
Stakeholder Engagement Meeting



Building Capacity to Crosslink Coastal Pollution with Climate Change (BC5)

Date: 17th November 2022
Venue: Tomreik Hotel, Accra - Ghana

Table of Content

Abbreviations	1
Introduction	2
Opening.....	3
Overview of the BC5 Project	3
Areas of focus in Ghana for the BC5 Project.....	4
Presentation by Stakeholders	5
Project Manager for the BC5	5
Conservation Alliance	7
Ghana Tourism Authority	7
Forestry Commission Ghana - Wild Life.....	8
Ghana Maritime Authority (GMA).....	8
Fisheries Commission	8
Plastic Punch	9
Ministry of Environment, Science, Technology and Innovation (MESTI).....	9
Land Use and Spatial Planning Authority (LUSPA)	9
National Commission for Civic Education (NCCE).....	9
MANCOGA	10
Ghana Youth Environmental Movement (GYEM).....	10
Questions & Answers/Comments	10
Closing	15
Annexe I.....	16
Program	16
Annexe II	17
List of Participants	17

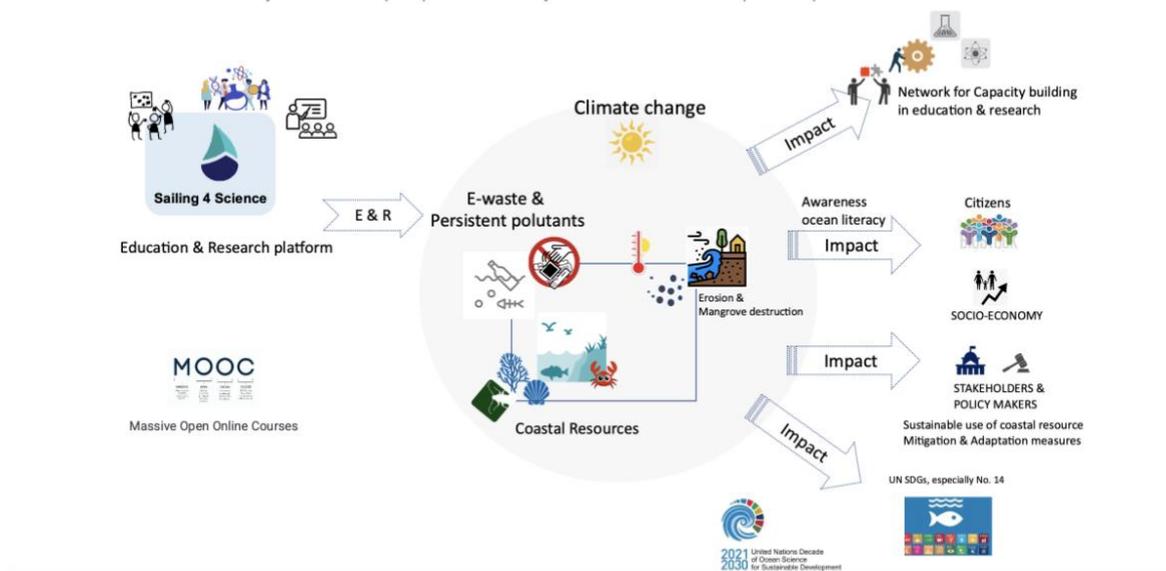
Abbreviations

BC5	Building Capacity to Crosslink Coastal Pollution with Climate Change
EPA	Environmental Protection Agency
GBIF	Global Biodiversity Information Facility
GMA	Ghana Maritime Authority
GYEM	Ghana Youth Environmental Movement
IESS	Institute for Environment and Sanitation Studies
MAFS	Department of Marine and Fisheries Science (UG)
LUSPA	Land Use and Spatial Planning Authority
MANCOGA	Nature-based solutions Coastal Hazards in Eastern Ghana
MESTI	Ministry of Environment, Science, Technology and Innovation
MoFAD	Ministry of Fisheries and Aquaculture Development
NCCE	National Commission for Civic Education
NGO	Non-Governmental Organization
NORHED	Norwegian Program for Capacity Development in Higher Education Development
NTNU	Norwegian University of Science and Technology
SDGs	Sustainable Development Goals
UG	University of Ghana
UDSM	University of Dar Es Salaam, Tanzania

Introduction

The meeting began at around 9:30 am, with the opening remarks by Prof Chris Gordon. The participants introduced themselves. There were about 40+ participants at the workshop.

Thematic Areas of the BC5 Project



The goal of this meeting was to provide an opportunity for interaction between stakeholders within the thematic area of the BC5 project and the project team. The workshop also sought to identify potential organizations in Ghana for partnerships with the BC5 project.

Opening

Overview of the BC5 Project

Prof Chris Gordon, the Principal Investigator of the Ghana team in the BC5 project told the participants that the BC5 project addresses the thematic area of Climate Change and Natural Resources under NORHED II. NORHED is the educational funding unit of the Norwegian government. Prof Chris Gordon commended the Norwegian government for being generous in giving out funding in support of research activities.

The BC5 project will last until 2026 and the primary focus of the project is **Capacity Building** where **11 PhD** and **33 masters students** will be involved. In addition to that, the project will also aim at capacity building in the communities that the project team will be working with. Prof Chris Gordon told the stakeholders that this funding will be a seed grant, as proposals are being developed to expand the partnership.

The BC5 project aims to build knowledge on how to sustainably manage marine ecosystems and improve regional coastal research. The project team will work using citizen science, and capacity enhancement for education, and also look at multi-stressor impacts. Prof Gordon again said, *what has been happening is that we tend to deal in silos, so you have people working on climate change, others working on heavy metal pollution, some others, plastic pollution, and they are all working separately. So what the team will try to do in this project is to have everybody working together so that there can be sharing of information amongst each sphere, where there will be joint sampling, so that there can be some synergy running amongst institutions/organizations.* The team also hopes to involve the citizens on-site so they can help determine the direction of the research and be involved in the research itself.

Prof Gordon showed a diagram to the participants indicating the various areas of interest in the research *{refer to page 1 for the diagram}*. Some of the areas are climate change, e-waste, coastal resources, massive open online courses (where the knowledge that will be gained would be shared with a much larger community), sailing for science, impact networking for capacity building etc. As part of the project, it is expected that the Ghanaian, Tanzanian and Norwegian students will form a cohort of people who will

be working together. It is also expected that citizens in the thematic areas of the project will get involved. The team hopes to bring in some interventions, especially in the area of mangrove management, which will improve the socio-economic aspect of coastal communities. Prof Chris Gordon commented on one of the pressing issues which is **conflicting policies amongst institutions** when it comes to coastal management. He said, *"there are a lot of stakeholders at this meeting. Because we have been working separately rather than together, I think we have made life a little more difficult for ourselves. So one of the things that I am hoping one of the students from the University of Ghana would tackle is **how to break the barriers between institutions** because this is an issue of more politics, sociology and communications rather than natural science. So we need people who will be working in this sphere - looking at the citizens and their impacts to make sure that Ghana can then contribute to the global goals and challenges such as the SDGs."*

Areas of focus in Ghana for the BC5 Project

- Old Fadama - is one of the largest e-waste sites in the world where there is a massive amount of contamination of the water and sediments.
- Ankobra River - where some samples along the Ankobra river would be taken to look at how both the legal and illegal mining activities in the Western Region are contributing to contamination. The team would not only look at the river and estuary but also the offshore.
- Songo and Keta Ramsar sites - the team would be taking water and sediment samples at Sogakope down to the estuary and along the shore, and assess how pollutants in the Volta river impact the water. In Keta, there are a lot of mangroves, so the team would be looking at mangroves in that area.

Presentation by Stakeholders

Project Manager for the BC5

Matthew, a researcher at NTNU, who is the project manager for the BC5 project commended Prof Chris Gordon for coining the name “**BC5**” as the short name for the project. He admitted that “**BC5**” is very catchy. He outlined some of the objectives of the project which are to increase capacity in data collection techniques, skills and methodology, and also to promote digitalization of data collection and management. In the determination of contaminants and multi-stressor, there will be more aspects to combine the impacts of contaminants as well as climatic stresses and do a comparison between Ghana and Tanzania and come up with a more solid plan for policy and decision-makers.

In this project, the team will be focusing on capacity building and developing curricula for graduate and postgraduate level courses on coastal and natural resources, where there would be more input through a citizen science approach. There will be short and massive open online courses and several of the stakeholders at this meeting would be actively involved. There would also be a “**pitch**” which would be shared on social media like YouTube to promote coastal management and make it easily accessible for students across the globe. The project has a team of Tanzanian, Ghanaian and Norwegian students that will build a strong network so that they understand the problems that Tanzania and Ghana face and come up with a more solid plan for decision-makers. Also, concerning the several gaps in research, this project seeks to understand two different geographic areas; East and West Africa and try to build networking hubs in these areas.

Sailing for Science

Is an initiative that has been started by NTNU, but right now the University of Gothenburg in Sweden is also heavily involved. What sailing for science seeks to do is to use a transdisciplinary approach involving learning knowledge with limited conditions and trying to use the maximum available resources using an approved solution to empower research such as citizen science groups. It also aims to promote ocean coastal network, citizen science approach, ocean literacy and stewardship, and

also focus on capacity building in low-income countries and regions that are understudied.

Frugal solutions

This is one key aspect that we need to embrace for research and capacity building. BC5 will focus on frugal solutions where understudied regions will be primarily looked at. Because it is not possible to have "high-tech" research across the regions at the same time, sailboats (both traditional and high vessels) will be used. There will be education for young researchers and citizen science groups to see what is possible - even with small boats and try to use them as a good and effective way to have more data collection from understudied regions. When we talk about frugal solutions, it is also important to note that we are not leaving out the "high-tech" solution. NTNU is trying to develop a concept where there can be a bridge between frugal solutions with "high-tech" solutions. NTNU is also trying to develop sensors that can be easily distributed to sailors and other researchers and come up with more solid plans.



Photo showing Norwegian embassy representatives, faculty and students.

Conservation Alliance

Conservation Alliance is an environmental NGO that embarks on educating communities on activities along the coasts (plastic pollution, invasive species and pesticides). The use of pesticides has so much negative impact on marine life because runoffs from farming activities eventually enter into the sea. Another thing that this NGO does is **data mobilization**. When it comes to policy formulation in the country, there is a need for a lot of data, so Conservation Alliance has a database, where you can find information on invasive species (both plants and animals) which have been published. This NGO also has the Global Biodiversity Information Facility (GBIF), which is hosted by the Botany department of the University of Ghana. So there is quite some data on the coastal area that has been published in the Global Biodiversity Information Facility (GBIF). Conservation Alliance also uses a citizen science approach, where local people help in tracking migratory birds, sea turtles and many other species. Songor lagoon and Axim areas are some of the places where local people help in tracking these species. In terms of restoration activities, traditional knowledge is incorporated, especially in the management and planting of mangroves. Conservation Alliance has collaborated with some institutions which are working within the Sharma Ahanta area in the Western region of Ghana to promote good and sustainable fishing practices. Fishermen are educated and discouraged from engaging in *Saiko fishing* which is an illegal fishing practice where foreigners use illegal means to fish and sell to local fishermen. In *Saiko fishing*, even smaller fishes that are expected to grow are harvested and it depletes the resources in the sea.

Ghana Tourism Authority

Ghana Tourism Authority is a state agency under the Ministry of Tourism, Culture and Creative Arts responsible for the regulation of tourism in Ghana by marketing, promoting, classifying, licensing, researching and developing tourism facilities and services in the country. The Ministry of Tourism, Arts and Culture facilitate the interference between government, implementing bodies in tourism, culture and creative industries as well as international civil society partners. The ministry aims to develop sustainable tourism and pivoted on Ghanaian culture and creative arts as a key to accelerating national development.

Forestry Commission Ghana - Wild Life

The Forestry Commission of Ghana is responsible for the regulation of utilization of forest and wildlife resources, the conservation and management of those resources and the coordination of policies related to them. The commission embodies the various public bodies and agencies that were individually implementing the functions of protection, management, and regulation of forest and wildlife resources. The Wildlife Division is one of the three divisions of the Forestry Commission. The mission of the Wildlife Division is to sustainably manage and develop Ghana's wildlife resources for the socioeconomic benefit of all segments of society. The mandate of the Wildlife Division is to conserve wildlife in Ghana and manage wildlife-protected areas in the country.

Ghana Maritime Authority (GMA)

GMA is responsible for enforcing international maritime conventions and national rules and regulations. It is also responsible for regulating maritime transport, port, and vessel activities, marine waste management and environmental protection. The key functions of GMA are to

- ensure the safety of navigation
- prevent marine pollution from ships and other activities at sea
- undertake flag state survey of vessels operating at sea and on the inland waterways
- train, examine and certify seafarers as well as secure and sustain their welfare.

Fisheries Commission

Fisheries Commission is the implementing agency of the Ministry of Fisheries and Aquaculture Development (MoFAD). The Fisheries Commission make policies and regulations by MoFAD and is responsible for monitoring, controlling, surveillance, evaluation and compliance functions in all areas of fisheries development and management in Ghana, including fish health, post-harvest activities, safety and quality assurance.

Plastic Punch

Plastic Punch is a non-profit organization in Ghana founded with the mission to raise awareness about the dangers of plastic on the environment, wildlife and humans, and to provide innovative and sustainable waste management solutions. Plastic Punch is currently running projects in Ghana, intending to duplicate its mission in other countries once the business model is fully functional. In the past months, plastic punch has engaged in beach clean-up exercises.

Ministry of Environment, Science, Technology and Innovation (MESTI)

MESTI exists to promote sustainable development by deepening and strengthening market-driven research and development for sound environmental governance, science, technology and innovation through intensive awareness creation, collaboration and partnership. MESTI envisages attaining sustainable development through the utilization of Science, Technology and Innovation for wealth creation and sound environmental governance in a modern and competitive economy.

Land Use and Spatial Planning Authority (LUSPA)

LUSPA is a service delivery agency under the Ministry of Science, Technology and Innovation (MESTI) that is responsible for ensuring the sustainable development of land and human settlements through a decentralized planning system, ensuring judicious use of land and creating an enabling environment for District Assemblies to better perform spatial planning and human settlement management functions

National Commission for Civic Education (NCCE)

NCCE is an independent governance institution that works to promote and sustain democracy and inculcate in the Ghanaian citizenry the awareness of their rights and obligations, through civic education.

MANCOGA

MANCOGA is a project that started in 2021 but the co-designed process took effect in 2022. MANCOGA is an acronym for Mangroves as Nature-based solutions Coastal Hazards in Eastern Ghana. It is a project that is being funded by the Germans. Mangroves save vulnerable coasts. Most of Ghana's coastlines are currently vulnerable to so many pollutants/illegal activities. There are flooding issues along the coasts. Mangroves can help to build resilience towards some of these problems. So why mangroves? Since mangrove is nature-based, it doesn't cost anything but rather adds more value to addressing flooding. As of 1980, the entire country had a mangrove cover of about 181km², but currently, there are only about 72km² of these mangroves left so obviously the mangroves themselves are not in a good state. In the Eastern part of Ghana, there is a significant degradation of mangroves mainly due to over-dependence on the mangrove (socio-economic), and modification in land use. MANCOGA seeks to co-design processes and develop support tools using mangroves as a nature-based solution to reduce local GHG, improve coastal water quality, and mitigate erosion and flood risks along the eastern coast of Ghana.

Ghana Youth Environmental Movement (GYEM)

GYEM is a youth-led environmental policy advocacy and non-violent campaign group in Ghana that exists to mobilize and organize young people to take action to solve the environmental challenges in the communities, and also address the global climate emergency. Some of the projects that GYEM has been undertaking this year are Green Club in Schools, where secondary school students and clubs are trained using an action-based learning approach to tackle some environmental issues in the community.

Questions & Answers

Question

Isaac, PhD 1 Student (IESS): From the presentations, I realized that if we want to make a change, then we need to involve the children as they can make a sustainable change. I want to find out if we can collaborate with Ghana Education Service to incorporate environmental-related topics into the curriculum of school children since they are going to be future leaders - they will learn these things at an early age and it will help to bring a more sustainable change because as for the adults, there is no way we can make good impacts.

Answer

Prof: Unfortunately one of the things that the children and parents complain about is the load of the curriculum. I tried to bring ecosystem management and greenhouse science into the Senior High School curriculum, but I was told it was already too packed. So going forward, to address these concerns we may have to do that through the National Commission for Civic Education. Also, through the sort of environmental clubs that we have such as Plastic Punch. I think that's the way we can go. If we try and add it to the curriculum, the children will just do "chew and pour" and not practice.

Question

Emmanuel PhD1 (IESS): My question goes to Maritime Authority. One of the functions of the Maritime Authority is to prevent marine pollution from ships and other activities on/in the sea. I want to find out about the collaboration between the Maritime Authority and EPA, especially with the discharge of effluent and other ballast water in the sea.

Answer

Mustapha (Maritime): We have a very strong collaboration with EPA, and at times we collaborate with the Ghana Standards Authority in managing marine wastes. Apart from the supervision of pollution along the coast, we also supervise people who go into the port and we assess how they segregate their waste. Some of them do recycling, and others send them to landfill sites which we are discouraging. We collaborate very well with EPA because our mandate is anything that enters the sea, but when it is land, some other institutions are in charge, unless we are sure that some activities on land influence the sea then we come in.

Comments

Participant: Mine is a contribution to the issue of adding environmental issues to the curriculum. I think in the curriculum of the basic schools, there are topics on environmental issues in their books. A typical example is a subject called **"Our World Our People."** There are beautiful topics on environmental issues. But the reality is there is a need to have very strong environmental organizations and youth organizations. These organizations can go to schools to demonstrate the reality on the ground as far as environmental issues are concerned and involve the students in solving some of the environmental problems we have.

Participant 1: I still believe that we need to still do a lot for our kids. We need to educate them on some of these environmental problems. Kids are very flexible and can be influenced easily. We can influence them in the right direction. In Ghana, one of the biggest problems around the coastal areas is the dumping of plastics. But my understanding is that the plastics are not generated at the coasts but carried to the coasts. If you want to solve the problem, you have to confront it from the source. So I think that educating the kids is a very important step because eventually, the adults will fade away leaving the kids.

Euphemia PhD1 (IESS): I believe that all the problems we are talking about have to do with the change of mindset, and most speakers spoke about education at the lower level but I believe that we should educate the grown-ups as well. If we are made to understand a few educational programs from civic education, TV, and adverts and we become convinced that our health/well-being depends on how we manage our environment, I believe will go a long way to help. For example, if we become aware that eating "plastic-infested" fish will result in affecting our fertility or nervous system, we will feel threatened and do the right thing by avoiding or minimizing plastic pollution in our water bodies.

Question to Plastic Punch

Koka PhD1 (Dar es Salaam): I will like to know what measures you put up in ensuring that the beaches are not polluted again after cleanup.

Answer

Plastic Punch: We have developed one of the best models of beach clean-ups. What we do is clean along with entertainment. We do cleaning with music playing in the background. This makes the cleaning enjoyable. We also create awareness of the need to reduce the use of plastics. We can work in many communities because after the beach cleanup, we manage all the waste we find there. We don't burn the waste/bury them. We segregate them and give them to partners we have collaborations with and they come and collect them. The added value of our work is collecting data on who is polluting and what is polluting to instantaneously be able to manage waste in municipalities. Also, we do monitoring - sometimes we see foreign pollutants from Europe in our coastal areas.

Follow-up question/comment

Koka: Yesterday I was surprised when I was given so many single-use plastic bags. In my country, Tanzania, single-use plastics are banned, so I am wondering, even if you do beach cleaning, you will still find these bags there, probably as a result of pollution of plastics from upstream.

Response

Plastic Punch: The government of Ghana is working on that. They are trying to ban it. In 2017, single-use plastics were banned, but there was a lot of lobbying from the plastics manufacturing industries. Banning plastics now will be quite problematic but what we can do is let people reduce usage.

Additional Comments

✧ We have talked so much about plastic pollution, but we are forgetting one important thing; marine species. They are the ones affected by these plastics. We need to consider the well-being of marine life.

- ✧ Plastics punch: We always talk about creating awareness but we need to know that there can never be proper awareness if there is no working solution. So if you approach the children and educate them on environmental pollution, there have to be proposed solutions.
- ✧ Prof Gordon: We carried out a project some years ago along the coast of some communities in Ghana. We prepared a big poster on pollution and asked the children in the community to identify what they see in the poster and bring some solutions. Amazingly, the solutions they came up with were like an environmental policy for Ghana; very brilliant solutions! So we had to document them and made two videos out of them; a documentary and a film that was scripted by the children themselves. {link to the video:
- ✧ As environmental experts/students, we need to know that every problem is a resource. There is nothing like waste. We need to turn waste/environmental problems into something valuable. There is a need to research to make environmental problems valuable, and where we can make something good from. We need to change our challenges into potentials.
- ✧ In addition to educating the younger ones, we need to make sure that systems are well in place to support that. For example, I do waste segregation from my house and take it to the waste collection point and they end up mixing the waste altogether. We need to ensure that the systems for managing waste are in place, otherwise, the young ones will be educated, and they will do the right thing, yet the institutions that are not well equipped will end up messing things up. Also, there is the need for incentivized/punitive regulations so that people are rewarded or punished for their acts concerning environmental/coastal pollution. For example, I did some work in a district on their waste generation and I found out that there is a program in the district where incentives are given to communities that generate less waste. That is a good approach to managing waste.
- ✧ I also know of a coastal community in the western region, which is believed to be the cleanest beach. In my quest to find out how and why the beach is clean, I was

told the chief in the community has a policy where people who defecate or pollute the beach are punished.

Closing

Prof Chris Gordon thanked all stakeholders for their participation in the meeting. The meeting closed at around 1:30 pm with a buffet at the Tomreik Hotel. This allowed the stakeholders to further network, exchange contacts and share ideas on the BC5 project.

Annexe I

Program

Timeline	Activity/Topic
8:30 - 9:30 am	Arrival of Participants and Registration
9:30 - 10:00 am	Welcome and Opening Remarks Introduction Prof Chris Gordon BC5 Project Overview BC5 Team Norwegian Embassy Remarks (Optional)
10:00 – 11:00 am	Presentations on Activities along the Coast Invited Institutions and NGOs
11:00 – 11:30 am	Comfort Break
11:30 - 12:45 pm	Q&A / Discussions on Presentations Discussions Impacts of Climate Change and pollution on the coast and capacity building need for 2030
12:45- 13:00	Wrap-up and Closing
13:00-14:00	Lunch

Annexe II

List of Participants

No	Name of Representative	Institution	Email Address/Tel No
Government Organisations			
1.	Isaac Dakurah	MESTI	isaacdakurah@mesti.gov.gh +233544876925
2.	Mathias Kumah	MESTI	Kumahmathias23@gmail.com +233247142830

No	Name of Representative	Institution	Email Address/Tel No
3.	Kilian B. Gyador	Ministry of Tourism, Arts and Culture	kiliangyador@gmail.com
4.	Dickson Agyeman	Forestry Commission - World Life Division	yaw652006@yahoo.com +233244843464
5.	Celestina Deku	LUSPA	cedkem@gmail.com +233277677770
6.	Mustapha Adamah	Ghana Maritime Authority	Pheric2006@yahoo.com +233209296370
7.	Eunice Ofoli-Anum	FSSD- Fisheries Commission	eunicomgh@gmail.com +233244745197
8.	David Akraasi	MLGDRD	david.akraasi@mlgrd.gov.gh +233545757786
9.	Henrietta Asante-Sarpong	NCCE	myboatemaa23@gmail.com +233245058969
10.	Faustina Borkloe	Social Welfare Department Keta Mun. Assembly	faustinaborkloe17@gmail.com +233208960858
11.	Hilda Ozoko	MoF/CEST	+233501605939
12.	Kyree Holm	Norwegian Embassy	
13.	Mia		mia@mfa.no +233501576996
NGOs			
14.	Azure Matthew Awini	Ghana Environmental Youth Movement	azurematthew@gmail.com +233542363469
15.	Owusu-Achiaw Raymond	Conservation Alliance	owusu.achiaw@gmail.com +233246656083
16.	Quarcoo Richmond Kennedy	Plastic Punch	plasticpunchngo@gmail.com +233244988412
17.	Mohammed Haruna-Rasheed	KASA Initiative Ghana	hrmohammed16@gmail.com +233543120000
Academia			
18.	Dr Edem Mahu	MAFS	emahu@ug.edu.gh +233507272359
19.	Dr Laila Akita	MAFS	lailahakita@gmail.com lgakita@ug.edu.gh +233506147131
20.	Dr Quashigah	IESS	pnjquashigah@ug.edu.gh
Media			
21.	Patience Gbeze	Ghana News Agency	pgbeze@gmail.com +233209027157
22.	Joyce Gyekye	Ghana Broadcasting Cooperation	joygye@hotmail.com +233235518503
BC5 Project Team/Students			
23.	Mathew K. Avarachen		Mathew.avarachen@ntnu.no

No	Name of Representative	Institution	Email Address/Tel No
24.	Murat Ardelan	NTNU, Norway	muratvardelan@ntnu.no +4795281601
25.	Preben Antonsen		
26.	Arne Onsrud		
27.	Daniel Mugassa Stephen	UDSM, Tanzania	Daniel.stephen@udsm.ac.tz +255759623395
28.	Veronica Siwalima		veronicaadrian@ymail.com +255786852718
29.	Eliengerasia G. Koka		eliengerasiagodiving@gmail.com +255766921257
30.	Judith E Mlay		Judyelly0@gmail.com +255714796448
31.	Isaac Mensah-Essilfie	IESS, UG	imensah-essilfie@st.ug.edu.gh +233246855109
32.	Euphemia Terkwor Oklah		etoklah@st.ug.edu.gh +233244653667
33.	Obed Omane Okyere		Oookyere001@st.ug.edu.gh +233541355403
34.	Theophilus Baah		tbaah002@st.ug.edu.gh +233241921943
35.	Christabell Afriyie Akwaboah		caakwaboah001@st.ug.edu.gh +233555233134
36.	Emmanuel Ansah		eansah033@st.ug.edu.gh +233244376263
37.	Jephter Nkansah		Jnkansah008@gmail.com +233246338799
38.	Kombian M. Sumeya		sumeyakombian@yahoo.com +233200545060
39.	Prof. Chris Gordon		cgordon@staff.ug.edu.gh +233208117200
40.	Millicent Kwawu		maamekugbe@st.ug.edu.gh +233247168090
41.	Sampson Dordaa		sddpdordaa@st.ug.edu.gh +233579223877