URAdapt

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

MEETING REPORT

URAdapt Accra Sixth Re-SAP

Meeting.

Tuesday, February 28th, 2012

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Coconut Grove Regency Hotel, Accra

1. Introduction

The meeting opened formally at 9:20am with opening remarks by the Project Leader, Dr. Liqa Raschid-Sally. She expressed her satisfaction to see the project team, platform members and invited partners such as representatives from Ghana Urban Water Company Ltd and Polytank Ghana Ltd. joining the meeting for the first time. She further explained their presence was of great value to the meeting since they would strengthen and verify conclusions of studies and proposed recommendations. There was a quick round of introduction by all participants and Dr. Liqa Raschid-Sally concluded by introducing Mr. K. Wellens-Mensah to chair the meeting.

Mr. Wellens-Mensah called the meeting to order by a prayer from Mr. Solomon Tetteh.

2. Welcome Address and Progress Overview

The welcome address was given by Dr. Barnabas Amisigo. His address highlighted the progress of the project since August 2011. He summarized the main presentations made at the last Re-SAP meeting which included the study on hydro-climatic modeling of the Densu River to determine water availability, the urban water demand-supply modeling, and community adaptation to flood risk, followed by an introduction to strategic agenda development and lessons from the SWITCH project on urban water management. Dr Henri Lo from IDRC had also been present at the meeting. He stated that since the last meeting, a meeting had been held with the Accra Metropolitan Assembly (AMA) to discuss flooding in Accra and the team had had a retreat in Aburi to take stock of what has been done so far and the gaps needed to be addressed. He concluded by saying that this meeting would review more of the remaining ongoing research, and then focus on the way forward particularly on how to package the findings and outputs for uptake by target groups. Finally adaption options at the national level would be discussed through introducing the strategic agenda for Accra. He also reminded the members that the outcome mapping questionnaire would need to be completed.

3. Research Presentations

Quantitative Microbial Risk Assessment

A study on assessment of the combined risk to human health from flooding and poor sanitary conditions in the community of Gbegbeyise in Accra was presented by Philip Amoah. The objective of the study was to assess combined risk to human health from flooding and poor sanitary conditions in the Gbegbeyise community. In a background to the study, he discussed facts on floods and its environmental repercussions, explained why the study had to be conducted and the methodology used. Describing the methodology used, he stated the study employed four main steps

in its methodology namely identification of the hazard and the exposure routes, followed by quantifying the exposed population and health outcomes. Review of literature to assess the parameters to be used in the model, and health "transect" walks for purposes of identifying sampling points for quantifying the risk parameters, were the approaches used. In conclusion he described the remaining activities which would include bacteriological sampling and collecting historical data on flooding and the health status of the community.

At the end of the presentation, the chair, K. Wellens-Mensah gave participants the opportunity to raise any points they wanted clarified by the presenter.

Discussion

To set the ball rolling, K. Wellens-Mensah asked Philip what etiological agents are and why he did not take into consideration the pre and post status of the floods. He answered by saying etiological agents in the study referred to disease causing agents or pathogens such as bacteria and viruses, and instead of identifying the pre and post status of floods in the community, sample collections were done during heavy rains, floods and periods of less rainfall.

Secondly, Delali Nutsukpo from Ministry of Food and Agriculture (MOFA) asked what the expected outcome was, and to what extent the community was involved in the study. Philip stated that quantifying the additional health risk due to flooding is the expected outcome of the study, and that the community was the source of data for the study. He explained further that the community was fully informed of the study and the assembly man of the community and others were involved in the transect walk.

Felix Nyamedor, a representative of Regional Institute of Population Studies (RIPS) inquired how data on disease in the community would be obtained considering a number of factors associated with clinical data from such communities. Philip concurred with Felix that, clinical data is influenced by diverse factors and hence would not be an accurate source of data. He further explained this lapse will be addressed by using the method of Quantitative Microbial Risk Assessment (QMRA), a model approved by the WHO to quantify risk.

Liqa Raschid-Sally remarked that the risk assessment study was not initially part of the study portfolio, but as the project unfolded, it was recognized that health risk associated with urban flooding is critical and that a risk assessment would add value to the project outputs.

Charlotte Engmann of Community Water and Sanitation Agency (CWSA) sought for clarification on exposure and transmission routes. She wanted to know if exposure routes and transmission routes are the same. Philip answered that exposure routes and transmission routes are in effect the same and were defined as modes of pathogen or bacterial transfer.

Concerning the issue of flood, Delali Dovie suggested a retrospective study using disease incidence or burden is the most appropriate and the outcome of the study should inform planning at the district assembly level and aid surveillance and preparedness. Philip Amoah expressed gratitude for the suggestion and briefly explained how generated results could be translated into adaptable forms

for implementation. He described the features of the QMRA simplified, as one which requires feeding information into a model which is then tested for sensitivity to various parameters.

Sean Doolan of DFID asked for the results timeline, whether Philip had an idea of the level of exposure and whether there was involvement of the Accra Metropolitan Assembly (AMA) in the study. Philip answered by saying that comparative sampling will be carried out from flooded and non-flooded areas and also from high and low density areas to assess the level of exposure. Referring to the timeline, he stated that the QMRA study was started in November 2011 and samples would be taken in the next few weeks, to cover all weather conditions.

Delali Nutsukpo stressed that community involvement is definitely important for such a study and that the involvement of the assemblyman alone is not satisfactory. The assemblyman of Gbegbeyise, Emmanuel Boryer who was present asked for the outputs of this study to be shared with the community.

Water Supply and Demand Situation Modeling Using VENSIM
Water Storage Capacity in Urban Accra

Edmund Akoto-Danso's presentation was on modeling the supply-demand situation in Accra, under both non-climatic drivers like urbanization and expansion of development and economic activities, which exert pressure on available water resources, and climatic drivers affecting water availability and use. Development of scenarios of demographic growth and water use was the methodology used to account for the uncertainty. He concluded that the existing supply demand gap would be exacerbated by both climatic and non-climatic drivers, and suggested water saving and management measures with respect to high water usage. The high physical loses if controlled can contribute to bridging the gap and different economic instruments if implemented could reduce water consumption.

At the end of the presentation, the chairman, Wellens-Mensah gave participants the opportunity to raise any issues they wanted the presenter to throw more light on.

Discussion
Barnabas Amisigo of CSIR-WRI clarified the term demand as used in the presentation, as the demand for all purposes and not drinking only. Wellens-Mensah expressed his doubt on the finding of 25-30% physical water losses and sought for elucidation from E. D. A. Forson of the Ghana Urban Water Company Limited GUWCL. Forson commented saying GUWCL is only able to account for wastage through commercial loss but not physical losses. Charlotte then asked Forson how both physical and commercial losses were assessed by the GUWCL and in answering the question Forson stated percentages of physical and commercial losses incurred were determined by bulk metering. In addition to this, Liqa explained losses in reference to Edmund's presentation. She defined physical losses as losses due to leakage which are irrecoverable which was said to be 30% as per GUWC statistics. If these physical losses were reduced, it could contribute greatly to reducing the supply demand gap.

Delali Dovie expressed his concern that rain water harvesting options were not studied, considering the study was on climate change. Probing further, he felt that another research gap, was the role of groundwater, which could be something to study in the future.

Rajiv Kumar from Polytank commended the team for confirming that the use of plastic tanks seems the main means of water storage in Ghana.

Ohene Sarfoh enquired whether the study had information on water demand strategies. Many participants agreed that this aspect could be explored in the future, as a research gap, and Barnabas probed further by asking if total demand and total supply according to the study are the same.

Elaine Lawson of Institute of Environment and Sanitation Studies (IESS) inquired whether information on water storage was obtained from individuals and companies. Edmund explained that the methodology adopted was to consult with Polytank only, since it is the most widely used water storage container in Ghana with a large market share, and has records of their products in use.

Ebenezer Allotey from Hydrological Service Department (HSD) asked for the technology used in reference to water conservation. Edmund stated water conservation and management options could be explored. Felix Nyamedor requested to know if knowledge on waste water re-use has been captured in the study since waste water re-use can release fresh water for other uses.

Developing Flood Risk Map for GAMA

Cephas Kagbor presented a study aimed at developing a flood risk map for GAMA. Introducing participants to the study, he elaborated facts on flood and floods as a hazard in Ghana. The objectives of the study were to develop a robust method of identifying broad-scale flood risk zones for GAMA, map flood risk based on certain defined factors and develop a flood map showing current flood situation in GAMA. Development of the flood map was based on five factors namely land use, topography, rainfall, soil and drainage. A GIS approach and method of scoring was the methodology used. Flood risk map and current flood situation map are the outcome of the study. The maps showed that AMA and the adjoining municipalities and district assemblies are prone to floods in specific localities. Besides AMA which is prone to flooding in some areas, the other administrative areas include Ashiaman, Ledzokuku-Krowor, Ga-East and Ga-South, Ga-West Districts, Adenta Municipal and Tema Metro, and flood areas may be found at elevations ranging between 7.3m below sea level 105.0m above sea level.

Discussion

Commencing discussions, Barnabas Amisigo commended Cephas for the work done and suggested that the base map for flood prone areas of Accra would be helpful to those working on flood areas like AMA and NADMO, as a planning tool. Delali Dovie in his question explained that diverse risks, exposure and adaptations have specific impacts. He added that, vulnerability in terms of infrastructure was not considered. K. Ohene Sarfo from Institute of Local Governance Studies (ILGS) addressed the same point saying that ideally in developing a risk map overlapping vulnerability and risk indicates supply and demand which could then be responded to. Considering the methodology, he mentioned data should have been collected from high and low population areas. Finally he

indicated that, the study did not utilize current levels in projection of population growth which is the apt method of determining current demand level.

Carl Osei from the Ghana Health Service (GHS) discussed development of risk maps saying risk maps are developed by predicting certain risk factors. He added that, instead of using data from flooded area, using topography and other factors, and general risk maps and comparing with what really happens to validate the prediction is a better method to achieve the aim of the study. In addition to the idea proposed by Carl, Barnabas referred to the definition of flood in the study and cautioned that a flood is termed as such when it affects people and hence would not be ideal to use data on flooded areas to develop a risk map since the water may not have caused harm. He suggested mapping should be done both during flooding and during periods of less rainfall and superimposed.

Delali Nutsukpo from MOFA described his interpretation of risk assessment and suggested including factors such as soil type, and added that treating them separately would lead to proper characterization of various factors. Ebenezer Allotey also suggested old topographical sheets could be obtained to know areas which were stream beds and this could be obtained from geological survey department.

Institutional Implication for Urban Adaptation

The findings of the policy and institutional study were presented by Liqa Raschid-Sally. The objective was to understand the policy and institutional environment to better target recommendation from URAdapt and appreciate stakeholder perceptions on incentives and barriers. She defined institutions as the humanly devised constraints that structure human interaction. She indicated that a review of policy in relevant sectors, and legislation was undertaken besides gathering information from key informants through interviews. Among others, the study established a number climate policy development challenges such as inadequate coordination, absence of a unifying structure to direct climate policy reflection, the absence of multi-donor budget support to climate policy development, and understaffing and lack of human resource capacity at EPA as climate focal point to deal with the multitude of issues. Discovered opportunities for mainstreaming include integration of Climate Change issues by Government of Ghana at the national, sectoral and district levels. Liqa threw light on the role of local authorities in flood risk management with highlights on the AMA and NADMO. She stated the AMA and TCPD rated themselves weak to respond to flood incidents and risk management and need to be strengthened, that NADMO performs well as per perceptions of communities but their responses did not build the resilience of communities. Concluding, on the role of local authorities it was recommended that community involvement in the development planning process of the Metropolitan Assembly should be enhanced, local government should make spatial and land use plans a priority on its development agenda, AMA should enforce building regulations and bye-laws, waste management should be high on the local agenda, local knowledge should be integrated into flood risk mapping and early warning systems, local government should explicitly address flood risk management in the MTDP and the Densu Board which has an elemental role to play in terms of managing basin water to respond to the new challenges of climate change, should be rejuvenated.

Discussion

Discussion concerning the presentation was initiated by Antwi-B. Amoah from Environmental Protection Agenda (EPA). He applauded the researchers for conducting a study on such a salient issue but questioned some of the conclusions. In reply, Liqa said that the findings were based on interview responses from key informants, and in the case of community vulnerability to floods, consultation with different impacted groups. Wellens-Mensah added that the institutional study recommendations should be viewed more positively, as being part of an ongoing process where a point raised leads to seeking more information on what is available and trying to establish the links and improve what is at hand. In addition to that K. Ohene Sarfoh noted that agencies involved provided the information that led to the recommendations. Replying to the point raised, Liqa cited the NDPC as an example, which has the potential to mainstream climate adaptation into the development planning process. To Lawson's inquiry on status of the Ghana Policy Framework on Climate Change, Liqa said that it was a work in progress as per her understanding from the study. Roland Abrahams, the Densu Basin Officer stated that the study was not sufficiently specific in its recommendation for strengthening the basin board. Liqa commented on this by saying that the findings were not a critique but rather an attempt to understand the ground situation and how the basin board operated, and when there appeared to be gaps, to suggest solutions.

Moving Towards a Strategic Plan

The process of moving towards a strategic plan was one of brainstorming and, assembling and refining ideas. All participants were involved in the process by way of generating and discussing an idea.

Allotey initiated the discussion by prompting that leaving recommendations hanging will not address the issue. He also stated that, currently there was no point of contact for floods related issue. He added NADMO provides the Hydrological Survey Department (HSD) with information who in turn advises them on what to do. HSD also designs and acquires funds for large drains while the municipalities are responsible for small drains. Liqa commented by saying from the study on institutions and policy, AMA would want to be more involved to give suggestions to make a difference in responding and managing flood risk. Charles from NADMO addressed the misconception created about NADMO and stated NADMO does more than respond; it also educates the public.

On the issue of strategic agenda, Ohene Sarfoh called to the attention of the meeting the relevance of collaboration since different organisations called upon to take the suggestions forward, have varying mandates and objectives. Developing a common strategic agenda therefore needs answers to the questions: what, where, who and how? Philip suggested that acquiring information from stakeholders will give an idea of the specific areas to tackle. Ohene Sarfoh also called for a clarification, when developing the agenda, on whether the main actions were for implementation within GAMA or AMA, and that it should be noted that GAMA is not a legal entity. Targeting recommendations to specific geographic locations might overcome this problem. Liqa clarified also that the strategic recommendations for implementations may be relevant to the local authority ie AMA or other municipalities or other decentralised local level organizations and institutions, but could also address national level entities and require changes at the national level.

Still on recommendations, Delali Nutsukpo questioned why the collaboration between HSD which advises on flood control and management and the AMA is not more functional to respond proactively to the flood problem, and that there is a need to look at improving the institutional arrangements. Delali Dovie speaking from experience, said that NADMO faces a number of challenges and that what was needed for flood response was a better contingency plan to address urban flood disaster. He stressed the issue of flooding is underplayed saying "we only have mattresses distributed without taking a look at the social, economic and psychological implications".

In reply to the number of questions asked, Liqa explained that the issue at stake is not so much about who can or cannot do something, or whether an organization is incapable of responding to a demand and needs a replacement, but more about identifying the gaps in the institutional arrangements, in order to strengthen what is on the ground.

Concluding Remarks

In conclusion, Liqa elaborated on the tremendous impact of the meeting. She recognized that the meeting had created a platform to integrate diverse studies by showing the linked nature of the information. She expressed how heartwarming the involvement of each participant was, which has led to the refining of ideas. She referred to the initial stages of the project when ideas were not defined and concise, and how ideas have been re-shaped, methodologies have been amended and other studies have evolved from contributions (simple presentations provided more ideas to refine research methods and obtained results) during such meetings. She gave an analogy of peeling an onion where the peeling of each layer shows there is more to discover. In comparison with the peeling of the onion, she said, "we realize there is more to discover as we progress". Liqa defined the aim of the project as identifying and filling in the gaps required to improve and strengthen institutions in need of it. She requested participants of the meeting to share with others in upcoming meetings on climate change, the results of studies and to share in return, information and results from other meetings.

Liqa also mentioned the upcoming evaluation cum process study, and briefly described the process and methodology. She mentioned that the consultant Maija Hirvonen, who was originally the project officer on URAdapt, would conduct the study. She will be a meeting with selected individuals for interviews on a variety of topical areas relating to learning and uptake. However if anyone else was wanting to participate, they were welcome and Edmund Akoto-Danso should be kept informed. She said that she herself, would not be present during the study here, but she is likely to overlap with the consultant for the concluding week. She added as part of the process, team members are requested to give honest feedback concerning the project and that respondents answers could be kept anonymous if so desired.

After the outcome mapping questionnaires were completed, Philip expressed his warm gratitude to participants for their time and ideas on behalf of the project team. The meeting came to a close at 1:22pm with a closing prayer by Solomon Tetteh.

List of Participants

No	NAME	ORGANISATION/ ADDRESS
1	Fred Logah	CSIR- Water Research Institute
2	Charles Ekpe	National Disaster Management Organization
3	Sean Doolan	DFID/ Netherlands Embassy
4	Solomon Tetteh	Great Thinkers Club
5	J. K. Antwi	Ghana Irrigation Development Authority
6	Felix H. Nyamedor	Regional Institute of Population Studies (UG)
7	Elaine T. Lawson	IESS - University of Ghana
8	Ebenezer Allotey	Hydrological Services Department
9	Carol Osei	Ghana Health Service
10	K. Y. Oppong-Boadi	Environmental Protection Agency
11	Ronald Abrahams	Water Resource Commission, Densu Basin Board
12	Rajiv Kumar	Poly Tank Group Limited
13	E. D. A. Forson	Ghana Water Cooperation
14	George Owusu	ISSER, University of Ghana
15	Delali Dovie	RIPS, University of Ghana
16	G. G. Ackah	Regional Coordinating Council - GAR
17	Emmanuel B. B. Boryer	Assemblyman of Gbebeyise
18	Delali Nutsukpo	Ministry Of Food and Agriculture
19	K. Ohene Sarfo	Institute of Local Government Studies (I LGS)
20	Richard Arman	Community Member, Gbebeyise
21	Antwi-B. Amoah	Environmental Protection Agency (SPO)
22	J. Wellens-Mensah	Ministry of Water Resources Works and Housing
23	Liqa Raschid-Sally	International Water Management Institute (IWMI)
24	Barnabas Amisigo	CSIR- Water Research Institute
25	Edmund Kyei Akoto-Danso	International Water Management Institute (IWMI)
26	Lee Davelaar	International Water Management Institute (IWMI)
27	Delali A. Osei-Boateng	International Water Management Institute (IWMI)
28	Philip Amoah	International Water Management Institute (IWMI)
29	Miss Charlotte Engmann	Community Water and Sanitation Agency

Programme for the 6th Research into Strategic Action Platform (Re-SAP)

28h February, 2012

Coconut Grove Regency Hotel, Accra

8:30 a.m. – 13:00 p.m.

Welcome	**09:00 a.m. – 09:10 a.m.**	**Welcome remarks and progress overview** *Barnabas Amisigo*
Research	**09:10 a.m. – 09:40 a.m.**	**Quantitative Microbial Risk Assessment of Gbegbeyise.** *Philip Amoah*
	09:40 a.m. – 10:10 a.m.	**Water Supply and demand situation modeling using VENSIM** **Water Storage Capacity in Urban Accra** *Edmund K. Akoto-Danso*
	10:10 a.m. – 10:40 a.m.	**Developing Flood Risk Map for GAMA** *Cephas Kagblor*
	10:40 a.m. – 11:10 a.m.	**Institutional implication for urban adaptation.** *Liqa Raschid-Sally*
Tea & Coffee	11:10 a.m. – 11:30 a.m.	
Moving towards a strategic agenda.	**11:30 a.m. – 12:00 a.m.**	**Discussion**
	12:00 a.m. – 12:30 p.m.	**Developing a strategic agenda for urban water management in Accra.** *Liqa Raschid-Sally*
	12:30 p.m. – 12:45 p.m.	*Outcome Mapping*
Closure		**Wrap Up**
	LUNCH	