



Community Adaptation to Flooding Risk and Vulnerability

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Who is a Flood Victim?



Presentation Outline

- Introduction
- Objectives & Research Questions
- Conceptual Approach
- Research Methodology
- Results and Discussions
- Policy Implications and Conclusion

Introduction

- The report of Working Group I of the Intergovernmental Panel on Climate Change, projected increases in the globally averaged surface air temperature from 1990 to 2100 are between 1.4°C and 5.8°C (IPCC, 2001).
- Anticipated effects of climate change is the possible increase in both frequency and intensity of extreme weather events, such as hurricanes, floods, and droughts which are expected to increase over the next 50 to 100 years (Tompkins, 2002; IPCC, 2001).



Impacts of Floods

- Flooding has dire consequences on the socio-economic activities of the communities as well as the health of individuals (McMichael *et al.*, 2001; Tapsell *et al.*, 2002)
- Floods can lead to displacement, spread of diseases, damage of properties & assets, low income generation, high cost of living, loss of lives, etc

The Issue

- Incidence of flooding in the Accra Metropolis has been just perennial
- What are community members, governments (both local and national) and institutions doing to address flooding problems?
- Should we migrate from the flood prone areas or we should adapt and minimise the associated risks?



Issue con't

- It is therefore imperative to understand how communities most vulnerable to the incidence of flooding, experience and devise flood risk management strategy to help reduce vulnerability in flood-prone areas

➔ We have to be proactive not just reactive.
Strengthening people and community resilience can reduce the degree of vulnerability of floods.

Objectives

- To explore, through the experiences of communities in flood prone areas of Accra, the conditions of exposure and vulnerabilities to flooding
- To collate narratives of the coping mechanisms adopted by the communities in flood prone areas
- To extract from the coping mechanisms the actions adopted by the community that enhanced their adaptation and resilience to flood risk and allied vulnerabilities

Objectives

- To examine the correlation between community cohesion and adaptation to flood risk
- To determine the responsiveness of public (local and/or central government) interventions to flooding vulnerability



Research Questions

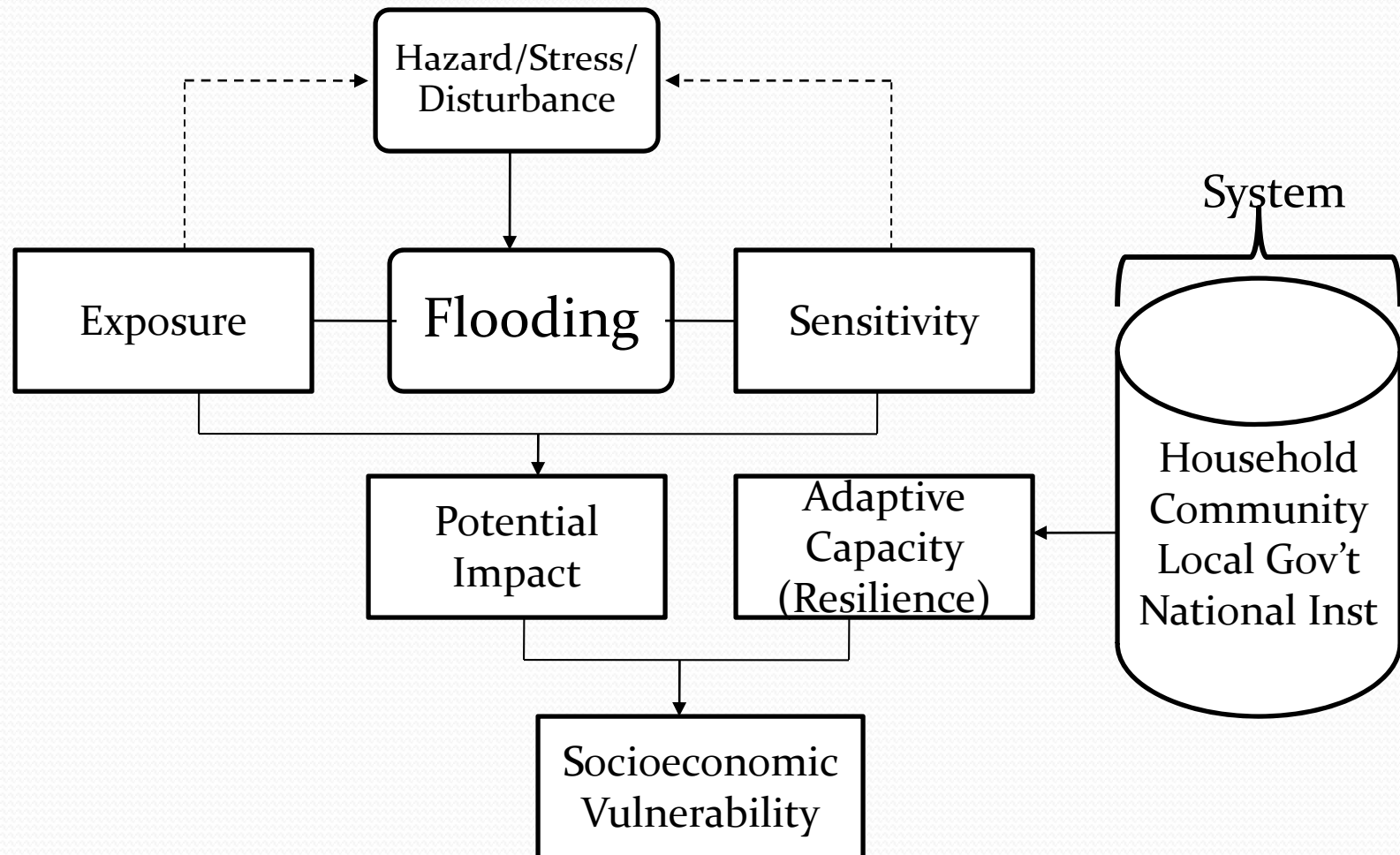
Factors and conditions that enable at-risk and vulnerable communities in flood-prone areas to build and sustain their resilience to perennial flooding events

- How do flood-prone communities experience vulnerability/risk to flooding?
- What specific community initiatives are adopted to address the flooding problems?
- What issue(s)/factor(s) trigger the inception of community initiatives against the flooding?
- What is the extent of community mobilization prior to/during and after joint actions against the flooding problems?

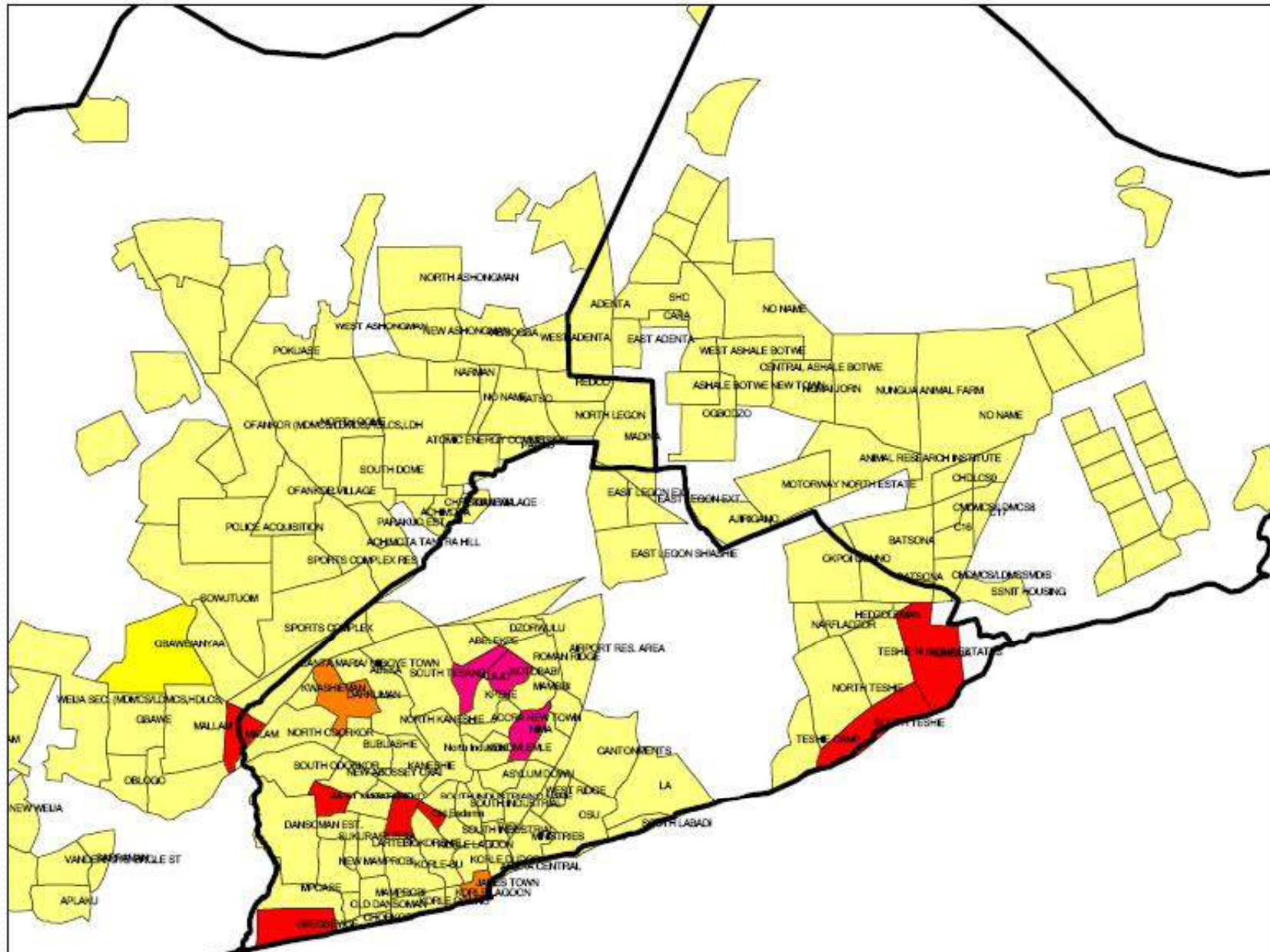
Research Questions

- What issues/events/ personalities galvanize community mobilization to address the flooding problems?
- What are the challenges and successes of the communities in addressing the flooding?
- What complimentary public interventions aid in enhancing community resilience to flooding and when do such interventions happen?

Conceptual Approach



View 1



Research Methodology

Method	Purpose	Source of Information	Output/ Outcome
Literature Review	To gain knowledge and understanding of the concepts and other studies carried out relating to climate change & flooding	Projects & Assessment Reports, Previous Studies, Maps, Policies, Legal frameworks, Journals, etc	Review of relevant literature
Flood-prone Community Selection	To select the flood risk areas that can be used for the study	IWMI studies	3 Communities Selected
Reconnaissance Visit & Observation	To identify the hot-spots and understand the communities' daily practices and activities relating to flooding	The Community	Detail records of events, behaviors and activities related to flooding

Research Methodology

Method	Purpose	Source of Information	Output/Outcome
Semi-structured Interviews	To solicit purposive information on the impacts of flooding & the capacity to deal with the floods	Affected HH & Community members	Information on the impacts of flooding on Households and their coping mechanisms
FGDs	To understand how flooding affects different grps of pple and their capacity or mechanisms to address the problems	Community groupings,	Information on how different groups of people are affected by flooding and how they cope with it.
Institutional Study	To gain expert opinions and information on the role of institutions in supporting pple to cope with flooding	AMA, NADMO, TCPD	Information on institutional support, strategies and plans for communities.

Selected Communities

Community	Main Features
Mataheko	Heterogeneous community with diverse ethnic and cultural background, interests and aspirations.
Gbegbeyiese	Homogeneous (settlers) with similar traditions, culture, values and language
Old Fadama	Illegal occupancy and Commercial Activities. Unplanned, underserviced, inaccessibility, sanitation challenges, etc



Results and Discussions

- Socio-economic information of respondents
- Community Experiences with flooding
 - Perception of Climate Change and Flooding
 - Effects of flooding on people
- Community Adaptation and Coping Mechanisms
 - Tangible
 - Intangible
- Community Cohesion and Flood Coping Strategies
- Public Interventions

Socio-economic Information of respondents

- Gender Distribution: Males 58% & Females 42%
- Age Distribution: 78% were 31 – 60
- Monthly Income of HH: Ranged between GHc 80 to GHc300
- Duration for staying in the communities: 10 yrs & above

Communities' Perception of Climate Change and Flooding

- About 60% of all participants indicated they have not heard about or understand CC
- 40% have heard and do understand CC

“...some people say that the world is coming to an end that is why it rains a lot nowadays and that is also why there are a lot of floods these days. They said Jesus is coming and this is a sign that bad people should change from their bad ways” (Kwesi, 12 years).

Reasons for living in flood-prone community

Reason	Responses
Low cost of housing and Land	38
Family ties	30
Born in the community	29
No settlement permit	26
Livelihood Opportunities	15
Proximity to Work Location	10
The Community is part of Accra	8
Accessible social amenities	5

Reasons for living in flood-prone community

● A respondent from Old Fadama said this:

“... no money to cater for the costs of renting and moving to other places” (Baba, 46 years)

● Another respondent added:

“...I pay GH¢12 per month for this wooden structure. My sister where in Accra can I pay this for better accommodation” (Tijani, 34 years)



Perceived Causes of Flooding

- Indiscriminate dumping of waste materials
- Poor physical planning
- Inadequate drainage facilities
- Continuous rainfall
- Low-lying areas



Effects of flooding

- *Effects of Flooding on Lives and Properties*
- *Effects of Flooding on Economic Activities*
- *Effects of Flooding on Drinking Water Sources and Sanitation*
- *Effects of Flooding on Health*
- *Effects of Flooding on Schooling*
- *Emotional Stresses and Trauma*







Economic Effects

- *“...the makeshift bridges on the gutters in front of our shops sometimes get washed away by the floods and this prevents us from entering our shops to salvage some of the items. I used to sell both clothes and shoes. The clothes could be washed after the floods though their value reduces but some of the shoes get ruined and cannot be repaired” (Dzifa, 35 years).*
- *“...I came back to my shop the following morning only to realize that my fridges and amplifiers had been destroyed by the floods. Other items had been destroyed as well and I made a loss of about GH¢ 2500...” (Yaaba, 32 years)*

Effects of Flooding on Drinking Water Sources and Sanitation

🌍 *“Dirty water can enter the laid pipes which can contaminate the water... We cannot even go out to fetch water for use...”* (Delali, 32 years)

🌍 *“Because people do not to come out of their homes, they stay indoors and visit the toilet and then throw it in the floodwater. We receive Takeaway Polythene bags”* (Allotey, 32 years)

Health Effects



“Many of our children are affected by some skin diseases and other illness that are not easy to cure. I had to take three of my grandchildren to the health centre after last year’s flooding. They were seriously sick. It was by the grace of God that they survived” (Auntie Adoley, 54 years)



Emotional Effects

- *“Any time it starts to rain, I do not sleep because I do not know the outcome. I am often traumatized; fatigue and stress out in cleaning the water and the mud in my rooms. I sometimes fall sick and breakdown” (Auntie Dada 56 year).*
- *“... I and my family hardly sleep when we expect the rains at night; we keep awake just in case so that we can save our lives and some few items” (Bortey, 44 years)*



Community Adaptation and Coping Mechanisms to Flooding

The ability to cope with flood incidents is essential in protecting people's lives, livelihoods and development

- Tangible Coping Mechanisms

- Intangible Coping Mechanisms



Tangible Mechanisms

- Raising of door and window levels
- Raising of building heights
- Construction of flood protective walls
- Blocking flood flow with sand bags
- The use of furniture with high stands
- Construction of high shelves in rooms
- Construction of flood diversion trenches





Intangible Coping Mechanisms

- Sending valuables to neighbour

“Around this time [rainy season] I send my valuable things to my friend’s place for safe keeping. But my brother, when I go for them, I can’t find some, and you know, I can’t complain because I will send it back” (Delali, 32 years).

- Words of encouragement from neighbours

- Exit Strategy

- Do Nothing



Community Governance and Flooding

Community Cohesion and Flood Adaptation

- Assembly members' role
- Community Associations
- FBOs

Public Interventions

- AMA (Act 462)
- TCPD (Cap 84)
- NADMO (ACT 517)

Community Cohesion and Flood Coping Strategies

- Respondents recognised the role of their Assembly members
- Apart from Old Fadama, there were no Community Associations in the other communities. These made mobilisation difficult
- Respondents did not see any hope in their religious bodies in times of flooding

Comparative Notes

The Issues	Mataheko	Gbegbeyise	Old Fadama
Location	Business Centre	A coastal location	Business centre
Cohesion	Assembly member led initiatives	Assembly member led initiatives	Associations formed. Community-led activities
Physical Planning	Poor Planning	Unplanned	Not planned for

Public Interventions: AMA

- Governance: ACT 462 mandates AMA to be responsible for the overall development of the metropolis
- AMA is “*responsible for the development, improvement and management of human settlements and the environment...*” (Section 10(2e))
- Actions undertaken:
 - Drains construction
 - Distilling of drains Clearing of waterways
 - Public education
 - Enactment of bye-laws
 - **Demolition**



Public Interventions: TCPD

● Ordinance of 1945 (CAP 84): TCPD is mandated to promote sustainable human settlements development based on principles of efficiency, orderliness, safety and healthy growth of communities.

● Actions undertaken:

- Protection of water causes through land use planning
- Assisting in the control of development in flood prone areas
- Inspection of building permits
- Assisting in public education and sensitization programmes



Public Interventions: NADMO

- ACT 517: The National Disaster Management Organisation (NADMO) is responsible for the management of disasters and similar emergencies.
- Actions undertaken:
 - Identified Flood Risk areas
 - Public Education and Sensitisation
 - Capacity building for RRT & DVGs
 - Relief Items
 - Collaboration with other institutions

Rating Adequacy of Capacity

Capacity	AMA				TCPD				NADMO			
	1	2	3	4	1	2	3	4	1	2	3	4
Personnel			X					X	X			
Technical				X				X	X			
Logistics				X				X		X		
Financing				X				X		X		
Coordination			X			X			X			

Policy Implications

- Capacity issues must be addressed urgently.
'Fire-fighting' is not the best
- Flooding is an opportunity for a better Flood Insurance Policy
- The need for Flood Emergency and Evacuation Plans and Programmes
- Early Warning Systems

Policy Implications

- Human Settlement Policy is urgent (not only Land Use Planning)
- Enforcement of laws (Bye-laws, building regulations)
- NADMO and the AMA & TCPD should strengthened coordination
- National Water Policy has provisions for flooding, but how far

Summary of Main Findings...

- **Increase in cost of living:** *“When I move two steps forward in life, I do move three steps backwards when the floods come”* (Kwadae, 42 years)
- **Keep valuable belongings at safe places:** *“Around this time [rainy season] I send my valuable things to my friend’s place for safe keeping. But my brother, when I go for them, I can’t find some, and you know, I can’t complain because I will send it back”* (Delali, 32 year)
- **Raising of door and window level** to minimize the amount of water that enter rooms when it floods. *“Fill and raise is the style”* (Akpalo 28 years)
- Women & children are **mostly impacted** by flooding incidents
- Women are in the **forefront of managing flood** impacts at the HH level .

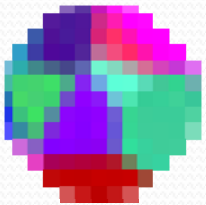

Summary of Main Findings

- People are not willing to move to a flood-free areas because of affordability and family ties
- HH undertake some coping mechanisms but do not necessarily make them resilient.
- Community coping mechanisms significantly reduces the impact of flooding on people
- Level of income determine the kind of coping mechanisms
- Inadequate capacity to respond to flood management affects the resilience of affected communities
- Early warning system is difficult to access
- Inadequate and poor drainage system in the study communities (narrow choked opened gutters)

Conclusion

- It has been observed that Climate change and climate variability are exacerbating the flooding problem
- Flooding has moved from the individual and HH level to the national level
- Local Government has a crucial role in flood risk management
- *“Sustainable flood management provides the maximum possible social and economic resilience against flooding by protecting and working with the environment, in a way which is fair and affordable both now and in the future”*

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- The Flood Victim is YOU



Thank you