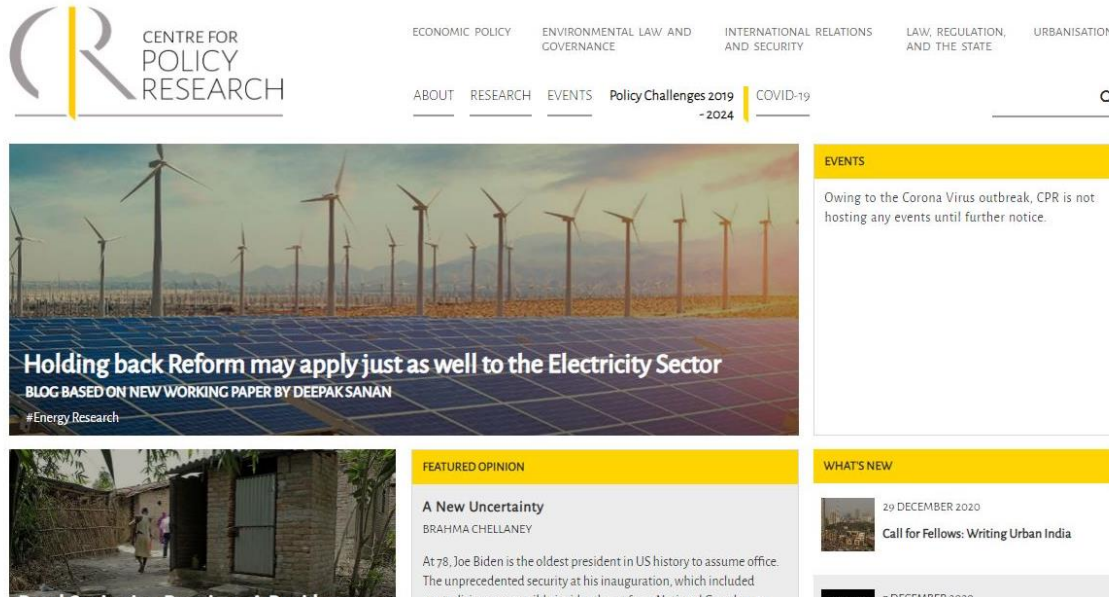
Information Management: impacting decision effectiveness



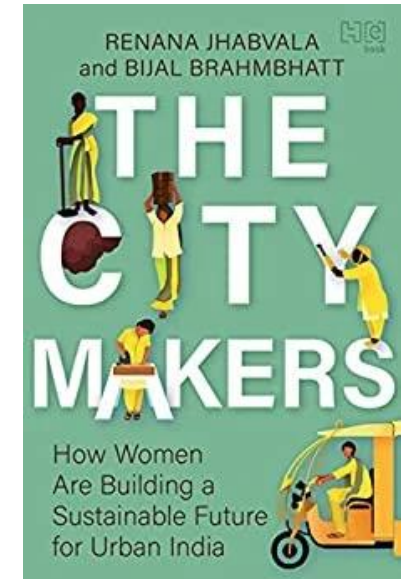
Change Management: balancing the elements impacting change eg: people, processes, and IT



Performance Management: includes strategy maps, process–people–quality management



- CPRI similar to the cities of **Rajkot (Gujarat) and Coimbatore (Tamil Nadu)**
- Uses a **multi-criteria decision analysis framework** to build on the city’s existing plans and help city makers **identify synergies between various stakeholders** to suggest tradeoffs with multiple objectives.



Conclusion

- Combined efforts of civil society along with **genuine political** will and **bureaucratic commitment** are necessary,
- **Untapping the potential of technology** to improve inclusiveness and partnerships for governance purposes **helps in strengthening the ties.**
- **Using technology to improve inclusiveness and partnerships** for governance purposes helps in strengthening the ties between all stakeholders **promoting broader public governance agendas.**

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Thank You

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