

# Kovalam's Water

Gendered Impact of Rapid Urbanization and Tourism on Water Resource Degradation in the Face of Climate Change

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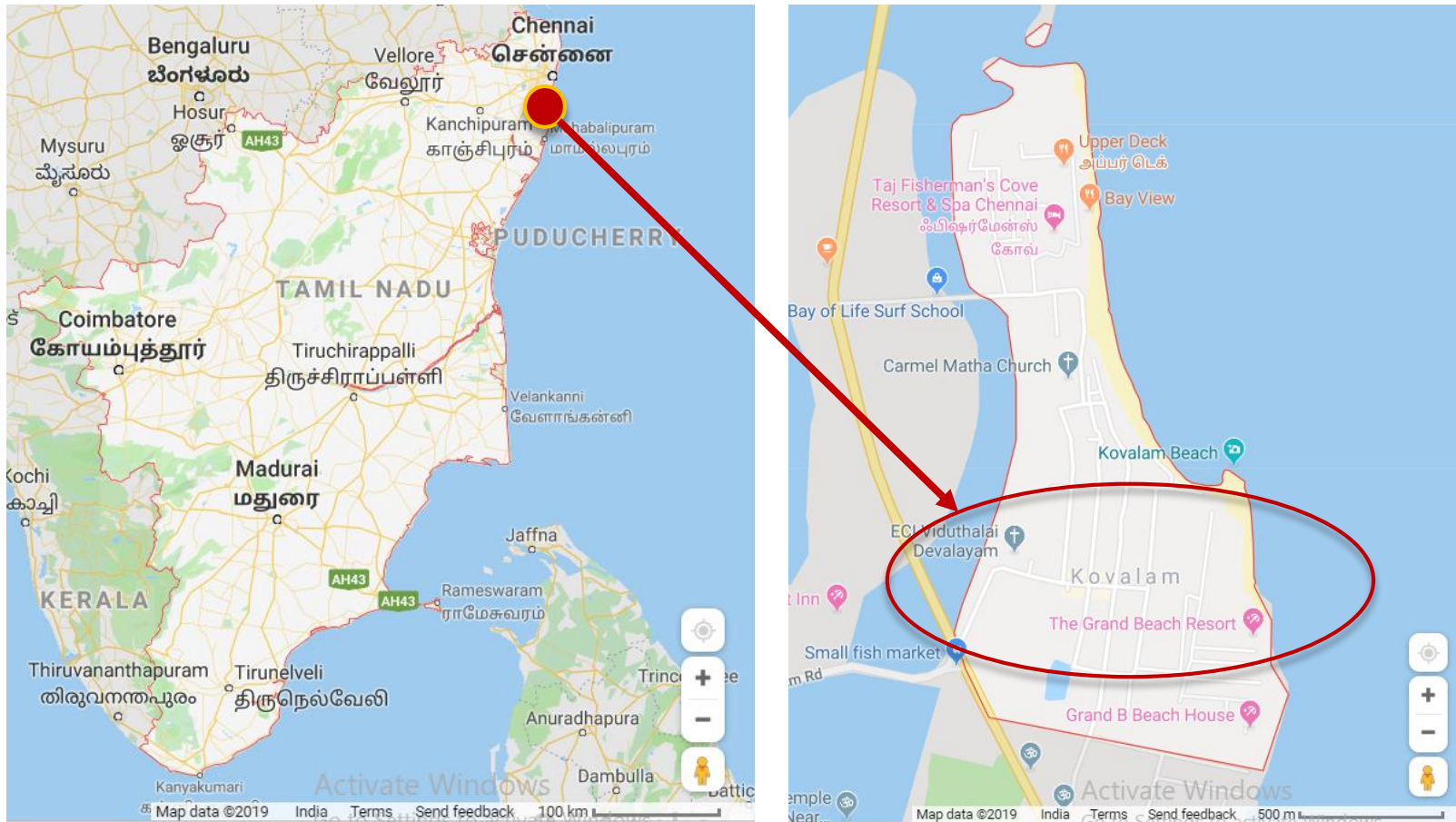
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# Introduction



# KOVALAM



## Location

- Situated in the north-east of Tamil Nadu, south of Chennai
- Surrounded by the Bay of Bengal and its tidal pool in three sides
- Known as 'fishing village'

Figure: Map of Kovalam, Tamil Nadu  
Source: Google Maps, 2019

## Highlights

Formation of Kovalam by Nawab of Carnatic, Saadat Ali

1740s

Tsunami in the Coasts- many migrated to Kovalam

2004

Vardha Cyclone hit the coasts, including Kovalam

2016

Drought affected the entire Chennai, including Kovalam

2019

1974

- Sea level rise observed by many
- Taj Hotel in Chennai

2006

Completion of development of settlements for tsunami effected people

2018

Cyclone Gaja hit the coasts of Chennai, Kovalam was affected

# KOVALAM

## Issues

- Rapid urbanization after the tsunami in 2004
- Boom of tourism
- Degradation of water resources
- Diversification of livelihood and lifestyle
- Deforestation
- Gendered impact of dynamics



*Livelihood...*



*A fisherwoman cutting fish*



*A fisherman taking out fish*

*Image Source: Authors*

# Literature

- Over 39 % of the world population live within 100 km of the coast (Cesar et. al., 2003).
- Increase in tourism and chaotic development of tourism facilities severely affected Mallorca (an island in Spain) specially converted beaches into urban beaches (unsustainable water demand and beach degradation) and highlights the urgent and immediate need of coastal management policy (Garcia and Servera, 2004).
- Dominant impacts of tourism being solid waste disposal, water resources and depletion of natural resources (Brown et. al., 2002).

# Literature

- Sustainable tourism includes optimum use of resources, minimization of ecological, cultural and social impacts, and maximization of benefits for conservation and local communities (Salvo and Giulia, 2003).
- Urbanization increases impervious cover corresponding to loss of natural recharge of the groundwater. Though not contribute directly to pollution, urbanization is a major contributor change in basin hydrologic regime leading to many physical changes (May et. al., 2006).
  - Higher frequency of 2 year storm base-flow discharge ration with increase percentage of watershed urbanization.



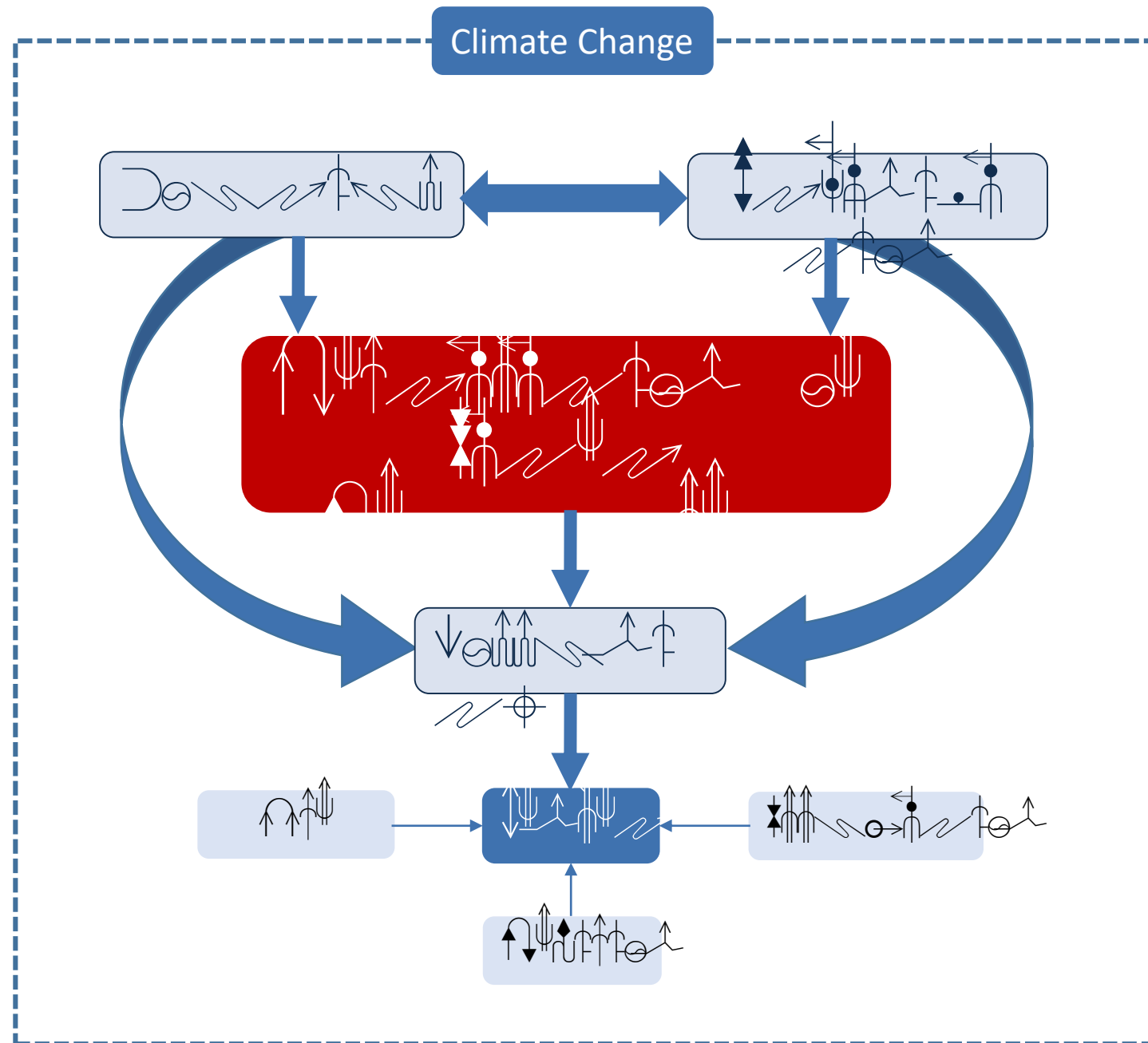
# Literature

- Over-development of the coastal area for immigrated people and the over-use of coral reef resources key causes for coral reef decline. Unregulated coastal construction (hotels, factories and desalination plants) has increased sedimentation in the coastal waters and is destroying reefs worldwide. Untreated sewage and chemical agriculture run-off (pesticides, herbicides and fertilizers) caused nutrient loading into coral reef waters, leading to algal blooms and eutrophication (Cesar et. al., 2003).



***How urbanization and tourism has gendered impacts as water resources deplete in the face of climate change?***

# Conceptual Framework



# Objectives

1

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To identify the impact of anthropogenic factors on water resources in Kovalam.

2

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To assess the gendered impacts of degradation of water resources.

2

# Methodology



# Framework

## Reconnaissance

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- Transect Walk
- Interviews
- Observations

## Data Collection

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- Resource Map
- Questionnaire
- KPIs and SSIs
- Secondary Data

## Interpretation

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- GIS Based Analysis
- Statistical Analysis
- Qualitative Analysis

# Reconnais sance

## Transect Walk

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*Figure: Transect Walk inside Kovalam Village*  
*Source: Authors, 2019*

## Interviews

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*Figure: A fish selling lady sharing her thoughts*  
*Source: Authors, 2019*

# Resource Maps



Resource mapping was done to understand the availability, condition and access to different water resources from varied perspectives.



Local people making resource maps

Source: Authors, 2019

Men Focused more on roads and structures, while women focused on water resources

Source: Authors, 2019



# KPIs and SSIs

3 KPIs along with 5 SSIs were done to get a better understanding of relation among anthropogenic activities and water- and how it impacted their lives.



*KPI with a hindu women, involved in dealing water privately  
Source: Authors, 2019*

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# Findings



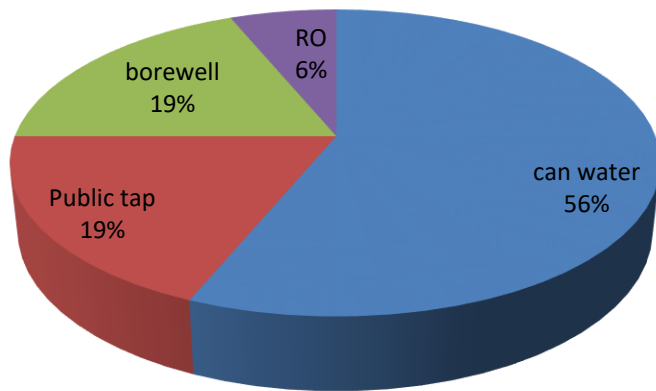
# WR & Use: Impact

Before:

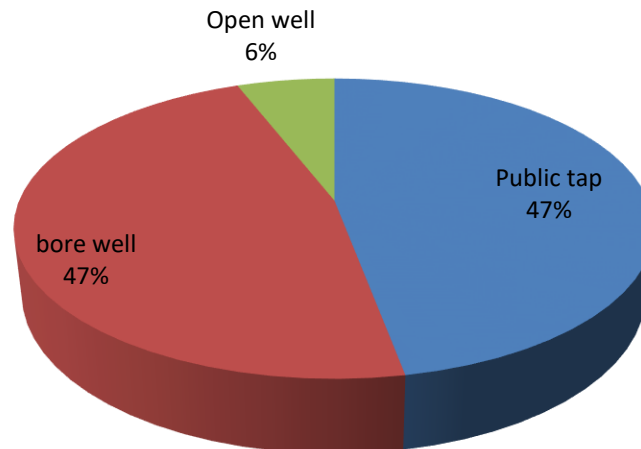
Local ponds and wells, then hand pumps based on distance.

Now:

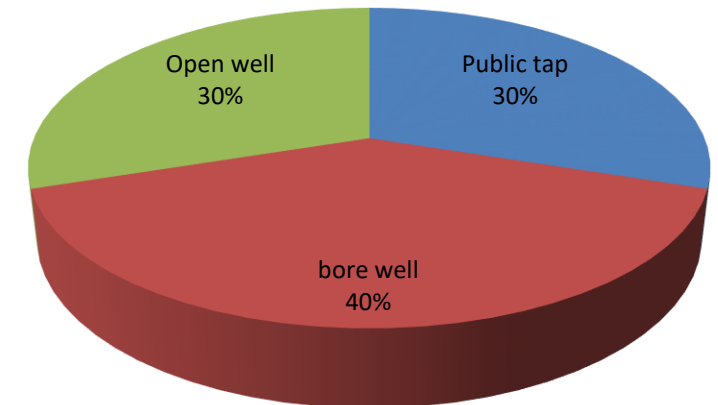
**Source of Drinking water**



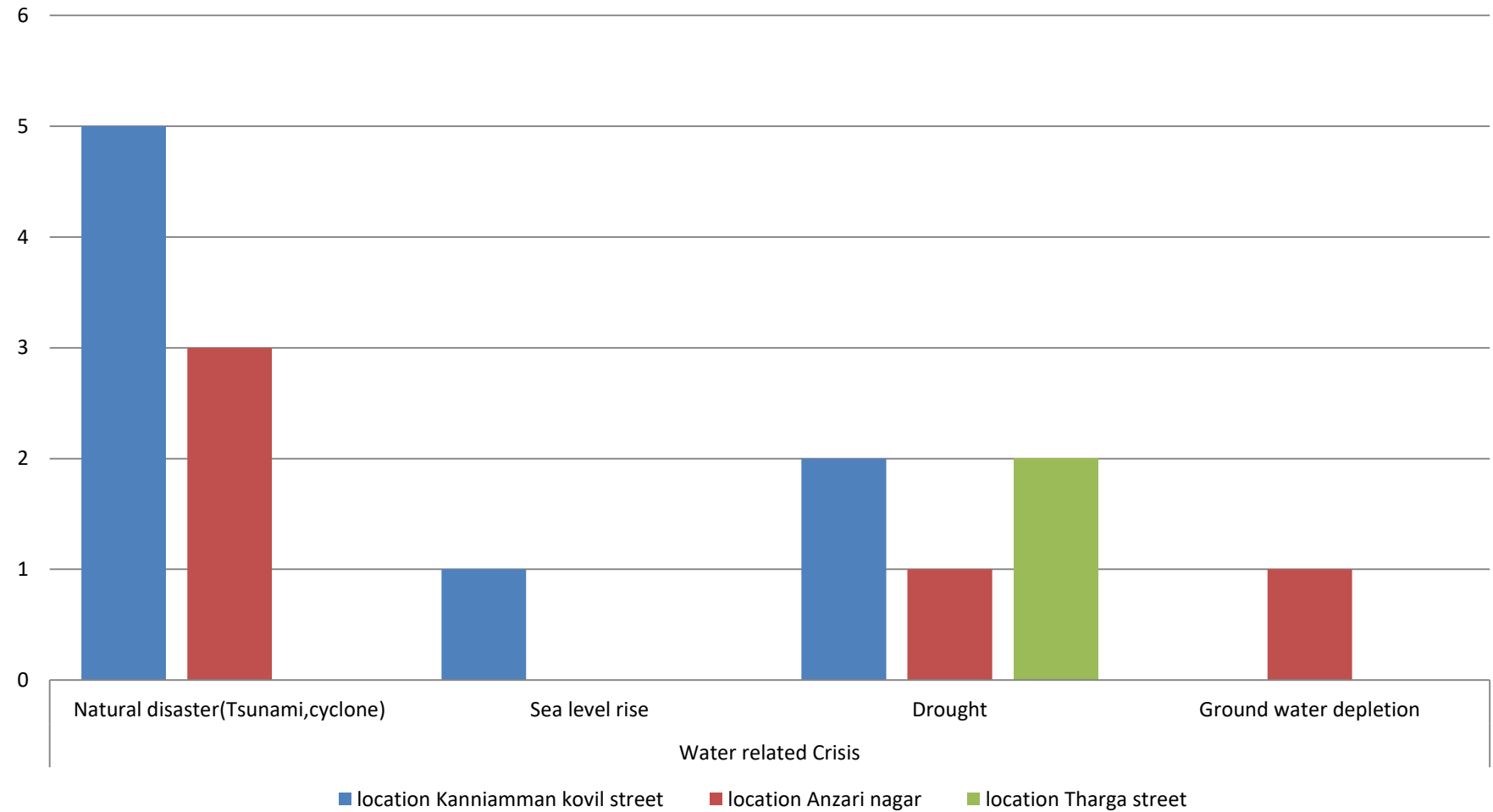
**Sources of cooking water**



**Sources of Water for Other Domestic Use**



# WR & Use: Impact



*Water Crisis : How it is seen in different locations of Kovalam village*  
*Source: Authors, 2019*

# Effect of Urbanization

*The population of Kovalam had gone over a double within just ten years: 793 households in 2001 to 1974 households in 2011 (*



*Figure: Urbanization trend in Kovalam village from 2002, 2004, 2005, 2009, 2012, 2016 and 2019  
Source: Authors, 2019*

# Effect of Urbanization



*Figure: Change in Dargah Kulam and surrounding area from 2002 to now  
Source: Authors, 2019*

# Effect of Tourism



*Left: Blocked access to the ocean, Right: Common resources property - no ones responsibility*

*Source: Authors, 2019*

# Water and Gender

From both qualitative and quantitative analysis, we have found that the perception and experience of impact, and coping mechanisms related to water resources and related stresses vary from men to women- and in terms of religion and occupation as well.



*Figure: Men busy with their nets while women cut and sell fishes  
Source: Authors, 2019*



# Water and Gender

Men



Women





...ing cause of degrad  
...thors, 2019

# Water and Gender

## Hindu


## Muslim


regarding cause of deg  
 authors, 2019

# Water and Gender

## Hindu

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## Muslim

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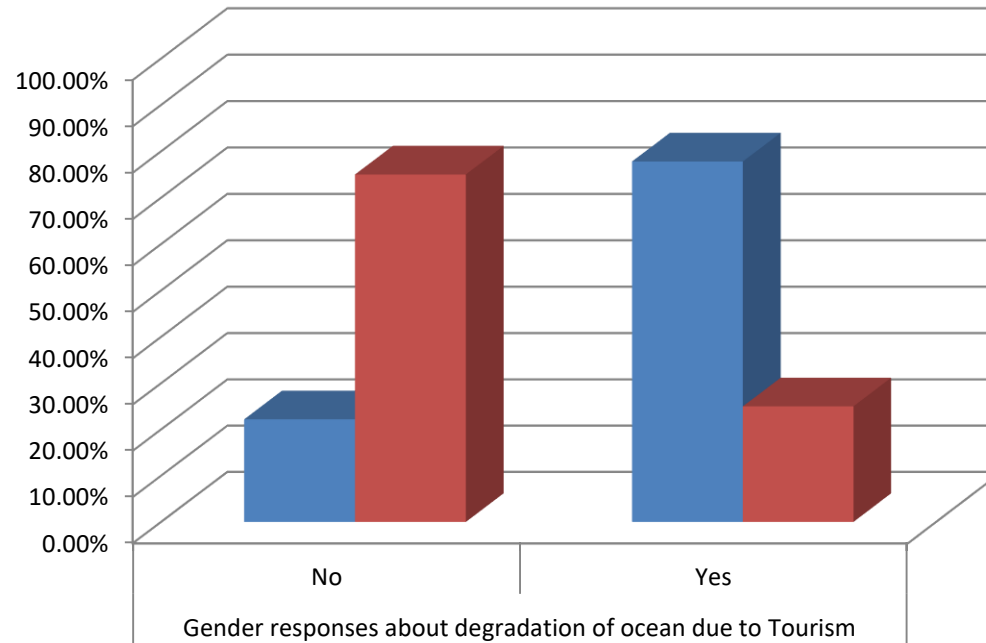
*Availability of water – difference in hindu and muslim community in same time, just 10 ft away!*

*Source: Authors, 2019*

# Water and Gender



**“Yes”**



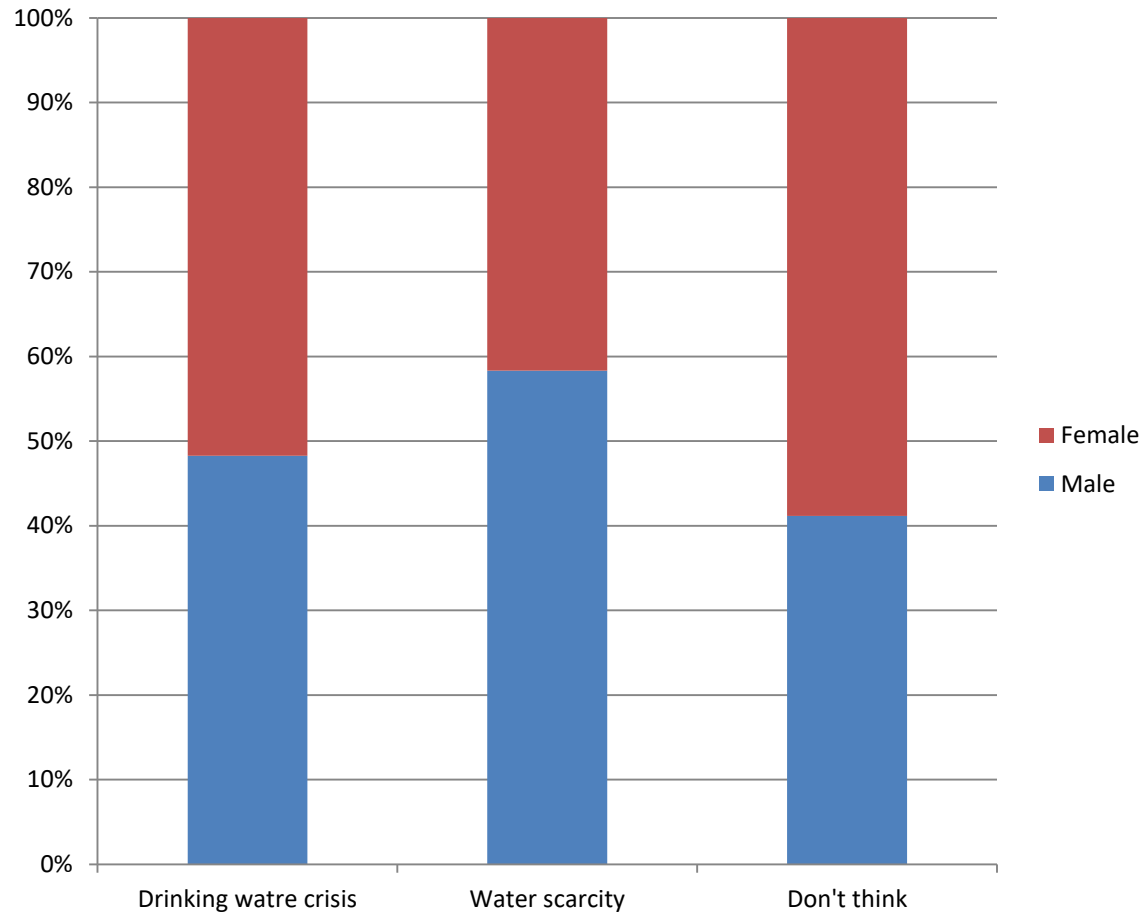
**“No”**

*Varied perception of men and women regarding cause of degradation of water resources: Ocean  
Source: Authors, 2019*

# Water and Gender



***More focus on drought and overall scarcity of water in future***



***Either couldn't think of crisis, or focused on drinking water***

*Probable Future Scenario: Male VS Female perspectives*  
*Source: Authors, 2019*



# Water and Gender



***Coping is more about protecting fishes and pollution control due to degradation of ocean and ponds***



***Coping was more about domestic water use due to degradation of wells, hand pumps and ponds***

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# Concluding Remarks

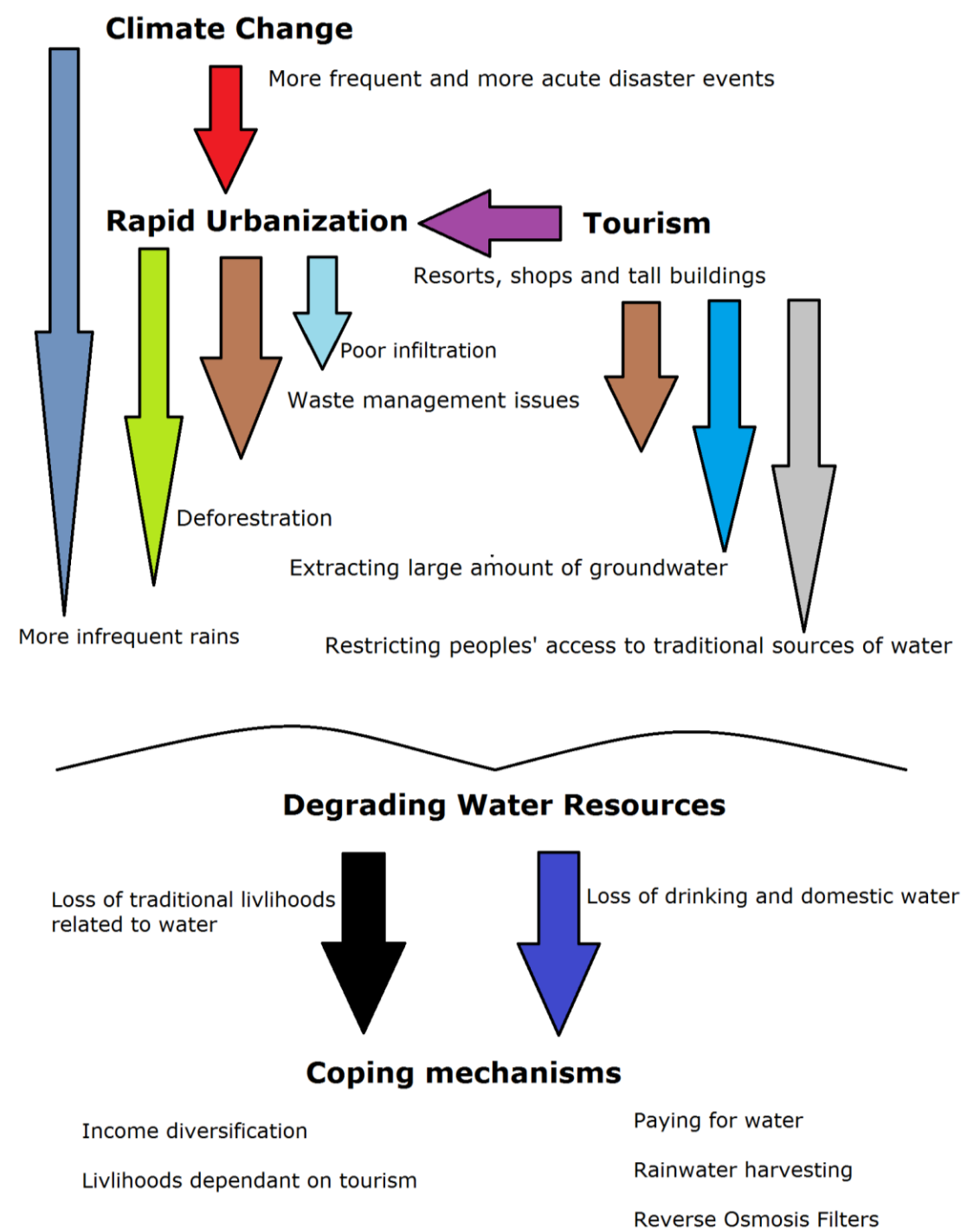




# Findings from KPIs

*“We build so much concrete roads and buildings, collecting ground water and lose all the rainwater, nothing gets in the ground. Then how will we get ground water?”*

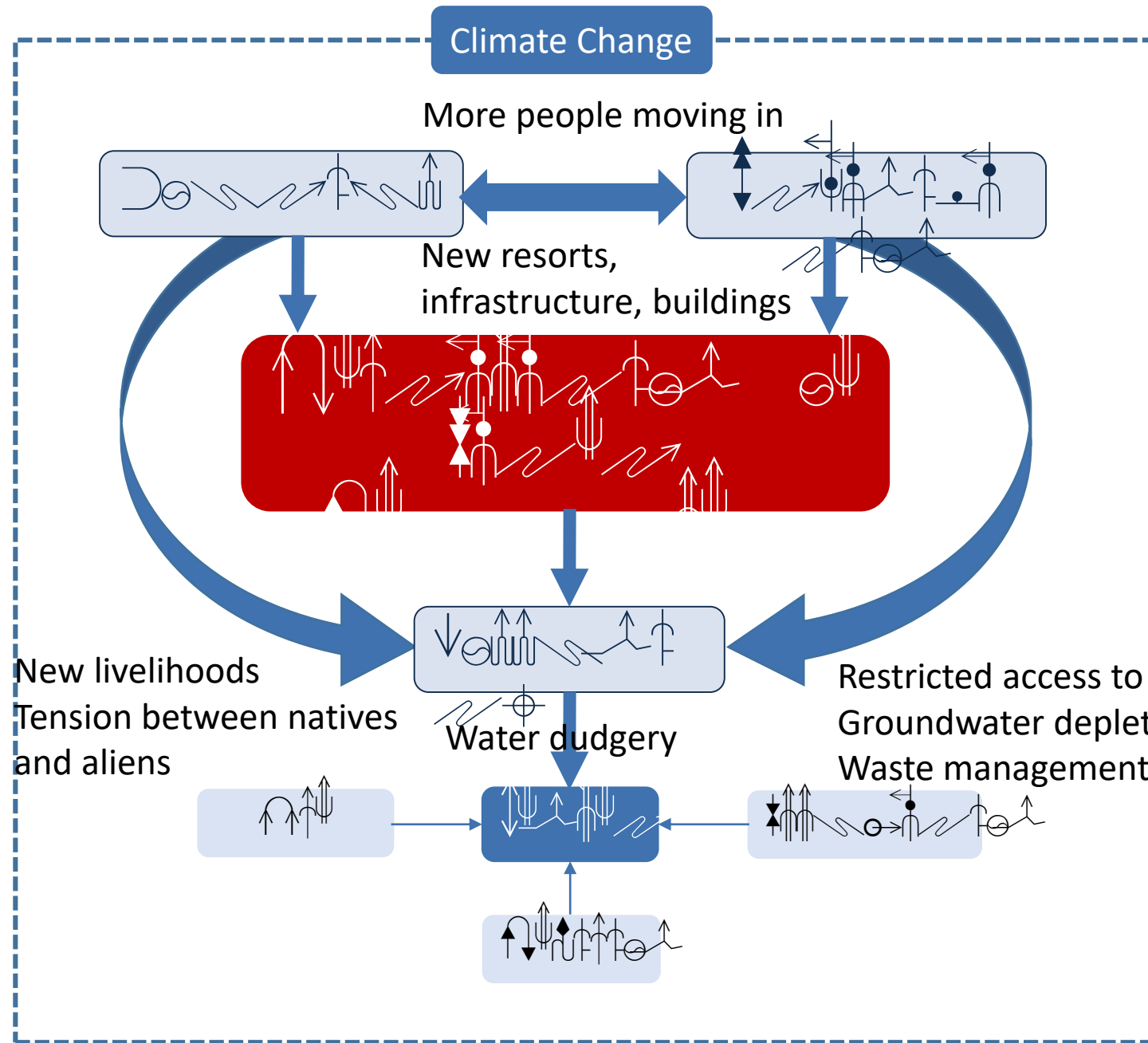
*-Key informant interviews-*



# Conceptual Framework

Unpredictable rainfall

Frequent disaster events



Saltwater intrusion

Sea level rise

New livelihoods  
Tension between natives  
and aliens

Restricted access to resources  
Groundwater depletion  
Waste management issues

Water dudgery



***“Thaaya pazhithalum  
thanneera pazhikka koodathu”***

*Even if I could ever scorn my mother, I could never scorn water*

—Jayagandhi, Dealer of private water can in Kovalam



**Thank You!**

# References

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