3rd International Workshop

MAINTREAMING CLIMATE CHANGE ADAPTATION INTO URBAN DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT PLANS AND PROGRAMS

RESULTS FROM THE ASSESSMENT OF FOUR PLANS AND PROGRAMS IN DAR ES SALAAM, WITH A FOCUS ON TEMEKE MUNICIPALITY

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Adapting to Climate Change in Coastal Dar es Salaam

A 1.1 Investigate people’s livelihoods and CC concern

A 1.2 Investigate Dar’s institutional activities related to CC

A 1.3 Explore local options of autonomous adaptation and raise awareness on CC

A 2.1, A 2.2, A 2.3 develop methodologies for:
- monitoring changes in peri-urban settlements
- exploring CC vulnerability scenarios
- designing community-based adaptation initiatives

A 3.1 Need assessment and training strategy design

A 3.2 Capacity building for municipal staff and local NGOs

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A 3.4 Support in adaptation initiatives design

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- Risk to undermine adaptive capacity: support of household’s autonomous adaptation strategies

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Water extraction already exceeds the recharge flux, (faster seawater due to CC and urban sprawl)

ADAPTATION MAINSTREAMING

Risk to overlook aspirations for change: backasting scenario for formulation of the adaptation objectives

NAPA implementation at local level

WP3

WP1

WP2
Adapting to Climate Change in Coastal Dar es Salaam

WP3

CC EXPOSURE & SENSITIVITY

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Focus on measures and actions already in place (or under development) - little/incremental change, ensure immediate access to adaptation funds

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Methodology development

WP1

Understanding improvement

Capacity building for municipal staff and local NGOs

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Adaptation and Mainstreaming in ACC DAR

Adaptation
• adjustment to actual or expected climate and its effects with a focus on water sources
  – moderate harm or exploit beneficial opportunities in water source sector.
  – facilitate adjustment to expected climate and its effects.

  Incremental adaptation - to maintain the essence and integrity of a system or process at a given scale.
  Transformational adaptation - changes the fundamental attributes of a system in response to climate and its effects.

Mainstreaming
• rather than preparing “new” plans for CC adaptation, integrating adaptation concern into the existing UDEM plans and programmes.
• process of systematically integrating the adverse effect of CC over Dar es Salaam’s coastal plain (selected Adaptation Concerns) and the specific outcomes are the improvement of the capacity of Dar es Salaam LGAs for supporting the autonomous adaptation of peri-urban residents settled within the coastal plain (selected Potentials for Autonomous Adaptation).
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Objectives

• Develop and test a methodology for the participatory design of LGAs’ adaptation initiatives.
• Contribute to effective integration of CC concerns and related adaptation objectives into the plans and programs which currently shape the daily responsibilities at DSM LGAs:
  – designing amendments to the provisions made by four UDEM planning documents already in place, and
  – introducing new procedures or adjusting the existing ones in order to feed CC related information into decision-making at local level
  – supporting autonomous adaptation strategies already in place at household/community level while preventing maladaptation
PLAN SELECTION

SELECTION OF STRATEGIC ISSUE AND MEASURE/PROVISION
At the municipal level

*Temeke Medium Term Expenditure Framework for years 2010/2011 - 2012/2013,*
- Forest conservation increased from 2100 ha to 25,000 ha by 2013
- Construction of demonstration toilets and sanitation facilities in 11 wards by June 2013

*Temeke Municipal Council’s Strategic Plan for Years 2010/2011 - 2012/2013*
- Protection of environment and reserve areas in 4 wards enhanced by 2013
- Total of 1,500,000 trees in 175 mitaa planted by 2013

At the city level

*Strategic Water Supply Plan for Dar es Salaam*
- Improve surface water sources from 276,000m³/d to 576,000m³/d ultimate capacity by 2032
- Installation of 20 deep wells with a minimum depth of 600 m in Kimbiji and Mpera

*Dar es Salaam Master Plan. 2012 – 2032*
- Article 6 – Areas in the Consolidation process
- Article 18 – Peri-urban areas / urban agriculture
Assessment Criteria

2 Adaptation Concerns
- AC1 - water resource conservation
- AC2 - improve access to fresh water

3 Potentials for Autonomous Adaptation (PAAs)
- PAA1 - water source diversification
- PAA2 - changes in income generating activities
- PAA3 - relocation or changes in actual settlement patterns

2 Mitigation related issues
- GHG - contribution to greenhouse gas emissions
- CCS - contribution to carbon capture and sequestration
### Assessment Criteria

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- **AN1** - Need to completely revise the measure as it has only negative implications for ACs and PAAs
- **AN2** - Need to strengthen or adjust the measure for better addressing the threats related to ACs and PAAs
- **AN3** - No change is needed as the measure is consistent with the requirements of ACs and PAAs
Example

"Protection of environment and reserved areas in 4 wards enhanced by 2013":

- positively impacts AC1 because it prevents building construction and deforestation thus ensuring the conditions for adequate recharge of shallow aquifer;
- negatively impacts AC2 because it **might prevent the free access to natural freshwater sources**;
- negatively impacts PAA1 because it **might reduce the variety of water sources** upon which the residents can rely;
- positively impacts PAA2 because it provides restrictions for unsustainable income activity within the reserved areas;
- positively impacts PAA3 because it prevents unsustainable residential development within the reserves areas.
- positive impacts might reduce the risk of deforestation and consequently reduce the net GHG emissions, while increasing CCS potential through additional tree planting.
<table>
<thead>
<tr>
<th>Adaptation needs</th>
<th>Amendment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection of environment and reserved areas in 4 wards enhanced by 2013</td>
<td>Provide options for ensuring no additional costs for an access to freshwater</td>
</tr>
</tbody>
</table>

When natural water sources within the reserved areas currently provide free water to residents, the following options are proposed:

1. **Review the reserved area boundary** in a way that will not undermine access to natural water sources for residents
2. **Provide a new infrastructure for pumping freshwater from within the reserved areas** to a free water point outside the reserved areas
3. **Set up a monitoring system of water bodies** to collect data needed for determining the quantity of water that residents can extract while respecting conservation goals (e.g. minimum water table level or minimum river flow)
4. **Set up a local water committee to guarantee equitable access to and distribution** from natural water sources (including participatory monitoring of groundwater and surface water bodies)
5. **Identify alternative free water sources outside the reserved areas**
6. **Provide a certain amount of freshwater for free to low-income households (change in water service tariff)**
**Scrutiny Criteria**

- Effectiveness: sustainability and flexibility
- Efficiency: cost and benefits, low-regret, no regret and win-win-win
- Feasibility: includes technical, social and institutional barriers to the implementation
- Knowledge-based: knowledge gaps limiting the implementation of the amendment and possible contribution of the amendment to use the existing data and knowledge to bridge the gap between knowledge and action
- Equity and legitimacy
### PLAN SELECTION

#### SELECTION OF STRATEGIC ISSUE AND MEASURE/PROVISION

#### ASSESSMENT OF PLAN’S MEASURES

<table>
<thead>
<tr>
<th>Amendment to the measure</th>
<th>Sustainability</th>
<th>Flexibility</th>
<th>Costs</th>
<th>Low regret</th>
<th>No regret</th>
<th>Win-win-win</th>
<th>Knowledge gaps</th>
<th>Knowledge use</th>
<th>Equity and legitimacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>High Medium Low</td>
<td>High Medium Low</td>
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<tr>
<td>Review the reserved area boundary in a way that will not undermine access to natural water sources for residents</td>
<td>Medium (environmental impacts)</td>
<td>High Medium Low</td>
<td>High Medium Low</td>
<td>Medium (no envir. win)</td>
<td>Medium (institutional barrier)</td>
<td>Medium Low</td>
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<td>Provide a new infrastructure for pumping freshwater from within the reserved areas to a free water point outside the reserved areas</td>
<td>Medium (environmental impacts)</td>
<td>Low High Low</td>
<td>High Medium Low</td>
<td>Medium (no envir. win)</td>
<td>Medium (technical barrier)</td>
<td>Medium Low</td>
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### SCRUTINY OF AMENDMENTS OPTIONS

#### SCRUTINY CRITERIA
- Effectiveness
- Efficiency
- Feasibility
- Knowledge-based
- Equity and legitimacy

#### AMENDMENTS OPTIONS
- Technological, Ecological, Social

### MAINSTREAMING ADAPTATION INTO EXISTING UDEM PLANS

**10/06/2014**
MAINSTREAMING ADAPTATION INTO EXISTING UDEM PLANS
Recommendations
Amendments for the Enhancement of the Forest Conservation

• **Tree species** most suitable to groundwater availability as a priority for tree nurseries; a monitoring system for existing trees and planted seedlings; a buffer zone surrounding planted seeds and sprouts;

• **Awareness raising on** multiple value of trees (groundwater and soil conservation, etc) and disseminating knowledge of sustainable use of timber should be carried out;

• **Promote low-GHG emission fuel for cooking** as an alternative to charcoal;

• **Proper conservation of water catchment** upstream by ensuring that revenue collected through the sales of water to various consumers downstream are used to invest in the conservation of upper catchment (e.g. Equitable Payment for Watershed Services)
Recommendations
Amendments for a Sustainable Exploitation of Water Sources

- Setting-up a participatory water level monitoring system in the reserved areas to collect data required for an adaptive management of streams and springs, (i.e. giving residents the right to withdraw water within limits dictated by common principles for water bodies conservation, such as minimum water table level or minimum river flow)

- WUAs to guarantee equitable access to and distribution from natural water sources based on the monitoring results, and to enable the community to participate in monitoring in order to gain self-reliance in adaptive management of natural resources upon which most households depend

- WUAs to establishing economic agreements with high water consuming companies to keep domestic water bill low, as well as requiring ecological compensation

- Awareness raising about groundwater degradation, problems and solutions and to support the development of rainwater harvesting systems for non-drinking uses in redevelopment operations
Recommendations
Amendments for the consolidation process proposed in the New DSM Master plan

• Within the coastal plain, no building permit should be issued without a prior assessment of its impact on the shallow aquifer and the use of boreholes should be as limited as possible

• Land use plans to secure the conservation of vegetated spaces between (and within) the plots as a way to limit soil sealing, and provide for the protection of river banks which is crucial for controlling pollution caused by runoff

• Involvement of residents in planning decision-making is probably the best option to find adequate solution to the identification of ways for preventing migration from areas under consolidation to limit urban sprawl in peri-urban areas
Recommendations
Amendments for a transition towards sustainable farming in urban and peri-urban areas

• Pilot projects shall be developed for innovating farming practices with more environmentally sound techniques, including organic (chemical free) farming, water saving techniques and techniques which minimize losses in soil carbon

• Special plans for the protection and development of agricultural and agriculture-related uses near and within the urban boundaries. Such plans will consider water availability as a limiting factor and secure adequate space for marketing facilities

• Awareness raising among residents on health and economic risks associated with uncontrolled discharge or improper reuse of wastewater and solid waste risks over agricultural lands, as a way to secure quality and safety of food production together with the achievement of water conservation goals
Open Questions – Working Groups

• What amendment options are recommended as the most suitable/feasible in order to adjust the four UDEM planning documents assessed for mainstreaming under the ACCDAR project?

How they can be selected analyzing:
• Effectiveness – How similar action already ongoing are working? And why?
• Feasibility – Are there options difficult to be implemented or not feasible?
• Prioritization – Are there options to be prioritized?
THANK YOU

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