BSU ENVIRONMENT AND CLIMATE
BUILDING STRONGER UNIVERSITIES
IN DEVELOPING COUNTRIES

ACTIVITY COMPLETION REPORT[1]

ACTIVITY FACTS		
Activity number (from LFA)	**WP1 Task 1.b Joint development of curriculum**	
Activity name (from LFA)**)**	**PhD-course on Climate Change Adaptation**	
South partner institution	**University of Ghana**	
Main responsible(s) for activity (both North and South, where relevant)[2]	**Associate Professor Mathias Neumann Andersen, Department of Agroecology, Aarhus University** **Lecturer, PhD. Kwadwo Owosu, Department of Geography and Resource Development, University of Ghana**	
Start/end (dates) **of implementation**	**18/03/13 – 22/03/2013**	
BUDGET DETAILS		
Original Budget (DKK)	90,270	
Actual expenses (DKK)[3]	78,546	
ACTIVITY DESCRIPTION		
Brief description of planned activity[4]	Purpose	**To provide participants with deeper understanding of climate change adaptation issues, needs and best practice that could be adopted and implemented within the Ghanaian context. The course was open to both Masters and PhD candidates within the relevant programmes in order to provide the solid foundation for further thesis research on climate change adaptation issues.**
	Content	**The focus of the course was on community based adaptation and eco-system based adaptation emphasizing tropical smallholder agriculture, effects on climate change on ecosystem services and rural livelihood and possible adaptation measures.**
	Contribution to research capacity building	**The learning outcomes and competences of the students, were to enable them to:** • **Explain and quantitatively describe the main drivers and mechanisms of climate change.** • **Explain the projections of climate change on a global scale and regionally with focus on West Africa.** • **Explain downscaling of climate change projections** • **Explain and analyse how climate change affects crops and cropping systems.** • **Analyse future impacts of climate change on rural communities and peoples livelihood.** • **Suggest community based adaptation and eco-system based adaptation measures and explore and discus the outcome of such**
	Indicators	**Course attendance.** **Solving a number of assignments and writing of course report.** **Oral presentation and discussion of two reports on community based adaptation versus eco-system based adaptation.**
	Other relevant details/comments	
Number of participants	Target	**20**
	Result	**28**
Describe/explain deviations from planned activity (timing, number of participants, content of activity, etc.)	**There were no significant deviations from the program**	
Main lessons learned (list 3-5	**From the students' evaluations (see also appendix 3) it appears that**	

[1] Must be filled and submitted to Platform Secretariat (cc to local South [*BSU administrator*]) no later than 2 weeks upon completion of activity.
[2] All must sign Activity Completion Reform before submission.
[3] If actual expenses (per budget line) deviate from original budget, this must be thoroughly explained and approval from Platform Secretariat attached to the Activity Completion Report.
[4] Use LFA and/or Monitoring Matrix as point of departure, where relevant

issues)	**- the students were generally very satisfied with the course content and the arrangement with incoming lecturers from Denmark;** **- they would have liked a 2 week course.** **Although most students very satisfied with the balance between lessons and exercises, it appears that the course could have been improved by practical hands-on exercises, which however are very difficult to arrange due to lack of equipment (especially as several are required when there is many students).** **The level of the teaching could have been better adjusted to the students' level, if some kind of pre-course report had been scheduled.**
Suggestions for follow up activities	**1. Integration of the curriculum into the general PhD course program at UG, and possibly funds for invitation of Danish guest-lecturers.** **2. Start of PhD-projects with joint supervision**

Activity Completion Report submitted by:

NAME	CONTACT DETAILS[5]	SIGNATURE
MATHIAS NEUMANN ANDERSEN	MATHIASN.ANDERSEN@AGRSCI.DK CELL: +4522400742	Mathias N. Andersen
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Attachments (compulsory):

1) Program/Course outline
2) List of participants/attendance register
3) Course evaluation

[5] Minimum e-mail address and phone number for all signatories.

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Budgets (back-ground information for assignment holders)

If actual expenses (per budget line) deviate from original budget, this must be thoroughly explained and approval from Platform Secretariat attached to the Activity Completion Report.

Ghana PhD Course	Ghana		Denmark	
	Budget (DKK)	Actual (DKK)	Budget (DKK)	Actual (DKK)
Salaries (Denmark) and emoluments (Ghana)	10,000		58,000	58,000
Taxameter/educational grants				
Expenses for trips abroad and fieldwork (details below)			22,270	17,686
Project and research equipment				
Project and research materials	10,000		10,000	2,860
Publication, dissemination and communication				
TOTAL	**20,000**		**90,270**	**78,546**

Ghana - Expenses for trips abroad (details)	Denmark	
Unit	**Budget (DKK)**	**Budget for 2 weeks**
International travel	9,000	9,000
Local travel, visa, vaccination, preventive medicine	2,000	2,000
Accommodation (nightly rate)	350	4,900
Per diem (daily rate)	455	6,370
TOTAL		**22,270**

Tanzania PhD Course	Tanzania		Denmark	
	Budget (DKK)	Actual (DKK)	Budget (DKK)	Actual (DKK)
Salaries (Denmark) and emoluments (Tanzania)	10,000		58,000	
Taxameter/educational grants				
Expenses for trips abroad and fieldwork (details below)			26,370	
Project and research equipment				
Project and research materials	10,000		10,000	
Publication, dissemination and communication				
TOTAL	**20,000**		**94,370**	

Tanzania - Expenses for trips abroad (details)	Denmark	
Unit	**Budget (DKK)**	**Budget for 2 weeks**
International travel	11,000	11,000
Local travel, visa, vaccination, preventive medicine	2,000	2,000
Accommodation (nightly rate)	500	7,000
Per diem (daily rate)	455	6,370
TOTAL		**26,370**

Ph.D. course in

"Climate Change Adaptation"

University of Ghana: 18-22 March 2013

Course Objective: To provide participants with deeper understanding of climate change adaptation issues, needs and best practice that could be adopted and implemented within the Ghanaian context. The course will be open to both Masters and PhD candidates within the relevant programs in order to provide the solid foundation for further thesis research on climate change adaptation issues.

Course content: The focus will be on community based adaptation and eco-system based adaptation emphasizing tropical smallholder agriculture, effects on climate change on ecosystem services and rural livelihood and possible adaptation measures.

Description of the course:

The course aims at giving the Ph.D. student a thorough background to climate change adaptation issues, including knowledge on the fundamental processes underlying climate change, and its potential impacts on the environment, agriculture and communities as well as implications for development. The course will include a combination of lectures and group work on chosen topics within adaptation. The practical and theoretical exercises and discussions will be conducted in groups. Each practical and theoretical exercise will result in a short exercise report from each student. These reports will make up the student's personal course portfolio, which will be evaluated after the course.

Learning outcomes and competences:

After the course the student will be able to:

- Explain and quantitatively describe the main drivers and mechanisms of climate change.
- Explain the projections of climate change on a global scale and regionally with focus on West Africa.
- Explain downscaling of climate change projections
- Explain and analyse how climate change affects crops and cropping systems.
- Analyse future impacts of climate change on rural communities and peoples livelihood.
- Suggest community based adaptation and eco-system based adaptation measures and explore and discus the outcome of such.

Course Content

Day 1 and 2: Greenhouse gas emissions, climate models, downscaling projections and weather generators, regional CC projections and their uncertainty, the concept of adaptation, adaptive capacity.

Day 3 and 4: Adaptation costs in Africa and financing options, plant and crop responses to climatic stress. Effects of CC and adaptation of agroecosystems, crop production and carbon and nutrient cycling in agroecosystems, food security under CC.

Day 5: Community based and Ecosystem based adaptation options and best adaptation practices in smallholder agriculture.

Teachers and their affiliation:

Kwadwo Owusu, Dept. of Geography and Resource Development, University of Ghana
Gerald Yiran, Dept. of Geography and Resource Development, University of Ghana
Mathias Neumann Andersen, Dept. of Agroecology, Aarhus University
Jørgen E. Olesen, Dept. of Agroecology, Aarhus University

Volume: 80 hours including preparation, reading and reporting. Direct course work: 40 hours over 5 days, reading before: 20 hours, report work: 20 hours

Target group: Ph.D. students and Masters within agronomy, environmental engineering or biology

Location: Yiri Lodge, near Noguchi, University of Ghana, Legon.

Course fee: None

Registration: Send Full Name, Affiliation, Contact Telephone Numbers and Email address to Ms Empi Baryeh (ebaryeh@yahoo.com), not later than March 04, 2013. Also indicate if you are a Masters or PhD Student.

Number of Participants: maximum 20

Course organizers:

Kwadwo Owusu, +233 279943213, kowusu@ug.edu.gh
Mathias Neumann Andersen, +45 89991721, MathiasN.Andersen@agrsci.dk

Practical information:

We recommend that you bring a laptop, if possible. Spreadsheets will be used for exercises. Students will also be required to produce a short report during the course, which will also require a computer.

Detailed Program:

Monday, 18 March

9.00-10.00 Welcome and introduction to course (by Kwadwo Owusu and Mathias N. Andersen)

10.00-12.00 Drivers, mechanisms and projections of climate change (Lecture by Jørgen E. Olesen)

Objective: To introduce scenarios of greenhouse gas emissions
To give an understanding of the functioning of climate models

Content: Modelling of the climate system and possible feed-backs; Emission scenarios; Projections of climate change including extreme events.

12.00-13.00 Lunch break

13.00-14.30 Regional projections of CC for West Africa and observed changed (Lecture by Kwadwo Owusu)

Objective: To give an understanding of regional CC projections and their impact on the water cycle etc.
To give an understanding of the uncertainty of regional CC projections

Content: The regional climate system and the expected influence of climate change on the convergence zone, occurrence of extreme events, etc.

14.30-15.00 Tea/Coffee break

15.00-16:30 Downscaling of climate projections and use of weather generators (Lecture and theoretical exercise on radiation balance by Jørgen E. Olesen)

Objective: To give an understanding of how regional CC projections on the different climate elements can be derived

Content: Use of weather generators, calculation of radiation balance in excel (homework with presentation next morning).

Tuesday, 19 March

9.00-12.00 Adaptation to climate change (Lecture by Jørgen E. Olesen)

Objective To understand the concepts of adaptation, adaptive capacity and adaptation costs
To provide an overview of adaptation options in agriculture
To understand how adaptation to climate change may be achieved in practice.

Content Assessment of current adaptation practices, Assessment of adaptation capacity, options and constraints, Adaptation options in agriculture (short and long term)
Restrictions on adaptation to climate change in agriculture
How to enhance adaptation to climate change

12.00-13.00 Lunch break

13.00-14.30 Plant and crop responses to climatic stress (Lecture and theoretical exercise by Mathias N. Andersen)

Objective: To introduce key response mechanisms of plants to stress and their effects on agricultural productivity

Content: Overview of the response of plants and crops to environmental variability, internal regulation mechanisms, water deficit, high temperature and salinity as constraints to crops and plant acclimation to stress. Exercise on the possible impact of downscaled projections of climate on crop growth.

14.30-15.00 Tea/Coffee break

15.00-16:30 Practical exercise continue

Wednesday, 20 March

9.00-12.00	Adaptation to Climate Change-Cost of Adaptation in Africa - (Gerald Yiran)
Objective	To understand the need for adaptation. To examine models of adaptation cost assessment. To provide estimates of how much it will cost Africa to adapt to the impacts of climate change.
Content	Provides an overview of the unique position of Africa in terms of how much it contributes to climate change and the impacts it is facing. The need for adaptation as both survival and developmental challenge and the actual costs of adaptation are also examine from multiple perspectives. Exercise will be on the best models for estimating adaptation cost for Africa.
12.00-13.00	Lunch break
13.00-14.30	Climate change effects on agroecosystems (Lecture by Mathias N Andersen)
Objective	To give the students an understanding of how climate variability and climate change affects crop production and carbon and nutrient cycling in agroecosystems. To provide an overview of adaptation options in agriculture To understand how adaptation to climate change may be obtained in practice
Content	An overview of important climatic factors and how they affect crop growth and yield (directly and indirectly) Effects of climate change and changes in atmospheric CO_2 concentration on crops Effects of climate variation and extremes, Effects on food security
14.30-15.00	Tea/Coffee break
15.00-16:30	Climate change effects on agroecosystems

Thursday, 21 March

9.00-12.00	Adaptation Financing Options- (Gerald Yiran)
Objective	To give students an understanding of the range of adaptation options available to Africa and how funds could be accessed.
Content	An overview of the cost and institutions that are providing funds for climate change response. The public and private initiatives of adaptation financing and the challenges of accessing funds are also highlighted. Commitments and amounts disbursed are examined. Exercise will examine practical challenges of Adaptation financing in Africa. Practical exercise
12.00-13.00	Lunch break
13.00-14.30	Climate change impact on water resources and adaptation options
Objective	Students will gain insight in water balance components and how these are influenced by climatic factors as well as the role in agriculture and society.
Content	Water balance at field and catchment scale and its relation to climate, soil and topography. Water for agriculture, ecosystems and society, influence of climate change and possible adaptation options.
14.30-15.00	Tea/Coffee break
15.00-16:30	Field visit to test site for small farmers irrigation equipment. Role of irrigation in adaptation.
18:00	Hand in of students course portfolio for evaluation

Friday, 22 March

9.00-12.00	Community-based and Ecosystem-based adaptation (Lecture by Mathias N Andersen)
Objective	To give an overview of different angles of approach to climate change adaptation.
Content	Community and Ecosystem-based approaches to climate change adaptation.
12.00-13.00	Lunch break
13.00-14.30	Group discussions on Community-based versus Ecosystem-based adaptation measures
Objective	Students will formulate their own understanding and view on the different approaches to climate change adaptation
Content	Based on read scientific papers students will discuss, sum up and present similarities, dissimilarities and possible conflicts between community- based and ecosystem- based adaptation measures.
14.30-15.00	Tea/Coffee break
15.00-15.30	Short presentations from the group work.
15.30-16.30	Questions and answers to course content
	Evaluation of the course
	Ceremony: Presentation of certificates to students by Professor Yankson

UNIVERISTY OF GHANA
BUILDING STRONGER UNIVERSITIES IN DEVELOPING COUNTRIES INITIATIVE
18TH-22ND MARCH 2013, YIRI LODGE, UNIVERSITY OF GHANA
ATTENDANCE SIGN-IN SHEETS

						Attendance					
No.	**Name**	**Position**	**Department/Faculty/Institution**	**Email**	**Phone Numbers**	**18/03/2013**	**19/03/2013**	**20/03/2013**	**21/03/2013**	**22/03/2013**	**Days**
1	Apeanti Timothy	Student	CCSD	apeantiwilson@yahoo.com	0242353609	1	1	1	1	1	5
2	Barbara Baidoo	Student	IESS	baidoobarbara@yahoo.com		0	0	0	0	1	1
3	Benjamin Quarcoo	Student	UG Business School/CCSD	stanarre@ug.edu.gh	0244959818	1	1	1	1	1	5
4	Chikezie Friday	Student	ARPPIS-Department of Entomology	meetfridayonline@yahoo.com	0247971405	1	1	1	1	1	5
5	Emelia Theodora Forson	Student	Mphil Entomology	odwira@gmail.com		1	1	1	1	1	5
6	Eric Marvin Gbeddie	Student	CCSD	marvingbe@live.co.uk	0208252258	1	1	1	1	1	5
7	Evelyn Amankwah	Student	CCSD	evelyn.amankwah@gmail.com	0277171462	1	1	0	0	0	2
8	Gerald A. B. Yiran	Lecturer	Geography Department-UG	gbyiran@ug.edu.gh	0209256045	1	1	1	1	0	4
9	Gideon Osabutey	Student	CCSD	g.osabutey@st.edu.gh	0203809285	1	1	1	1	0	4
10	Gloria Adifu	Student	CCSD	amiadifu@gmail.com	0240940298	1	1	1	1	1	5
11	Godfred K. Teye	Student	CCSD	gkteye@st.ug.edu.gh	0243801345	1	1	0	1	1	4
12	Harriet Ansomaa Offie	Student	UG Business School/CCSD	haoffie@gmail.com		0	0	1	1	1	3
13	Jennifer Mante	Student	CCSD	jmante@st.ug.edu.gh	0573302260	1	1	1	1	1	5
14	Jørgen Olesen	Professor	AU	JorgenE.Olesen@agrsci.dk		1	1	0	0	0	2
15	Karyn Ewurama Asmah	Student	Mphil CCSD	karynasmah@gmail.com	0245835577	1	1	1	1	1	5
16	Kassim Gawusu	Student	CCSD	k.gawusu@gmail.com	0244967340	1	1	1	1	1	5
17	Kumah Kwame	Student	UG Business School/CCSD	kkumah@ug.edu.gh	0246975967	0	1	1	1	1	4
18	Kwadwo Owusu	Lecturer	Univ. Of Ghana	kowusu@ug.edu.gh		1	0	0	0	0	1
19	Lilian Dome Yeng	Student	CCSD	yenglilian@yahoo.com	0244081281	1	1	1	1	1	5
20	Maclean Asamani Oyeh	Student	MSc CCSD	maoyeh@st.ug.edu.gh	0243237800	1	1	1	1	1	5
21	Mathias N. Andersen	Prof-Facilitator	AU	mathiasN.Andersen@agrsci.dk		1	1	1	1	1	5
22	Musah Issah Justice	Student	MSc CCSD	musah123@gmail.com		1	1	1	1	1	5
23	Nnoli Obianuju Helen	Student	ARPPIS	helennnoli@yahoo.com	0243253212	1	1	1	1	1	5
24	Ogbonna Confidence Uchenna	Student	ARPPIS	ucheconfi@gmail.com	0541578437	1	1	1	1	1	5
25	Otubea Ansah Mante	Student	Mphil Entomology	o.ansah@hotmail.com	0200720553	1	1	1	1	1	5
26	Owusu Fordjour Aidoo	Student	ARPPIS	owusufordjouraidoo@yahoo.com	0543774840	1	1	1	1	1	5
27	Regina Anyeley Lassey	Student	UG Business School/CCSD	reglassey@ug.edu.gh	0246713038	0	1	1	1	1	4
28	Rex Gerchie	Student	UG Business School/CCSD	rgerchie@gmail.com	0269571571	1	1	1	1	1	5
29	Ruth Quaye	Student	CCSD	ruthquay@gmail.com	0207788529	1	1	1	1	1	5
30	Samuel Justice Adofo	Student	UG Business School/CCSD	kwameadofo@gmail.com	0244824811	1	1	1	1	1	5
31	Solomon Abera	Student	PhD IESS	bariagabre@yahoo.co.uk		1	1	1	1	1	5
32	Sussie Ohene-Asante	Grad. Student	CCSD	sudams2006@yahoo.com	0244286610/0234	1	1	1	1	0	4
33	Wilson Owusu-Asare	Student	CCSD	wowusu-asare@st.ug.edu.gh	0244204791	1	1	1	1	1	5

Evaluation of Course on Climate Change Adaptation University of Ghana 18-22 March 2013			
	Number of Students		Number of Students
Advantageous course elements		**How could the lessons be improved?**	
Drivers and mechanisms	6	More time for reading	3
Impact	2	Broder teacher and participant background	4
Adaptation incl EBA versus CBA	10	More student presentations	5
Water ressource management	2	Outline policies from the knowledge	1
Financing	3	Fine	1
All -fast overview	2	Should be more lively	1
ppt's	1	More examples from Ghana	1
Reading materials	2	**How could the exercises be improved?**	
Plant science	1	More time for group discussions	2
Less advantageous course elements		Practical exercises	4
Models	3	Let students work on own topics	1
Downscaling	1	More practical questions	1
None	9	Better explaination of topics	4
Photosynthesis models	3	More examples from Ghana	2
Too technical	2	**How was the balance between lessons and exercises?**	
Too loaded	1	Ok-good	17
Too many calculations	3	Excercises not so usefull as capacity to interpret models is lacking	1
Costs of adaptation	1	Stressfull	1
What was the most useful/meaningful thing you learned during the course?		More exercises would be good	2
Water resource management	3	Less exercises would be good	
CC in dev. Countries	5	**Other suggestions (topics, arrangement, etc)**	
Understand how models can be used	2	Energy efficiency	1
Drivers and mechanisms	5	Financing/Businees	2
Financial aspects	5	Place the course during vacation period	2
Adaptation issues	5	More time, e.g. make it 2 weeks	9
Use of spreadsheets	2	More on ecoturism	1
Models	4	Field visit	1
Photosynthesis	1	More focus on how it can help in phd-studies	1
What questions and topics remain in your mind at the end of the course?		Repeat it/make it a program between AU and UG	2
CC adaptation and energy supply	1		
EBA versus CBA	8		
Agroecosystems	3		
Energy balance	5		
Way forward and how to explain to others	5		
Many	1		
Socio-economic impact	1		