ACC DAR Adapting to Climate Change in Coastal Dar es Salaam

3rd International Workshop

MAINSTREAMING 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

Dar es Salaam, 10 June 2014

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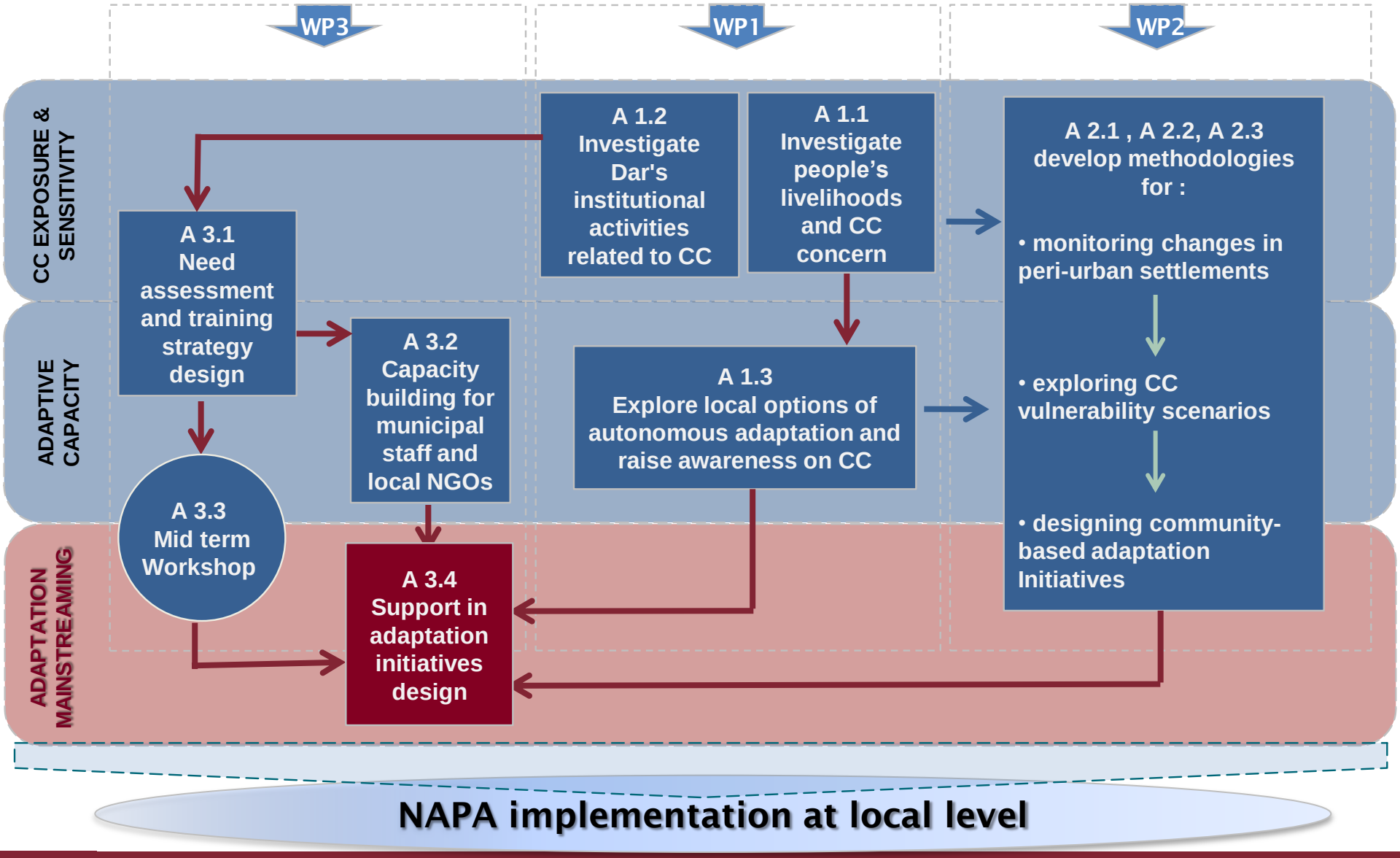
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WP1
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CC EXPOSURE & SENSITIVITY
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A 1.1 Investigate people's livelihoods and CC concern
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• monitoring 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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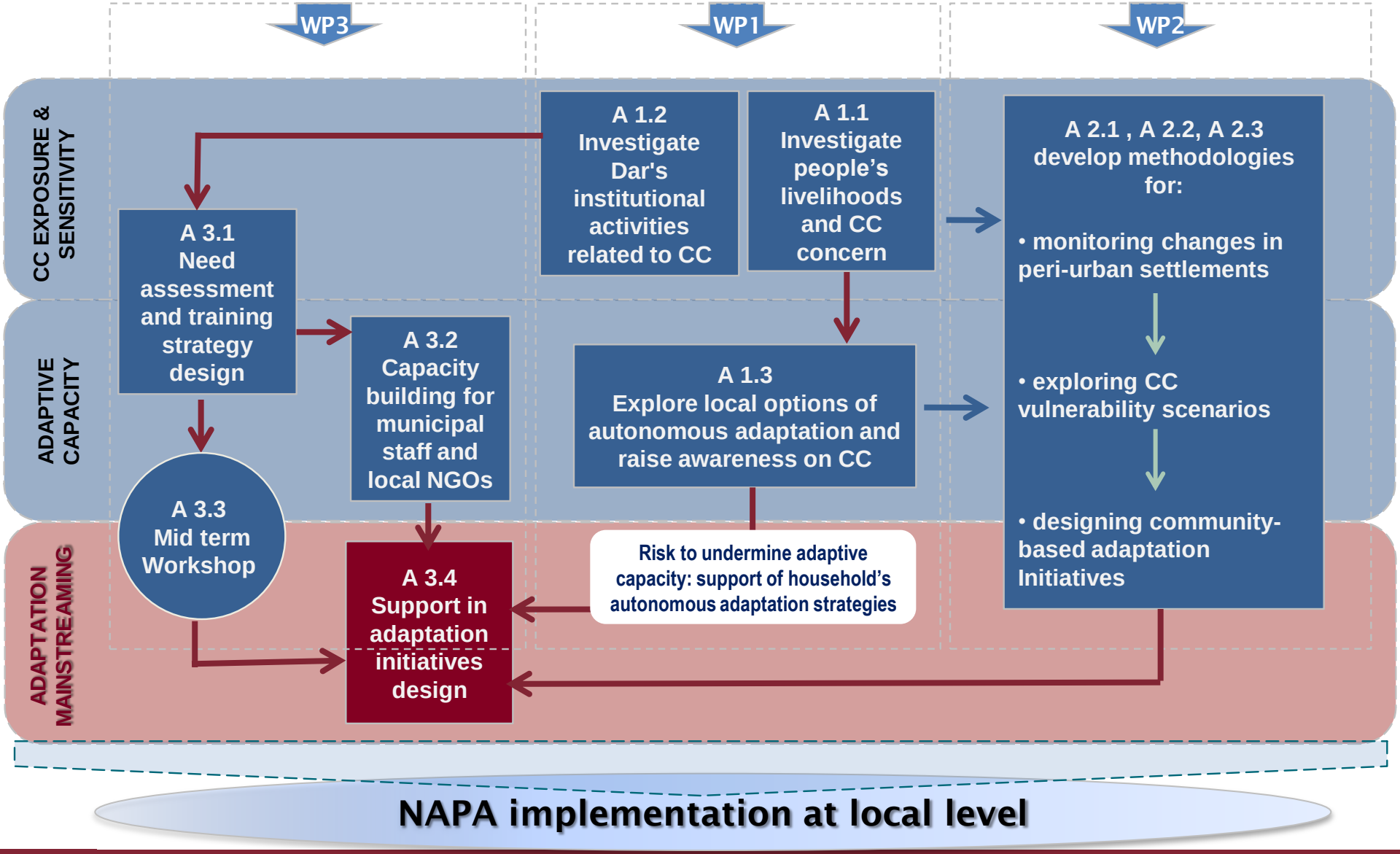
A 3.3 Mid term Workshop
A 3.4 Support in adaptation initiatives design
NAPA implementation at local level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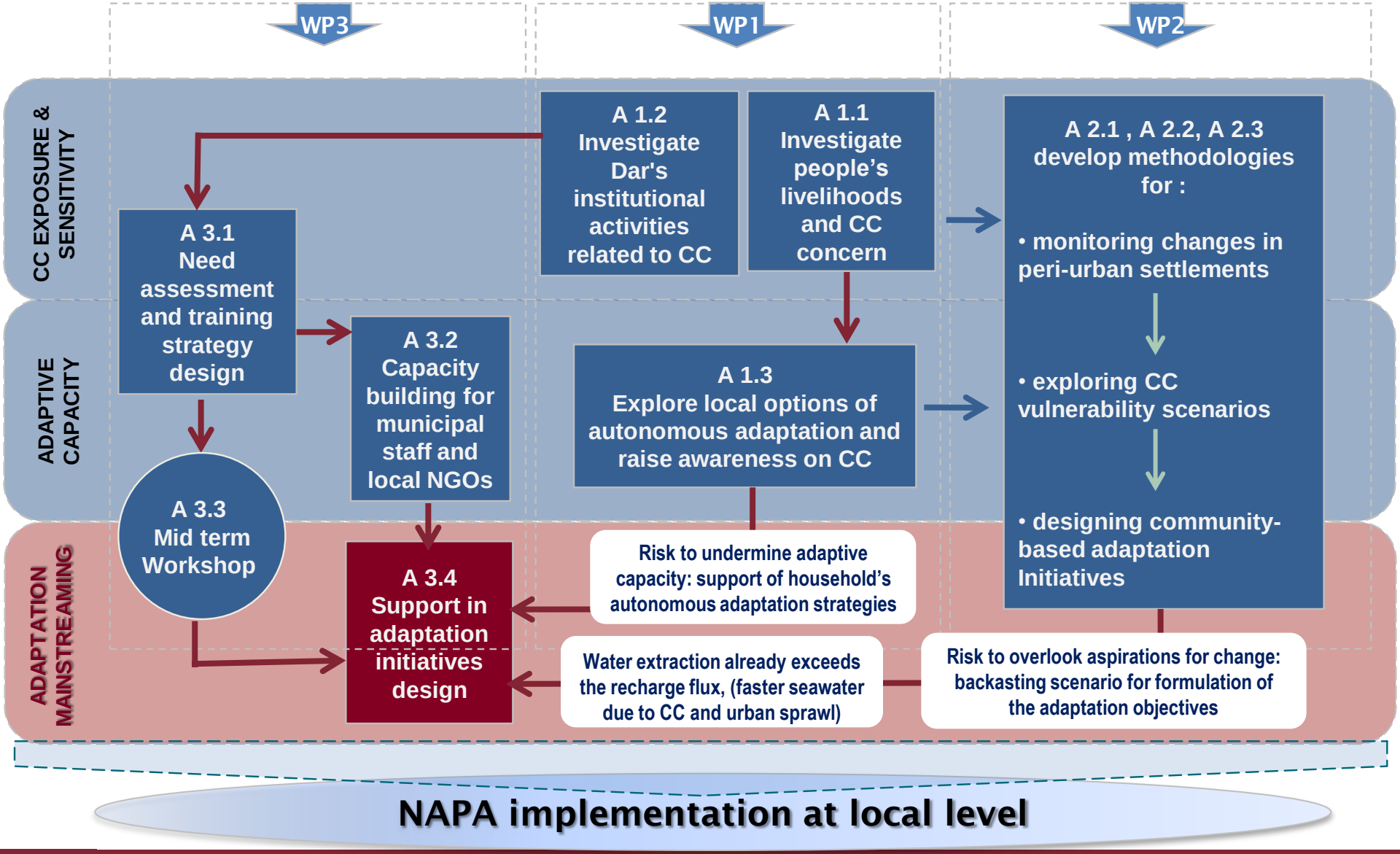
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Risk to overlook aspirations for change: backasting scenario for formulation of the adaptation objectives
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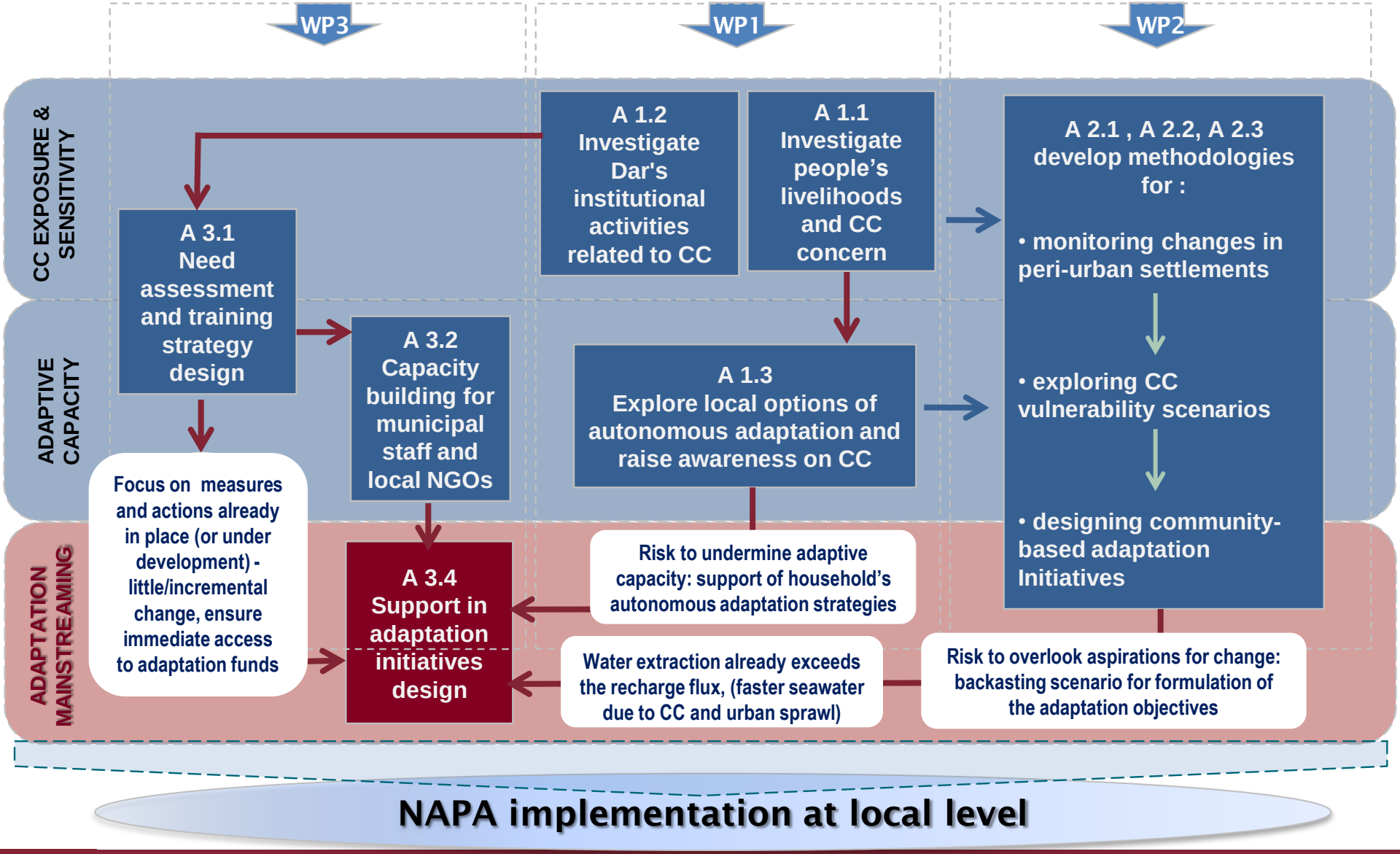
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Focus on measures and actions already in place (or under development) - little/incremental change, ensure immediate access to adaptation funds
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Adaptation and Mainstreaming in ACC DAR

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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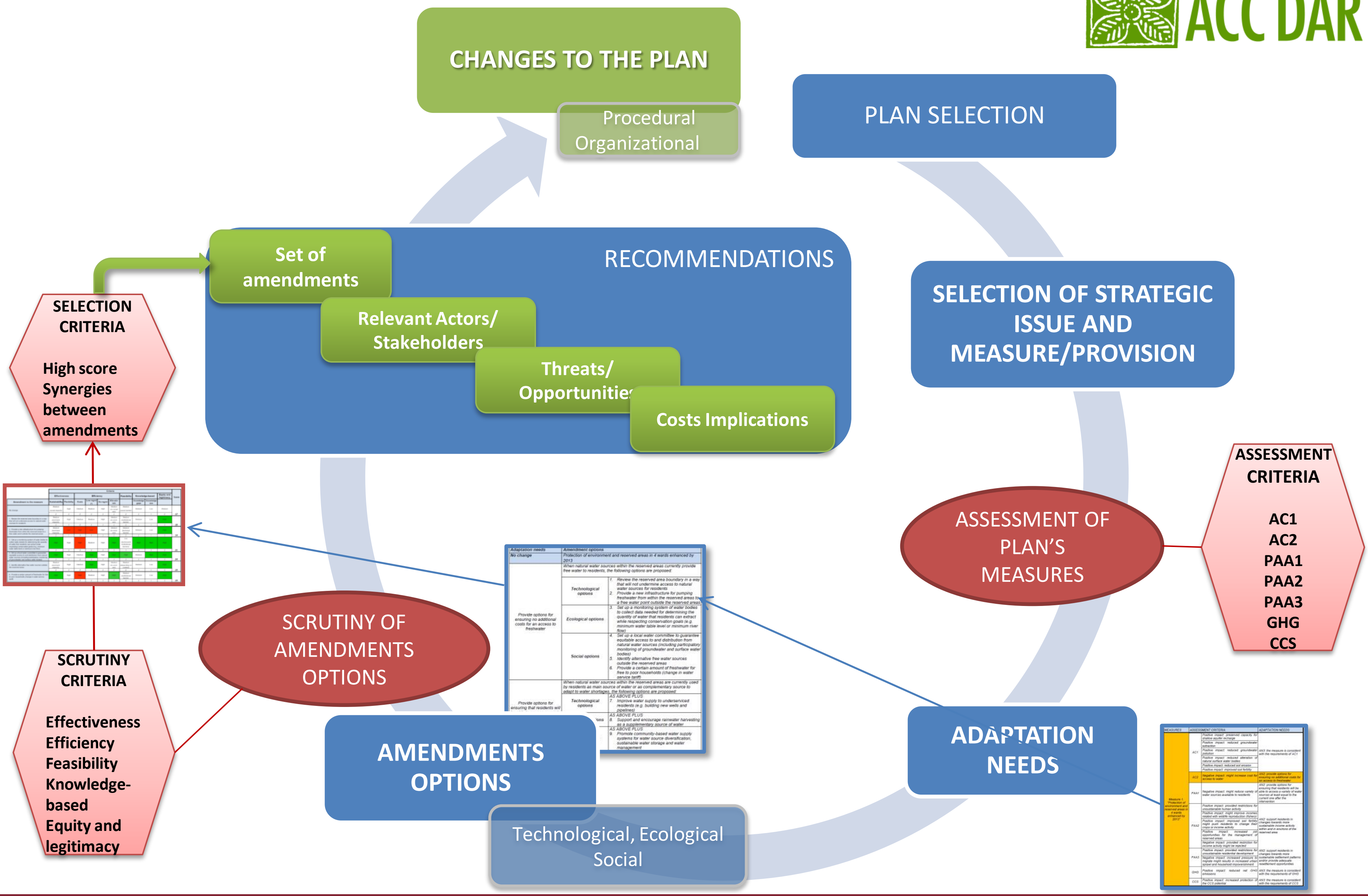
Objectives

- 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:
  - **desing 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


CHANGES TO THE PLAN
Procedural
Organizational
PLAN SELECTION
RECOMMENDATIONS
Set of amendments
Relevant Actors/ Stakeholders
Threats/ Opportunities
Costs Implications
SELECTION OF STRATEGIC ISSUE AND MEASURE/PROVISION
SELECTION CRITERIA
High score
Synergies between amendments
ASSESSMENT OF PLAN'S MEASURES
ASSESSMENT CRITERIA
AC1
AC2
PAA1
PAA2
PAA3
GHG
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SCRUTINY OF AMENDMENTS OPTIONS
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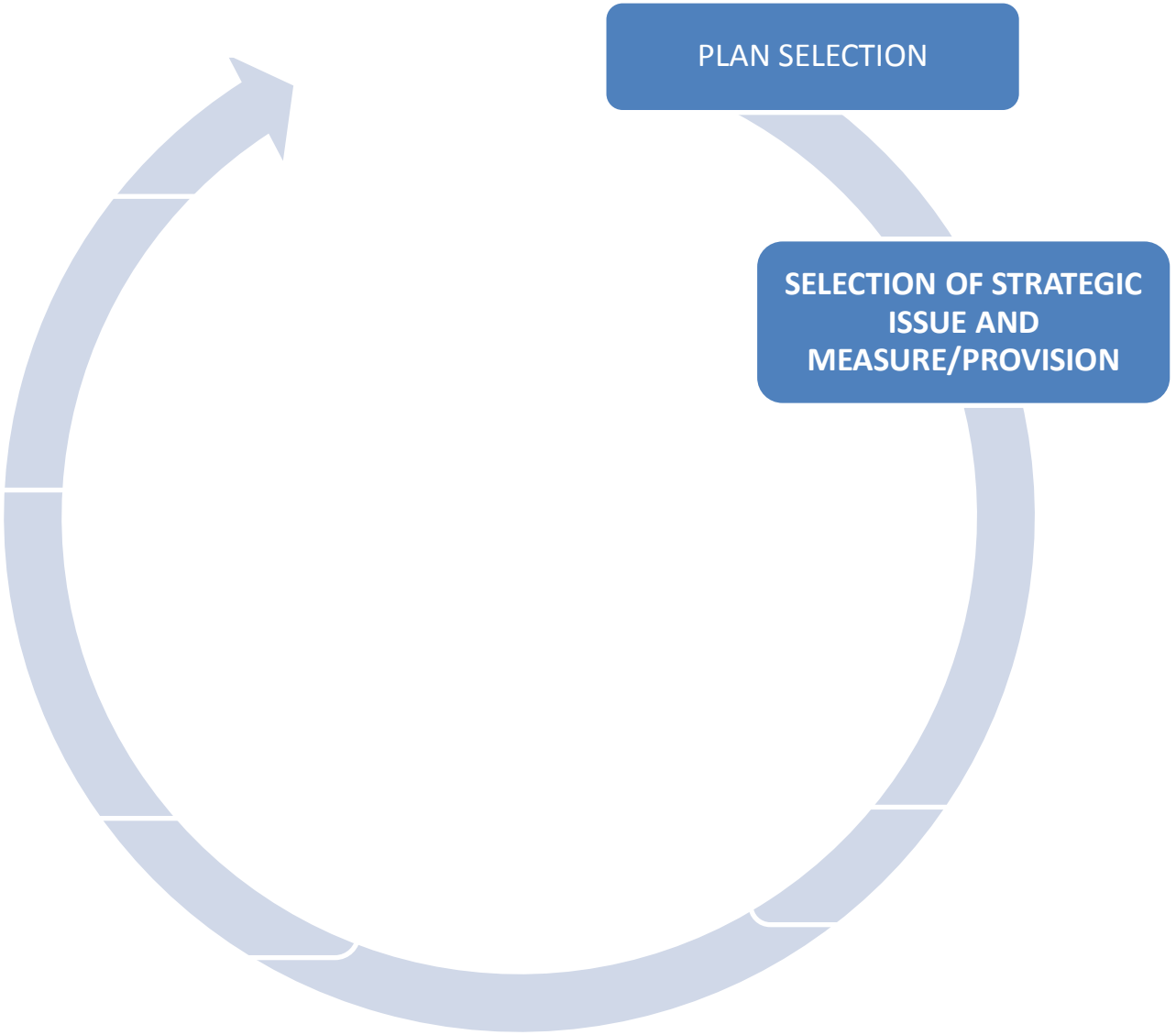
Feasibility
Knowledge-based
Equity and legitimacy
AMENDMENTS OPTIONS
Technological, Ecological
Social
ADAPTATION NEEDS


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

PLAN SELECTION

SELECTION OF STRATEGIC ISSUE AND MEASURE/PROVISION

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

PLAN SELECTION

SELECTION OF STRATEGIC ISSUE AND MEASURE/PROVISION

ASSESSMENT OF PLAN'S MEASURES

ASSESSMENT CRITERIA

AC1
AC2
PAA1
PAA2
PAA3
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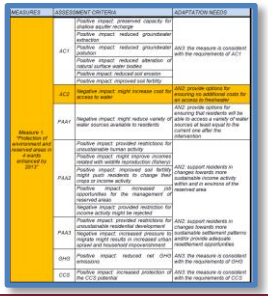
ADAPTATION NEEDS



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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

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ASSESSMENT OF PLAN'S MEASURES

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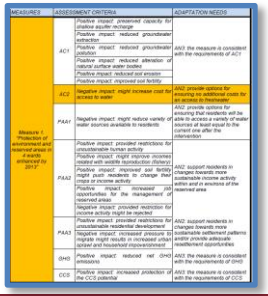


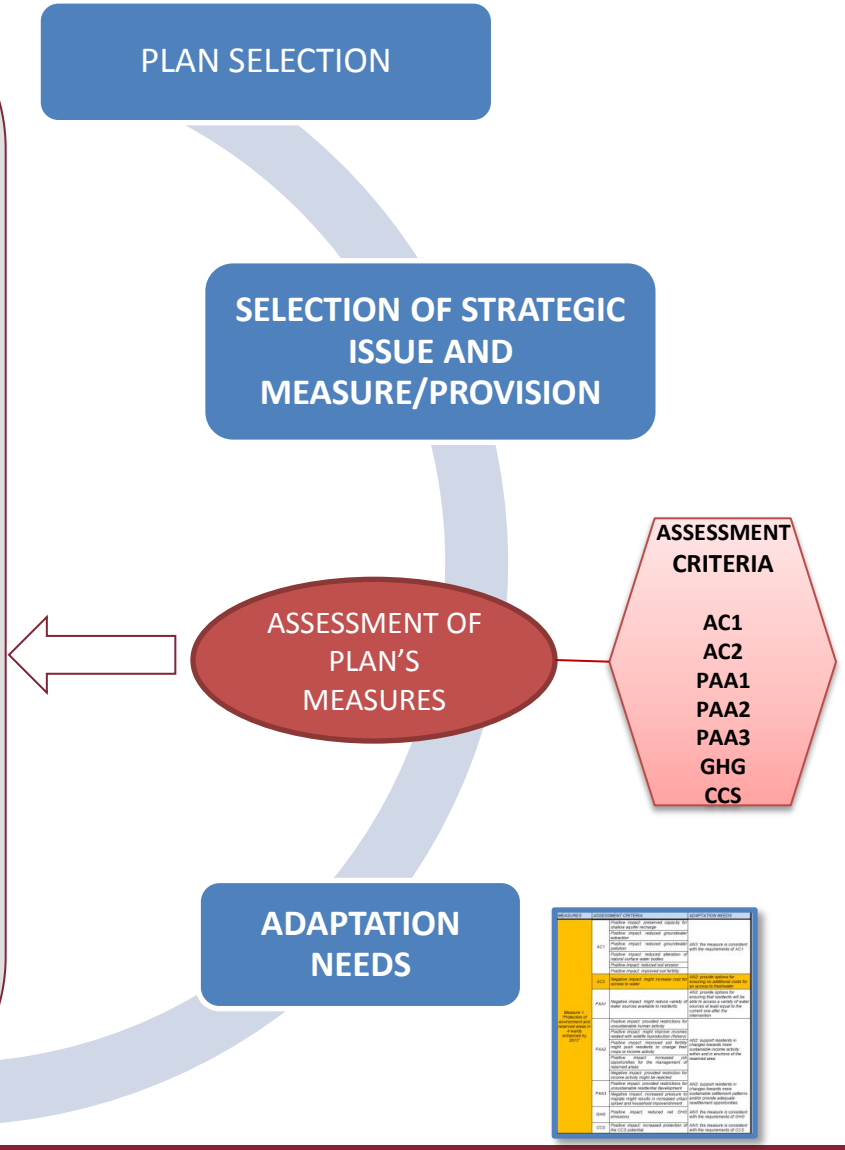
Example

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

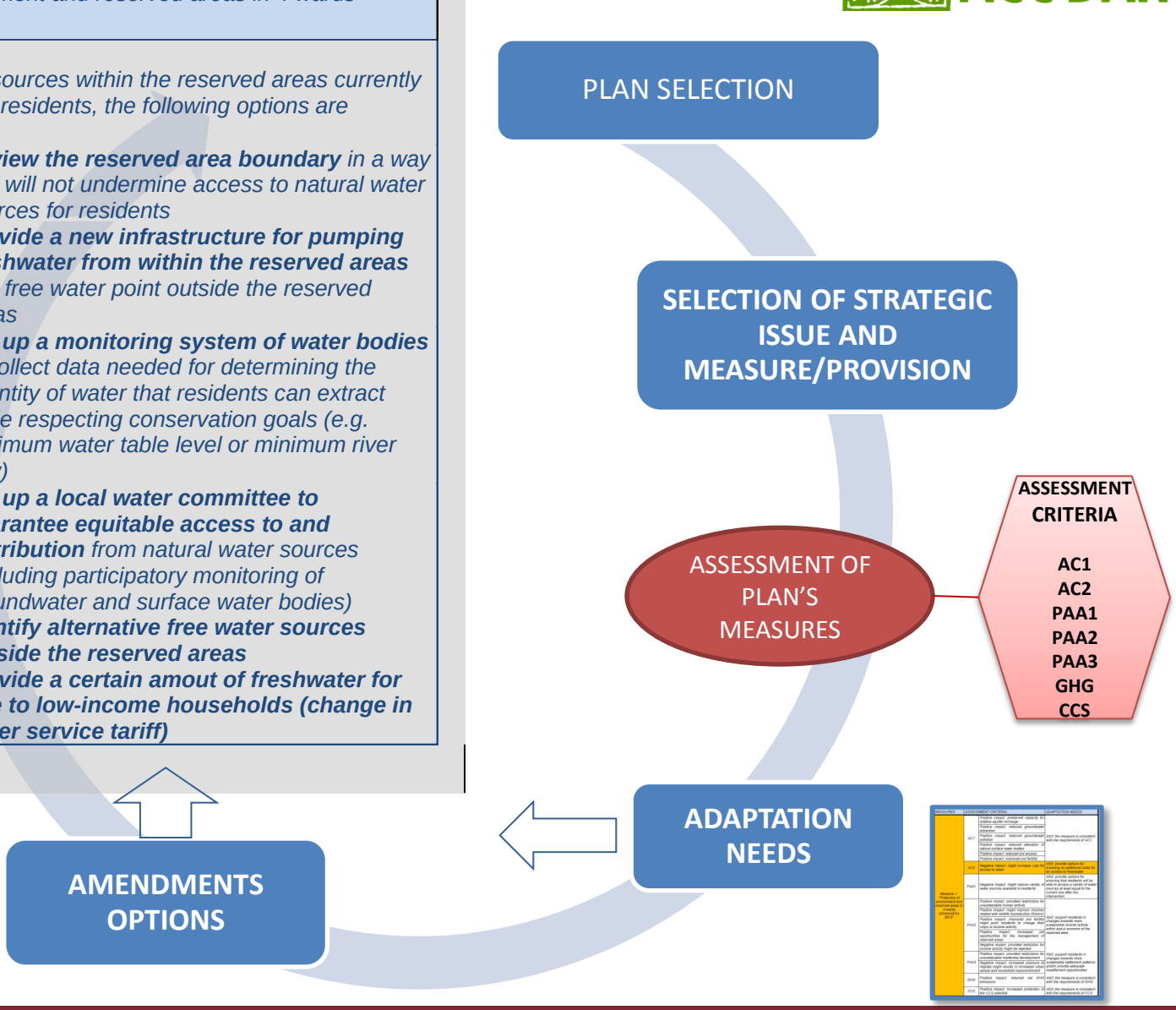
- positively impacts AC1 because it prevents building construction and deforestation thus ensuring the conditions for adequate recharge of shallow aquifer;
- negatively impacts AC2 because it **might prevent the free access to natural freshwater sources**;

- 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.

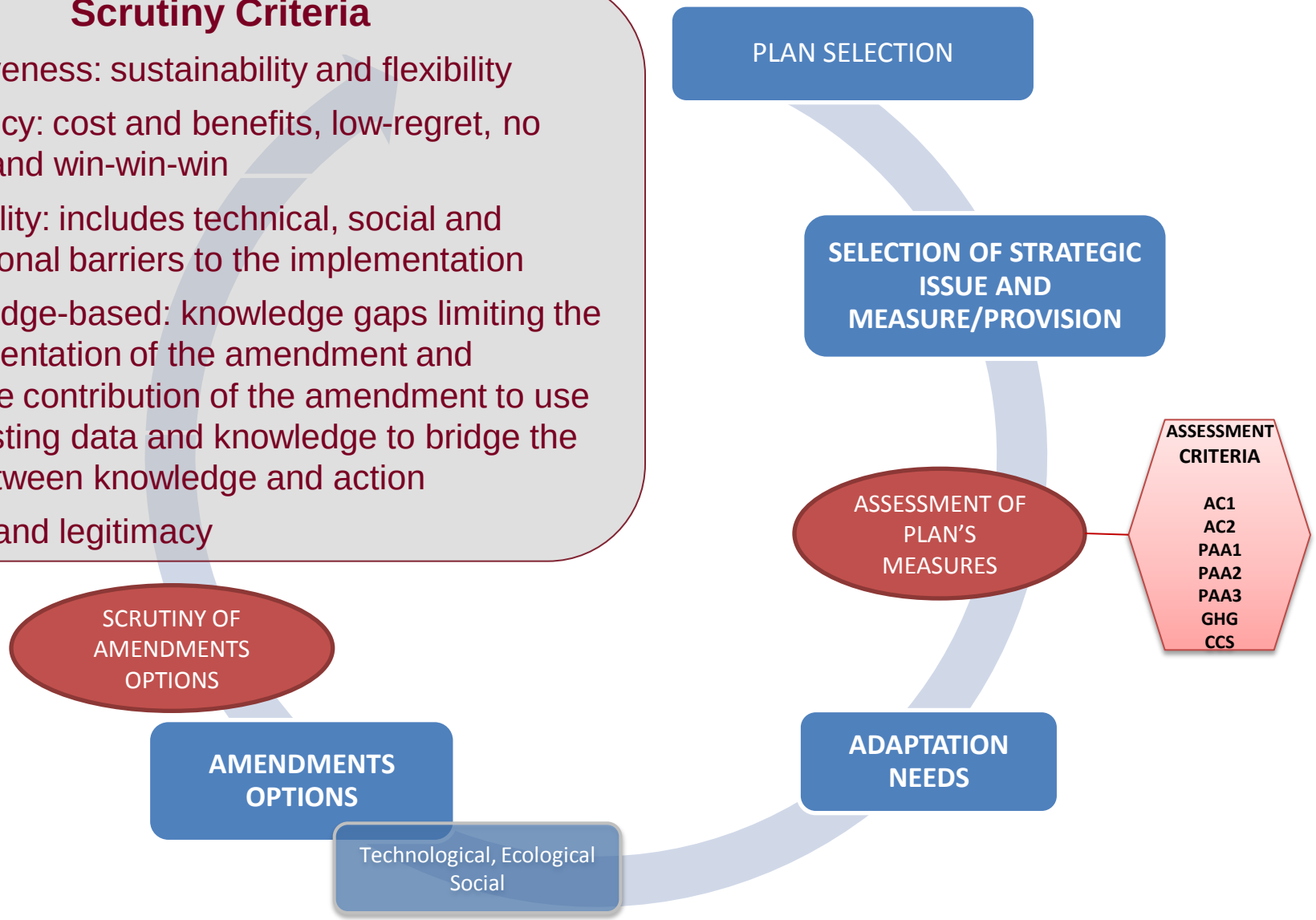


Adaptation needs	*Amendment options*
	Protection of environment and reserved areas in 4 wards enhanced by 2013
Provide options for ensuring no additional costs for an access to freshwater	*When natural water sources within the reserved areas currently provide free water to residents, the following options are proposed:* *Technological options* 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* *Ecological options* 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)* *Social options* 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 amout of freshwater for free to low-income households (change in water service tariff)***

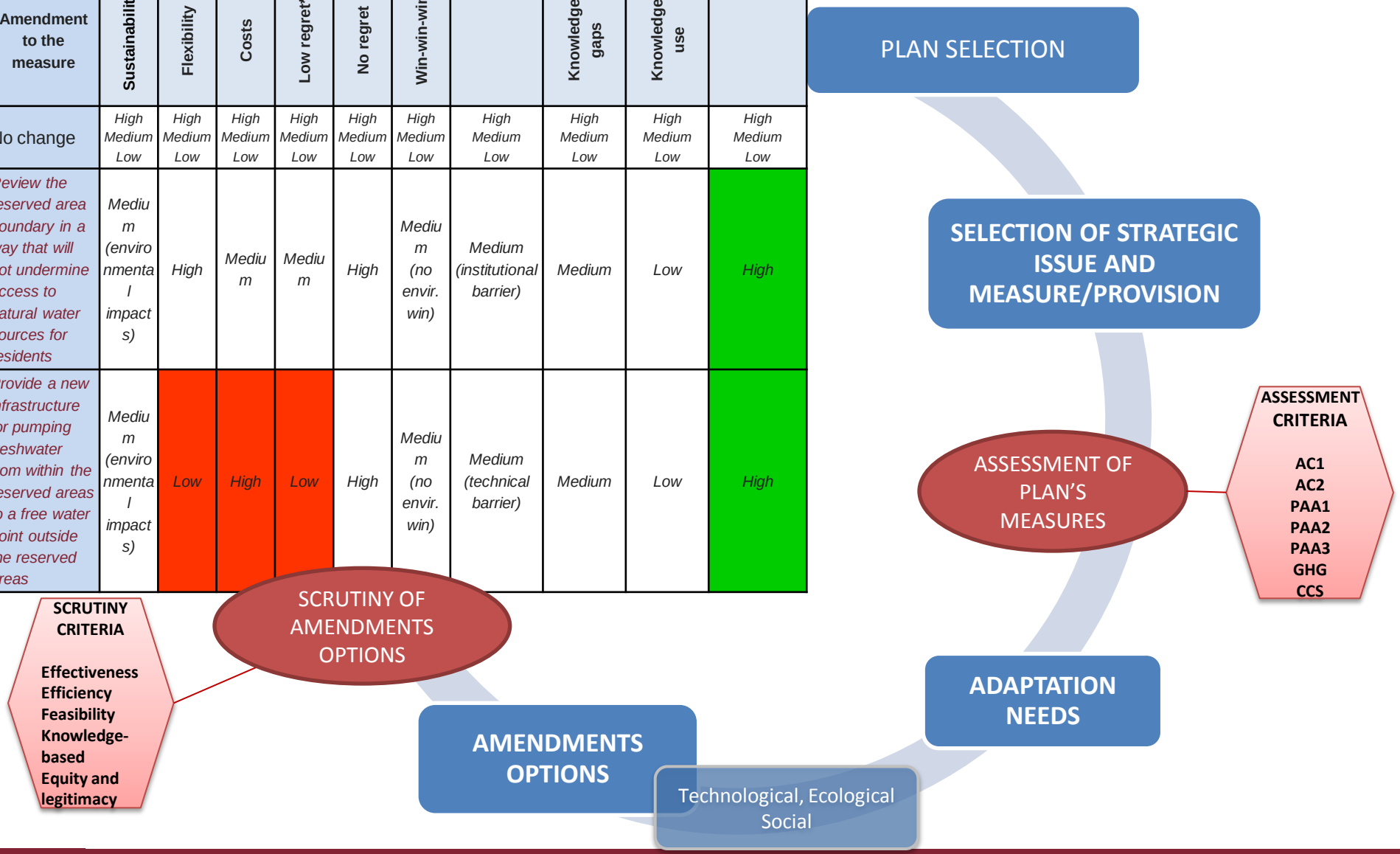


Scrutiny Criteria

- 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



	Criteria									
	Effectiveness		Efficiency				Feasibility	Knowledge-based		Equity and legitimacy
Amendment to the measure	**Sustainability**	**Flexibility**	**Costs**	**Low regret***	**No regret**	**Win-win-win**		**Knowledge gaps**	**Knowledge use**	
No change	*High Medium Low*	*High Medium Low*	*High Medium Low*	*High Medium Low*	*High Medium Low*	*High Medium Low*	*High Medium Low*	*High Medium Low*	*High Medium Low*	*High Medium Low*
Review the reserved area boundary in a way that will not undermine access to natural water sources for residents	*Medium (environmental impacts)*	*High*	*Medium*	*Medium*	*High*	*Medium (no envir. win)*	*Medium (institutional barrier)*	*Medium*	*Low*	*High*
Provide a new infrastructure for pumping freshwater from within the reserved areas to a free water point outside the reserved areas	*Medium (environmental impacts)*	*Low*	*High*	*Low*	*High*	*Medium (no envir. win)*	*Medium (technical barrier)*	*Medium*	*Low*	*High*



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ADAPTATION NEEDS

Technological, Ecological Social

AMENDMENTS OPTIONS

SCRUTINY OF AMENDMENTS OPTIONS

SCRUTINY CRITERIA

Effectiveness
Efficiency
Feasibility
Knowledge-based
Equity and legitimacy

SELECTION CRITERIA

High score
Synergies between amendments

RECOMMENDATIONS

Set of amendments

Relevant actors/ stakeholders

Threats/ opportunities

Costs Implications

CHANGES TO THE PLAN

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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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