# URAdapt

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

# INTERIM TECHNICAL REPORT (1)

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| **Project Name:** | Managing Water at the Urban-Rural Interface: The key to climate change resilient cities (URAdapt) |
| **IDRC Grant Number:** | 105869-001 |
| **Research Institution:** | International Water Management Institute (IWMI)<br>Country partners: CSIR Water Research Institute, Ghana and Addis Abeba University, Ethiopia |
| **Project Location:** | Accra, Ghana and Addis Abeba, Ethiopia |
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| **Reporting Period:** | July 2009 – February 2010 (Months 1 – 6) |
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## SYNTHESIS

This first interim report details the activities that took place in the initial six months of the project (July 2009 – February 2010).

In the first six-month period, some evolution of the project concept has occurred due to the intensive reflection of the project team members in both countries. In viewing this period of activity within the project frame as a whole, the first steps have been taken to integrate the platform into, and gain its commitment for, the project. The close contact that the project team members have had in Accra with platform members and other key stakeholders has contributed significantly to gaining their support prior to project inception. The same approach is being applied in Addis.

Capacity building of partners in the first six months is a very strong output. There is also a great deal of cohesion between partners on the project.

A start has been made on strengthening the contribution of vulnerable groups, but more will emerge as the empirical research directs the development of possible adaptation responses. For the moment, the project leader is satisfied that there is sufficient representation to cover social inclusion aspects of the project.

Strong links have also been established with other ongoing projects in the related sectors (urban water and climate change), and URAdapt has already gained visibility in the project cities. The key National Committee dealing with climate change adaptation in Ghana gave a firm commitment at the inception workshop to work closely with URAdapt in integrating project recommendations into the development of national adaptation strategies. Similar commitment is very likely in Addis.

Further work is necessary with the platform members in the two cities in order to consolidate the participatory monitoring and evaluation aspect of the project. A clearer understanding of what such an activity entails has to be provided to the members.

## CHAPTER 1 – RESEARCH PROBLEM

### *1.1. Project rationale and research problem*

The water resources sector will be among those most affected by changes in climatic conditions. Due to the interconnectivity between upstream and downstream areas, alterations in water quality and quantity in one will have implications for resource availability in the other. Access to basic water supplies is already constrained in much of sub-Saharan Africa, and the situation is expected to be exacerbated by future changes in the climate. Strategies to build climate change resilience in urban water sectors in Africa must adopt a broad perspective; one that recognises the dependence of urban centres on outlying rural areas, particularly where these supply water and food for cities. Simultaneously, resilience strategies must account for the relationships between multiple water-use sectors.

Research on climate change adaptation strategies has to date focused mostly on water resources management for rural agriculture. Simultaneously, urban infrastructure planning has so far ignored climate change and its related consequences for urban per capita water needs and wastewater disposal. The URAdapt project fills these gaps by examining the impacts of climatic and demographic changes on urban water resources management in Accra, Ghana and Addis Ababa, Ethiopia. These sites exemplify problems typical to developing cities in sub-Saharan Africa.

### *1.2. Project objectives*

The project will provide decision support for authorities to manage the urban water cycle in the face of climate change and urbanization. The project will enrol city authorities and affected and vulnerable groups and communities – including women's groups – in the respective cities into a science-based interactive dialogue. This will allow stakeholders to discuss the consequences of, and develop response strategies at various levels to, the changing circumstances.

URAdapt is structured as two mutually reinforcing work packages: a multi-stakeholder platform for learning, reflection, feedback, strategy development and evaluation (work package 1); and an analytical research process, which includes various types of studies and modelling (climate change, hydrological, socio-economic) (work package 2). The analytical research process will assist in identifying solutions for discussion at the platform. These will reflect various combinations of water supply and allocation options, demand management, water-saving sanitation solutions, as well as water reclamation and reuse for agriculture. The resultant adaptation strategies will take into account technical, socio-economic and environmental factors, and the platform will identify institutional roles and responsibilities for the process of adaptation

The specific objectives of the project are to:

1. Develop a shared understanding amongst multiple stakeholders, of climate change and its effects on water management at the urban rural interface, using simplified scenarios for greater comprehension of the consequences.

2. Using scenarios, to generate new knowledge, on the upstream and downstream implications of urban water demand, and of resulting wastewater generation, as well as on water investments needs.

3. To prepare, in participation with city stakeholders, and for the benefit of the most vulnerable groups, a strategic action plan, for adapting to climate change based on improved water resource management.

### *1.3. Evolution of project concept*

The project partners met in October 2009 to refine and develop a shared understanding of the project concept; the project objectives; and means of achieving them. Since then, the inception workshop with the Accra stakeholder platform has taken place as well, and further contributed to fine-tuning the project concept. In general, the main elements of the concept – empirical research that is shared with a stakeholder platform, which will advise on the research component and provide feedback both in terms of problem definition and solution, and which will lead to recommendations on city adaptation strategies – remain unchanged. Fine-tuning has been achieved more in our understanding of the types of research that need to be undertaken; the institutional environment and technical and planning processes, which influence the type of stakeholders needed on the platform; and the conviction that whilst the highest levels of policy and decision makers are essential to the process of uptake of recommendations, particularly those pertaining to national strategy, the main working platform should comprise technical and socio-economic experts from key national- and local-level organisations. Essentially it was understood that the institutional platform should provide critical and analytical thinking to the process of knowledge generation. The strong evidence base established would draw policy makers more strongly to translate this into policy instruments. Thus membership on the main platform should comprise representation from those who could contribute data, those who are implementers, and those who can advise on policy change, in order to allow the platform to think and operate strategically. The following principles guided the selection of platform stakeholders:

1. Key organisations responsible for water management and climate change at city and national level where available. These include organisations, which make decisions or effect changes in policy and practice (e.g. policy analysts and advisors, policy makers, municipal/local government personnel (political & bureaucratic) etc.
2. Vulnerable and marginalised groups
3. Knowledge organisations and data centers (eg. hydrological services, meteorological dept)
4. Service providers (water utilities) and regulatory authorities
5. Knowledgeable individuals and advocates

The representation and role of vulnerable and marginal groups was crystallised as well. It was understood that the project will identify city strategic actions for resilience. As such the project will not attempt actions at a grassroots levels with communities, but rather find the means to get their opinions and perspectives onto the city and national agendas. When relevant, however, in-depth studies at grass roots level could feed into problem identification and strategising for adaptation.

The project should strengthen its “organic” character, which allows flexibility – something that is essential in the context of uncertainty and adaptation. This also applies to the composition of the platform, allowing it to expand its membership if and when necessary.

In the original project concept, though networking and knowledge sharing were mentioned, the importance of these elements was not sufficiently emphasised. It is now understood that when a project is not anchored in a government institution or is not part of bilateral funding or development assistance, it is important to have visibility, which can be achieved only through extensive networking. This will be redressed.

In the original concept the platform (research-policy platform) was an amorphous structure comprising also "policy making" without being explicit on 'who' and 'how'. The concept is now to strengthen policy interactions via policy roundtables, which will become more visible as project activities, and through additional networking if necessary. The platform will remain as a strategic working platform. The platform will be re-named "research to (strategic) action platform" (Re-SAP).

Emerging from the inception workshop in Accra was the need for a "consultative group" of some key stakeholders identified from amongst the platform members, which would guide the activities of the project team. This would raise the commitment levels within those organisations.

The geographic spread of project areas in the two cities may be reviewed and other administrative entities may be included in the project analysis, if they become relevant in the context of the urban-rural challenge facing the project.

Finally, in environments (as in developing African cities) where urban planning processes and institutions are weak and resources limited, even in the absence of climate change impacts, populations in cities are vulnerable to inadequacies in water supply, disposal of wastes, and flooding linked to shortcomings in existing stormwater drainage systems and building on floodplains. This project is seen as a means to leverage resources also to improve the general conditions of the cities under study.

## CHAPTER 2 – SUMMARY OF RESEARCH FINDINGS

### *2.1. Summary of research findings*

This interim report details the activities that took place during the first six-month period of the project.

In Accra, the project completed preliminary stakeholder analysis, set up the URAdapt platform, and completed project inception activities. A comprehensive mapping exercise of ongoing and completed projects in the climate change arena has been done. Networking activities are continuously undertaken with various key stakeholders to get the project onto the national and donor agendas.

In Addis, progress has been slower. In part, this has been a conscious decision on the part of the PL, who has greater familiarity with the Accra urban context. The intention was that protocols used for activities in Accra could guide those in Addis. The Addis team of partners is being advised on approaches used in Accra.

Additionally, the project team has drafted and submitted an abstract on the project concept to the upcoming Local Government for Sustainability (ICLEI) World Congress on Cities and Adaptation to Climate Change, which is to be held in Bonn, Germany on May 28$^{th}$-30$^{th}$, 2010. The project concept itself represents a novel perspective to an under-researched topic, and warrants dissemination among members of international academic, policy-making and other communities. The abstract has been accepted for presentation and the project is hoping to find additional funding to be present at the conference.

In Accra, the URAdapt project is building on findings of the SWITCH project, which is an EU-funded project for sustainable urban water management. The Environmental Protection Agency, which is spearheading the national adaptation strategy for climate change adaptation, has recognised the contribution that URAdapt can make and has given its commitment to the platform. Similarly the National Committee for Climate Change has been informed of the project and its secretary has confirmed the Committee's commitment to the project. Finally Accra's new status as a Millennium City provides the right climate for further integration of project findings into city management.

### *2.2. Progress towards objectives*

Chapter 1 detailed the project objectives and their evolution since the inception of the project. This section outlines the work package and cross-cutting activities through which the objectives will be achieved, and progress in each area of activity.

#### *2.2.1. Work Package 1: Research to Strategic Action Platform (Re-SAP)*

**a. Meeting among project partners and planning project activities.** As one of its first activities, URAdapt organised a meeting among the project partners. This two-day meeting was held at the International Water Management Institute in Accra in October, 2009. The aim of the meeting was to develop a common understanding of the project and its expected outcomes, as well as to plan in more detail specific project activities. The meeting agenda and the report are attached in appendix 1.

**b. Mapping existing climate change projects.** There has been a recent and rapid proliferation of climate change-related projects in sub-Saharan Africa. From the outset, URAdapt identified the need to map the terrain of on-going efforts in order to better locate its 'niche' and build its identity, as well as to establish synergies and avoid overlap between projects. An initial mapping of existing climate change efforts was carried out in November and December 2009 in Ghana. A similar exercise is due to be carried out in Addis Ababa. This involved desk research along with one-on-one consultations with climate change practitioners (researchers, policy-makers and representatives of civil society). The following issues were gauged during the consultations:

i. Key characteristics of the project (including themes, such as urbanisation, agriculture,health)
ii. Rationale (what gap does it fill)
iii. Project type (research/ development)
iv. Activities (modelling, scenario development, socio-economic research, advocacy, CB)
v. Geographical focus (regional, national, local)
vi. Key outputs/ findings
vii. Intended impact (policy, programme, practice)
viii. Key stakeholders (including vulnerable groups)
ix. Stakeholder engagement (platform)
x. Implementing organisation in Ghana/ funders

The information that was obtained is summarised in appendix 2. Given the rapid evolution of the climate change sector, the information base will be regularly updated throughout the course of the project.

Overall, the exercise revealed that:

- Mechanisms to coordinate between, and raise awareness of, the various climate change projects are still in their formative stages.
- Water has been identified as among the most vulnerable sectors in, for instance, Ghana's national communication on climate change (2000), and by the Environmental Protection Agency (2007).
- Still, although several projects have a 'water component', water is rarely an explicit focus.
- Similarly, the urban impacts of climate change have been largely overlooked (the rural areas receive most of the attention, since they are the settings for most agricultural activities, which in turn are among the mainstays of Ghana's economy).
- Discussions around climate change/ urban areas/ water tend to focus on coastal erosion and sea-level rise; not the quality and quantity of urban water supply.
- It seems that a wealth of data already exists. However, much of this is scattered and shelved.
- On-going climate change projects are mainly run by 'knowledge institutions', government agencies or civil society organisations. The private sector has not entered the climate change arena, due to a rather unfavourable policy environment. Those private climate entrepreneurs that do exist tend to run small-scale business in the energy sector.

These insights serve to further fortify the rationale for and approach of URAdapt.

**c. Initial stakeholder, institutional and policy analyses.** In Accra, URAdapt benefits from the existence of on-going multi-stakeholder processes aimed at sustainable urban water resources management (SWITCH), advocacy for urban agriculture (AWGUPA), and the Water and Sanitation Resource Center Network. The International Water Management Institute (IWMI) – the lead

institute in URAdapt – is a core member of these processes, and consequently has in-house expertise on, and contacts to, the central actors in the three sectors.

The on-going processes build on extensive stakeholder, institutional and policy analyses, which provide initial insights into URAdapt's socio-political and institutional contexts. These existing analyses were reviewed and key informants were consulted in order to draw up an initial membership of the URAdapt platform. A list of the platform membership is provided in appendix 3. This list also details the remits of the stakeholder organisations, which serve to justify their inclusion in the platform. A total of seven stakeholder categories were identified: local governance, urban water and wastewater, climate change adaptation and risk mitigation, rural-urban links, water resources management, health, as well as social inclusion. These categories reflect the stakeholder groups envisioned in the proposal. The initial platform membership was validated at the first URAdapt research-policy platform meeting (please refer to activity 1.d) and suggestions provided to strengthen the group (please refer to chapter 1).

URAdapt will carry out in-depth stakeholder, institutional and policy analyses further into project implementation. The insights that are gained as the project progresses may necessitate subsequent changes to platform membership; indeed, the platform is seen as 'organic', evolving according to project developments.

**d. Networking meetings with persons of influence in key stakeholder organisations.** Activities 1.b and 1.c enabled URAdapt to identify stakeholder organisations that hold a central position in the project area (climate change; water and its allied sectors). Many of these were invited to join the platform as members. Others were sensitised to URAdapt and its activities; they will be approached again through targeted outreach efforts, such as policy roundtable meetings, later in the project. Overall, the networking meetings served to ensure the commitment of key actors, who influence, and are influenced by, developments in climate change and water.

**e. Process documentation in order to archive project evolution and prompt critical reflection on project implementation.**

Project team discussions, minutes of meetings, workshop proceedings and other written outputs of activities are being documented and organised in a database. All documents not of a sensitive nature are made accessible through the project website. The teams in the 2 countries adopt a process of generating reflection before and after major events and interventions.

**f. Regular platform meetings, including participatory formulation, monitoring and evaluation of project impact pathway.**

For Accra, the Inception meeting was successfully conducted with full participation of invited stakeholders. The report of the proceeding is attached in appendix 3.

The process for Participatory Monitoring and Evaluation launched in Accra faced a setback that required reflection and modification. A simplified outcome mapping approach was adopted and facilitated by a trained facilitator. Participants were unable to get their teeth into the formulation of project visions and missions as per the methodological definitions, since they were used to formulations adopted in strategic planning. As a result, we were unable to set the baseline at the project inception. To overcome this problem, more detailed explanations will be shared with the

stakeholder group ahead of the next meeting. The group will be provided with supporting documents, and the exercise will be taken up again at the subsequent gathering.

In anticipation of potential challenges with the outcome mapping approach, the project team prepared a KASA questionnaire to gauge a baseline situation of the stakeholders' knowledge, attitudes, skills and aspirations *vis-a-vis* the core project aims. The questionnaire was successfully administered at the inception workshop.

**g. Mid-term and end-of-project policy roundtables to disseminate project findings beyond platform members, and to seek input for strategic plan.**

This is scheduled to take place at a later stage of project implementation (please refer to Gantt chart).

**h. Formulation of the strategic plan.**

This is scheduled to take place at a later stage of project implementation (please refer to Gantt chart)

### *2.2.2 Work Package 2: climate change, hydrological and other modelling; and other empirical studies*

**a. Inventory of available climatic and hydrologic models (properties and usefulness).**

Research into this aspect has commenced. It is being carried out jointly by the modelling experts at the two project sites. Thus far, climate downscaling models such as WRF, PRECIS and RegCM3 are possible candidates. A three-tier framework for modelling has been developed and discussed at the Re-SAP inception meeting in Accra. This will be further discussed in Addis. Various hydrological models with GIS interfaces such as WEAP, SWAT and MIKE are being considered. For the dynamic systems model for urban water balance, the VENSIM model is being developed under the training component by a PhD student.

**b. Define main scenario types.**

The approach to scenario analysis was discussed at the Accra platform inception meeting. Possible scenarios were presented to stakeholders. The process generated very interesting discussion points and suggestions, which will be taken up by the modelling team. As an example, two aspects that were raised were the increase in impermeable surfaces and the related impacts for urban flooding; and the issue of floating populations being larger than resident populations, and needing to be factored into any climate change and water supply scenario. The need for recycling was also raised. At the catchment level, various possible allocation options were discussed in a very preliminary manner at this stage. The process, however, generated much reflection and many of the stakeholders had not been involved in such empirical research previously. In their feedback, stakeholders indicated that the platform meeting had been a good learning experience.

**c. Data collection: climatic data generated from downscaled climate scenario results**

Only preliminary discussions to date have taken place within the core project team. At the present stage, the structure of a metadata framework is under discussion.

**d. Data collection: demographic data and urban water system**

For both Accra and Addis, under the PhD study, some of this data has already been collected and organised.

**e. VENSIM model development**

For both Accra and Addis, preliminary model development is already underway, under the PhD study. This aspect has not yet been included in the climate change component.

**f. Data analysis and modelling of scenarios**

This is scheduled to take place at a later stage of project implementation (please refer to Gantt chart).

**g. Generating and incorporating feedback from platform**

This is scheduled to take place at a later stage of project implementation (please refer to Gantt chart).

**h. Finalize scenarios and modelling in collaboration with stakeholders**

This is scheduled to take place at a later stage of project implementation (please refer to Gantt chart).

***2.2.3. Cross-cutting activities***

**a. Ensuring parallel progress and feedback between work packages 1 and 2.** Please refer to section 2.2.1 (activity 1.f.) and appendix 3.

**b. Building the capacities of the project team and members of the research-policy platform on project-related issues.**

Please refer to chapter 5.

**c. Engage, train and supervise [number] of MSc. students.**

Please refer to chapter 5.

**d. Present research findings at international, regional and national conferences and workshops.**

An abstract has been accepted for presentation at the ICLEI conference on climate change in Bonn later this year (please refer to section 2.1).

## CHAPTER 3 – PROJECT IMPLEMENTATION AND MANAGEMENT ISSUES

### *3.1. Project implementation*

Section 2.2 described the activities that have been supported under the project during the project period. This section considers specific aspects of project design and implementation, in particular the disciplinary orientation of the project; research partnerships; the involvement of research users, ultimate beneficiaries or their representatives in further defining and/ or implementing the project; as well as gender issues.

#### *3.1.1. Disciplinary orientation*

URAdapt is multi-disciplinary in nature. Work package 2 (the analytical research component of the project) includes climate, hydrological and other forms of modelling, as well as studies on the socio-economic aspects of the impacts of climate change on urban water and allied sectors. The project team and partners have expertise in hydrological and climate change modelling; water allocation, urban water management, sanitation and agriculture; multi-stakeholder processes; and economic analyses.

The project team envisions recruiting consultants or additional partners as and when necessary to augment its know-how. In Accra, for instance, potential collaborators for socio-economic and gender-based studies have already been identified. These include the Centre for Social Policy Studies and the Institute for Statistical Social and Economic Research.

Importantly, the project recognises the expertise of non-research stakeholders, such as policy- and decision-makers as well as vulnerable and affected communities. Their knowledge is brought to bear on the project through the multi-stakeholder platform (see 3.1.2).

#### *3.1.2. Partnerships*

The core activities of URAdapt are being implemented through a partnership between the International Water Management Institute, the Water Research Institute (WRI) of the Council for Scientific and Industrial Research (CSIR) and the Addis Abeba University.

An additional layer of partners constitute the research-strategic action platform (Re-SAP; work package 1). These are project stakeholders (boundary partners), who can influence and/ or be influenced by the project. They define the parameters of the analytical research activities by providing data inputs and information on data availability. These partners also collectively formulate evidence-based adaptation strategies and deliberate their practicability.

A further tier of partners includes policy- and decision-makers, such as sector ministries. These stakeholder organisations provide their contributions and keep abreast of project developments through the various agencies and departments that they oversee and that are platform members. While not involved in the immediate knowledge generation activities carried out by the platform, they are critical to putting 'knowledge-into-use' through policies, programmes or practical interventions. This group of stakeholders will be targeted through mid-term and final policy roundtables. For the time being, these stakeholders have been informed of URAdapt, and they have provided their support to the project.

In addition, following on the Accra inception workshop, a consultative group is envisaged; one, which will input into strategising and preparation of platform activities, and act as advocates for the project.

#### *3.1.3. Involvement of research users or ultimate beneficiaries, or their representatives*

Stakeholder input is critical to designing the analytical research activities and formulating subsequent evidence-based adaptation strategies. The platform is the main arena for soliciting stakeholder contributions. As detailed in section 2.2.1, the platform consists of representatives of vulnerable groups, such as urban slum dwellers and residents of flood-prone areas, along with an expert in gender and climate change. See also section 3.1.2 on partnerships.

### *3.1.4 Gender issues*

As mentioned in section 3.1.3, the platform includes an expert in gender and climate change, who ensures that the platform remains aware of the gendered impacts of climate change. In addition, the representatives of the urban poor and flood-prone communities convey the specific concerns of their women constituents. Moreover, the gender and climate change focal point at the national climate change 'anchor', the Environmental Protection Agency, has been informed of the project; she has provided information regarding gender and climate change activities in the country. As a further part of the networking activities detailed in section 2.2.1, a member of the project also met with a gender advocacy organisation that is becoming a key point of passage within the civil society sector on gender and climate change matters.

The core project team itself includes two women (the project leader and the project officer). Some of the stakeholder organisations on the platform are also represented by women (please see list of platform members from the inception workshop).

## *3.2. Project management*

**Progress relative to milestones and specific objectives.**

Though the contract was signed in July, disbursements were only received in September due to a delay in transmission of the signed contract by the partner. The preparation period itself was rather extended, and included a partner meeting, because it was felt that it was essential to have a strong understanding of the stakeholder environment; the climate change related activities already taking place; and networking with key players in order for the project to have a successful launch and inception meeting. In the original design this aspect was not sufficiently factored in.

Apart from this delay, the project is on track. The Addis inception meeting was planned to follow on that of Accra, so it is expected to take place in the 2nd quarter of this year.

In terms of progress towards achieving the specific objectives,

- For developing a shared understanding, the inception workshop contributed to this through presentations on climate change concepts and terminology, modelling and how scenarios can be used to foresee possible changes, and accommodate or address uncertainty. The presence of invited technical experts and the project team contributed towards a lively discussion. It was felt that many stakeholders did obtain new insights, but this can only be confirmed through future KASA questionnaires.
- For a start, a few possible scenarios combining climate and demographic changes were introduced to provide stakeholders with an understanding of the project approach to identifying adaptation strategies.
- Some introductory notions on the difference between detailed plans and adaptation strategies were provided.

It was clear from stakeholder reactions to the presentations and the ensuing discussions that introducing further expert presentations, accompanied by interactive discussions on key topics like climate change concepts, how scenario analysis is used, different types of modelling, vulnerability

concepts, the socio-economic dimensions of climate change, strategic planning etc., for platform members in the two cities can enhance their eventual contributions.

**Financial monitoring of partner contracts:**

In dealing with partner contracts, the project has developed terms of reference in agreement with partners, and funds due to partners will be disbursed to them as per an agreed payment schedule linked to submission of agreed outputs. The funds due to partners (as per the detailed budget and notes in the project agreement), have been separated out from those due to IWMI, to make financial monitoring easier. Partners are not expected to provide detailed expense statements to IWMI, but disbursements will only be made on receiving the agreed outputs as per the timelines.

**CHPATER 4 – PROJECT OUTPUTS AND DISSEMINATION**

***4.1. Information Sharing and Dissemination***

Since the inception of the project, URAdapt team members have attended a series of events at which they have been able to raise awareness of the project and its intended activities. Attendance at these events is in addition to the networking activities reported in section 1.d, which also served as opportunities for outreach. Project team members attended the following events:

**Launch of University of Ghana 'Integrating Climate Change Adaptation and Mitigation in Development Planning'** -project (October 2009; Accra). The person who attended, Dr. Benjamin Lamptey, will provide expertise on climate modelling and downscaling to URAdapt. Exposure of a team member to their project approach serves to establish synergies between the two projects. Please see details of this project in the table on mapping CC projects in appendix 2.

***Launch of Regional Institute of Population Studies (RIPS) 'Climate Change and Health'-project.*** This event was held in Jamestown, Accra in November 2009, and was attended by Ms. Maija Hirvonen (URAdapt project officer). This project is also funded by the IDRC-DFID Climate Change Adaptation in Africa programme. An estimated 200 participants, representing the various community groups in the project (including, youth groups, school children and representatives of fishermen's organisations) attended the event. The event presented an opportunity to explore synergies between the project and URAdapt.

***IDRC-facilitated panel discussion and book launch on 'African Researchers and Decision-Makers: Building synergy for development'.*** This event was held in November 2009 and was attended by Ms. Maija Hirvonen (URAdapt project officer). The event consisted of two components: a panel discussion on strengthening the ties between researchers and decision-makers and the launch of an IDRC-funded book entitled "African Researchers and Decision-makers: Building Synergies for Development". The book draws on a series of discussions between researchers, policy-makers and other stakeholders in six West and Central African countries (Senegal, Burkina Faso, Ghana, Mali, Cameroon and Benin) on promoting the uptake of research results by policy communities. The event was attended by approximately 25 participants, including the heads of organisations working at the science/policy nexus in Ghana. A copy of the book, as well as other information material, was provided to participants. Collectively, these help to strengthen institutional and project-specific expertise on 'putting research into policy-level use' within the West African research for development context.

***SWITCH Accra Learning Alliance meetings and National-level Learning Alliance meeting.*** As mentioned earlier, URAdapt benefits from the existence of on-going multi-stakeholder platforms in Accra, which aim at strengthening urban water, sanitation and agriculture. Among these is SWITCH, a platform that deliberates the development of urban water management. Representation of URAdapt team members at these meetings provides two-way feedback. In November 2009, SWITCH organised a two-day event that brought together various urban water sector stakeholders. Among others, the SWITCH platform intends to devise a strategic plan for integrated urban water management in Accra. The objective of the two-day meeting was to move closer towards a City Strategic Plan for urban water and sanitation, following earlier visioning and scenario development exercises. The meeting included presentations on the use of natural systems to treat grey water,

wastewater reuse in agriculture as well as improving sanitation services and facilities in Accra, along with a presentation of social inclusion in water, sanitation and hygiene service provision The participants were then taken through the SWITCH process, and broken up into three groups that considered inputs into strategic planning. The groups addressed water, sanitation and (institutional) coordination. A second meeting in January 2010, on identifying strategic actions, provided inputs on possible city level strategies which could serve as adaptation to climate change as well if developed further.

The SWITCH platform is one of the central networks that URAdapt will reach out to in order to disseminate its findings. Given that the City Strategic Plan is currently under development, there is scope to feed in recommendations for recognising the potential impacts of climate change in future urban water supply and demand management.

***5th Sanitation Community of Practice Meeting: Sanitation for Climate Change and Adaption***. This one-day event took place in London in November 2009. Mr. Daniel van Rooijen (URAdapt PhD student) participated in the event. The meeting considered different aspects of sanitation in the climate change and adaption debate. The keynote speech addressed the reliance of water supply and sanitation in the face of climate change. It provided an overall perspective of the threats and opportunities that climate change presents to sanitation and water. The remainder of the event concentrated on more specific challenges of, and solutions for, organisations working in the sector. The meeting concluded in thinking about what sanitation professionals and practitioners need to know in view of UN CoP15 and beyond.

In addition to being an opportunity to raise awareness of URAdapt, the event allowed the URAdapt PhD student to build his capacity in water, sanitation and climate change.

***The Link between Climate Change and Investment in Water***. This one-day event took place in Addis Ababa in November 2009, and was attended by Dr. Alebel Bayrau (Ethiopian Development Research Institute; project partner). It was organised by the Poverty Action Network of Ethiopia (PANE) and Research-Inspired Policy and Practice Learning in Ethiopia (RIPPLE). The meeting brought together stakeholders from the government, civil society and academic sectors, who are involved in water management in Ethiopia. The event deliberated means of mainstreaming climate change issues in development programs, and targeting water supply investment in a manner that supports adaptation to climate change.

***Public Lecture on Climate Change.*** This half-day public lecture on climate change was organised by the Environmental Economics Policy Forum for Ethiopia, and attended by Dr. Alebel Bayrau (Ethiopian Development Research Institute; project partner). The lecture was delivered by Professor Thomas Sterner, president of the European Environmental and Resource Economics Association and head of the Environmental Economics Unit at Gothenburg University, in Addis Ababa in November 2009. The lecture addressed prospects for CoP15, specifically from the perspectives of China, India, the United States and Europe. Prof. Sterner also provided insights into the Kyoto Protocol and the way forward.

**Other communication products**. In addition to raising-awareness of URAdapt through participation in various climate change, water and sanitation events, the project team is in the process of developing a series of communication products. A flyer has already been drafted and is disseminated

at various events attended by the project team (appendix 4). A project briefing note, providing more in-depth information on the project concept, has also been prepared (appendix 5). Finally, the project team is developing a website for URAdapt, which will go live at the following URL: http://uradapt.iwmi.org.

### *4.2. Knowledge Creation*

New knowledge will be created through the empirical research being carried out under work package 1. This has commenced.

### *4.3. Training*

**Training activities, and other capacity-building efforts, are reported in chapter 5.**

### *4.4. Research outputs*

Please see annexes for

- Report and agenda: partners' meeting
- ICLEI Abstract
- Report, agenda and list of stakeholders: inception workshop
- Mapping of climate change projects for Accra

**CHAPTER 5 – CAPACITY-BUILDING**

URAdapt has adopted a training philosophy, whereby all team members alternately have the opportunity to participate in project-related training. This strengthens the capacities of the team as a whole.

The short-term training events detailed below contribute towards institutional reinforcement and building the sustainability of the research organisation through strengthening the project management and research skills of project team members.

Every training course attended requires a report from the team member, which is part of the exhaustive process documentation of this project. All such reports will be made available on the website.

### *5.1. Short-term training*

#### *5.1.1. Training in Integrated Climate Risk Assessment*

The training workshop on Integrated Climate Risk Assessment was supported by the IDRC & DFID Climate Change Adaptation in Africa (CCAA) programme, and facilitated by the Intergovernmental Authority on Development (IGAD) Climate Prediction and Applications Centre (ICPAC). This week-long workshop was held in Kenya in November 2009. URAdapt was represented by the project officer, Maija Hirvonen. The workshop brought together representatives from the various projects that are running under the CCAA programme, along with other interested participants (journalists, policy-makers and community leaders) from Kenya.

The first three days focused on harmonising participants' understandings of key climate change concepts (such as hazard, adaptation, mitigation, climate variability, climate change, risk and vulnerability). They also covered potential climate change impacts on individual sectors. Day 4 centred on data requirements and methodologies for climate change research. The final day consisted of project presentations (with a focus on the lessons learnt during the workshop).

This training allowed a team member playing a key role in project administration and management to gain insights into the analytical content of the project.

#### *5.1.2. Training in Participatory Monitoring and Evaluation*

This week-long workshop on monitoring and evaluation was held in Senegal in December 2009. It was supported by the IDRC & DFID Climate Change Adaptation in Africa (CCAA) programme, and facilitated by the Foundation Rurale de L'Afrique de L'Ouest. URAdapt was represented by Mr. Geremew Sahilu from the Addis Abeba University. The workshop aimed at strengthening the capacities of staff in CCAA projects to design and implement monitoring and evaluation in a participatory manner. Mr. Sahilu's participation served to ensure that URAdapt is in a stronger position to document, reflect upon and learn from their experiences, and implement their activities in an adaptive manner that accounts for emerging insights and adapts to changing circumstances.

#### *5.1.3. Training in Gender Mainstreaming*

The training workshop on gender mainstreaming took place in Naivasha, Kenya from January 25 to 29, 2010. It was organized by IDRC, and URAdapt was represented by Dr. Alebel Bayrau. The workshop was useful for URAdapt project since it built the skills of project team members in identifying key, vulnerable stakeholders and ensuring that their voices are incorporated into project activities.

#### *5.1.4. Fifth Sanitation Community of Practice Meeting: Sanitation for Climate Change and Adaption*.

Please refer to section 4.1.

### *5.2. Fellowship*

#### *5.2.1. Post-doctoral research fellowship at IHE*

One of the team members, Dr. Semu Moges, is working as a home-based post-doctoral research fellow at IHE under the Adaptation to Climate Change Impacts in the Nile River Basin'. In this capacity, Dr. Semu reviews climate-related issues in and around the Nile Basin area, in particular understanding the spatial variability of climate change impacts therein. Dr. Semu's involvement in such activities improves the project team's understanding of climate change on the basis of observational data (rainfall and temperate), as well as project climate change scenarios. It also enhances the team's skills in exploring urban-rural interactions using hydrological models.

### *5.3. Thesis/ student supervision*

The PhD thesis student on the project Mr Daan Van Rooijen is registered at the University of Loughborough and is being co-supervised by the project leader. A key area of research is the systems model being applied for water balance in the two cities. Progress on this aspect of research is as planned.

### *5.4. Capacity-building of stakeholders during inception workshop*

Please see section 3.2 on progress towards achieving project objectives and milestones, where it is highlighted how capacity building through inception workshop presentations on key CC concepts, modelling, scenario development and strategic planning allowed platform members to gain insights and move towards achieving project objectives. As a result, platform members were better able to evaluate the factors that make them more vulnerable and others that help them cope with climate change.

**CHAPTER 6 – OUTCOMES AND IMPACT**

The project is too young to identify outcomes and impacts. However progress towards achieving these can be seen through the two outcomes mentioned below.

Outcome 1: Stakeholders are becoming better able to evaluate the factors that make them more vulnerable to, and that help them cope with, climate change. Please see section 3.2 and section 5.4.

Outcome 2: Active exchange and learning between researchers, vulnerable groups and policy advisors at the inception workshop. The gathering also allowed representatives of at-risk groups to input into the design of empirical research activities.

## CHAPTER 7 – RECOMMENDATIONS

**Scope**: There are no major recommendations to be made on the project scope and implementation at this juncture.

**Duration**: it is expected that the project will meet its objectives within the planned period. However, a pertinent comment was made by stakeholders at the Accra inception on the continuity of the actions once the project ends. This aspect has to be integrated into a project exit strategy and may eventually require some assistance from the IDRC program officer for this project.

**Travel budget**: one clear constraint that is emerging is the very small budget that was planned to cover travel to the project cities. It is realised that the URAdapt project leader and project officer may need to make more frequent trips to Ethiopia than originally envisaged, in support of the local partners. Also, more frequent one-to-one interaction between team members in the two countries would strengthen learning across the project sites. This fact was also highlighted at the Accra inception workshop, where platform members enquired into the Addis city project and queried the absence of Addis partners (this travel was unfortunately not factored into the project budget!).

Program officer support in adjusting budget lines to accommodate this as much as possible is sought.

**APPENDIX I**

# Partners' meeting – agenda

*Day 1 (October 22nd)*

| Time | | Item | Participants | Aim |
|---|---|---|---|---|
| **9.00 11.00** | – | Introduction to project and discussion around project elements<br><br>Share insights from IWMI internal meeting with partners | Liqa, Daan, Semu, Geremew, Barnabas, Maija | Develop common understanding of the proposal and the envisioned outcomes, along with the skills and capacities that are necessary to carry out the project. Discuss donor expectations, and how the project can meet these. |
| | | **Break** | | |
| **11.15 13.00** | – | Introduction to water sector stakeholders, platforms and existing climate change projects in Ethiopia in general, and Addis Ababa in particular. | Liqa, Daan Semu, Geremew, Barnabas, Maija | To obtain an overview of on-going climate change projects in Ghana. To understand the constellation of stakeholders that would be appropriate for the research-policy platform in Addis Ababa; the strategies that would be most effective in running the platform; and the extent to which these overlap with existing platforms. |
| | | **Lunch** | | |
| **14.00 15.30** | – | Introduction to water sector stakeholders, platforms and existing climate change projects in Ghana in general, and Accra in particular. | Liqa, Daan, Semu, Geremew, Barnabas, Ben, Maija, Dr. Samuel Codjoe, Dr. Adelina Mensah (T.B.C.) & William Agyemang-Bonsu (T.B.C.) | To obtain an overview of on-going climate change projects in Ghana. To understand the constellation of stakeholders that would be appropriate for the research-policy platform in Accra; the strategies that would be most effective in running the platform; and the extent to which these overlap |

| | | | | |
|---|---|---|---|---|
| | | | | with existing platforms. |
| | | **Break** | | |
| **15.45 17.00** | – | Continue session/ build on day's discussions to prepare for more detailed planning of project activities on Day 2. | Liqa, Daan, Semu, Geremew, Barnabas, Ben, Maija, Dr. Samuel Codjoe, Dr. Adelina Mensah (T.B.C.) & William Agyemang-Bonsu (T.B.C.) | What are the gaps among on-going climate change efforts that the project could fill? What should be the objectives and composition of the research-policy platforms in Accra and Addis? How can these be run effectively? To what extent can they be synergised with existing platforms? |

## *Day 2 (October 23rd)*

| Time | | Item | Participants | Aim |
|---|---|---|---|---|
| **9.00 – 11.00** | | Review draft workplan | Liqa, Daan, Semu, Geremew, Barnabas, Ben, Maija | Clarify activities, budgets and timetabling. Discuss roles and responsibilities of, and division of labour among, partners. |
| | | **Break** | | |
| **11.15 13.00** | – | Continue session | Liqa, Daan, Semu, Geremew, Barnabas, Ben, Maija | Continue session |
| | | **Lunch** | | |
| **14.00 15.30** | – | Preparation for inception workshops | Liqa, Daan, Semu, Geremew, Barnabas, Ben, Maija | Identify dates, objectives, strategies and participants for inception workshops in both Accra and Addis |
| | | **Break** | | |
| **15.45 17.00** | – | Continue session | Liqa, Daan, Semu, Geremew, Barnabas, Ben, Maija | Continue session |

# IDRC Climate Change Project – Project partners' meeting

## *IWMI-Accra. October 22nd-23rd, 2009.*

The meeting was attended by members of internal project team (Dr. Liqa Raschid-Sally, Daan van Rooijen, Maija Hirvonen; also joined by Dr. Benjamin Lamptey) and partners (Dr. Semu Moges, Mr. Geremew Sahilu Gebrie, Dr. Barnabas Amisigo). Researchers from other climate change research projects (Mr. William Agyemang-Bonsu, EPA; Dr. Ama Essel, Korle-Bu Teaching Hospital) joined for an afternoon session on the 22nd.

***1. Introduction***

Day 1 of the partners' meeting began with a re-cap of the project and a discussion around project elements. Following introductions by project team members, Dr. Liqa Raschid-Sally gave an overview of the project, including the rationale for it (***Presentation 1***). She traced the causes of urban vulnerabilities to various structural constraints (poverty, migratory fluxes, high population density and growth, rapid urbanisation, poor urban planning, insufficient services, weak governance and processes of accountability, poor translation of policies into practice). These collectively lead to a city's inability to meet urban water and wastewater management needs, along with a weakened adaptive capacity to respond to changeable or uncertain conditions.

The project cities – Accra and Addis – share several characteristics. These include poor water system infrastructure, weak institutional capacities and a lack of strategic planning, as well as the fact that climate change is not yet a priority for the cities.

The notion of the 'rural-urban interface' was reviewed. It is often thought of in physical terms as the peri-urban area. However, the project will be mobilising the concept in order to overcome the usual practice of treating 'the rural' and 'the urban' as distinct categories. It is the connections between the two that can shed light on several water management challenges and offer solutions to addressing them.

The core focus of the project is to reduce the vulnerabilities of cities to climate change by elaborating strategic action for improved and integrated urban water and wastewater management. This is expected to entail venturing beyond water to sectors such as agriculture and possibly health due to the consequences that the inadequacy of urban water systems may have on these sectors as well.

The presentation moved on to consider the objectives of the project. Participants agreed that there are few systematic and scientific analyses of the options through which city-level decision-makers can prepare for the potential impacts of climate change on urban water management. The project can provide these, and as such, encourage more strategic planning.

The presentation also summarised the individual work packages. With reference to work package 1, it was emphasised that the donor is keen to see how the knowledge generated from the project is

translated into implementable action. One means of promoting the up-take of project insights is to adopt participatory research methods. These serve to ensure that the knowledge that is generated is needs-driven and meaningful to those who will ultimately put it into use. The project will have to design together with the stakeholders appropriate monitoring and evaluation approaches, which will allow it to track its course.

The discussion that followed the introductory presentation centred on the justification of the project at the two project sites. The partners have already begun to collate information on on-going climate change research in both project countries in order to further define its 'niche' and to find synergies with existing efforts.

Participants agreed that the uniqueness of the project comes from, firstly, its focus on the rural-urban interface; and secondly, holistic, 'nexus-thinking', which allows it to transcend the boundaries between water, sanitation and agriculture.

There was widespread agreement that a comprehensive characterisation of the two project sites was necessary at the outset of the project. The project team is already well-versed on the two urban settings, but their interactions with the surrounding rural areas are likely to require further research (including, extent and patterns of urban migration). The characterisation should consider not only the hydrological systems of the cities and other bio-physical features, but also their socio-economic, institutional and policy profiles. It would be on the basis of such information, alongside stakeholder input during platform meetings, that the project's 'field of action' would become defined.

However, participants noted that a comprehensive perspective did not preclude the need to carefully delineate the membership of the research-policy platform. Given the focus on the rural-urban interface, there may be a temptation to include 'everyone'. However, this would clearly not be feasible. A focused group of key stakeholders (participants suggested a maximum of twenty) was seen as a more conducive option. The membership of the platform should reflect the project's concern with the rural-urban interface and the water-sanitation-agriculture nexus (for instance, by including local or regional authorities, and agricultural ministries or departments).

***2. The research-policy platform and stakeholders***

This point led into a short overview of existing platforms in Accra and the lessons that they offered for the research-policy platform (these were based on the discussions that had occurred at the internal project meeting earlier in the week) (***Presentation 2***). This was followed by a brief introduction to the existing platforms in Addis, as well as the likely stakeholders of the research-policy platform (***Presentation 3; slide 17***).

In the discussions that followed, participants stressed the importance of defining a platform – is this another term for a committee, a board or a working group?

Conceptually, the platform was seen as an essential driving force for developing adaptation strategies, and ultimately, implementing them. The issue of implementation led to another discussion on the 'research' versus 'development' balance of the project. There was agreement on the fact that the project will make recommendations for – as opposed to implement – adaptation strategies. 'Adaptation strategies' can themselves be understood in several ways – they may include interventions at the level of community-level practices; programmes or planning frameworks of

municipal authorities; and/ or national-level policy. Even if these are not fully realised in the lifetime of the project, the intention is to provide the impetus for change. Importantly, what recommendations are produced should tie in with on-going adaptation measures in order to enhance their practicability.

The discussion around multi-stakeholder platforms concluded that platforms differ in purpose, lifetime and structure. Some platforms are transient; others may become institutionalised. The research-policy platform of this project will be further developed in consultation with stakeholders. At this stage, it was important that the partners had a common understanding of the principles and ideas that will inform the establishment and running of the platforms in the two cities. Indeed, platforms are context-specific and very organic, and as such, can be expected to differ between Accra and Addis Ababa.

The need for an exit strategy, and that the expected change from the project could be at a policy level, program level or in adopting different practices, were also mentioned.

***3. Climate change & water management***

Participants then moved on to consider climate change and its impacts on water management in Accra and Addis; across the rural-urban interface; and at the water-sanitation-agriculture nexus. The participants shared a few thoughts on how they see the city being linked with the rural hinterland and how climate change could exacerbate the water related issues already experienced in both cities, such as water shortage and urban floodings. Dr. Semu said that climate change is likely to have clear upstream changes (going beyond the urban boundary): climate change will likely increase water withdrawal from upstream reservoirs in order to deal with more extreme rainfall variability in surrounding rural areas. This in turn could affect withdrawals for urban use. Also, climate change is likely to entail more wastewater use in irrigated agriculture, since this remains a very reliable source of water, in contrast to water from the rural catchment.

Participants noted that one knowledge gap in Ghana is the impact of climate change on wastewater (recycling and use). Moreover, agriculture tends to be differentiated according to ecological zones; not in terms of the rural-urban interface. Such factors must be accounted for in designing (particularly work package 2) activities. Work package 2 is expected to gain further clarity through the stakeholder encounters. It was suggested that a draft list of research questions be developed ahead of the platform inception meeting, and that partners solicit further input from stakeholders and prioritise the items at the meeting.

The discussion returned again to the role of research in this project. Participants agreed that research would be mobilised to think through the various adaptation options – including those measures that cities are already implementing to address challenges other than climate change (such as increased urban demands for water). The outputs would need to be translated into a language that is accessible to decision-makers and other stakeholders. To summarise, Dr. Semu put forward three questions related to the preparatory stage of the project:

1. What can we achieve as (what is the role of) the scientific community in the project?

2. What can the platform achieve (and what is its role)?

3. What can we (combined effort) bring forward as recommendations?

Mr. Geremew mentioned that we have to be realistic with our thinking on what we can achieve, due to financial constrains and limited time allocation.

***4. On-going climate change research in Addis Ababa and Accra***

The discussion then shifted to understanding on-going climate change research specifically in Ethiopia (***Presentation 3***).

The presentation highlighted the inconclusiveness that surrounds much of climate change research as a whole. What can policy-makers do with the uncertainty that the research points to? The task of the project is to develop ways of accounting for that uncertainty within the strategic planning framework, and ensuring that adaptation strategies are flexible and designed to address these uncertainties.

Vulnerability can provide the clues for prioritizing adaptation strategies.

One challenge for the project is that current climate scenarios for Africa are not focused – or, location-specific – enough. Among the first steps for work package 2 is to simulate the current situation for Addis and Accra in order to understand whether variability or change is the driving factor, prior to looking into the future. Simulation of the current situation is needed to validate the model that is used. Also, the type of data to be gathered for this exercise will need to be listed.

[Please refer to ***Presentation 4*** for further information on water supply and sanitation in Addis Ababa]. Some interesting highlights were that the potential links between climate change and the urban water cycle may already be manifesting themselves and possible adaptations to these manifestations. Decrease in baseflows allows for lower dilution of wastewater, making it imperative to move water supply intakes. Groundwater and an upstream dam provide the city with water. Downstream urban agriculture depends on rainfall and one possible adaptation, if there is climate variation, is to use wastewater (which is already happening). Further, if lower rainfall affects rural agriculture, water used to supply the city may need to be diverted for supplemental irrigation, clearly showing the rural-urban connections that need to be addressed.

*Some ongoing and completed studies in Ghana*

At this stage, the climate change focal point from the Environmental Protection Agency in Accra (William Agyemang-Bonsu) and his colleague with an interest in the public health implications of climate change (Dr. Ama Essel) joined the meeting to discuss on-going climate change research in Ghana.

Mr. Agyemang-Bonsu reviewed the climate change work that the EPA has been involved in. He began by emphasising that adaptation and climate change research in Ghana began several years ago through the Dutch-funded climate change programme (led by the EPA, but involving several partners). The first phase of this programme focused on climate change effects on water resources in the White Volta Basin, Ayensu Basin and the Pra Basin. The study covered seven areas of impact, including flooding (although, this was not directly captured through modelling due to the limitations

of the available tools), groundwater, surface flows, hydropower production, socio-economics and irrigation.

During the second phase, the project also expanded to other areas, including food production and security. This focused on root crops, cocoa production as well as fishing. The project also broadened to look at climate change and its impact on the incidence of five common diseases (including, malaria, guinea worm and diarrhoeal diseases). The project also began to look at impacts on land management (such as climate change effects on desertification and land degradation, as well as biodiversity). In addition, it investigated the impacts of climate change on poverty incidence (areas with high temperatures and low rainfall tend to have a higher incidence of poverty, and these are also the areas with a high dependence on natural resources for livelihoods), as well as gender (women are among the vulnerable groups due to their dependence on natural resource-based livelihoods). The two phases of the project covered sensitivity analyses and scenario development for the individual sectors.

In parallel, and to complement the on-going climate change and food security research, the UNDP provided support to investigate in more detail the climate change impacts on maize, millet, sorghum and rice across Ghana.

Having obtained sector-specific recommendations for adaptation strategies, the programme conducted a series of cross-sectoral impact analyses in order to foresee any negative consequences of one sector strategy on another sector. The EPA developed a particular methodology for this, and the outcomes of the analysis led to the EPA reorganising its activities from sector-specific adaptation projects to more holistic programmes. These programmes have subsequently been incorporated into an ecosystem framework. The two programmes that are already being, or will shortly be, implemented are the climate change early warning system and health. Referring to early warning for floods, Dr Lamptey indicated that weather models could be run to see how the flooding pattern is influenced, but for capturing this short term time slices have to be used.

In terms of the impact of this work, Mr. Agyemang-Bonsu stresses that it has increased the level of awareness, and stimulated other climate change research.

Among these is a programme that seeks to mainstream climate change into district-level development. It is being jointly implemented by the Ministry of Finance and Economic Planning, the National Development Planning Commission, the National Disaster Management Organisation and the EPA. The programme has selected ten pilot districts (one per region) to prepare them for planning and implementing climate change mitigation and adaptation. The programme also involves setting up a national platform to facilitate the shift from natural disaster risk recovery to prevention.

Mr. Agyemang-Bonsu offered the following lessons for the project:

- A sector-specific focus is valuable in generating in-depth understanding. However, the insights that are gained from such focused activities should not be implemented in an isolated fashion.

- The team of experts that carried out the sector-specific research included policy-makers.

- In terms of having an impact, it is important to select those local authorities as collaborators, who are in a position to see impact. The Accra Metropolitan Assembly, for instance, has many on-going projects; it might not even have time to discuss issues.

- The project partners need to coordinate the experts, and give them time to sit together (Mr. Agyemang-Bonsu recommended arranging an out-of-town retreat). This is one way of facilitating buy-in from stakeholders and improving the robustness of research.

- The level of financing for adaptation has to be considered, should it be full cost or some other model? One suggestion was that the additional cost for design changes for adaptation could be borne by the international funding community.

***5. Wrap-up Day 1***

Day 1 ended with a wrap-up of the day's discussions. Participants reflected on whether the type of multi-sectoral impact analysis framework used by the EPA could be used in the project (as a way of integrating water, sanitation, agriculture, socio-economic and other factors).

In contrast to the EPA approach, it was emphasised that the project would have to take a holistic perspective from the start. It would be necessary to think about the rural impacts of any urban adaptation strategies that are proposed (and vice versa)

In terms of having impact, participants emphasised the importance of building on what is already taking place in terms of adaptation strategies.

The discussion also touched upon the resources that are available to the project, and whether this could cover the 'retreat'-like activities suggested by Mr. Agyemang-Bonsu. Participants felt that even if such events could not be arranged, the project would have to think carefully about the types of incentives that it provides for stakeholders to remain engaged.

Participants also considered whether it would be more practicable to focus on a smaller unit of decision-making (such as a municipality within the Greater Accra region). In the end, there was consensus around taking the city as a starting point, and focusing activities as the project proceeds.

***6. Review of the work plan***

Day 2 began with an overview of VENSIM and how this could be applied in the project (***Presentation 5***). An earlier application for Hyderabad was shown, which illustrated what the model looks like and what its properties are. It was stressed that the VENSIM model has a simple and user friendly setup, which allows for its use by local planners and policy makers, or at least provides opportunities for them to "play" with it. The model can be built to acomodate the modeling of scenarios for climate change and urban development indicators, and combined variations of the two. Dr. Semu felt that this type of model (similar to Stella) is an excellent tool to model the water balance in urban areas. Since VENSIM does not have a geographical reference base, the project will probably need to use a separate flood model, GIS based, to look at the issue of flooding. The partners agreed that the scientific group responsible for WP2 should sit together to work out the framework for the use of all the models.

There was also some discussion on the final outputs that this research component of the project could have. Two of the things that participants came up with included a type of framework for cities on how to plan in relation to CC, and a manual that gives guidelines on how the modeling work can be repeated or outscaled.

The remainder of day 2 was devoted to reviewing the detailed activities and budgets in the proposal. Comments were captured into the proposal using track changes. This version will act as a reference point for the design of activities, division of tasks, budgets, etc (please refer to this document). There was consensus that quarterly platform meetings may prove unfeasible; participants felt that half-yearly platform meetings would be more practicable.

Some general suggestions were:

Scope of the project has to be bounded otherwise there will be dilution.

The platform should decide what can be delivered in this phase of project, and identify activities for future engagement.

A big mid-term meeting could help re-adjust the project activities.

**APPENDIX II**

| Project / Description | 1. Climate Change Collective Learning & Observatory Network (CC Long) | 2. Integrating Climate Change Adaptation & Mitigation in Development Planning (ICCAMDP) | 3. Climate Change & Health | 4. Economic Costs of Climate Change Adaptation |
|---|---|---|---|---|
| **a. Key characteristics (including themes, project period, etc.)** | Public understanding of/ engagement in climate change science and design of adaptation strategies in *inter alia* agriculture. Project period: 2006-2009. Contact Dr. Samuel Codjoe (University of Ghana) for further information. | Climate change science-policy dialogue. Thirty-month project that will run between 2009 and 2011. Contact Prof. Chris Gordon (University of Ghana) for further information. | Climate change adaptation, health and urban development. Part of the IDRC & DFID Climate Change Adaptation in Africa programme. Contact Dr. Samuel Codjoe (RIPS) for further information. | Assessment of economic impacts of adaptation in following sectors: water energy infrastructure, health and agriculture. Contact Saadia Bobtoya (World Bank) for further information. |
| **b. Rationale (what gap does it fill)** | Limited awareness of climate change among vulnerable communities. Lack of integration of climate change science and communities' expertise on adaptation. Combine bodies of knowledge through social learning. | Low-levels of climate change awareness among policy-makers. Lack of understanding of climate change science. Lack of site-specific and sector-specific information. Poor coordination of information. Bridging the research-policy divide in climate change | Addresses 'the urban gap' in climate change research and adaptation. Lack of adaptation strategies to tackle health-related vulnerabilities. Few (urban, vulnerable) community-led activities to devise adaptation strategies. | Few available estimates of climate change and adaptation costs for developing countries. These are necessary in order for developing countries to implement their national climate change strategies, and negotiate international assistance. |
| **c. Project type (research-development)** | Research (knowledge generation) & development (practical interventions at community-level) | 'Research into policy use' | Research (knowledge generation) & development (practical interventions at community-level) | Research (knowledge generation) linked to international and national development policies and resource allocations. |
| **d. Activities (modelling, scenario development, socio-economic research, advocacy, CB)** | Canvasses local perception and experiences of climate changes and extremes; determines local adaptive capacity; adjusts climate and crop models to communities' needs for more effective adaptation. Tools include participatory risk mapping; mental models (conceptual maps); historical matrices of climatic events; household vulnerability and capacity surveys. | National science-policy dialogues; capacity-building of scientists and other experts on use and interpretation of modelling outputs for regional scenarios (develop envelopes of potential change that account for uncertainty); regional climate change knowledge assessment; knowledge-sharing strategies. | Participatory needs assessments; household surveys. | Micro- and macroeconomic modelling; engagement with local stakeholders (mainly governments). |

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| **e. Geographical focus (e.g. national, local)** | Communities in three districts across Ghana (Afram Plains; Wenchi; Bawku East) | National. Part of wider programme that is also being implemented elsewhere in sub-Saharan Africa and South Asia. | Two vulnerable communities (in terms of socio-economic conditions and susceptibility to climate events) in Accra (Ga Mashie and Agbogbloshie) | Country case studies in Ghana, Bangladesh, Ethiopia, Bolivia, Mozambique, Samoa, Vietnam. |
| **f. Key outputs/ findings** | Refinement of climate data and predictions for use in EPIC modelling; assessment of farmers adaptation strategies; soil & biomass carbon measurements in specific land use and management practices; crop growth and field run-off studies for maize; development of site-specific physiological crop models. Advocacy and capacity-building | (Project has just begun) | (Project has just begun) | Outputs of Ghana case study expected in March 2010 |
| **g. Intended impact (policy, programme, practice)** | Improved community-based adaptation practices; new infrastructures for agriculture, transportation, etc. | Increased awareness of climate change risks, and options for mitigation and adaptation, within policy-making communities; more effective communication at climate science-policy interface; improved capacity among experts to conduct climate change assessments; papers for inclusion into 5$^{th}$ IPCC Assessment Report; improved participation in IPCC, UNFCCC, etc. dialogues and negotiations. | Direct community interventions in terms of behavioural and attitudinal change, and improved/ new physical infrastructures that will allow for health-based adaptation to climate change | National government in general, and sector Ministries, Departments and Agencies in particular, will be able to factor in the costs of climate change adaptation into short-, medium- and long-term development plans. International development partners will be able to earmark resources for climate change adaptation. |
| **h. Key stakeholders (including vulnerable groups)** | Small-scale subsistence land users (farmers, herders, fishermen); agricultural extension agents; regional and national researchers; | Policy communities; knowledge institutes (and other societal decision-making bodies) | Urban vulnerable groups in Ga Mashie and Agbogbloshie; urban decision-makers; health researchers; health care practitioners | International development partners; national governments. |

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|---|---|---|---|---|
| | policy-makers. | | | |
| **i. Stakeholder platform?** | Not explicit; continual stakeholder engagement to facilitate social learning. | Three science-policy dialogues to be held in Ghana during year 1 of project. | Eight-member steering committee; targeted meetings with other stakeholder groups. | Not explicit; series of national-level workshops with policy-makers and local experts. |
| **j. Facilitating organisation in Ghana/ Funders** | University of Ghana & EPA/ USAID & Penn State | University of Ghana (and WMO, UNEP, IPCC, START, University of Dar es Salaam, Bangladesh Centre for Advanced Studies)/ European Commission & UNEP | University of Ghana (Regional Institute for Population Studies)/ IDRC & DFID (CCAA programme) | Ministry of Environment, Science & Technology/ World Bank (UK, NL and Swiss) |

| **Project / Description** | **5. Assessing the Security Implications of Climate Change for West Africa** | **6. Climate Change Adaptation through Integrated Water Resources Management** | **7. Ghana Climate Change Impacts, Vulnerability and Adaptation Assessments** | **8. Building Capacity to Accelerate Climate Innovation & Entrepreneurship** |
|---|---|---|---|---|
| **a. Key characteristics (including themes – e.g. urbanisation, agriculture)** | Political and economic consequences of climate change impacts in agriculture & food security; productive systems and exports; water; natural disasters and risk management; migration; and health under three, IPCC-based scenarios. | Impacts of climate change on water resources, and various water-use sectors (agriculture, livestock, health, afforestation). Eighteen-month pilot project. Contact Dr. Benjamin Delali Dovie (WRC) for further information. | Climate change impacts, vulnerabilities and adaptation strategies in seven socio-economic areas: fisheries; human health; land management; poverty; tuber and root crop production; women's livelihoods; cocoa production. The results were published in 2008. This is a follow-up to three earlier studies, which focused on water resources, agriculture and coastal zones. Contact William Agyemang-Bonsu (EPA) for further information. | Assessment of national climate innovation system; strategy-development for enhancing climate entrepreneurship. Contact Gordon Akan-Yamga (STEPRI) for further information. |
| **b. Rationale (what gap does it fill)** | Examines climate change vulnerabilities as a 'security challenge' (affecting political and economic stability) as opposed to a 'development challenge'. | Communities vulnerable to climatic change have already developed adaptation strategies to cope with changes in their environments. This project seeks to strengthen | Contributes Ghana-specific, sector-based information for the preparation, formulation and evaluation of national climate change policies. | Set against the backdrop of UNFCCC's Ghana Technology Needs Assessment (and others exercises that have ), the project aims to identify and promote mechanisms |

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| | | indigenous capacity with science-based input, and devise bottom-up adaptation strategies for water resources management and water-based livelihoods. | | of technology transfer and climate entrepreneurship. |
| **c. Project type (research/ development)** | Research | Research (knowledge generation) & development (practical interventions at the community-level). | Research (knowledge generation); feeding outputs into climate change policy formulation. | Research (knowledge generation); link outputs into national innovation policy. |
| **d. Activities (modelling, scenario development, socio-economic research, advocacy, CB)** | Scenario planning workshops (based on IPCC projections); individual meetings and consultations. Local experts identified vulnerabilities and 'hot spots' and explored how national adaptation policies can address anticipated problems. | Community-led needs assessment; modelling (incl. water availability for agriculture, livestock keeping, etc.); physical assessment of flood control and storage facilities. | Scenario development using GCM outputs; downscaling using MAGICC/ SCENGEN. Sector-specific studies utilised different methodologies. | 'SWOT' analysis of national climate innovation system; multi-stakeholder dialogue; advocacy. |
| **e. Geographical focus (e.g. national, local)** | Regional (Ghana & Burkina Faso) | Upper East Region; Upper West Region; Northern Region | National | Sub-Saharan Africa (Ghana, Kenya, Tanzania) |
| **f. Key outputs/ findings** | Existing development challenges due to economic, population and environmental stresses.<br>West Africa has one of the most variable climates on the planet - variability likely to become more extreme.<br>Future climate change will compound current development challenges.<br>There are (anecdotal; not empirical) links between climate change and security in the region.<br>Climate change could exacerbate the following latent tensions in Ghana: the north-south divide, water for | (Project has just begun) | Fisheries: climatic change will affect *inter alia* population growth rates of species.<br>Health: seasonal decline in malaria (due to projected effectiveness of intervention programmes); increase incidence of measles; increase in meningitis; increase in diarrhoeal diseases; risk of guinea worm infection.<br>Land management: land degradation (aridity) accelerates with climate variability (based on studies in UER).<br>Poverty: districts within ecological | Lack of clear policy and legislation on climate entrepreneurship (including IPRs); lack of coordination between components of innovation system (quadruple helix); climate entrepreneurship in Ghana takes place mainly in the energy and waste sectors; quadruple helix constrained by resource limitations |

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| | energy in the south versus water for agriculture in the north, regional water resources management, instability at Ghanaian borders, and decline of cocoa production.<br>Only under extreme scenarios is climate change a deterministic factor in economic or political instability. | | zones that have high temperatures and low levels of rainfall tend to have high incidences of poverty; lack of data and the complex relationship between climate change and poverty hinders integrating climate change into national development plans; Ghanaian economy depends on climate-sensitive sectors; water levels in hydropower dams may decrease, thereby hindering industrial development; climate change is likely to exert a health burden on the population; existing development frameworks (MDGs, NEPAD instruments; GPRS's) have not acknowledged climate change sufficiently; local vulnerabilities and adaptive capacities have been largely ignored.<br>Tuber and root crop production: cassava and cocoyam yields are expected to decline.<br>Women's livelihoods: due to their reliance on natural resource-based livelihood strategies, women are particularly susceptible to climate changes.<br>Cocoa production is highly sensitive to climatic changes; such changes also alter pathogen/ pest populations and geographical distributions. | |
| **g. Intended impact (policy, programme, practice)** | | Direct interventions at community-level to reduce water-based livelihood vulnerabilities; | Integration of findings from sector-specific studies into national-, local- and sector-level plans. | Strengthening innovation policy; advocating for climate innovation incentives. |

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| | | strategy document for irrigation and water conservation with respect to climate change; strengthening flood control and information services (incl. early warning systems) | | |
| **h. Key stakeholders (including vulnerable groups)** | | Communities in three northern regions in Ghana; community-based organisations; district-level authorities. | Policy-makers, academia/ researchers, general public | 'Quadruple helix' – industry, knowledge institutions, government, civil society. |
| **i. Stakeholder platform?** | Engagement through scenario planning workshops | Not explicit; continual stakeholder engagement through other means. | Not explicit; some sector-based studies used qualitative, participatory methods. | Not explicit; organises regular workshops/ seminars with stakeholders. |
| **j. Facilitating organisation in Ghana/ funders** | ???/ DANIDA & IISD | Water Resources Commission/ DANIDA | EPA/ Netherlands Climate Assistance Programme(NCAP) | STEPRI/ WWF, InnoGate Aps (Denmark), SIDA, University of Dar es Salaam, Tanzania Chamber of Commerce |

**APPENDIX III**

# URAdapt Accra Platform Inception Meeting

## *Wednesday, February 24th, 2010*

## *African Regent Hotel, Accra*

### *1. Background*

Ahead of the inception meeting of the URAdapt Accra Platform, the project team sought to identify stakeholder organisations (and, where possible, specific departments and desks within those organisations) that reflect the core features of the project. The project team was guided by the following rationales for selecting stakeholders:

- To represent the continuity between rural and urban water use and management (rural water supply, agriculture, irrigation)
- To account for the climate change angle in the project (climate change anchor, adaptation, risk mitigation )
- To account for social inclusion (socio-economic factors that may compound vulnerability to climate change; convey voices of women, urban slum dwellers, communities living in flood-prone areas)
- To account for local-level water governance (urban and rural local authorities)
- To reflect the basin/ national water resources management angle
- To include urban water and wastewater management (MDAs)
- To account for any health-related issues (including flooding and water contamination from poor sanitation)

This exercise yielded the following list of potential stakeholders, all of whom were invited to the meeting (the stakeholder category is given in brackets):

1. Ministry of Food and Agriculture (rural-urban links)
2. Representative from flood-prone communities (social vulnerability)
3. People's Dialogue (represents urban slum dwellers; social vulnerability)
4. Institute for Local Government Studies (local governance)
5. Representative of the Institute for Statistical Social and Economic Research (social inclusion)
6. Centre for Social Policy Studies/ University of Ghana (social inclusion)
7. National Disaster Management Organisation (climate change mitigation and adaptation)
8. Water Resources Commission (water resources management)
9. Water Directorate/ Ministry of Water Resources, Works and Housing (water resources management)

10. Community Water and Sanitation Agency (rural-urban links)
11. Environmental Protection Agency (climate change mitigation and adaptation)
12. Ghana Water Company Ltd./ Aqua Vitens Rand Ltd. (urban water supply and wastewater)
13. Hydrological Services Department (urban water supply and wastewater)
14. Planning and Coordinating Unit; Accra Metropolitan Assembly (local governance)
15. Urban Roads Department; Accra Metropolitan Assembly (local governance)
16. Sanitation Department; Accra Metropolitan Assembly (local governance)
17. Ghana Irrigation Development Authority (rural-urban links)
18. Ghana Health Service (health)

In addition to these stakeholders, who are envisioned to serve as platform members, resources persons from projects related to URAdapt were also invited to share their experiences.

The aims of the inception meeting were to introduce the project to stakeholders; to provide background information on the possible impacts of climate change on urban water resources; to present the proposed modelling framework that URAdapt will use to explore these impacts; and to showcase the utility of an urban water model in city-level planning. In addition, the meeting provided an opportunity for the platform to deliberate 'outcome mapping' as a participatory monitoring and evaluation tool that the platform itself can use to assess progress throughout the course of the project.

The agenda and the list of participants are provided at the end of the report. A total of 33 participants attended the inception meeting.

***2. Opening session***

The meeting began with short welcoming remarks by the project leader, Dr. Liqa Raschid-Sally. She introduced the chair of the first session, Dr. Opoku- Ankomah, who is the director of the Water Research Institute (WRI). WRI, along with Addis Ababa University, is a partner on the project. Dr. Opoku-Ankomah accepted chairmanship of the session and expressed his backing for the project, noting that it responds to a research gap that exists in the country. He then introduced Dr. Boubacar Barry, the head of the IWMI West Africa Office, and called upon Dr. Barry to give a formal word of welcome.

***2.a. Welcome***

Dr. Barry remarked that URAdapt is embarking upon a critical task, given the susceptibility of water resources to the effects of climate change. The sensitivity is heightened by rapid urbanisation, which places already scarce water resources under greater pressure. Dr. Barry applauded the project approach, which recognises the mutual dependencies between upstream and downstream areas, and the relationships between multiple water-use sectors. Moreover, URAdapt draws on the expertise of decision-makers, researchers and representatives of vulnerable communities to collectively devise adaptation strategies that are comprehensive yet practicable.

Dr. Barry noted that the involvement of vulnerable communities is particularly important, since the potentially devastating impacts of climate change will not be felt equally by all. He called upon the

URAdapt platform to ensure that the voices of vulnerable groups are heard in the development of adaptation responses.

He also commented on the opportune timing of the project. Accra has recently been named a 'Millennium City'. This places Accra in a league with other cities on the continent that are strengthening their efforts to attain the Millennium Development Goals. These include improving access to safe drinking water and basic sanitation, as well as bettering the living conditions of slum dwellers. The URAdapt project supports such ends, with its focus on the impacts of climate change on urban water and water-allied sectors.

In closing, Dr. Barry expressed his hope that, during the lifetime of this project, the platform will formulate adaptation strategies that are evidence-based and responsive to the variability and uncertainty that climate change is expected to bring in its wake. He also appealed to platform members to forge new and strengthen existing relationships within and across their respective organisations to ensure the uptake and sustainability of these strategies.

Dr. Opoku-Ankomah thanked Dr. Barry for his welcome. He introduced Mr. Rudolph Kuuzegh, the secretary to the National Climate Change Committee (NCCC) and a director at the Ministry of Environment, Science and Technology. Mr. Kuuzegh had accepted an invitation to deliver opening remarks at the inception meeting.

***2.b. Opening remarks***

Mr. Kuuzegh expressed his appreciation, on behalf of the entire NCCC, to the project for addressing the climate change impacts of the urban water sector. He highlighted the threats that climate change poses to various sectors – agriculture, industry and infrastructure among them – in countries such as Ghana and Ethiopia, and stressed that a lack of action could prove costly. As an example, he mentioned the havoc that climate change induced flooding and other extreme weather events could cause on already vulnerable urban settlements and industrial infrastructure.

Mr. Kuuzegh stated that the NCCC had recently been reconstituted to address climate change in Ghana. The Committee brings together experts from different sectors to advise the government on appropriate climate change mitigation and adaptation measures. The NCCC channels its recommendations through the Ministry of Environment, Science and Technology and seeks to ensure synergies between the various institutions that work on climate change-related matters. Mr. Kuuzegh noted that the URAdapt will undoubtedly be assisting the NCCC in its mandate.

Mr. Kuuzegh also mentioned the National Climate Change Policy, which the NCCC is currently developing. He stated that "we [the NCCC] pledge total support for the project and hope that some lessons that would be learnt from it will be used as entry points in the development of the National Climate Change Policy". In closing, he vouched the Committee's commitment to collaborate with URAdapt to find sustainable responses to the challenges posed by climate change on the urban water sector.

Following Mr. Kuuzegh's remarks, the chair called upon the participants to briefly introduce themselves and for Dr. Liqa Raschid-Sally, the URAdapt project leader, to describe the project to the participants in more detail.

### *2.c. Introduction to URAdapt*

Dr. Raschid-Sally began by setting the context for the project. She noted that the population of Africa was rapidly moving towards the continent's urban centres, which in turn would have to accommodate increased demands on their water and allied sectors. Failure to do so would lead to adverse health, livelihood and other impacts particularly on vulnerable communities.

Dr. Raschid-Sally noted the several existing structural constraints that increase urban vulnerabilities to climate change in many parts of Africa. These include high incidence, and pockets, of poverty; rapid urbanisation and poor planning; weak processes of governance and systems of accountability; and a lack of effective translation of policies to concrete interventions. These have resulted in an inability to meet urban water and wastewater management needs; a situation that is likely to be exacerbated by climate change. The two project locations exemplify the circumstances faced by cities across the continent. Importantly, climate change is not yet a priority on the agendas of authorities in either.

Dr. Raschid-Sally explained in some detail the project concept, in particular the interactions between the two work packages – the stakeholder platform and empirical research activities. She emphasised that the empirical research will be guided by input from the URAdapt platform. There will be regular platform meetings, during which stakeholders can collectively decide upon the assumptions that will form the basis of the modelling activities; provide data for modellers; develop, and discuss the practicability of, adaptation strategies for the scenarios that the modellers develop; and identify further areas of research. In addition, there will be mid-term and end-of-project encounters with policy-makers in order to further refine and disseminate URAdapt outputs. These are in addition to the other awareness-raising activities that the project will undertake during its lifetime.

URAdapt builds on the notion of 'integrated urban water resources management' (IUWM). This calls for drawing upon cross-disciplinary expertise, as imbued in the platform, and recognising the interconnections between upstream and downstream areas ('urban-rural interface') and multiple water use sectors ('nexus thinking). These facets, in turn, are reflected in the project principles: consultation, urban-rural integration, social inclusion, knowledge generation and sharing, capacity-building and participatory monitoring and evaluation. Collectively, they serve to orientate the project towards its goal of devising adaptation strategies that are adapted to local needs and constraints.

The selection of stakeholders is explained in section 1 of the report. Dr. Raschid-Sally emphasised that the list of platform members was non-exhaustive, and subject to change based on input from the platform and the evolution of the project itself. She noted the difficulty of enrolling particularly vulnerable communities, who fall into policy and institutional vacuums in terms of access to water and its allied services. The selection of appropriate stakeholders requires a solid understanding of the key players, which in turn is challenging in a fragmented institutional context. Dr. Raschid-Sally identified the risk of 'platform fatigue' and the efforts that must be made to ensure the commitment of stakeholders. In addition, the project must identify the 'right participatory tools' and use them in the 'right way', in order to encourage stakeholder contributions.

Turning to the types of scenario modelling that URAdapt proposes to carry out, Dr. Raschid-Sally explained that the project will make use of climate change scenarios (which will help determine

future water supply), urban growth scenarios (which will help determine future water demand) and the resulting investment scenarios. Collectively, these will yield information on potential impacts and assist in the development of possible response strategies. These strategies will, in turn, need to be prioritised by the platform.

Dr. Raschid-Sally also clarified her understanding of 'strategies', noting that they are not time-bound comprehensive planning documents, but rather long-term, participatory, generalist statements of intent that guide cities' development and management. They respond to changes and uncertainties in cities' environments and are linked to monitoring and control systems. Dr. Raschid-Sally brought her presentation to a close with an outline of a strategy development process, which could assist URAdapt in its activities.

Dr. Opoku-Ankomah thanked Dr. Raschid-Sally for her talk, and prompted the participants to pose questions and make comments. Ms. Engmann noted that Dr. Raschid-Sally had identified a shift to groundwater as a strategy to deal with future water shortages. Ms. Engmann drew the participants' attention to the fact that in the vicinity of Accra, private boreholes do exist, but they often offer low yields. As such, groundwater is unlikely to be a viable option, at least on a large scale. Dr. Raschid-Sally replied that she mentioned groundwater merely as an example, and welcomed Ms. Engmann's input as precisely the kind of feedback that the platform was expected to provide.

Mr. Sarfoh queried whether the platform would engage in advocacy efforts. He also noted that, at present, the project seems to encourage dialogue at a national level. There should be more emphasis on promoting dialogue at the local level, which would also facilitate the transfer of project lessons to other urban areas. Finally, Mr. Sarfoh asked about the continuity of the dialogue after the completion of the project.

Dr. Raschid-Sally replied that advocacy was not an activity that had been explicitly built into the project. However, the platform could certainly decide to move into that direction. She welcomed the comment regarding 'decentralising' the dialogue to a more local level, and noted that platform membership can be expanded to include representatives from other districts, municipalities and metropolitan areas. She also assured the participants that URAdapat intended to work very closely with other platforms and projects –some of which were represented at the meeting – in order to disseminate and sustain its messages. Moreover, the project envisions anchoring the knowledge that it generates into the stakeholder organisations themselves.

Mr. Nutsukpo asked for clarification on the term 'urban-rural interface', in particular the way in which this relates to the Accra metropolitan region and the reason for choosing Accra as opposed to another city in Ghana. Dr. Raschid-Sally noted that Accra is among the most rapidly urbanising centres in Ghana. It is supplied with water by outlying rural areas. If water becomes increasingly scarce, Accra will have to find response strategies that account for water use by not only rural areas, but also other water uses, including irrigation, water supply and power generation.

Dr. Clarke requested further information on the expected roles of stakeholders. Dr. Raschid-Sally explained that the platform was expected to ground the project to actual circumstances in Accra by inputting into the assumptions that go into modelling and, on the basis of the projected impacts of climate change on urban water management, devising appropriate response strategies. Dr. Raschid-

Sally emphasised that the project saw the platform as a critical group of experts, who could provide the 'hard thinking' that was required to develop sound strategies.

Dr. Codjoe commended the project for its interdisciplinary approach, but asked how the project would ensure in practice the integration of natural and social sciences. He also noted that the project had to contend with the increasing 'concretisation' of Accra, which was diminishing green areas that could filter rainfall. Dr. Codjoe also asked how the Accra platform would link to its counterpart in Addis Ababa. Dr. Raschid-Sally acknowledged the challenges of interdisciplinary research, and remarked that the project was keenly aware of the need to complement its modelling activities with socio-economic research. The meeting itself included representatives of such fields. The project team had experience in interdisciplinary research, and would bring this to bear on merging not just natural and social sciences, but other systems of knowledge as well. Dr. Raschid-Sally expressed her regret that the project resources did not allow for more frequent cross-site visits, but mentioned that the project had established regular means of communication between the teams at the two cities, and that they would be brought together for workshops that would allow them to share experiences.

Dr. Dovie noted that he wished to see representatives from industry and the energy sector, given their water-use profiles. He also alerted the platform to the fact that in Ghana at present, water is rarely considered a sector in its own right at climate change discussions. There is no separate budget for water sector activities, and it is not represented on high-level delegations. Rather, it is seen as cross-cutting. While this has the advantage of mainstreaming water-related considerations across sectors, it also implies a lack of water expertise within them. URAdapt will have to contend with this fact in its attempts to get its messages across. Dr. Dovie also expressed his concern that the platform may be homogenising water use, and overlooking the particularities between commercial and non-commercial use. A further breakdown of stakeholder categories might allow the project to approach each stakeholder on the basis of their respective 'water profiles'.

Dr. Amoah also queried whether the 'science group' of the project is a part of the platform. Integration between the two is central to the project's success.

***3. Climate change and hydrological modelling for city planning***

The chair of the session on climate change and hydrological modelling was Mr. Wellens-Mensah, the director of the Hydrological Services Department. Following Dr. Raschid-Sally introductions, Mr. Wellens-Mensah noted his pleasure at being to chair this particular session, given his own interest in the topic. He then introduced Dr. Barnabas Amisigo to give his presentation on climate change and hydrological modelling.

***3.a. Climate change and hydrological modelling***

Dr. Amisigo began by explaining why modelling takes such a prominent role in the project, and listed the main applications of modelling. He particularly stressed the importance of input from the platform members. Dr. Amisigo presented the main objectives of two-tiered hydrological and urban water balance modelling, and the expected outputs of the research activities. He continued by explaining the structure and components of the modelling framework, and the properties of the two model elements. He explained how the components relate to each other. Next, a list of model

software candidates was presented. In the last part of his presentation, Dr. Barnabas talked about some of the terminologies that are often used in the climate change scene. He explained the project team's interpretation of the climate change, downscaling and climate change mitigation and - adaptation.

Mr. Wellens-Mensah thanked Dr. Amisigo for his presentation, and invited questions and comments from participants. Mr. Forkuor asked whether any downscaling of climatic data has already taken place in Ghana, and encouraged its use if available. Dr. Codjoe, in turn, asked about the types of population data that the modelling activities would build upon. Would this be at the community-level or the city-level? Both Dr. Codjoe and Mr. Braimah noted that the Accra Metropolitan Area may be rather limited in scope, and exclude areas with potentially greater water and wastewater challenges.

Participants also drew attention to the need to include the Urban Roads Department of the Accra local authority into the platform, given the project's investigations into the likelihood of floods and droughts and the Departments responsibility for drainage. The project team responded that the Department had been invited, and although no representative was present, it would attempt to disseminate the outcomes of the meeting to the department.

The chair added to this by stating that the Urban Roads Department deals with smaller scale, primary and secondary drains, while tertiary drains are the responsibility of the Hydrological Services Department.

Participants also highlighted the importance of accounting for the floating population that commutes to the city on a daily basis, but that does not reside in Accra permanently. It, nevertheless, makes a significant impact to the urban water balance. There were also comments calling for an expansion beyond what seemed like a focus on domestic water use to industrial water use as well.

Mr. Antwi queried what the likely scenario would be without the influence of climate change, while other participants asked whether the project would look at the impacts of sea-level rise.

Dr. Delali noted a proposed focus on the Densu Basin, and asked for the justification of this choice. He also queried how the project would establish the difference between seasonal variability and climate change. The chair also encouraged the project to take groundwater into greater account. Private households are drilling their own boreholes and, in some cases, mechanising water abstraction and selling the water. Dr. Delali also asserted that as yet there has been no formal, statistical verification of the fact that climate change is occurring in Ghana. However, the impacts of climate change are being felt.

Mr. Wellens-Mensah thanked the participants for the lively debate and invited Mr. Van Rooijen to give his presentation

***3.b. The VENSIM water balance model for city-level planning***

Mr. Van Rooijen opened his presentation by introducing himself and thanking the chairman and previous speakers. Mr. Van Rooijen believed that in his presentation, he could further clarify some of the issues raised earlier by the audience. He began by indicating the contribution of empirical

research and his urban water demand management model to the project. He also explained the key objectives of modelling urban water demand management, and outlined key features of urban water systems. Mr. Van Rooijen explained how water enters the urban area, how it is being used and possibly reused, and how it subsequently leaves the urban area. He also provided an aerial photograph of Accra, which depicted the two main sources of water to the city. He related this to the overall urban water balance, explaining the major flows and the ways in which climate change might alter them. Mr. Van Rooijen referred to the two hypothetical scenarios provided by Dr. Raschid-Sally and the contribution of his model in providing data and knowledge on these scenarios and impacts. He also projected a sketch of the VENSIM urban water balance model set up for Accra, and explained its major components and general properties. He showed a few of the model layouts, such as input data sheet and output charts. Mr. Van Rooijen also touched upon the parameters and equations that ran the model. In his closing, he listed the outputs of the water balance model and the activities that will be done as part of this research.

Participants asked about the physical and economic losses currently experienced by GWCL. Mr. Siawor explained that the economic losses at the moment amount to 50%. These were expected to be reduced to 25% under the contract with AVRL. Mr. Delali, in turn, noted that the presentation touched upon wastewater re-use in agriculture. In addition to taking this into account in water balance calculations, Mr. Delali also asked how the research would incorporate the use of domestic water in household gardens.

Mr. Forkuor, in turn, asked whether the VENSIM model is able to depict spatial variation. This is particularly important in analysing local water shortages in the cities under study. Dr. Codjoe expressed concern about the reliability of the population data that would be used for the empirical research activities. The population and housing census data may be outdated, although a new census is expected in the near future. In the interim, Dr. Codjoe encouraged the project to consider alternative data sources.

Turning to the issue of per capita water consumption, the chair noted that this is a range, with maximum and a minimum. Participants also raised the issue of feedback loops in the urban water balance model. They noted that such loops would allow the project to account for the reuse of wastewater; a practice that could actually lead to a reduction in freshwater demand. The project team members responded by assuring the platform that the research would consider reuse options, and that while there is no automatic feedback loop in the model, this can be built in.

Some participants also queried the specific definitions of wastewater. Dr. Raschid-Sally explained that there are different types of wastewater, depending upon their qualities. Participants also noted that some industries are reusing wastewater in response to regulations that have been set by the EPA. Mr. Agyemang-Bonsu cited this as evidence of the need to not only run hydrological and other types of models during the project, but also to investigate policies and other measures that may encourage or discourage particular water use practices.

***4. Participatory monitoring and evaluation***

The afternoon was dedicated to a group exercise in participatory monitoring and evaluation. The exercise was led by Dr. Philip Amoah, and it focused on outcome mapping as a tool through which the platform could assess its progress. Dr. Amoah explained the importance of routine project

monitoring: this provides continuous oversight and offers lessons for the project to readjust its course.

Monitoring usually takes place with respect to project inputs, activities and outputs. Project stakeholders, Dr. Amoah explained, have a certain degree of control over these factors and can to a large extent anticipate immediate results. This is less so for outcomes – and impacts, in particular. Their materialisation depends on influences that are beyond the control of the project, and are often challenging to monitor.

'Outcome mapping' is one means of doing so. Dr. Amoah explained that the methodology involves several steps, of which the 'intentional design' was most pertinent for the first gathering of a platform. The project team had prepared in advance a draft intentional design, which consisted of a vision (an ambitious goal towards which the project will contribute), a mission (the set of activities through which the project will seek to do so), boundary partners (individuals and organisations with whom the project interacts and anticipates opportunities for influence),a series of outcome challenges (what the project will achieve through its mission) as well as progress markers (that will allow the project stakeholders to assess themselves and the performance of the project). The intention was for the participants to fill in progress markers during the inception meeting by way of establishing a baseline scenario against which to monitor progress.

Having explained the purpose of the individual components of the intentional design, Dr. Amoah asked the participants to read through the document and comment on it section-by-section. Mr. Nutsukpo queried what the difference was between a 'stakeholders' and 'boundary partners', and 'progress markers' and 'indicators'. Dr. Amoah responded that there are several different frameworks for monitoring progress, each of which makes use of slightly different terminology.

The vision and the mission prompted a lively debate. There was a sense among the participants that the sections in their current format were cumbersome and too long. There was little association between the individual statements, and vision was considered to include problem statements – contrary to the conventions for formulating visions. Their expectation was of a succinct, inspirational vision supported by a slightly elaborated mission. Dr. Amoah and other project team members explained that the use of the terms 'vision' and 'mission' in outcome mapping differed from their application in strategic management. In outcome mapping, the terms were employed to inspire more elaborate descriptions of how a project foresees the futures and the means through which it seeks to strive towards that future. Participants proposed that a small team of platform members comes together to rework the vision and mission ahead of the subsequent platform meeting.

As to the boundary partners, the project team was alerted to the fact that Ghana has a Ministry of Food and Agriculture, not Ministry of Agriculture. Dr. Dovie recommended representation from the Association of Ghana Industries, since industry is an important water consumer and has the resources to put in place corrective mechanisms to redress vulnerabilities and inefficiencies in its water use infrastructure. Dr. Elaine Tweneboah asked how flood-prone communities would be represented on the platform. Mr. Solomon Tetteh responded that he works as a community facilitator on a climate change and health project in flood-prone areas in Accra, and is able to convey the concerns of an at-risk community to the platform. Mr. Nutsukpo questioned the choice of the Institute for Local Government Studies (ILGS), and not the Local Government Service, for the

platform. Dr. Raschid-Sally responded that at this stage, the project required critical and analytical thinking on local governance issues. Mr. Braimah added that ILGS was beginning to increasingly work on urban governance issues, making it well-positioned to contribute towards platform discussions and to convey platform findings to local government officials through its capacity-building and advocacy activities. Mr. Sarfoh added that by virtue of its mandate, the ILGS had direct access to local government authorities.

Mr. Nutsukpo also queried whether it was necessary to have both the Hydrological Services Department and the Water Directorate represented on the platform, given that they operate under the same Ministry. Dr. Dovie noted that his institute is also under the same Ministry, yet has a distinct mandate compared to the other two. Mr. Gyasi-Duku and Ms.Engmann supported that statement.

Participants also debated the involvement of the AMA, asking whether this unduly limited the scope of the project. Perhaps it would be better to enrol the Ministry of Local Government and Rural Development to provide a broader perspective on governance across urban and outlying areas. Although the project team had attempted to categorise the stakeholders, participants called for clarification on this front. One suggestion was to classify stakeholders according to interests.

Another issue that was raised was the involvement of civil society organisations representing the water sector. This led to a discussion on the most appropriate ones to invite, with some participants noting that even the umbrella organisation does not speak for all organisations.

Project team members took note of these comments, and Dr. Raschid-Sally reminded the platform that its composition should clearly reflect the project goal and urged the platform members to remain vigilant against a 'dilution' of purpose. Ms. Engmann expressed her view that the current membership of the platform conveyed well the water resources angle of the project, and that the project should proceed with this set of stakeholders.

Given the discussion that developed around the vision and the mission, the project team suggested postponing filling in the progress markers until the next meeting. In the interim, the team, with the help of platform members, could revise the intentional design to better reflect the sentiments of the platform.

The project team was intent on obtaining some form of baseline from the platform at its inception. As such, the team had prepared a 'Knowledge, Attitudes, Skills and Aspirations' (KASA) questionnaire, and asked participants to complete this at the start of the meeting. The KASA questionnaire would also enable the assessment of changes among platform members throughout the course of the project. In addition, the project team had identified four specific questions to which it sought answers:

1. What are the existing urban water related vulnerabilities that climate change is likely to exacerbate?

2. What capacity-building needs do you have that could help in attaining the project goal?

3. What aspects of the project still remain unclear to you?

4. What has been your learning experience from this meeting?

These were projected onto the screen during the wrap-up session, and participants were asked to provide answers to the questions on coloured cards. The answers will allow the project team to prepare for the subsequent platform meeting.

The next URAdapt Accra platform meeting is tentatively planned for May/ June 2010.

***5. Meeting agenda***

| **Wednesday, February 24th, 2010** | |
|---|---|
| 8.30 – 9.00 | Registration of participants |
| 9.00 – 9.05 | Prayer |
| 9.05 – 9.10 | Introduction of chair (Dr. Liqa Raschid-Sally – IWMI) & chair's response (Dr. Yaw Opoku-Ankomah – WRI) |
| 9.10 – 9.15 | Welcome (Dr. Boubacar Barry – IWMI) |
| 9.15 – 9.30 | Opening remarks (Mr. Rudolph Kuuzegh – National Climate Change Committee/ Ministry of Environment, Science & Technology) |
| 9.30 – 10.30 | Presentation & discussion: URAdapt (Dr. Liqa Raschid-Sally – IWMI) |
| **Coffee & tea** | |
| 11.00 – 11.05 | Introduction of chair (Dr. Liqa Raschid-Sally – IWMI) & chair's response (Mr. Julius Wellens-Mensah – Hydrological Services Department) |
| 11.05 – 12.00 | Presentation & discussion: Climate change & hydrological modelling (Dr. Barnabas Amisigo – WRI) |
| 12.00 – 12.55 | Presentation & discussion: VENSIM urban water model for city planning (Mr. Daniel van Rooijen – IWMI) |
| 12.55 – 13.00 | Group photo |
| **Lunch** | |
| 14.00 – 15.30 | Group exercise: Participatory monitoring & evaluation (led by Dr. Philip Amoah – IWMI) |

| Coffee & tea | |
|---|---|
| 16.00 – 17.00 | Discussion: Key points of the day & planning for the future (led by members of the URAdapt team) |

***6. List of participants***

| | NAME | ORGANISATION/ POSITION |
|---|---|---|
| 1. | Edmund Akoto-Danso | IWMI/ Junior research officer |
| 2. | Maija Hirvonen | URAdapt project officer |
| 3. | Charlotte Engmann | CWSA |
| 4. | Edna Nminibapiel | AMA/ Planning & Coordinating Unit |
| 5. | Faridin Zakariah | AMA/ Planning & Coordinating Unit |
| 6. | Solomon Tetteh | Great Thinkers Club/ RIPS project |
| 7. | Rudolph S. Kuuzegh | MEST |
| 8. | K.O. Sarfoh | ILGS |
| 9. | Gerald Forkuor | IWMI |
| 10. | Boubacar Barry | IWMI |
| 11. | Thelma Banney | IWMI |
| 12. | Philip Amoah | IWMI |
| 13. | Barnabas Amisigo | CSIR-WRI |
| 14. | Delali Dovie | WRC |
| 15. | Kwabena Asare Gyasi-Duku | Water Directorate |
| 16. | Enoch Ofosu | Water Directorate |
| 17. | Ruheyatu Rahman | WRC |
| 18. | Elaine Tweneboah | CSPS/ Legon |
| 19. | Daniel van Rooijen | IWMI |

| | | |
|---|---|---|
| 20. | Felix A. Amakye | ILGS |
| 21. | J.K. Antwi | GIDA |
| 22. | Delali Nutsukpo | MOFA/ DCS |
| 23. | Edith Clarke | GHS |
| 24. | Sam N.A. Codjoe | RIPS |
| 25. | Christian Siawor | GWCL |
| 26. | Ansah Moses | AMA/ Planning & Coordinating Unit |
| 27. | Farouk Braimah | People's Dialogue |
| 28. | J. Wellens-Mensah | Hydrological Services Department |
| 29. | Henrietta Osei-Tutu | SWITCH project |
| 30. | Y. Opoku-Ankomah | CSIR/ WRI |
| 31. | William K. Agyemang-Bonsu | EPA |
| 32. | Lorraine Ofori-Abedi | IWMI |
| 33. | Liqa Raschid-Sally | IWMI |

**APPENDIX IV**

***URAdapt** is supported by the Climate Change Adaptation in Africa (CCAA) programme of the International Development Research Centre (IDRC) of Canada and the United Kingdom's Department for International Development (DFID).*

***URAdapt** is a 30-month project that will run between 2009 and 2012.*

***URAdapt** builds on multi-stakeholder participation, and welcomes partnerships with other institutions.*

## Further information


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URAdapt

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

## Project goal

**URAdapt** aims to reduce the vulnerabilities of Accra (Ghana) and Addis Ababa (Ethiopia) to climate change through improved and integrated water management that addresses urban issues within the context of urban-rural connectivity. This project brings together climate change and water management experts, decision-makers and representatives of vulnerable communities to collectively design adaptation strategies for urban water and sanitation services, and food supply.

## Project context

Urban areas in Africa face a series of structural constraints: high population density and growth; pockets of acute poverty; poor planning; and inadequate infrastructure for public services, including water and sanitation. These existing challenges constrain a city's capacity to address water needs, and this situation is expected to be compounded by climate change.

Water is central to the socio-economic life of cities. Possible manifestations of climate change include drier rainy seasons or increasingly recurrent and intensive rainfall events. Such scenarios may adversely impact water availability in upper catchment areas, or cause flooding in urban areas, thereby further straining already flood-prone areas and affecting vulnerable groups.

## Project approach

**URAdapt** recognises the interconnected nature of water systems – across both upstream and downstream areas, as well as multiple water-use sectors. As a result, the project bridges the urban-rural divide and positions itself at the water-sanitation-agriculture nexus.

**URAdapt** will facilitate learning between diverse knowledge communities. A multi-stakeholder platform will not only prioritize the issues that a team of climate change and water management experts will research; the platform will also deliberate research outcomes and their implications for building climate change resilience in urban areas.

## Project facilitators

## APPENDIX V

**URAdapt Project Briefing Note**

### *1. Project context and rationale*

The water resources sector will be among those most affected by changes in climatic conditions. Due to the interconnectivity between upstream and downstream areas, alterations in water quality and quantity in one will have implications for resource availability in the other. Access to basic water supplies is already constrained in much of sub-Saharan Africa, and the situation is expected to be exacerbated by future changes in the climate. Strategies to build climate change resilience in urban water sectors in Africa must adopt a broad perspective; one that recognises the dependence of urban centres on outlying rural areas, particularly where these supply water and food for cities. Simultaneously, resilience strategies must account for the relationships between multiple water-use sectors.

However, analyses that consider the quantitative and qualitative implications of water use and management, across the urban-rural interface and between different water-use applications, are currently lacking. Research on climate change adaptation strategies has to date focused mostly on water resources management for rural agriculture. Simultaneously, urban infrastructure planning has so far ignored climate change and its related consequences for urban per capita water needs and wastewater disposal. The URAdapt project fills these gaps by examining the impacts of climatic and demographic changes on urban water resources management in Accra, Ghana and Addis Ababa, Ethiopia. These sites exemplify problems typical to developing cities in sub-Saharan Africa.

### *2. Project approach*

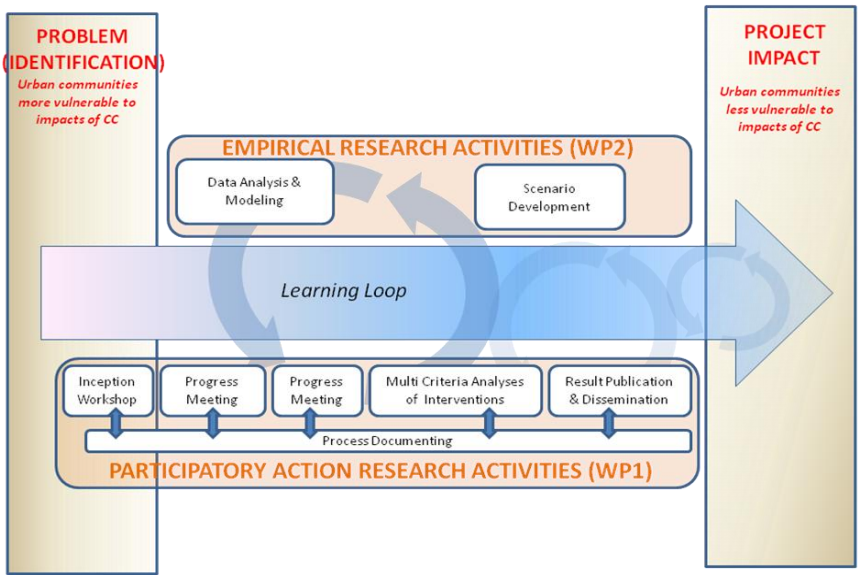
URAdapt has been conceived to address the following question: ***how can we assist African cities in making informed decisions to support urban resilience under conditions of economic water scarcity (insufficient investments), weak institutional arrangements and a lack of integrated planning and management?***

Using a modelling approach, the project will analyse different scenarios of urbanisation, water use and hydrological change related to the climate, in order to project possible water futures for the cities and their relationships to rural areas. On the basis of this information, an interactive multi-stakeholder platform will identify adaptation responses for making cities more resilient to climate change. These will be presented to decision-makers.

Social inclusion is an important aspect of the project. URAdapt will enrol city authorities, water resources and sanitation managers, climate change actors, and affected and vulnerable groups and communities – including women's groups – in the respective cities into the platform.

The project is structured as two interconnected work packages: a multi-stakeholder platform for learning, reflection, feedback, strategy development and evaluation (work package 1); and an analytical research process, which includes various types of studies and modelling (climate change, hydrological, socio-economic) (work package 2).

The analytical research process will assist in identifying solutions for discussion at the platform. These will reflect various combinations of water supply and allocation options, demand management, water-saving sanitation solutions, as well as water reclamation and reuse for agriculture. The resultant adaptation strategies will take into account technical, socio-economic and environmental factors, and the platform will identify institutional roles and responsibilities for the process of adaptation. The diagram below illustrates the interactions between the two work packages:




URAdapt is jointly facilitated by the International Water Management Institute (IWMI), the Water Research Institute (WRI) of the Council for Scientific and Industrial Research (CSIR) as well as the Addis Ababa University. The project builds on ongoing research in integrated urban water management in the two selected cities, and will benefit from similar studies conducted by IWMI in India. In Accra, URAdapt builds on already established platforms at the city-level for integrated urban water management.

### *3. Project objectives and outputs*

The overall objective of URAdapt is ***to reduce the vulnerability of cities to climate change through strategic actions for more integrated and improved urban water and wastewater management in two selected cities of East and West Africa***.

The specific objectives of the project are to:

4. To use scenarios to develop a shared understanding of climate change and its effects on water management at the urban rural interface amongst multiple stakeholders.
5. To use scenarios to generate new knowledge on the upstream and downstream implications of urban water demand; resulting wastewater generation; and associated water investments needs.
6. To prepare, in participation with city stakeholders and for the benefit of the most vulnerable groups, a strategic action plan for adapting to climate through improved water resource management.

The project envisions the following key outputs:

- Hydrological scenarios of future water supply for, and wastewater generation in, cities; and their implications for rural-urban planning and agriculture under climate change and urbanization.
- An interactive multi-stakeholder platform with strengthened capacity to discuss the implications of, and adaptation strategies for, these scenarios.
- Decision support for selecting options, and related investments, for integrated urban development, which accounts for urbanisation, climate change, gender and other vulnerabilities, and the mutual dependencies between rural and urban areas.
- Policy and institutional orientations on how to build climate resilient cities.

At the outset, URAdapt stakeholders will have the opportunity to develop a common vision for the project, within the project context and project objectives. By documenting and monitoring progress, URAdapt will generate knowledge that can be scaled out to other cities. The project will actively seek synergies with other networks and platforms in Africa to share its experiences and disseminate its findings.

### *4. Knowledge sharing plan and roles of stakeholders*

URAdapt will identify stakeholders through stakeholder analyses and consultations with key individuals. Subsequent networking meetings with stakeholders will serve to inform them of the project goal and process; discuss their needs and priorities; and build their interest and secure their commitment. Existing platforms in both cities will be linked to this initiative through various forms of information exchange. Further interactions will be developed where possible.

All relevant stakeholders will be invited to the platform, and their expected roles and contributions will be discussed and agreed upon. The tasks of the platform and its *modus operandi* will be defined during platform meetings. Members of the platform will jointly agree on an

outcome vision and mission, and on the process of participatory monitoring. They will also decide on the scenarios to be developed and discuss the findings of the scenarios, along with their investment and governance implications. Ultimately, the platform will contribute to identifying the necessary adaptation responses for urban resilience in their cities.

In order to improve impact, individual members of the platform will be asked to identify processes and actors within their organisations that can support the achievement of the project goal; explore their current networks and activities; and determine how these can be brought to bear to strengthen URAdapt. For additional impact, policy roundtables will be organised for local and national key decision-makers with a view to ensure integration of project outcomes into overall development plans.

For more information, contact:

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