Background

- Climate change is one of the large-scale global environmental changes likely to have damaging effects on natural and human systems.
- The Deltas have however been also identified as one of the most vulnerable areas to climate change.
- In Ghana climate change and variability impacts in the lower Volta and wetland areas are evident. Increasing temperature and unpredictable rainfall patterns leading to changes in agro-ecological regimes and other ecosystems and influencing crop yields, human health and energy supply. Sea level rise has also led to the washing away of numerous residential, educational, commercial and historic structures such as; Fort Prinzenstein and the Cape St. Paul height house all in Keta Municipality. (Ayivor,1999; Andah et al, 2003, MOFA, 2011)

OBJECTIVE

- To develop an integrated adaptation inventory for the Volta Delta to serve as inputs for national adaptation strategies

METHODOLOGY

A systematic literature review approach (peer and grey literature) assessing;
- Drivers of adaptation
- Sector specifics within which adaptations are mostly carried out
- Adaptation forms
- Type of beneficiary
- Type of provider
- Gender (deliberate to make adaptation option gender specific)
- Migration
- Maladaptation and barriers to adaptation

RESULTS

There are generally very few peer reviewed journal papers on adaptation in the Volta basin (10 out of 28 papers)

Drivers of Adaptation

- Main environmental stressors impacting the livelihoods of communities in the Lower Volta are flooding from the Volta River (influenced by upstream dams) and coastal erosion and flooding due to sea level rise.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Description of Adaptation Strategies</th>
<th>No. of Doc</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture &amp; food Security</td>
<td>Irrigation and drainage, farming management enhancement (cultivation management, breed variety, irrigation association), including livestock and fisheries sub-sectors</td>
<td>10</td>
<td>35.7</td>
</tr>
<tr>
<td>Disaster Risk Reduction</td>
<td>Flood control, coastal protection, landslide disaster prevention, and information systems</td>
<td>11</td>
<td>39.3</td>
</tr>
<tr>
<td>Rural-Urban Development</td>
<td>Community resettlements etc.</td>
<td>3</td>
<td>10.7</td>
</tr>
<tr>
<td>Forestry/Natural Environment and Conservation</td>
<td>Forest preservation, afforestation and ecosystem integrity</td>
<td>2</td>
<td>7.1</td>
</tr>
<tr>
<td>Alternative Livelihood</td>
<td>Animal rearing, basketry, kente weaving and production of batik.</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Water Resource Management</td>
<td>Water supply, sewage and drainage, including medical and healthcare sectors</td>
<td>1</td>
<td>3.6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Mensah and Anderson, 2015

Adaptation forms

- The main adaptation forms were mostly reactive and in response to the combined effect of the stressors that have resulted in the inundation of properties and farms, salinization of ground water, low productivity, shortage of water and increased incidence of water and sanitation related diseases.

Providers and beneficiaries (individual/community)

- Adaptation strategies mostly benefitted individuals or households who could afford the cost.
- Those provided for by government or international NGOs however benefitted entire communities.

Gender and Migration

- Where gender is mentioned, it focused on livelihoods
- Migration was described as a permanent response to relocating communities away from high risk flooding areas particularly in the disaster risk reduction sector
- Seasonal movements by different groups like fishermen, farmers, etc. were also reported.

Next Step

- Household survey in 2016 to update information gathered in the systematic review