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An Examination of Fisheries' Overexploitation in the African West Coast

Source: Vergano, 2014.

Table of Contents

1. Introduction

In West Africa inhabitants of coastal fishing villages suffer under a shortage in dietary protein as a consequence of overexploitation of regional fish stocks, which have been so far exploited in a traditional fashion. Similarly, local residents rely on the consumption of bushmeat, a source of nutrition stemming from a large variety of wild animals. The latter is traditionally consumed supplementary to fish in areas of West Africa. The main cause of resource depletion in fish stocks in countries such as Sierra Leone, Mauritania, Liberia, Ghana and Senegal is related to international trawling activities, on the one side in form of legal fishing companies, mostly from the European Union (EU) and on the other side represented by illegal and unregulated fishing activities (Daniels et al., 2016). Other scholars highlight the impact of climate change as a further stress factor fish stocks (Khan and Sesay, 2015). This results into a raised dependency on bushmeat as a major source of protein for West African coastal inhabitants. This in turn increases the probability of Ebola outbreaks in the area because of the high exposedness to situations where transmissions from animal to human might take place. The authors assume a typical coastal village community as the focal point for the interrelated system components. By the use of system thinking, the interactions between the various stakeholders are presented and further explained. In this context it is important that the acts of one actor actively shape the reality of another - both in a negative or positive way.

In this case different actors are involved with diverging interests and respective outcomes of the situation, namely a EU policy maker, a doctor based in Sierra Leone, a local coastal fisherman, a supermarket chain owner in the UK, an illegal trawler owner and a bushmeat vendor in the local market. The authors of this paper intend to give an overview of the different actors' standpoints and motivations and provide an insight into their respective relationships with a special focus on power. Secondly, two theories of change will be depicted that outline how actors such as the EU and the local fisherman have different capabilities to induce positive or negative change in the system, namely the Three Spheres of Transformation by O'Brien and Sygna as well as the Amoeba Model by Joanne Poyourow. Thirdly, two different scenarios will be opposed that represent a best and worst-case outcome. In this section it will be argued why a certain scenario has a negative impact on one actor but a positive one for another. Finally, a conclusion will summarise the findings.

2. Actors' Standpoints and Motivations and Actor Juxtaposition

2.1 EU Fishing Legislation Policy Maker

As mentioned before, European companies dominate the majority of the international trawling activities in the coastal areas of West Africa. Yet, this European involvement has been accused of being detrimental for long-term interests of the local communities as well as for the long-term sustainability of the coastal resources. In response, the EU has implemented several revisions, amongst which the Sustainable Fisheries Partnership Agreements (SFPA's) (Binet and Failler, 2011). The SFPA's granted the EU fishing rights in exchange for financial and technical support in the fishing areas (Fisheries – European Commission, 2018). Even though these agreements aim to promote sustainable fishing, 88% of stocks in EU waters are fished beyond their capacity to reproduce, and many fisheries rest on young fish before they reach sexual maturity (Binet and Failler, 2011). This directly harms the local community, the oceanic conditions and the long-term commercial interests of the EU. Another reason for the overexploitation can be found in the involvement of illegal trawlers that find their ways into the European waters (Daniels et al., 2016).

The European legislation therefore has two dominant challenges. First, it needs to ensure sustainable fishing practices that will secure the supply of fish to EU markets in the future. This should be done in cooperation with supermarket chain owners and the local governments. Second, the regulations need to be enforced effectively and ensure that no illegal trawling will take place in the European waters. Policies aim therefore at fighting illegal fishery practices, mostly targeting the illegal trawlers.

2.2 Doctor based in Sierra Leone

Due to the overexploited fish supplies, an increasing number of people are becoming reliant on bushmeat (Holmes, 2004). The increased consumption of bushmeat leads to an increased risk of zoonotic outbreaks (diseases that can be transmitted from animals to humans), as humans have increased contact with potentially infected animals. The 2014 mass Ebola outbreak in West Africa is believed to originally have spread from an infected bat (BBC, 2014), and took over 11,000 lives (WHO, 2018).

As an international doctor based in Sierra Leone, the current situation is seen as a great concern from a health perspective. If the current situation is allowed to continue, the spread of Ebola may cause a widespread pandemic (Humanosphere, 2016). It is therefore considered to be of

utmost importance to find a solution to the problem that can quickly stop the spread of Ebola and prevent future outbreaks.

The expansion of bushmeat consumption is perceived to be the major driver of Ebola outbreaks. Therefore, the doctor is in favour of solutions that may severely limit this type of consumption and instead return to the traditional source of protein from fish. As such, the doctor is supportive of the local fisherman and hesitant towards the bushmeat vendor. Due to the support of the local fisheries, the doctor is opting for the EU and the illegal trawlers to stop consuming fish from the area.

The doctor holds a powerful stance in that they are expertly trained on the issue of disease, and they observe the situation in West Africa objectively. They are aware of the negative correlation between overfishing and Ebola, and their knowledge on the subject is not influenced by personal values. This makes the doctor a useful and trustworthy source of information for more powerful actors to communicate with.

2.3 Local coastal fisherman

Since climate change, Europeans trawlers and illegal trawlers has heavily reduced the fish stock, they have a direct impact on the local fishermen's livelihood. They are dependent on the fish that are declining and are unable to catch a sufficient amount of fish because of those other actors (Binet and Failler, 2011). A stop or a decline in the offshore fisheries would therefore be in the local fisherman's interest because they need the fish stock to recover so they can catch fish to sustain themselves and their families.

The fishermen do not have a lot of power because their situation, they are alone in their interest because people can still get their protein from elsewhere and the powerful actors are making their money (Brashares et al., 2004). This would mean that the local fishermen, as many other local people in low income countries are one of the lowest in the hierarchy in relation to other actors in this case (Massey 2012, p. 138). The only one that could give some voice and for the local fisherman is the doctor advocating for less meat and more local fish to increase the public health.

Even though, it seems like the local fisherman has the most sustainable way of providing protein for the population there are not any given solutions for his/her situation (World Bank, 2013). There are a lot of moral issues related to the European trawling, in the way they are destroying poor people's livelihoods by fishing in their local waters to feed a richer population in Europe (Kaczynski 2002). This could be used as an argument to change EU legislations but might be hard for a local fisherman to be heard in that context.

2.4 Supermarket Chain owner from the United Kingdom

A Supermarket Chain owner, based in the United Kingdom, is worried about how the consequences of the current system will impact the access to (and prices of) fish products in the EU. Currently, the supermarkets profit from importing fish from the area in question (EUMOFA, 2017). It has become clear, however, that the scale of the fish extractions from the area is unsustainable for several reasons and is likely to collapse within an uncomfortably near future (Harvey, 2011).

The threat of this collapse, and the monetary consequences this would result in, has made the Supermarket Chain owner keen on finding a sustainable solution to the problem. The only acceptable solution (CBI, 2018) for the Supermarket Chain owner is one which can guarantee the supermarkets' access to the same or higher amount of fish to consistent or lower prices. Alternatively, higher prices can be compromised to customers by successfully introducing ethical labels.

In relation to the other actors, the Supermarket Chain owner has identified the EU Fishing Legislation Policy Maker as the most important. The objective of the Supermarket Chain owner in this regard is to attempt to influence the decision to be as profitable for the European business as possible. Due to the importance of a solid domestic market in the EU, this is what will be used as a leverage in the future negotiations. The supermarket chain owner realises her power as a corporation, an argument also brought forward by Massey (2015, pp. 230-273), and will attempt to utilize this to bend the market to favour her interests. Moreover, the illegal trawlers are perceived to be a great threat to the interests of the EU-market since they are competing for the decreasing stock of fish.

2.5 Illegal trawler owner

Illegal trawlers are one of the main contributors to the fish stock depletion. The active trawlers use various strategies to pillage marine beds without getting monitored. In Guinea-Bissau, Greenpeace found that vessels used transhipment: they turned off their automatic identification tracking system to move their catch from one ship to another without documentation (Wheeler, 2017). In Ghana, there is another case that local fishers use canoes to meet foreign illegal, unreported and unregulated (IUU) vessels to transport boxes of frozen fish to processors who wait on shore (Stop Illegal Fishing, n.d.) This practice, illegal under Ghanaian fisheries legislation, is dominantly driven by the depletion of fish stocks and its consequences to the local economy, driving artisanal fishers to seek (Stop Illegal Fishing, n.d.).

Because of the lack of guideline and protocol, many illegal fishier activities take place at the Western Africa coastal zone. It is believed that many of unlawful trawler owners originate from Asia and Europe where the sum of seafood consumption is comparatively large (FAO, n.d.). Moreover, it is estimated that as much as 300,000 jobs in artisanal sectors were lost because of IUU in West Africa and annual revenue which is equivalent to approximately 2.3 billion USD was disappeared from 2010 to 2016, Mauritania, Senegal, The Gambia, Guinea Bissau, Guinea, and Sierra Leone (Wheeler, 2017).

So far, illegal trawler owner brings huge negative impact on overfishing problems utilizing various strategies and prevention of violations seems to be difficult on account of lack of rules and compliance. Considering its negative effects, as well as acting in the illegal sphere, means that the trawlers have a limited scope of influence. Yet, one ally could be found in the local bushmeat vendor: as long as the trawlers continue to deplete the fish stocks, the bushmeat vendor will have an increased demand of bushmeat.

2.6 Bushmeat vendor in local market in Guinea

The consumption of bushmeat is part of the traditional diet in many West African countries (Barnes, 2002; Bowen-Jones et al., 2003). As trawling activities with respect to fisheries exploitation increased along the coast, the total availability of seafood has been constantly decreasing for local consumption (Binet and Failler, 2011). Resulting from this, demand in bushmeat increases as a source of protein by the local population.

As a bushmeat vendor in the local market, this is a positive development. Since there is no fish available on the local market, consumers increasingly turn to alternative sources of protein. This results in a boosted demand of bushmeat. From this follows that higher prices can be demanded on a market where protein availability is rather low and few bushmeat sellers compete for consumers. Accordingly, the income rises as bushmeat vendor. Nonetheless, as local fishermen discover that revenues diminish, they could abandon their traditional fishing practices and start hunting bushmeat as well. For a bushmeat vendor who is already in the business for a long time, this would be an undesirable development as more supply leads to an overall price fall of bushmeat. As a consequence, it will be crucial to market one's products as of high quality in comparison to new vendors, which is justified as one is already in the business since a long time.

In addition, the statements by the doctor residing in Sierra Leone could make the business difficult in the future. According to the doctor, bushmeat consumption is highly connected to the infection of the Ebola virus. However, the claims of a foreigner are unlikely to be trusted by the local population so that it is crucial to highlight that bushmeat consumption has always been a cultural tradition in the area. Due to the interests of the illegal trawlers and EU trawling activities in exploiting fish stocks, it is in the interest of the bushmeat vendor that they pursue their activities as they create as they boost the demand on bushmeat.

3. Theories of Change: Challenges and Opportunities for Actors

3.1 The Three Spheres of Transformation

This section focuses on two theories of change. The first one is the theoretical framework by O'Brien and Sygna: The Three Spheres of Transformation. O'Brien and Sygna distinguish between three embedded and interacting spheres of change: the personal sphere, the political sphere and the practical sphere (O'Brien and Sygna, 2013). O'Brien and Sygna's understanding of transformative change appears to to cohere with Massey's understanding of the concept of transformation in the realm of social change (Massey, 2016; O'Brien and Sygna, 2013).

Following O'Brien and Synga's theory and Massey's understanding of transformation and social change, it is relevant to assess which actors have the ability to achieve transformative change. Considering the dominance of European fishery activities in the area, it is obvious that the EU Fishing Legislation Policy Maker is a powerful player in this scenario. O'Brien and Sygna's theory uncovers that the policy maker is deeply rooted in the political and practical sphere but is lacking the connection to the personal sphere (O'Brien and Sygna, 2013). The potential for change thus lacks the support of local actors as the local interests are not considered. In contrast, another powerful player, the doctor based in Sierra Leone, is strongly connected to the personal sphere. The status and respect the doctor gained offers for potential local support. Assuming that the doctor has considerable political connections to the local government, the doctor could be connected to the political sphere too (O'Brien and Sygna, 2013). Yet, the doctor is currently lacking international recognition and a relation to the practical sphere. However, once the Ebola outbreak worsens, international interests would rise accordingly. This would give the doctor, besides moral support, the international political support that boosts its potential for transformative change. In this case, the doctor uses the Ebola crisis to pressure the EU legislator to decrease its fishery activities while allowing the local fishermen to fish at a lower and more sustainable rate. In case the Ebola outbreak can be contained, it would still be of importance to find cooperation with the EU Fishing Legislation Policy Maker. A window of opportunity could be the fish stock depletion and EU food security concerns. Once the doctor is able to convince the policy maker that a continuation of fisheries at this rate would lead to complete depletion, the EU could be moved to invest in alternative fishery sources, thereby switching its focus in the practical sphere (O'Brien and Sygna, 2013). In this case the EU would most likely move to another area or would, ideally, invest in alternative techniques such as aquaponics.

Other allies for the doctor can be found in the local actors. The local fishermen, and a possible fishermen collective are likely to be influential at a local level. As the illegal trawler is operating in the illegal sphere, its negotiation powers ar rather limited. The bushmeat vendor is also in disadvantage as his bushmeat sells contribute to the spread of Ebola. The EU can find allies in the supermarket chain owner since they both aim to secure the fishery supplies on the EU market. Transformative change would not be likely when the interests stay merely commercial. In case the supermarket owner would prioritize the selling of sustainable fish, it could demand EU legislation to secure sustainable production. If in the UK locals would demand for sustainably produced fish, the supermarket chain owner could pressure it suppliers to secure sustainable production. In this way, pressures in the personal sphere (the UK locals) could affect the political sphere and change the outcomes in the practical sphere (O'Brien and Sygna, 2013).

3.2 The Amoeba Model of Sustainable Development

In addition to the Transformative theory, the amoeba of cultural change introduced by Alan Atkisson will be utilised to examine opportunities for change. The Amoeba Model builds on transformation originating from an innovator, who together with other change agents and transformers, spreads the idea of change to the mainstream society, and by this change the culture and make the transition natural (Poyourow, 2010). To illustrate the Amoeba Model, the local fisherman can be considered to be an early initiator. The local fisherman experiences the depletion of fish first hand, and also observes people in surrounding communities suffering from the fatal disease Ebola. The fisherman would realise that a change is required, even if they cannot necessarily see the entirety of the situation and a local fisherman has little power to create change. The local fisherman would presumably communicate with other local fishermen, and even discuss concerns with other protein producers, such as the bushmeat vendor. The bushmeat vendor helps the initiator translate the idea of change into a form customized for the mainstream society. Together, they can encourage more people to acknowledge and understand the issue, whilst simultaneously acting individually towards the desired change (Poyourow, 2010).

As illustrated by the Transformative theory, the medical doctor has more leverage in society than the local fishermen and bushmeat vendor. The doctor is the transformer that can facilitate

understanding between the local community and the more powerful actors in this situation and can therefore work as a transformer. This communicates the needs of the local communities to the more powerful societal structures. This actor is vital in getting the mainstream and higher institutions to listen and raise the issue to a structural or policy level (Poyourow, 2010). Transformers such as the Doctor further translate the message from the first fisherman to other groups in the society, like the local governments, NGOs and EU. The controller of the Amoeba Model in this situation can be contextualised by the EU legislation policy maker, who has a big impact on the fish stocks in West Africa. The policies set by the EU regulate the fish sold in the UK supermarket chain, and therefore the customers that buy the fish also become involved. When the movement for change has spread in the world, the issue must be addressed at the EU level. This creates a opportunity for change to stop or heavily reduce the trawling that would definitely alter the situation and can therefore be identified as a leverage point (Poyourow, 2010).

The customers of the supermarket can be considered to be the mainstream society, who will eventually follow the change movement initiated by the earlier actors in the amoeba model. As knowledge of the situation spreads to Europe, consumer patterns might change. Supermarket chain owners could then also push to ensure that sustainable fishing practices are followed. Changes like this could then influence how people think about the fish they consume and create a public debate in another context. By using the Amoeba Model for cultural change, transformations in how people perceive the issues around fisheries and bushmeat could occur. It starts from a local fisherman having an idea of the drastic need for change, using other change agents to frame the message in a way so it can be adopted by many people and by this spread a common understanding of the problem. Through this, the necessary changes become increasingly natural and are more likely to happen (Poyourow, 2010).

4. Scenario Building

The following sections will outline a worst-case and a best-outcome scenario. They both were developed through applying a joint storytelling approach including all the group members. This strategy lead to two consistent narratives of the scenarios.

4.1 Worst-case scenario: Status Quo

In the worst-case scenario the status quo situation intensifies. The demand of protein sources by the local West African population remains constant as a result of depleted fish stocks. Moreover, the trawling activities by the EU stop as there is no profit to be made anymore because the coastal marine ecosystem has entirely vanished. Similarly, local fishermen cannot fish anymore in the coastal zone so that they change their major income source and either become pirates or bushmeat hunters. With respect to the former occupation, such activities occurred in the Gulf of Aden where former Somali fishermen reorganised themselves and started hijacking vessels on the sea (Middleton, 2008). A similar development would take place in this described scenario. Since the local focus shifts towards bushmeat trade and consumption, the demand for bushmeat leads to a higher activity in hunting. This in turn leads bushmeat hunters to be exposed to a larger degree to bushmeat that carries the Ebola virus. Thus, the virus spreads among the population, finally leading to an epidemic disease that dangerously threatens the health of the local residents.

Furthermore, the increased bushmeat hunting leads to a high pressure of ecosystems in the countryside so that in the long-term bushmeat stocks are also depleted. The respective stress on the local ecosystem directs young people to leave the coastal area so that they look for employment in cities. As the inhabitants of the local area are infected by the virus, the migration activities to cities cause an even further spread of the Ebola virus. Finally, the Ebola outbreak bursts into civil disobedience in the coastal areas as a result of a huge drop in life expectancy. This development either leads to the involvement of the national government or to the assistance of international humanitarian aid organisations. Either way the population of the coastal areas completely depends upon aid by external actors.

4.2 Best-case scenario: Sustainable fishing practises

In the best-case scenario, the severity of the situation is finally recognised by all stakeholders. The stock of fish in the region is near a complete collapse, which pushes the EU to search for more reliable sources for fish in order to enhance their food security. Therefore, the EU terminates their trade agreements with the West African governments to fish in their waters, and instead invest heavily in aquaponics and aquaculture in their own waters around Europe.

This decision is also based on ethical reasons. Due to massive information- and morality campaigns from various NGOs, the people of Europe have been made aware of the consequences of their consumption of West African fish. This is not defensible from the perspective of the EU countries' commitment to human rights. Therefore, the EU loses domestic support to continue with their fishing practises there. Instead, people are demanding ethically labelled fish to be made available to them in the domestic market in Europe. This shift of consumer demand enables the investments of domestically produced fish.

Once the European trawlers leave the area, the fish stocks can begin to slowly recover and the availability of fish to the coastal villages steadily increases again. This decrease the reliance of bushmeat for protein in the area. As such, the traditional bushmeat hunters can continue with their cultural practices on a low scale level without the risk of stocks collapsing due to overhunting. Since the consumption of bushmeat drastically decreases, this also diminishes the chances of a new Ebola outbreak.

The current Ebola outbreak spread widely and had great humanitarian consequences on all continents before finally being curbed with a new vaccine. The memory of the pandemic acts as an incentive for leaders around the globe to work actively to avoid a similar scenario in the future. In international meetings, it is agreed that the availability of fish for the coastal populations of West Africa is the key to avoid future Ebola outbreaks. Therefore, many countries start to cooperate to protect these waters from illegal fisheries such as trawlers and allow for the stocks to recover.

5. Conclusion

This case presented the complexities of the interlinked relationships between (mainly) European fishery activities in the African West Coast, the depletion of fish stocks, increased bushmeat consumption and Ebola outbreaks. As discussed above, many actors with various interests are involved in this case.

The discussion of the theories of change as well as the scenarios portrayed that the situation is currently dominated by the European fishing fleets. Since the core of the problem can be found in the overfishing of these fleets, potential for change is naturally sought in the dominant actor. Yet, both O'brien and Sygna's analysis as well as the Amoeba model uncovered that transformational change can and should be sought in the local actors, in particular lead by the doctor. Considering the doctors status, intentions and allies, change should be sought in this local powerful actor. Yet, as this movement fails, there is still hope for external change to arise. Taken into account that the fish stocks are depleting, it could be expected that the EU switches its focus to alternative sources of fish. This would mean that the fleets would either move to another area or that it would invest in domestic options for fish production, such as aquaponics. This change can be triggered by internal and external motivations. If sustainable change is desired, internal pressures should come from the supermarket owner and the actors underrepresented in this case: the European fish consumers and the local governments. External pressures could come from the local movement described above. It should be noted here that an emerging Ebola crisis should also be seen as an external driver, driving the EU out of the West African waters.

Overall the case represents various windows of change. The complexities of the situation limit certain actors in their capacities, while it simultaneously allows other actors to emerge as leaders. Important are the motivations of the individual actors, as will be presented during the role play.

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