

# NEWSLETTER

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Welcome to the latest edition of Sophia and Emily in Ghana. Your Queen Elizabeth scholars on the ground, here to understand the impacts of climate change, water, and plastic pollution on local communities.

## CLIMATE CHANGE IMPACTS ON NATURAL SYSTEMS AND HUMAN SOCIETIES IN GHANA

This week, to deepen our understanding, we had the opportunity to visit a coastal community in Moree, attend a World Ocean Day event hosted by Sustainable Ocean Projects, listen to a lecture by Dr. Donatus B. Angurreng at the University of Cape Coast, and visit a local farm. Throughout these experiences, we had the privilege to engage with locals, stakeholders, and professionals in the environment field to not only broaden our knowledge on climate change impacts in Ghana, but also the ongoing efforts to address them. We learned about existing management and adaptation strategies, climate change threats, as well as mechanisms to help protect those in Ghana who are most vulnerable.

### BACKGROUND

Climate change is a pressing issue worldwide, affecting dimensions in both the natural and human world, intersecting health, environment, economy, culture, and politics. Climate change is understood as long-term shifts in temperatures and weather patterns caused by both natural and human activities [1]. The effects of climate change disproportionately affect those living in the Global South, and Ghana is a country that bears a large brunt of the burden despite their small contribution to the changing climate [2]. According to the Notre Dame Global Adaptation Initiative (ND-GAIN), Ghana is ranked as the 78th most vulnerable country due to its high exposure and sensitivity to climate-related risks [3].

These hazards include coastal erosion, sea level rise, flooding, and irregular weather patterns, worsened by inadequate funding of programs and projects to address climate change [2].

### ENVIRONMENTAL SYSTEMS WATER



Due to Ghana's topographic region situated along the Gulf of Guinea, low-lying areas, rising sea levels, combined with changing weather patterns, have caused coastal erosion to become a significant threat to Ghana [4]. We alongside a coastal erosion researcher Dr. Angurreng visited a small community in Moree, a town in the Central region of South Ghana that had experienced over 50 metres of erosion across its coastline.

With reported shoreline retreat across all of West Africa, Moree is just one of many coastal communities impacted by erosion [4]. It was overwhelming to see that water could swallow substantial amounts of land, leaving traces of what was once a lively community to now a desolate land. However, environmental processes were not the sole factor, as human-induced activities, like sand mining and plastic pollution, continually damage the environmental ecosystem around them. Sand mining is causing land subsidence, reinforcing coastal erosion, making us both critically reflect upon the relational approach humans have in shaping the environment around them.

## LAND



Changing weather has created unpredictable rainfall patterns, causing both droughts and floods across Ghana. During a visit to a local farm, our group had the opportunity to meet with a smallholder farmer named Eric. He shared that the rainy and dry seasons are not the same as before. It was discussed that when the first rain starts, it signals the time for farmers to begin plowing and planting crops native to their regions, such as maize, corn, beans and sweet potatoes.

Typically, planting occurs in April and May, but this year, the first rain started late, delaying the planting season. Eric explained that when the seeds were finally sown, the hot climate burned them, requiring him to replant everything. With more than 80% of Ghana's agriculture being rainfall-dependent, we reflected that even so, the slight delay of rain had large implications on the agricultural cycle, delaying planting, reducing yields, and further putting pressure on food systems [2]. Furthermore, flooding continues to be an issue, especially in areas where they do not have the resources or built infrastructure to withstand large amounts of water, which leads to destroyed homes, crops, land, and the spread of waterborne diseases.

## ADAPTATION & MITIGATION

Ghana has implemented policies and initiatives to address climate change, adopting both adaptation and mitigation strategies. Investments in adaptation projects can use green, grey, or a mix of infrastructure, often facilitated through a top-down approach. One adaptation solution we witnessed was sea walls, part of Ghana's sea defence project to create buffer zones [2]. However, most adaptation strategies are static and not dynamic, catering towards incremental vs transformative responses.

In the lecture, Dr. Angurreng highlighted how complex translating climate policies into practice is, highlighting the hidden motivations behind projects and raised questions about who gets included in these decision-making processes. We reflected upon the fact that if adaptation solutions don't suit the local needs of the communities, unintended consequences can lead to maladaptation, doing more harm than good. Therefore, to counter climate change in meaningful efforts, consideration for solutions to be evidence-based and co-developed with the community is critical. However, to get these solutions off the ground, there are constraints to mobilize funds, especially for emerging economies such as Ghana, where climate funds do not reach the sub-national level [2].

## **HUMAN SOCIETIES** **WOMEN IN FISHING**

Ghana has a climate-sensitive economy, which threatens the people's economic security and exacerbates social issues leading to economic insecurity and displacement [2]. One experience that stood out to us during our stay in Ghana was the event held by the Sustainable Oceans Project on World Oceans Day. During this event, local stakeholders spoke on their experiences within the fishing industry and the challenges they have faced because of the changing climate, such as lower fish yields and higher competition.

A notable aspect of this event was when a group of women performed songs in their local language, Fante. During their performance, they chanted "Champions, stop IUU (illegal, unreported, and unregulated) fishing". We found it moving to see women's voices being empowered in this environment, especially given the vital role women play in the fishing industry.

Traditionally, while men operate the boats and catch the fish, the responsibility falls upon women to purchase the fish from the men to sell in the market, often in informal settings. Within the patriarchal structure of Ghanaian society, this dynamic, where women's income is dependent on men, exacerbates already existing inequities and vulnerabilities, placing them at greater risk of abuse during their transactions.



## **ECONOMIC INSECURITY**

The pressures caused by the decreasing amount of fish yields can push fishermen to desperate lengths, in which case they will resort to illegal fishing practices, such as using explosives and illegal nets for easier capture [6]. This exacerbates the competition in the fishing industry that climate change is contributing to, while at the same time causing further harm to the environment. This negative feedback loop is a dangerous cycle that many Ghanaians within the fishing industry have fallen victim to. The lack of social security that exists in Ghana plays a major role in the economic insecurity that fishing communities face. During our visit to the Moree community, we learned that though the coastline posed a significant risk to the safety of people, some still inhabited the land.

When speaking to the residents, an individual expressed concerns of living on the land, claiming they were scared to sleep at night in fear a storm would flood their home. When asked the reasons for continuing to stay, they mentioned that they were asked to relocate further up the hill away from the sea, with land promised from the government; however, a politician bought the land, preventing them from relocating. Even in instances where coastal communities can relocate, applying a social justice lens reveals relocation can temporarily address one issue but also create more.

Often, those in coastal communities already face systemic barriers, and when combined by a lack of government support for rebuilding, loss of income from moving away from work, and losing cultural connection to the land, it is a less than ideal solution for many. Furthermore, it is not uncommon for people in fishing communities to not obtain high levels of education, as their priorities are often set on making an income from fishing. When asked, health geographer Pascal Meho-Akakpo on his perspective, he confirmed this to be true. He claimed that oftentimes families in the past have not been able to afford to educate their children and that they see more value in getting their children to work from a young age to support their families. Due to the social structure that exists in Ghana, families are forced to make these trade-offs, perpetuating a cycle of dependence on the natural environment as a means of survival.

## CONCLUSION

As we reflect on our experiences and what we have learned, it has become clear to us that climate change, environmental health and social wellbeing are all interconnected issues that require cross-sectoral collaboration. We now better understand that the struggles that both the environment and the Ghanaian people experience due to climate change require holistic approaches that consider the complex cultural, social, and economic contexts within Ghana. It was made clear on this trip that immediate action to combat the effects of climate change is needed at both an individual and a national level.

A lesson that resonated with both of us was from Dr. Angnuureng, in which he discussed the concept of climate justice. The definition he used was "The idea that climate change and its solutions should be approached with fairness and equity, recognizing that marginalized and vulnerable communities are disproportionately impacted by climate change, despite contributing the least to it". We recognize that though we come from the global north, where the climate impacts are not as drastically felt as in Ghana, there is a disproportionate effect of climate change across space and time. This highlights the importance of standing in solidarity with groups who suffer at the hands of climate change and corruption, as those who contribute the least suffer the most [2].

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