Managing Water at the Urban-Rural Interface: The key to climate change resilient cities

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Introduction

Improving water and land resources management for...
Aim

To assess and map the urban storage capacity available in the Greater Accra Metropolitan Area.
The urban storage capacity:

1. Domestic storage volumes in low income households through medium sized plastic containers;
2. Domestic/commercial storage volumes through large plastic storage containers;
3. Commercial storage volumes in hospitalities and other industrial complexes through surface or underground built tanks, swimming pools etc.
Large plastic storage containers

Assumptions

• **Manufactures** - Polytank, Polystar and Sintex;

• **Most of the sales to the agents in Accra are used internally**;

• **Plastic storage containers can have a lifetime of ten years**;

• **Urban expansion and water demand for the ten year period**;
Output – Storage Map

POLYTANK SALES OUTLETS IN GREATER ACCRA METROPOLITAN AREA (GAMA)
<table>
<thead>
<tr>
<th>Area</th>
<th>Storage Capacity (Mill Cubic Meter)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accra Metropolitan Area</td>
<td>34.3%</td>
</tr>
<tr>
<td>Ga West</td>
<td>3.1%</td>
</tr>
<tr>
<td>Ga East</td>
<td>9.3%</td>
</tr>
<tr>
<td>Ga South</td>
<td>3.4%</td>
</tr>
<tr>
<td>Tema Municipal Area</td>
<td>14.1%</td>
</tr>
<tr>
<td>Ledzekuku-Krowor Municipal</td>
<td>13.3%</td>
</tr>
<tr>
<td>Ashaiman Municipal</td>
<td>10.0%</td>
</tr>
<tr>
<td>Adenta</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

Output – Storage Map

Storage Capacity (Mill Cubic Meter)

2001 2002 2003 2004 2005 2006 2007 2008 2009 2010

Adentan
Ashiaman
LEKMA
TMA
Ga St.
Ga East
Ga West
AMA
Output - Large plastic storage containers

- 0.4MCM over the 10 years

Storage Capacity (Mill Cubic Meter)

Total storage capacity per year.
Output - Large plastic storage containers

Available Storage Capacity

- Polytank+Sintex+Polystar: 0.40 MCM

Production per Day

- Weija: 54 MGD, 0.25 MCM
- Kpong: 40 MGD, 0.18 MCM

Total Available Storage: 0.43 MCM

Improving water and land resources management for food, livelihoods and nature
Assumption

Surface or underground storage systems:

Hotels, Industries
Output - Surface or underground storage

Surface/underground storage in hospitalities and industrial complexes
Output - Surface or underground storage

Surface/underground storage in hospitalities and industrial complexes
Assumption

Medium sized plastic containers; hh storage; three days.
Output — All storage

Available Storage Capacity

- Polytank + Sintex + Polystar + Hotels + Industries: 0.42 MCM

Production per Day

- Weija: 54 MGD, 0.25 MCM
- Kpong: 40 MGD, 0.18 MCM

Overall Output: 0.43 MCM

70% of 0.3 MCM
Findings & Implications

1. The city has enough storage capacity for a day’s production of GUWCL.

2. The storage explains how the GAMA Supply-Demand GAP is temporarily bridged.

3. Biased to the high income group who are therefore less vulnerable to the water shortage situation.
Findings & Implications

4. Installing more buffer storage in low income areas will reduce vulnerability of the poor.

5. Further investigation on urban buffer storage capacities in cities to respond to CC induced temporary water scarcity.