

D E C C M A



Workshop Report

Report of the Ghana DECCMA launch and inception workshop, 6th May 2014



DECCMA Ghana team



CARIAA
*Collaborative Adaptation Research
Initiative in Africa and Asia*



IDRC | CRDI

International Development Research Centre
Centre de recherches pour le développement international

Canada



Citation:

DECCMA Ghana. 2014. Report of the Ghana DECCMA launch and inception workshop, 6th May 2014. DECCMA Working Paper, Deltas, Vulnerability and Climate Change: Migration and Adaptation, IDRC Project Number 107642. Available online at: www.deccma.com, date accessed

About DECCMA Working Papers

This series is based on the work of the Deltas, Vulnerability and Climate Change: Migration and Adaptation (DECCMA) project, funded by Canada's International Development Research Centre (IDRC) and the UK's Department for International Development (DFID) through the **Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA)**. CARIAA aims to build the resilience of vulnerable populations and their livelihoods in three climate change hot spots in Africa and Asia. The program supports collaborative research to inform adaptation policy and practice.

Titles in this series are intended to share initial findings and lessons from research studies commissioned by the program. Papers are intended to foster exchange and dialogue within science and policy circles concerned with climate change adaptation in vulnerability hotspots. As an interim output of the DECCMA project, they have not undergone an external review process. Opinions stated are those of the author(s) and do not necessarily reflect the policies or opinions of IDRC, DFID, or partners. Feedback is welcomed as a means to strengthen these works: some may later be revised for peer-reviewed publication.

Contact

Sam Codjoe
scodjoe@ug.edu.gh

Creative Commons License

This Working Paper is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License. Articles appearing in this publication may be freely quoted and reproduced provided that i) the source is acknowledged, ii) the material is not used for commercial purposes, and iii) any adaptations of the material are distributed under the same license.



Contents

Introduction	2
Section 1	2
Welcome address by Professor Samuel Nii Ardey Codjoe	2
Statement by the Vice Chancellor	3
Statement by the Acting Director for Canadian Development.....	4
Presentation on the DECCMA project by Dr Kwasi Appeaning Addo	5
Statement by the Deputy Minister for Environment, Science, Technology and Innovation.....	6
Conclusion	8
List of Participants.....	9
Section 2: Stakeholders' Workshop.....	11
Group Reports During The Stakeholders' Workshop.....	14
Group 1: Policy, Governance and Adaptation	14
Group 2: Vulnerability and Hazards under Climate Change	16
Group 3: MIGRATION AND GENDER	19
Group 4: Economics and adaptation under climate change.....	22

Introduction

The DECCMA project launch and inception workshop brought together traditional rulers, District Chief Executives, academics, a representative of the Vice-chancellor of the University of Ghana, the Deputy Minister for Environment, Science, Technology and Innovation, students and many others. Also present were Dr. Michele Leone, DECCMA Programme Officer from IDRC and Dr. Cheryl Gopaul-Saikali, Representative of the Canadian High Commissioner. The programme was in two parts. The first part dealt with the launch of the project and the second part was a stakeholders' workshop.



Prof. Sam interacting with Dr. Michele Leone, Dr. Cheryl Gopaul-Saikali and Dr. Cynthia Addoquaye Tagoe before the launch

Section 1

Welcome address by Professor Samuel Nii Ardey Codjoe

In a welcome address by Professor Samuel Nii Ardey Codjoe, the principal investigator of the project and director of the Regional Institute for Population Studies (RIPS), he mentioned that RIPS was established in 1972. The institute conducts research and training on population issues for professional demographers from various countries within Anglophone Africa. RIPS has also undertaken extensive research in climate change. These include the (CClong), Climate change and human health (CCHEALTH), the Africa Adaptation Research Centre of Excellence (AARC). DECCMA forms the five climate change project that RIPS is undertaking. Some of the climate change initiatives undertaken by RIPS include organizing the Annual International Climate Change and Population Conference since 2012. The third in the series is scheduled for 23rd to 25th July 2014.



Prof. Codjoe

Statement by the Vice Chancellor

The Vice-Chancellor (VC) through his representative, Prof. Patrick Ofori-Danson, welcomed all to the University of Ghana, which was established about 65 years ago. The VC stated that the university will operate the collegiate system with effect from the next academic year to facilitate the vision of achieving a university of world class status.

University identified climate change as a major research activity and has instituted a trans-disciplinary research group on climate change focusing on four key areas. These include climate change and health, climate change and water resources, climate change and society, and climate change innovation with emphasis on green economy. The University has provided the group with seed money of GH¢1,000,000.00 for the next academic year. The DECCMA project is therefore timely as it will add up to the various cutting-edge climate change research projects in the university. The VC identified that DECCMA will also facilitate collaboration between University of Ghana and other institutions in Africa, Asia and Europe. He expressed gratitude to the IDRC and DFID for jointly funding the project and hoped the inception workshop will be fruitful and beneficial.



Prof. Ofori-Danson, Representative of the Vice-Chancellor at the Launch

Statement by the Acting Director for Canadian Development

On behalf of the Canadian High Commissioner, Dr Cheryl Gopaul-Saikali who is the Acting Director for Canadian Development expressed gladness about the project and acknowledged the source of the funding for the project. Then she made the gathering aware that Canada is a signatory to the UNFCCC and has committed additional \$1.2 billion new and additional public funds over the 2010/2011 to 2012/2013 fiscal years. This, according to her is Canada's largest investment in international climate change related support. She mentioned that Canada recognizes and is highly concerned with the impacts of climate change both at home and abroad. Domestically she stated that Canada is taking action based on science and research to respond to the impacts of climate change particularly, in vulnerable communities. In the statement, Canada is ready to work with Ghana and other African and Asia countries to help them achieve their greenhouse gas emission reduction. The international support is comprised of a wide range of initiatives that address mitigation, clean energy technology, sustainable forestry and adaptation to climate change by the world's most vulnerable countries.

She mentioned that some projects are underway and are delivering positive results, and added that The Canada Initiative for Africa is a CD\$ 23.2 million initiative which is part of the Copenhagen commitment. Also Canada is partnering with nine organisations in 8 African countries in delivering 10 projects that will help reduce the impacts of climate change on countries which are facing problems with food security. She mentioned that developing countries like Ghana are suffering from the impacts of climate change due to the lack of capacity to respond to the impacts and the assistance will help reduce poverty. The Canadian assistance budget is aimed at improve development in are targeted at three priority themes, which includes food security, securing the future of children and finally generating sustainable economic growth, and cited the Ghana Environmental Management Programme in northern Ghana which is a collaboration between the environmental Protection Agency (EPA) and the Ministry of Food and Agriculture (MFA) to create awareness about desertification and drought among farmers and school children and at the same time enhancing land management

practices. Then IDRC was mentioned as the key institution that manages Canada's foreign support in Africa to find innovative and evidence based solution. The IDRC encourages the sharing of knowledge with policy makers, other researchers and communities around the world and the results are local, innovative and interpretative to those who need it. She reiterated that the IDRC supports innovative research with the University of Ghana and with institutions such as RIPS on climate change adaptation in Africa. She mentioned that RIPS is currently looking at climate change adaptation research and capacity building in poor urban populations and expressed Canada's pride in the partnership with an august institution like the University of Ghana. Canada welcomes this new collaboration with DFID on the DECCMA project, the University of Southampton, and the University of Ghana. She expressed her gladness to be part of the inauguration of the project and promised that the IDRC will monitor the progress of the project and hope that it will inform policy in Ghana.

It was expected that the British High Commissioner for Ghana would also deliver a speech, but he was not able to make it.



Dr. Cheryl Gopaul-Saikali

Presentation on the DECCMA project by Dr Kwasi Appeaning Addo

Dr Appeaning Addo who is the Deputy Principal Investigator for the project gave a presentation on the focus of the project, the methodology and the various actors and institutions involved. He mentioned that deltas are a home for five million populations worldwide and climate change is playing a major role in the deltaic regions. He mentioned that in the Nile Delta about 20 million people may be displaced by 2100 due to climate change associated issues like sea level rise. He mentioned that most of the problems in the deltaic regions have been by natural processes like climate variability but in recent times, these natural processes are being exacerbated by human activities through global climate change, changing catchment management practices which eventually result in population and economic change within the deltaic regions.

Dr Addo identified migration as a major issue within the delta regions and the need for climate change to be analysed in this dynamic context including establishing the migration patterns with these regions. He mentioned that 5 institutions came together to form the DECCMA consortium including the university of Southampton in the UK, Bangladesh University of Engineering, the University of India and the University of Ghana. He mentioned that the project is looking at four main deltas-two big ones and two small ones in India, Bangladesh, Egypt and Ghana. The Volta delta which is the study area is located at the lower part of the Volta basin. According to Dr Addo, the area which has about 181 towns is densely populated and is inhabited predominantly by farmers and fishermen. The low lying nature of the delta makes it prone to flooding, inundation and erosion. The two-fold aim of the project was mentioned as; analyzing migration as an adaptation option in the deltaic environment and to deliver policy support on gender-sensitive adaptation in the deltaic regions. Dr Addo counted institutions like the University of Cape Coast, Kwame Nkrumah University of Science and Technology, the hydrological services department, the centre for Scientific and Industrial Research, the National Development Planning Commission, the Ministry of Finance and the Ghana Meteorological Agency as other collaborators of the project.



Dr. Appeaning Addo

Statement by the Deputy Minister for Environment, Science, Technology and Innovation

The Deputy Minister for Environment, Science, Technology and Innovation in the person of Hon. Beatrice Adiku Heloo expressed gratitude to the funders and the entire academic community for advancing the research in the country. She commented and assented to the issue raised earlier on low political commitment to climate change research in the country, especially the numerous problems of climate change in the delta regions that are often neglected and the assurance of government's commitment and support to the project and also to the deltaic regions. She mentioned that the inhabitants of the deltaic regions are often poor and vulnerable people due to the low-lying nature of the land in those areas.



Hon. Bernice Adiku Heloo

She mentioned that the consistent flooding is affecting food production in diverse ways, hence the need to take the project seriously. Another intriguing thing that was mentioned is that the Volta delta is undergoing significant changes which have to be of concern to all; as severe flood is affecting agriculture and has the tendency to affect food security in the country. She lamented that coastal erosion is a serious challenge to the country especially at the deltaic regions. She stated that government has spent a lot of money in erosion control in the Keta and Ada areas, and flooding from the Volta river has displaced a significant number of the inhabitants of the area. She stated that one of the key pillars of the current government is to put people first and hence promised government's full support this and all other projects to ensure that people are not threatened and also reduce migration into urban areas where jobs are not existent.

So declared the need for urgent action by the national and international community and hence the need for a project like DECCMA which involves 4 deltas in Africa and Asia and is aimed at providing understanding into the changing dynamics of the delta system is timely and very important. She posited that the project will provide timely advice for the governments involved and help them develop pragmatic policies to help the inhabitants to adapt to the problems of climate change. She called on all to enhance Ghana's current and future development by strengthening its adaptive capacity to climate change impacts and build the resilience for the society and ecosystems. She then launched the project and assured the support of her ministry for the successful execution of the project spearheaded by RIPS of the University of Ghana, Legon with funding from the IDRC and DFID.

There was a session for questions and answers on the project after which the coordinator, Dr. Cynthia Addoquaye Tagoe gave the vote of thanks and brought the first session which attracted more than 80 people to a close.

Conclusion

In all, the launch was successful and well attended by all the collaborators and members of the university community.

List of Participants

NO.	NAME	INSTITUTION	EMAIL / TEL NO
1.	Dr.Dan Nukapetah	IESS	drukpezah@ug.edu.gh
2.	Laryea Wahab Sowah	DMFS, UG	Serwah-laryea@yahoo.com
3.	Dr. Yirenkyi-Larbi		
4.	Mark Owusu	Business School	Owusumark1979@gmail.com
5.	Eben Ansah	SOG	Ntizz.focus@live.com
6.	Prosper Amegashie	ISSER	amegashiewe@yahoo.com
7.	Prof. P. K Ofori-Danson	Dept. of Marine and fisheries	ofdan@ug.edu.gh
8.	Hassen Misari	College of Agric and consumer sciences	Hazzam921@yahoo.com
9.	Dr. Adeline Mensah	IESS	ammensah@ug.edu.gh
10.	Hon. Bernice Adiku	Min. of Env't Science, Tech and Innovation	berniceheloo@yahoo.com
11.	Edem S. Assisi	Min. of Env't Science, Tech and Innovation	edemassisi@yahoo.com
12.	Dr. Prince Osei Adjei	KNUST	Princeosei12@hotmail.com
13.	Dori Wguyen	IESS	startfellow@staff.ug.edu.gh
14.	Gershen Agbeko	Univ of Ghana (SPA)	ayindegeshone@yahoo.com
15.	Dieudonne K. Agudah	G-YES	Agudahdieu2011@hotmail.com
16.	B. A Amisigo	CSIR-WAS, Accra	Barnyy2002@yahoo.co.uk
17.	Winfred A. Nelson	NDPC	winfrednelson@yahoo.com
18.	Prof. Elvis Nyarko	HOD, MAFS	enyarko@ug.edu.gh
19.	Dr. Kofi Nyarko	HOD Dept of Geog. UCC	bnyarko@ucc.edu.gh
20.	Cheryl Gopaul-Saikali	Canadian High Commission	Cheryl.gopaulsaikali@international.gc.ca
21.	Michael Leone	IDRC	inleane@idrc.ca
22.	Dr. Kwadwo O. Ayeh	CANADA	koabongi@hotmail.com
23.	Philip Jayson-Quashigah	Marine Science	piyquashigah@yahoo.com
24.	Dr. Emmanuel Obuobi	CSIR-WAS, Accra	obuobie@yahoo.com
25.	Mr. Nunekpeku Jacob	Asst. Dev. Planning Officer, Keta Municipal Ass.	0246543115
26.	S.O Kwankye	RIPS	kwankyes@ug.edu.gh
27.	Kate Sakyee-Addo	Ghana Tourism Authority	katesagoly@yahoo.com
28.	Aaron K. Christian	RIPS	christiankobina@yahoo.com
29.	Michael Kaku Minlah		michaelminlah@yahoo.com
30.	Yaw Donatius Atiglo	RIPS	yawatiglo@gmail.com
31.	Reuben Tete Larbi	RIPS	reubentetel@gmail.com
32.	Mawuli Kushikor	RIPS	mkushitor@gmail.com
33.	Tobi Sanuack	RIPS	oluwatobisanuack@gmail.com
34.	Margaret Appiah	RIPS	
35.	Sandra Boatemaa	RIPS	boatemaasandra@gmail.com
36.	Samuel Dotse	RIPS	Samuel.dotse@hotmail.com
37.	Godswill Joe Renner	RIPS	Jerenner31@yahoo.com
38.	Benjamin K. Appiah	RIPS	Bkappiah04@gmail.com
39.	Abu Salifu	Rips	Abusalifu2004@yahoo.com
40.	Hleziwe Hara	RIPS	hleziwehara@yahoo.com
41.	Aduah-kasah	RIPS	josephjuayire@yahoo.com
42.	Moses Ayeebo	RIPS	ayeeboa@gmail.com

43	Evans Yeboah	RIPS	Yeboe26@yahoo.com
44	David Asafu Adjaye	RIPS	dadjaye@yahoo.com
45	Seth B. Kissi	RIPS	swagahs@gmail.com
46	Marian Donkor	RIPS	Marian.donkor@yahoo.com
47	Doris O. Asamani	RIPS	adwoasamani@yahoo.com
48	Charlotte Ofori	RIPS	oforicharlotte@yahoo.com
49	Agyekum N		
50	Isaac Yeboah	RIPS	Siryeboah199@ymail.com
51	Adriana Biney	RIPS	aaebe212@gmail.com
52	Mumuni Abu	RIPS	Abumus2000@yahoo.com
53	Antwi B. Amoah	RIPS	aantwib@yahoo.com
54	Frank Kyei-Arthur	RIPS	fkyeiarthur@yahoo.com
55	Klu Desmond	RIPS	Kludesmond12@gmail.com
56	Grace A. Frempong	RIPS	Gracea72@gmail.com
57	Mr. Solomon Mensah	NCCE, Ada East	Joy2dworld@hotmail.co.uk
58	Isaac Djagblery	Ada Radio	idiagbli@yahoo.com
59	Jonathan Dorutso	Ada Traditional Council	0242207994
60	Solomon Mensah	NCCE	0243118784
61	Suleman Awal Iddrisu	AEDA	0242514231
62	Hon. John N. Ahortu	AEDA	0244220218
63	Mr. Emmanuel Eric Kotoku	Ada West District Assembly	Emmakotoku2010@yahoo.com 0245309043
64	Director	NCCE, Ada West District Assembly	Kifco1991@yahoo.com 0267898896
65	Mr. John Vierra	NCCE, Ada West	0244845142
66	Hon. Sylvester Tornyevah	MCE, Keta Municipal Assembly	0243286497 stornyevah@gmail.com
67	Mr. M.P Dagbui	Chief Econ. Planning Officer, Keta Municipal Assembly, Keta	0243585349
68	Mr Mutah Nyasorgbor	Jubilee Radio, Program Manager	0270757057
69	Mr. Agbenyo Godwin	NCCE, Keta Municipal Assembly	0245430582
70	Abdul-Kareem Fuseini	Manager, Wildlife Division, Keta	0202676813
71	Charles Andoh	Daily Graphic	Charlesandoh28@yahoo.com
72	Benjamin Teye Kwasi Winson Sammy Addo	Net 2 TV	0548887293
73	Fred Djabanor	Citi FM	0243769178
74	Joyce Gyekye	GBC Radio	0235518503
75	Seth Osabukle	Ghanaian Times	0209133139
76	Odelia Ofori Kwame Ayew George Boakye	TV3	0244604224
77	Metro TV		
78	Kabu Nartey	Radio Universe	chekobinatey@yahoo.com
79	Joseph Archison	Ghanaian Times	eduarchison@yahoo.com
80	William Fiabu	GNA	fiabuw@yahoo.com
81	Dekahu Audrey	GNA	
82	Multi tv		

Section 2: Stakeholders' Workshop

This section had a breakout session involving four groups. Stakeholders were encouraged to identify areas of interest after a brief introduction of the breakout groups by Dr Kwasi Appeaning Addo.

Group 1: Theme – Policy, Governance and Adaptation under climate change

Facilitators: Mr. Winfred Wilson and Dr. Adelina Mensah

The aim of this group is to understand:

- the capacity of the governance system to support migration
- existing adaptation options
- existing policies
- the governance structure

Group 2: Theme – Vulnerability and hazard under climate change

Facilitators: Dr Amisigo and Dr Kofi Nyarko

The aim of this group is to:

- a. examine the vulnerability and hazard:
 - i. based on impacts of climate change
 - ii. based on biophysically driven scenarios
- b. what are the identified key hazards in magnitude, probability and spatial distribution
 - i. flood
 - ii. drought
 - iii. erosion
 - iv. salinization
- c. how vulnerable are the people in-terms of Socio-economic activities?
- d. Gendered vulnerability to climate change impact

Group 3: Theme – Migration and Gender

Facilitators: Prof. Samuel Codjoe and Dr Cynthia Addoquaye Addo

The aim of this group:

- Understand if migration is an adaptation option in the Volta delta
- Under what conditions will migration take place
- What are the patterns of migration within the delta
- What are the gendered barriers to migration

- Assess the ability of migration to alter gendered vulnerability of migrant populations
- Identify alternative adaptation options (e.g. abandonment)
- When people are not able to migrate what happens (trapped populations?)
- Understand the conditions under which migration improves, rather than reduces, vulnerability
- What is the likely migration trend in the future under climate change (on gender basis)

Group 4: Theme – Economics and adaptation under climate change

Facilitators: Prof. Ofori-Danson and Dr. Prince Osei-Wusu Adjei

The aim of this group:

- a. What are the economic activities within the Volta delta?
 - i. Employment opportunities
 - farming (irrigated farming, rain-fed farming, etc.)
 - fishing (river, aquaculture, etc)
 - others
 - ii. The prices of tradable commodities
 - are they stable
 - high/low prices
 - others
 - iii. Availability of scarce non-produced inputs, e.g. water, fertilizer, etc.
 - iv. Migration patterns within and outside the delta and its impact on economic opportunities.
 - v. Impact of climate change on economic activities

The facilitators of the groups gave 10 minutes presentation and a written report on the issues discussed during the breakout session.



One of the breakout groups in session

Group Reports During The Stakeholders' Workshop

Group 1: Policy, Governance and Adaptation

Facilitators: Mr. Winfred Nelson and Dr. Adelina Mensah

Rapporteur: Mr. Reuben Tete Larbi

Members of work group one consisted of a district chief executive, members of the District Assembly, a traditional chief, personnel from the National Development Planning Commission (NDPC) and the Environmental Protection Agency (EPA), and lecturers and students of the University of Ghana (Table 1). The aim of the group discussion was to understand (i) the capacity of the governance system to support migration, (ii) existing adaptation options, (iii) existing policies, and (iv) the general governance structure.

Table 1: Members of Group 1

#	Name	Contact number	Email address
1.	Winfred A. Nelson	0244482407	winfrednelson@yahoo.co.uk
2.	Hon. Daniel Anani	0242955938	Don.ana@go.ad.gh
3.	Antwi-Boasiako Amoah	0243987871	aantwib@gmail.com
4.	Sylvester Tornyevah	0243286497	stornyeavah@gmail.com
5.	John N. Ahortu	0244220218	ahortujohn@yahoo.com
6.	Reuben Tete Larbi	0246258954	reuben.tete.l@gmail.com
7.	Suleman A. Iddrisu	0242514231	sulemanwal@gmail.com
8.	Togi Edihoo II	0244669101	togbiedihoo@yahoo.com
9.	Samuel Dotse	0207360517	samuel.dotse@hotmail.com
10.	Adelina Mensah	0244481018	ammensah@ug.edu.gh

This report summarizes the key issues that were discussed under following major headings.

1. Migration and support structures

At Keta, people migrate away from the coastal areas towards lands with higher elevation in response to shoreline erosion affecting the coastal communities. The destruction of infrastructure and impacts on their economic activities leads to migration to nearby communities or within the district or further away to neighboring countries such as Cote d'Ivoire and Togo. In Ada, there is also internal migration to nearby towns such as Ashiaman and Tema or as far as Cameroon and Liberia. These movements may be seasonal, long-term (e.g. more than a few years) or permanent.

Another cause of outward migration from Ada is the increased growth of aquatic weeds (hyacinth) on the Volta. The weeds become trapped in the nets of the fishermen, thereby decreasing their fish catch. As a result, fishermen have to move to other areas on the Volta to find suitable fishing grounds.

In the Songor and Keta lagoons, increasing silt deposition leads to drastic changes in the water levels during the rainy and dry seasons. In the rainy season, communities around the lagoon are vulnerable to increased flooding and in the dry season, the water levels are so low,

fish catch is severely affected. The fishermen therefore have to migrate to other parts of the lagoon to fish. Over time, fishermen have been able to understand the movements of certain fish species to predict fishing grounds in the lagoons at particular seasons. However, just as the land has territorial demarcations, the water bodies also belong to various families and permission is needed to fish.

These areas are also host migrants from other areas, most often the northern parts of the country, who come to do irrigational farming especially during the dry season. In Ada, easy access to the ground water by shallow wells provides a source of irrigation for farming during all seasons. These movements may be seasonal or permanent.

Support structures for migrants into these communities are mainly at the community level, through the chief fisherman, in the case of fishermen, or through the chief of the community, for farmers. Fishmongers may also form alliances that provide support to incoming migrants and help them settle in. Permission is always finally sought from the chief to settle and/or provide access to land. In some cases, migrants are hosted by family members or friends. For farmers with large tracts of land hiring seasonal laborers, hired migrant farmers are able to have access to cheap or free accommodation.

In general, migration issues are dealt with at the community level and do not involve the District Assembly (DA) unless there are conflicts with the migrants that cannot be addressed by traditional regulations. According to the discussion, the DA has very low capacity to provide structures to support incoming migrants.

For outward bound fishermen, the chief fisherman will be informed of how many people have left the community and for how long. This enables them to keep track of who is leaving, where they are going to and how long they will be away.

Regarding conflict issues between migrants and the locals, discussions indicated that there is generally minimal conflict, unless in a few cases where issues such as death of a migrant is reported.

2. Adaptation options/interventions for minimizing risks

In minimizing the risks of poor harvests, communities have various adaptation options including:

- Fish farming
- Irrigation farming
- Cage fishing or aquaculture
- Diversification of livelihood strategies

The Functional Organisation Assessment Tool (FOAT) under the auspices of the Environmental Protection Agency (EPA) selected Ada as a pilot district to assess various issues, including a climate change component. This study has gathered adequate data that can be used.

In response to the problems caused by the overgrowth of aquatic weeds, a programme was set up in Ada to harvest the aquatic weeds and process them into compost for farming activities. With support of the EPA and funding from the African development Bank, these activities continued until the end of the initiative. To continue this intervention, the EPA is currently securing additional funding.

The dredging of the stretch of water that links the Songor Lagoon to the Volta was also carried out through a community initiative using communal labour. This helped to desilt the aquatic systems to minimize flooding events. For Keta, the silted lagoon has made it difficult for water to flow from the Volta River. In this case, communities feel that they need external intervention, as the issues are on a much larger scale than can be addressed by the community.

3. Existing policies and traditional regulations

Typically, the traditional rulers and the chief fishermen play significant roles in the migration of fishermen, both into and out of the communities. Ideally, the Area Council for each community, composed of the unit committee members and an Assembly man, are supposed to address issues of migration and report to the District Assembly. However, they are poorly supported by the DA and, as such, non-functioning. According to the discussants, they are not aware of any official governmental regulations to address migration issues. This is done at the local level unless there is an issue that requires higher authority. In this case, the Assemblyman is contacted to make an official report to the District Assembly for the appropriate institution to address.

Incoming migrants are subjected to the same traditional rules and regulation of the local people. There are various local rules, norms, values and taboos such as restrictions on fishing and farming on specific days of the week or for a period during annual rites. The necessary sanction, such as a fine, is meted out to migrants and locals alike for non-compliance to these regulations.

4. Governance structures

As described above, issues of migration within the community are addressed by the chief fisherman and the traditional chief. In situations where external assistance is required, the DA is contacted who will then inform the appropriate institution. Some of the external organisations that work with the communities include the EPA, the Ministry of Agriculture, NADMO and the Department of Fisheries under the DA. Support that is provided by NADMO, for example, is capacity building and information about safe fishing distance and where to keep boats during high tides to prevent disaster. The Department of Fisheries, on the other hand, gives advice to the fisher folk on the seasons for specific fish species due to the availability of data. In addition, they are able to give advice on fish availability and security with the high tides. They also inspect the sizes of fishing nets. The Ministry of Agriculture provides farmers and the fishermen with advice and data, through the extension officers.

At the end of the group discussion, a short plenary to all participants summarized the key points. The discussion centred mainly on the governance structure (or lack of) addressing migration issues and the apparent minimal conflict that was reported by participants from the Keta and Ada areas.

Group 2: Vulnerability and Hazards under Climate Change

Facilitators: Dr Amisigo and Dr Kofi Nyarko

Rapporteur: Mr. Philip-Jayson Quashiga

The aim of this group is to

- a. examine the vulnerability and hazard:
 - i. based on impacts of climate change
 - ii. based on biophysically driven scenarios
- b. what are the identified key hazards in magnitude, probability and spatial distribution
 - i. flood
 - ii. drought
 - iii. erosion
 - iv. salinization
- c. how vulnerable are the people in-terms of Socio-economic activities?
- d. Gendered vulnerability to climate change impact

Introduction

- There was a distinction between climate change and climate variability. The various components of risk to CC impacts (Hazard, Exposure and vulnerability) were explained.
- Hazard and vulnerability were explained; Hazard as any event that brings stress and vulnerability as elements at risk or exposure.

The main hazards identified for the deltaic region together with causes, elements impacted upon and indicators of vulnerability are outlined in the table below:

Hazard	Causes	Who/what is impacted	Indicators of Vulnerability
Flooding (a major problem in the area)	Heavy rainfall High tides Erosion River overflow Sea level rise Storm surge River siltation Human activities in the upper region Dam spillage	- Infrastructure - Ecosystems - People (Displacement) Socio-economic activities	- Land unavailability - Loss of livelihoods - Destruction of natural resources
Droughts	Low rainfall High temperatures Low water holding capacity of the soil (Sandy) Deforestation (clearing of vegetation)	Farm lands (unproductive) Water resources (loss or diminished) Ecosystems	- Loss of livelihoods - Lack of or reduced access to water - Lack of or reduced access to adequate food (poor nutrition levels among the population)
Storms	Sea waves	- Infrastructure and other property - People	- Loss of property including residential houses

Erosion	Storm surges Sea level rise Sand winning Geomorphology Floods Orientation of the coastline High waves	- People - Beaches - Ecosystems - Infrastructure - Socio-economic activities	- Land unavailability - Loss of livelihoods - Destruction of natural resources - Loss of biodiversity
Salinisation	Salt water intrusion Sea level rise Geology	- Crops - Fresh water - freshwater ecosystems	- Unavailability of food - Reduced access to freshwater, particularly potable water - Reduced freshwater fish stock

How vulnerable are the people

- High level of illiteracy in the area
- Biodiversity loss
- No or limited access to other lands
- Limited sources of alternative livelihoods

Gendered Vulnerability

- The women has been identified as the most vulnerable in the area because they are the main managers and marketers of the natural resources the affected populations depend on.
- Others considered vulnerable
 - Farmers – due to loss of farmlands from the hazards
 - Fishermen – due to loss of or reduced availability of fish stock

Group Members

	Name	Institute/Organisation	E-mail address	Tel No
1	Benjamin Kofi Nyarko	UCC	bnyarko@ucc.edu.gh	0206640183
2	Kate Sagoe-Addy	G.T.A	katesagdy@yahoo.com	0241576790
3	Abdul-Kareem Fuseini	Forestry Commission	yambafuka@yahoo.com	0243168865
4	Emmanuel Eric Kotoku	AWDA	emmakotoku2010@yahoo.com	0245309043
5	Dieudonne Kwame Agudah	G-YES	agudahdieu2011@hotmail.com	0240886645
6	Opoku Pabi	U.G	oppabi@gmail.com	0243776001
7	Laryea Wahab Sowah	U.G	sowahlaryea@yahoo.com	0243310200
8	Eric Ansah	(SOG)NGO	Eben.Ankrah@yahoo.com	0242773502
9	M.P Dagbui	MPO Keta	mpdagbui@yahoo.com	0208197401

10	Isaac Djagbletey	Radio Ada	idjagbletey@yahoo.com	0242241475
11	Barnabas Amisigo	CSIR-WRI, Accra	barnyy2002@yahoo.co.uk	0243947476
12	Philip- neri Jayson-Quashigah	Marine Science	pnquashigah@gmail.com	0242052507
13	Emmanuel Obuobie	CSIR-WRI, Accra	obuobie@yahoo.com	0241441038

Group 3: MIGRATION AND GENDER

Facilitators: Prof Samuel Codjoe & Dr Cynthia Addoquaye Tagoe

Rapporteur: Mr. Yaw Donatus Atiglo

Participants

The **Working Group on Migration and Gender** included stakeholders from the study areas of Keta and Ada and particularly from the district assembly, traditional council and the media as well as members of the university community/researchers on migration, gender and climate change. See Table 1 below for the full list of participants.

Table 1: List of Participants

Name	Institution	Telephone	e-mail address
Prof Samuel Codjoe	RIPS	0244365916	scodjoe@ug.edu.gh
Dr Cynthia Addoquaye Tagoe	ISSER	0244203092	candy_tagoe@yahoo.com caddoquayetagoe@ug.edu.gh
Faustina Borklee		020-8960858	faustinaborklee@yahoo.com
Jonathan Dokutso	Ada Traditional Council	024-2207994	
Charlotte Ofori	RIPS	027-7332780	oforicharlotte@yahoo.com
Yaw Donatus Atiglo	RIPS	024-3138831	yawatiglo@gmail.com
Marian Donkor	RIPS	024-4275451	marian.donkor@yahoo.com
Akua Obeng-Dwamena	RIPS	026-5900571	akuaod@yahoo.com
Alpha Narh Agborkey	Information Centre	024-2914456	
John Vierrah	NCCE	024-4845142	
Margaret Appiah	RIPS	027-7820822	appiahpeggy@yahoo.com
Jacob Nunekpeku	Keta Municipal Assembly	024-6543115	nunekpekujacob@yahoo.com
Raymond Peniyena	Jubilee Radio	024-2363159	raymondgiovanni@yahoo.com

The aims of this group were to:

- Understand if migration is an adaptation option in the Volta delta;
- Ascertain under what conditions migration will take place;
- Identify the patterns of migration within the delta;
- Identify the gendered barriers to migration;
- Assess the ability of migration to alter gendered vulnerability of migrant populations;

- f. Identify alternative adaptation options (e.g. abandonment);
- g. Ascertain what happens when people are not able to migrate (trapped populations?);
- h. Understand the conditions under which migration improves, rather than reduces, vulnerability and
- i. What the likely migration trend in the future under climate change will look like (on gender basis).

Migration as Adaptation Option

Migration was reported as already taking place especially among fisher folk from Keta and Ada. Some people migrate in response to unfavourable conditions in the delta. The growth rate of Keta's population for example has been declining from 1984 to 2010, a trend attributable to out-migration.

Conditions for Migration

Certain factors were identified as promoting migration in the deltaic area. The loss of coastal land due to rapid coastal erosion as well as sea-level has further exacerbated the availability of land. Residents whose occupations are mainly natural resource-based respond to the environmental challenges by migrating to other areas. In Ada for instance, the gradual collapse of some islands has led to calls for evacuation and island protection for about thirteen island communities. Depletion of fish stock is a major reason for migration of artisanal fisher folk especially for those in Keta. The lack of alternative sources of livelihoods in the areas also pushes people to migrate. Poverty, low literacy and unemployment are key factors pushing migration.

Migration Patterns within the Delta

Migration from the delta is both internal and cross-border. Internal migration among artisanal marine fishermen is usually to other coastal areas in Ghana and is seasonal particularly in the Anloga area. Marine fisher folks also migrate to neighbouring countries along the coast of the Gulf of Guinea, as far as Cameroun. Such migration is long-term (two to five years) and in some cases, people end up being trapped migrants in destination areas and unable to remit their families. Associated with this is the practice of 'company' recruitment of fishermen which either perpetuates their poverty and results in their permanent migration or improves their lot and allows them to come home once in a while.

Lagoon fisher folks also engage in internal migration to Northern Ghana, where the Volta Lake stretches, to carry out their fishing activities. In some cases, children are often trafficked to provide cheap labour in the fishing industry upstream. Whereas internal migration is usually autonomous and many of the movement involve men going alone, international migration sometimes involves the entire family. The youth are also forced to move outside their communities and the country to places such as Nigeria and Togo where in their bid to survive engage in illicit activities. The young girls get involved in prostitution along the borders (Aflao) while the young boys get involved in cybercrimes among others.

Gendered Barriers to Migration

Migration from the delta area is gender-selective. Migration is dominated by males whereas women are inhibited by their social reproductive roles of child-rearing, housekeeping and care for other family members, including the aged. Single parenthood is also high in the delta

communities and its attendant problems of teenage pregnancy (Ada West) and crime due to lack of supervision of children. Some of the male children in the absence of the fathers also migrate to try their luck leaving more young females than males in the communities.

Alternative Adaptation Options

Some options for adaptation already being undertaken include:

- Salt production using salinized underground water (Keta)
- Salt production using sea water
- Tourism: In Ada, however, the beach resorts and chalets are owned and managed by external entities rather than community members. It is difficult to identify how much employment this industry offers to community members.
- Trading
- Farming
- Craftsmanship: Kente weaving, Pottery, Carpentry, Masonry

Most women are found in the salt production and trading. In farming, the women grow on the small-scale level for subsistence mainly due to the challenge of credit availability. The men though also challenged are able to grow on the commercial level crops like onions (shallots) and tomatoes.

Trapped Populations

Trapped populations are usually constituted by already vulnerable subgroups such as the poor and women. The vulnerability of such subgroups is further exacerbated when their sources of livelihood which are mainly dependent on the land and water resources of the area are disrupted by extreme weather conditions, such as drought leading to recession of the lagoon for fishing and poor soil conditions for farming.

Migration and Increased Vulnerability

Migration can sometimes aggravate people's vulnerability rather than reduce it. For instance, individual fishermen are recruited by fishing companies under unfavourable terms which make it difficult for them to save or send remittances to families at their origins. Often, such fishermen end up as trapped migrants. Single parenting with its related consequences in poor settings is another issue of concern. Children are likely to drop out of school and to make ends meet they may have to work (child labour). School dropout may lead to child delinquency and for girls, a likelihood of prostitution and teenage pregnancy. In some cases too, migrants return with diseases and will rather require the care of their already resource-lacking families.

Future trend in migration under climate change

The impacts of climate change on the livelihoods of the people in the delta area in the future may influence migration.

Conclusion

Migration from the delta area is an adaptation option to the impacts of climate change. Ability to migrate is influenced by gender and socioeconomic status. To sustain the livelihoods of residents, there are other economic activities that can be engaged in, and the likely effects of climate change could even be exploited to the advantage of residents.

Group 4: Economics and adaptation under climate change

Facilitators: Prof Patrick Ofori-Danson and Dr Prince Osei-Wusu Adjei

Rapporteur: Mr. Michael Minlah

SUMMARY OF REPORT: This report summarizes the discussions of GROUP 4 during the break –out session of the Launch and inception workshop of the DECCMA project undertaken at the ISSER conference facility, university of Ghana, on the 6th of May 2014. The group was tasked to brainstorm on the economic implications of climate change in the Volta delta.

Introduction

The group was made up of academicians, traditional leaders as well as opinion leaders from the study area. The group was comprised of the following people:

Name	Email address	Telephone number
Dr. Prince Osei Adjei	Princeosei2@hotmail.com	0243126093
Joel degue	joeldegue@gmail.com	0242501638
Michele leone	mleone@idrc.ca	0736242081
Bernard tanihu	segeunited@gmail.com	0247560462
Seth habada		0244167742/0507742376
Sandra Boatemaa	s.boatemaa@yahoo.com	0263260752
Mawuli Kushitor	mkushitor@gmail.com	0244894775
Boni Philemon		0267898896
Solomon Mensah	Joy2dworld@hotmail.co.uk	0243118784
Godwin K. Agbenyo	Agbenyo2009@yahoo.com	0244414336
Michael Kaku Minlah	michaelminlah@yahoo.com	0242613688
Mama Nyorgbe I	reftina@yahoo.co.uk	0244163227
Ofori-Danson P.K (Prof)	ofdan@ug.edu.gh	0208351477

The aim of GROUP 4 was to assess the economic implications of climate change in the Volta delta. Specifically, the group sought to find out the following:

a. Employment opportunities in the Volta delta

The team found a lot of employment opportunities in the Volta delta. There exists formal services such as rural banks and commercial banks. However, most of the people in the area are into informal employment. The nature of the vegetation makes it ideal for the cultivation of crops such as cassava, tomatoes, pepper, shallots, sugar cane, maize, water melon and groundnuts. Again, salt mining and cattle rearing are very common in the area. The area is also noted for artisans such as boat builders, ceramic makers, kente weavers, mat weavers.

Another important employment opportunity available in the region is eco-tourism. The Volta Delta is home of marine turtles. It harbors two important coastal RAMSAR Sites (Keta and Songhor lagoons) which have ecotourism potential. The Volta lake transport is also highly operational serving as a means of transport and also a means of tourist attraction.

The delta, makes fishing a very ideal occupation in the area. One of the major occupations in the area besides farming is fishing. People in the area are involved in every stage of the fishing process from going to sea to processing the fish for sale. There exists major markets in the delta area where food crops grown on a commercial scale are exhibited for sale. Major markets in the area include the Anloga market, Ada market, Akatsi market, Agbozume market and Anyanui market which is noted for the sale of shallots.

b. Prices of tradeable commodities

The prices of tradeable commodities in the area has been found to be highly dependent on the seasons. During bumper harvests, the prices of commodities are very low but tend to be very high when the commodities are out of season. An example can be made of tomatoes which are very cheap during their bumper harvest (mid-September to October) and higher afterwards. The prices of all other food stuffs sold in the area follow the same trend.

Of course, the price of fishes depend on the seasons. In times of bumper harvest, one can expect the prices to be very low and high when the fishing season is over. However, not too surprisingly, salt which is in abundant supply has a very low and stable price in the Delta region. The prices of commodities such as mats and kente are determined by the prevailing market conditions.

c. Availability of scarce non-productive inputs

The impacts of climate change in the delta region has led to the scarcity of some very important inputs. The first input which has become scarce is fresh water. Climate change has led to the intrusion of salt water in fresh drinking water. The effect is that fresh drinking water has reduced. This can lead to a lot of sanitation problems.

Another resource that is fast being depleted is land. Land is gradually being lost due to urbanization and most importantly due to soil erosion. Urbanization and erosion is fast reducing land available for productive use. This leads in the long run to low productivity and food security problems. This phenomenon has led to the fertility of the land being lost. Charcoal production has also been found to be reducing the mangrove vegetation in the area.

Wildlife conservation in the area is not very much observed as endangered marine turtles are constantly being hunted down for food and for sale. The group also observed that most communities in the area did not have access to electricity.

d. Migration issues in the delta region

There happen to be a lot of migration issues in the Volta delta. The group identified three kinds of migration issues pertaining to the delta region. The first kind concerns migration of fishermen from one community to the other in search of fish. This can be viewed as in-community migration. The second kind of migration is trans-boundary migration. This occurs

when fishermen go on fishing exploits outside the boundaries of Ghana into neighboring waters such as Togo. The third kind of migration is the rural-urban migration. The group found that as a result of the high cost of living in the delta areas there was extensive migration to the urban areas in search of greener pastures. This had the potential of depriving the area of productive labour force.

e. Economic implications of climate change

Climate change has varied impacts on economic activities. The first impact the group found is migration. The group found that migration has positive as well as negative economic effects. On the negative effects, the group found that migration can lead to the exodus of highly skilled and productive youth from the Delta area. The economic effect is that labour productivity in the area will reduce leading to low incomes in the area. On the positive side, when the fish stock in a particular community diminishes, fishermen migrate to other communities to find fish. This can be seen as a positive benefit.

Food security and malnutrition is another effect of climate change. Food security results from drought and flooding which leads to low productivity. Food security can also results from erosion. Climate change leads to salt water intrusion which leads to salinization. Salinization leads to the unavailability of fresh water. The last effect of climate change on economic activities is low fish production. Climate change leads to higher tides on the seas which make sailing very difficult and also pushes some fish species further in the sea.