INTRODUCTION

Background to the study
- In Accra, the consequences of floods are worsened by poor and climate insensitive physical development planning.
- There is also lack of proper appreciation of the hydrological behaviour of the water catchments in the city.
- In addition, excessive impervious areas created in the city has increased overland flow of water resulting in floods (Okyere et al., 2012).
- Similar to many African countries, there is lack of early warning systems for flood incidents.
- The physical, social, and economic cost that results from flooding is also enormous (Table 1).

TABLE 1: NATURAL DISASTERS IN GHANA

<table>
<thead>
<tr>
<th>Number</th>
<th>Disaster</th>
<th>Date</th>
<th>Total Number of people affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drought</td>
<td>10-1983</td>
<td>12,500,000</td>
</tr>
<tr>
<td>2</td>
<td>Flood</td>
<td>14-2001</td>
<td>2,000,000</td>
</tr>
<tr>
<td>3</td>
<td>Flood</td>
<td>05-1995</td>
<td>700,000</td>
</tr>
<tr>
<td>4</td>
<td>Flood</td>
<td>19-2001</td>
<td>60,000</td>
</tr>
<tr>
<td>5</td>
<td>Flood</td>
<td>09-1999</td>
<td>54,000</td>
</tr>
<tr>
<td>6</td>
<td>Flood</td>
<td>27-2001</td>
<td>144,025</td>
</tr>
<tr>
<td>7</td>
<td>Flood</td>
<td>17-2009</td>
<td>139,790</td>
</tr>
<tr>
<td>8</td>
<td>Flood</td>
<td>25-2011</td>
<td>61,473</td>
</tr>
<tr>
<td>9</td>
<td>Flood</td>
<td>07-2006</td>
<td>58,000</td>
</tr>
<tr>
<td>10</td>
<td>Flood</td>
<td>01-2008</td>
<td>58,000</td>
</tr>
</tbody>
</table>

Source: Okyere et al., 2012

Study Gaps

There is poor understanding of both the climatic and non-climatic causes of floods in the city. Lack of an integrated approach in flood control interventions and the dissonance between policy and practice continues to aggravate flooding in the city.

Study Objectives

The study sought to understand the factors of flooding in the city and propose effective policy responses. Specifically, the study sought to examine flooding in the city; investigate existing flood control policies; examine the contribution of people, policy and practice to flooding; and propose possible strategies and mechanisms to enhance resilience and climate proof status of the city.

METHODOLOGY

- The study used secondary sources from journal and other publications. The internet search terms used include floods in Accra, urbanisation in Accra, Waste management in Accra, impacts of climate change in Accra, among others.
- The information was synthesised to extract information relevant to the objectives of the study.
- Key informant interviews were then carried out with key stakeholders for further information in the flood control policies in the city. Content analysis were carried out on the interview notes.

KEY FINDINGS

People and practice contributions to flooding in Accra
- Poor land administration and planning.
- Many areas in the city are flood prone (see Figure 1, Table 2).
- Poor building without permit in natural water ways.
- Buildings in water logged areas without appropriate engineering and design considerations.
- Failure to abide by land use plans by successive governments and the public due to urbanisation.
- Poor construction or defective engineering and low capacity of storm water drains.
- Inadequate storm water drains in many parts of the city.
- Poor waste management resulting in solid waste accumulation in drains.
- Storm water drains in the city affected by poor maintenance culture.

- Though funding is an important element when it comes to flood control in the city, there is lack of an appropriate finance regime for interventions.
- There is in existence, a Disaster Management Plan, National Climate Change Policy, Urban Policy, National Environmental Sanitation Policy, and the Act that established the National Disaster Management Organisation (NADMO).
- Ghana has an appreciably good flood control policy and institutional framework couched under the Disaster Management Plan. Though the gap between policy commitments and policy implementation keeps widening.
- The National Disaster Management Plan (2010), has improved the interaction among key stakeholders to resolve the flood problem, though there is still room for improvement.

TABLE 2: PERCENTAGE OF FLOOD PRONE AREAS IN ACCRA

<table>
<thead>
<tr>
<th>Flood intensity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>20.85</td>
</tr>
<tr>
<td>Medium</td>
<td>31.39</td>
</tr>
<tr>
<td>High</td>
<td>35.66</td>
</tr>
<tr>
<td>Very high</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Source: Nyarko (2000)

CONCLUSION

- Poor drainage systems are a contributory factor to flooding in the city.
- Poor land use and cover are major factors in flooding in the city.
- The socio-economic damage cost of flooding, in terms of loss of property and lives is enormous.
- Poor human behaviour is worsening the flood situation in the city.
- The oversight role which should have been played by various institutions was not adequately done. This is an important consideration. This explains the gap in policy and implementation.
- The gaps are explained in part by government’s failure to allocate adequate funding for disaster management plans and programmes; lack of enforcement of related legislation and implementation of policies; non-sustainability of donor funded programmes; and lack of political will and commitment.
- There are some positives that are worth mentioning. These are the fact that the coordinating role of NADMO has ensured that new institutions collaborate more in executing any disaster related interventions.

Recommendations and Policy Implications

- Enforce the building policy and its related legislation.
- Improve and effective storm water drainage management system required.
- Improve urban waste management systems required.
- Urban redesign to ensure that there are sufficient green spaces to allow run off to keep to the ground.
- Budgetary provisions required for climate proof storm water drainage infrastructure.
- The state should provide more evidence based land use plans that are backed by appropriate legislation.
- Intensified education, training; and capacity building for the public and institutions in the area of climate change and disaster management.
- The integrated approach adopted for flood disaster management should be strengthened to ensure that the problem is being tackled from multiple angles.