A political economy of Artisanal fisheries and climate change in Ghana

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Introduction

Should development be integrated with both climate change adaptation and reduction of greenhouse gas (GHG) emissions? There is growing acceptance that this is essential for success in each of the three arenas. The challenges involved in linking them has led to rising interest in how to support more integrated approaches for development, adaptation and mitigation. Integration has been variously termed 'low-carbon climate-resilient development', 'triple wins' and 'climate-compatible development' (CCD) (see Chapter 1).

Ellis et al. (2013) synthesise the wide range of socio-political forces driving CCD policies and processes. These include connecting adaptation processes with wider resilience, growth and poverty reduction; linking mitigation with energy security and natural resource efficiency; harnessing new economic opportunities and sources of finance associated with climate change; and strong government leadership. Current challenges include the costs associated with policy change; opposition from interest groups that might lose out; low awareness and poor information on uncertainties, risks, opportunities and trade-offs; the short-term nature of policy- and decision-making; short political election cycles; and institutional and technological constraints, including in capacity to respond to and implement strategies.

This chapter presents results of research that explores these socio-political forces and challenges by understanding the political economy of CCD in relation to artisanal fisheries in Ghana. Building on other research approaches to climate change and development (Tanner and Allouche, 2011), our analytical framework for political economy aims to identify:

- the policy and actor **context** underpinning CCD in this sector
- the power relations, **competition**, cooperation and conflict between different interest groups driving policies and access to resources
- the distributional **consequences** of different actions on these interest groups, and possible trade-offs between groups and different objectives

The analysis provides insight into the complex political economy in Ghana's artisanal fisheries, a sector that has received little attention with regard to climate change linkages. This could help other projects and wider initiatives on climate change locate their work within a political economy context and target efforts in politically smart ways. The chapter first outlines the context for the artisanal fisheries sector and challenges to its sustainability and relations with climate change. It then analyses the politics of climate change policy formulation, including its relationship with the fisheries sector.

Two case studies analyse potential strategies for CCD: reductions in fuel subsidies for small-scale fishing boats and enhanced mangrove protection. The fuel subsidy is a highly controversial and politicised aspect of relations between artisanal fishers and the government. It is a source of carbon emissions, and thus allows an assessment of how support to livelihoods and poverty reduction can conflict with mitigation. Mangrove protection is contentious because of conflicts over different uses of the coastline, the potential for carbon credits and the ecological significance of the mangroves as spawning areas for fish. The two case studies help us look at the three aspects of the political economy analysis, using the framing of context, competition and consequences across different actors.

The research employed a combination of documentary analysis, formal and informal interviews with 32 key stakeholders and a participatory Learning Event in Accra that engaged 33 participants in stakeholder mapping and visualisation techniques to deepen analysis of the two case study issues.

1.0 Climate Change and the Fisheries Sector

Ghana is an excellent example of the additional challenges climate change and variability pose to development. It has achieved middle-income country status yet this significant economic progress, as in all other countries, has been accompanied by rising GHG emissions: Ghana has moved from being a net carbon sink to being a net emitter. Net GHG emissions rose from an estimated -16.8 million tonnes of CO_2 equivalent in 1990 to 23.8 million tonnes in 2006, with 40% of the emissions from energy, 24% from agriculture and 25% from land use, land use change and forestry (MEST, 2011).

Fisheries play a key role in livelihoods for people along Ghana's 550 km coastline. The impacts of and responses to climate change have significant implications for the sector and for the lives of poor people (Allison *et al*., 2005). Ghana's response to climate change, however, presents opportunities for the fisheries sector to improve its efficiency, sustainability and support for climate-compatible wealth creation. And yet dealing with climate change impacts on fisheries is linked to wider management challenges in the sector. These include weak monitoring, poor enforcement, uncontrolled growth of trawler-based commercial fishing (and their emissions), a rise in illegal, unreported and unregulated (IUU) artisanal fishing practices and declining fish stocks among key commercial species.

The Ghanaian government is committed to mainstreaming climate change responses into multi-scale and multi-sector planning and policy processes (MEST, 2011). At the same time, Ghana is supporting rapid expansion of offshore oil and gas exploration and production. In addition to its potential benefits, the oil industry has implications in terms of increasing global emissions and could harm coastal livelihoods, including fisheries (through oil spills and other pollution related to the industry).

2.0 Artisanal Fisheries in Ghana

Fisheries, both marine and inland, play a vital role in livelihoods and are crucial for nutrition within Ghana. The sector accounts for 1.4% of Ghana's gross domestic product (GDP) (GSS, 2014) and employs at least 2 million people, including 135,000 fishers in the marine sector (Finegold et al., 2010). Marine fisheries provide 75% of Ghana's total annual catch (Agrer, 2011), with the majority of this from inshore artisanal fishing. The remaining 25% is from lakes and rivers, with which this study is not concerned. It is women who often carry out processing, distribution and local trading. In recent years, 10 landing points have been improved with ice-makers and freezer storage. However, Ghana's marine fisheries are under many pressures from over-exploitation, IUU fishing by foreign fleets, habitat destruction, climate change and coastal urban and industrial growth (including the emerging oil and gas sector).

There are three types of fishing fleets: (i) artisanal canoes (mainly but not all motorised); (ii) semi-industrial boats (wooden-planked vessels); and (iii) industrial vessels (large-scale trawlers and tuna boats). Of the three, the first fleet is the largest, contributing 60-70% of the total annual marine fish output of small pelagic fish species. The over 12,000 wooden dugout canoes (FASDP, 2009, in CRC, 2010) range in size from small, paddle-powered canoes to boats up to 16 m in length powered by outboard motors (approximately 55% of canoes are motorised; Finegold et al., 2010). The canoes are usually Ghanaian-owned with almost exclusively male crews of up to 20. The number of canoes has increased in recent years since reintroduction of the subsidised premix fuel programme (CRC, 2010).

The canoe fishers use purse seines, various entangling and gill nets, encircling nets, long lines and hand lines. They mainly harvest small seasonal pelagic fish, whose numbers peak as a result of an offshore upwelling of water that brings nutrients to fuel their food chain during December to February and July to September, making these the key periods for fishing (FAO, 2010). Some artisanal fishers fish all year round, though many find alternative employment through subsistence farming, small trade, lagoon fishing, sand mining or stone quarrying (Mensah and Antwi, 2002).

With approximately 350 vessels operating from seven landing sites, the semi-industrial fleet is the second largest. These diesel-fuelled, wooden plank boats are either Ghanaian or joint ventures between Ghanaian and foreign owners. They catch pelagics in the upwelling season, with some of the larger vessels trawling for demersal species such as grouper, and trap lobster during the off-season. The time canoes and semi-industrial boats can stay at sea depends on the amount of ice and fuel they have available. Purse seiners tend to fish overnight. Trawlers and canoes using drift gillnets or hooks and lines may stay at sea for several days (Bennett, 2002).

Canoes and semi-industrial vessels often use illegal lights as well as other illicit techniques such as small mesh sizes, fish aggregating devices, poisons, explosives, pair trawling and trawling close to the shore (Finegold et al., 2010). Some of these activities go on outside what is regarded as the peak fishing season.

The large, steel-hulled industrial trawler fleet is supposed by law to operate in waters more than 30 m deep. About 80 vessels operate from Tema and Takoradi, which have berthing facilities. These have freezing facilities on board, enabling them to remain at sea for longer. There is also a tuna fleet of 35-40 vessels that operate much further afield, often staying at sea for several months and sending fish ashore on carrier boats (Bennett, 2002; CRC, 2010; Finegold et al., 2010). All the industrial ships are supposed to be either Ghanaian or Ghana–foreign joint ventures but there is a significant problem with IUU foreign vessels encroaching West African waters.

Ghana's marine fisheries output has decreased significantly in recent decades. Between 1996 and 2011, catches declined 66% from 252,112 MT to 84,980 MT (CRC, 2013), despite regulations intended to improve output but reduce overfishing. The current regulatory framework, drawn up within the Fisheries Act 2002, is based on Ghana's decentralised structure in which central government is responsible for policy formation, monitoring and evaluation whereas implementation comes under the local district assemblies and community-based fisheries management committees. One major issue with the implementation of this decentralised system relates to insufficient funds distributed from central to local government (Mohan, 1996). In practice, responsibility for fisheries management lies predominantly with central government bodies (CRC, 2010).

A number of key multilateral and bilateral donor agencies are involved in Ghana's fisheries. The World Bank's West Africa Regional Fisheries Programme has invested $54 million in the country to strengthen capacity to sustainably govern and manage the fisheries, reduce illegal fishing, increase profitability and the proportion of value captured by the country and develop aquaculture.[1] This funding includes a $3.5 million grant from the Global Environmental Facility.

The UK is implementing the Sustainable Fisheries Livelihood Development Programme and Spain is investing in cold stores and refrigerated ships (Finegold et al., 2010). The US is investing in the Integrated Coastal and Fisheries Governance Initiative.

3.0 Fisheries and the Impact of Climate Change

The decline in marine fisheries means much lower harvests of the small pelagic species that are critical to people's livelihoods (CRC, 2013). Poor governance and open access without controls have led to a boom in the numbers of both artisanal and semi-industrial fishing vessels, causing overfishing. Overall, marine fisheries sector regulations attempt to control unsustainable exploitation through (i) prescribed mesh sizes; (ii) elimination of bad fishing practices; and (iii) reduced industrial vessel fishing through licensing schemes and set fishing zones.

Canoe-based fishers have free access to the resources, except for payment of an annual fee to the chief fisher and traditional weekly non-fishing days or bans on fishing activities prior to and during annual

[1] http://www.worldbank.org/projects/P124812/ghana-west-africa-regional-fisheries-program-gef?lang=en

festivals. Conflict resolution is typically the remit of chief fishers (appointed traditional advisors for the fishing community) assisted by a council of elders. Different ethnic groups tend to use different fishing techniques, and this reduces the potential for conflict. But conflicts do occur between indigenous and migrant fishers, usually over the purchase of premix fuel, fish pricing, non-payment of fish levies, etc. Migrant fishers are supposed to report to the chief fisher of the area and abide by local bylaws.

The three fleets interact through their competition for the fish, with the artisanal fishers, in trying to maintain their catches, themselves overfishing. There appear to be increasing cases of industrial and semi-industrial vessels may cross illegally into the Inshore Exclusive Zone (IEZ) reserved for artisanal fisheries, and in some cases artisanal fishers are going further out to sea. Artisanal fishers may also buy 'trash' fish (non-targeted by-catch of little or no market value to the trawler companies) from the industrial trawlers (Nunoo et al., 2009).

The Monitoring, Control and Surveillance Division of the Fisheries Commission, in collaboration with the Ghana Navy, conducts sea patrols to stop industrial vessels from fishing in the IEZ. Culprits are prosecuted using more formal methods, including in court. In 2011, a special Marine Police Unit (MPU) was re-established to handle criminal activities and illegal fishing practices at sea. National plans are also in place to review national legislation and develop a national plan of action against IUU fishing. This is partly a result of Ghana being confronted (in March 2013) over its failure to comply with European Union (EU) regulations in controlling IUU fisheries, which led to a ban on tuna exports to the EU.

Large shoals are being attracted at night to the lights of oil installations. Fishers complain this has affected their harvest, and that the industry has brought other problems, such as pollution from spillage, increased occurrence of brown algae (*Sargassum*), which they claim was not observed prior to oil production, and destruction of fishing gear and canoes through collisions with oil vessels. Restrictions on fishing have been enforced around the safety zones of the floating platforms.

Other factors apart from climate change are affecting the fisheries, then, including overfishing, pollution and eutrophication. A crucial climate issue involves factors that affect the upwelling processes off the coast, which can strongly impact nutrients and food supplies for fish (Katikiro and Macusi, 2012; Perry and Sumaila, 2007). Fluctuations in fish catch are linked to changes in upwelling, rainfall, recruitment and migration of fish. Models show rising sea surface temperatures lead to declines in catch in round sardinella but increased catch of anchovy, while flat sardinella was most affected by projected precipitation changes (Dontwi et al., 2008).

The impacts of climate change can be direct, including changes to wind and temperature that affect stratification and circulation of water. This affects productivity and abundance of various species (e.g. Cheung et al., 2010). Sea level rise and increased extreme weather events can damage coastal habitats, including mangroves that are important for fish breeding and shelter. Extreme weather can also disrupt fishing patterns and damage landing sites, which affects the livelihoods of coastal communities (Katikiro and Macusi, 2012). Indirectly, climate change can affect the physiology and behaviour of the fish stock, through changes to primary and secondary productivity dynamics or prey–predator interactions. This can lead to a decline in fisheries production and even the disappearance of some species (Barange and Perry, 2009).

Artisanal fishers and their communities have put in place effective coping strategies in response to the natural fluctuations in upwelling dynamics. These include more intensive exploitation of natural resources, diversifying income sources, investing in supportive social networks and seasonal or permanent migration (Perry and Sumaila, 2007). These are more suitable for seasonal and inter-annual temporal variability rather than longer (e.g. decadal) periods. They may also not help in situations where the expected rate of climate change is more rapid and the fisheries are already under stress (Lehodey et al., 2006). Projections for West Africa show climate change may lead to a substantial reduction in marine fish production and fish protein supply by the 2050s (Lam et al., 2012). Ghana is

second only to Nigeria in the projected negative impacts of climate change on fish landings: an estimated 41.5% drop in annual catch for the low (constant 2000 CO_2) GHG emission scenario and a 55% drop for the high range (SRES A1B) scenario. Hence, increased competition over scarcer resources has implications in terms of food security and potential conflicts.

4.0 Politics of the Marine Fisheries Sector and Related CCD Strategies

This project focused on two aspects of the political economy of resources and livelihoods that reflect some of the contradictions between interest groups – the inshore fishers' fuel subsidy and use of the mangrove forests – making CCD potentially difficult. At the same time, these clearly have the potential to attract policy interventions that could support CCD.

The following sections summarise the policy context of related policies (fisheries, premix subsidy, mangrove forests, national climate change policy) and describe the issues and key interest groups that influence policy and implementation.

4.1 Fisheries Policy and Regulatory Framework

The existing regime for the regulation of fisheries is a mixture of customary rules and statutory enactments in line with Article 11 of the 1992 Constitution, which mentions both as sources of law. The Fisheries Act 2002 (Act 625) provides broad instructions for the sustainable management of fisheries and outlines the regulatory framework within which fisheries are to be managed. The Fisheries Regulations 2010 (L.I. 1968) supports the Act, with detailed directives on prohibited fishing as well as on the licensing of fishing vessels, importation of fish, fishing in foreign waters, markings on fishing gears and many others (Yamoah, 2012). Figure 1 presents an overview of the regulatory framework as outlined in the Fisheries Act.

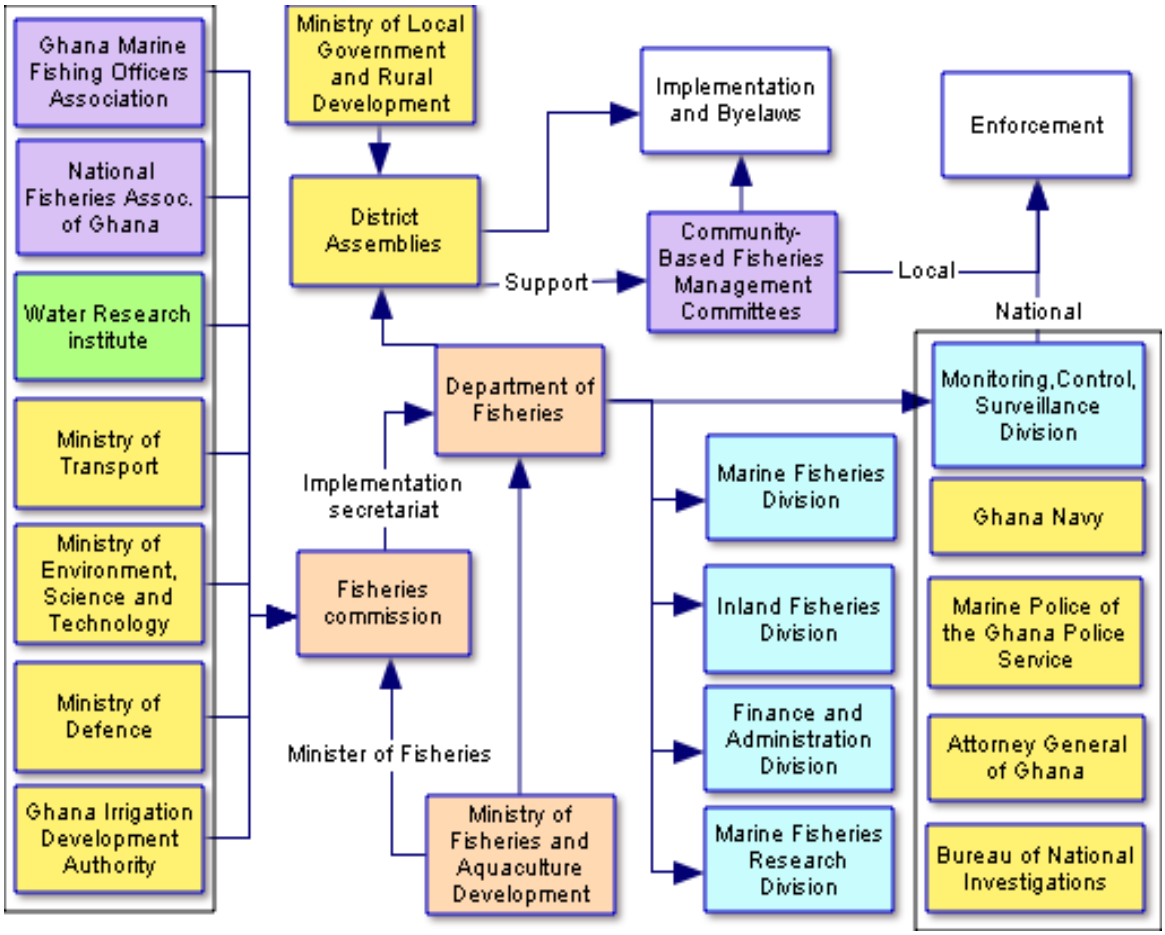
Fisheries management was historically the responsibility of the Department of Fisheries within the Ministry of Food and Agriculture (MOFA). In 2004, the government created the Ministry of Fisheries to give more attention and direction to management of the resource. After this and the passing of the 2002 Fisheries Act, responsibility for fisheries management passed to the Fisheries Commission, with the Directorate of Fisheries as its implementing agency. However, in 2009, the Ministry of Fisheries was dissolved and a new commission was formed, again under MOFA.

The Fisheries Act 2002 makes provision for the management of fisheries resources to include operators and industry players. In addition to the Fisheries Commission, the Act also provides for the establishment of a Fisheries Development Fund and its use and regulates the management and conservation of fishery resources, including in relation to aquaculture and small-scale fishing.

The Fisheries Commission has various functions in relation to its mandate and includes two representatives from the National Fisheries Association of Ghana, one artisanal and the other an industrial operator. The Ghana Marine Fishing Officers Association also nominates a representative to serve on the Commission, as do various other agencies.

A new Ministry of Fisheries and Aquaculture Development (MoFAD) was established in 2013. The minister responsible sets the policy mandate of the Commission, which has 11 members. The directorate has five operational divisions: the Marine Fisheries Management Division, the Inland Fisheries Management (and Aquaculture) Division, the Marine Fisheries Research Division, the Monitoring, Control and Surveillance Division and Finance and Administration.

Figure 1: Ghana's Fisheries Management Regulatory Framework



Sources: CRC (2010); FAO (2010); MOFA (2002).

Fisheries management often comes under the traditional governance system. For example, in many fishing communities, it has traditionally been the responsibility of chief fishers and the chief processor or chief fish trader. Chief fishers are appointed based on either merit or heritage. Their role includes government negotiator, conflict mediator, religious leader and advisor to fishers. In some cases, they may hold more importance within the village than the village chief.

A number of fisher associations also contribute to the management of fisheries. Two are represented within the Fisheries Committee: the Ghana Marine Fishing Officers Association and the National Fisheries Association of Ghana. The Canoe Fishermen Council, represented in the National Fisheries Association of Ghana, is the main representative body for artisanal fishers. There are also non-governmental organisations (NGOs) such as the Fisheries Alliance, which is the umbrella organisation for a number of entities.

There have been attempts to devolve the management of fisheries resources. However, the community-based fisheries management committee concept is not fully functional because of resource and legislative capacity issues. The chief fishers still exercise full traditional authority within the artisanal sector in the management of fishery resources and constitute the core of the Regional and National Canoe Fishermen Council, which has requisite influence in the management of the resources.

4.2 Premix Fuel Subsidy

Most small-scale fishers with boats powered by engines use the two-stroke outboard engine, fuelled by a mix of oil and petrol (referred to as premix). Since its reintroduction in 1995, premix has been

heavily subsidised, in an effort to help artisanal fishers increase their catch and hence raise their living standards. Although the subsidy helped fishers, this encourages fishing with diminishing stocks and is therefore unsustainable and mal-adaptive. Fossil fuel subsidy reform has already been cited as a potential triple win strategy (Crawford, 2012). It has been estimated that the phasing-out of fossil fuel subsidies for consumption by 2020 could reduce global GHG emissions by 5% (IEA, 2011). The subsidy was reduced in 2013, with a 20% increase in purchase price (Joy News, 2013), leading to significant beaching of vessels when fishers can no longer afford to put to sea (Aklorbortu, 2014).

The distribution of premix has come under various operational structures and committees as different governments have come into power. This has affected how the product is sold to fishers (Abane et al., 2013). In 1995, for example, premix was to be sold only to registered cooperatives. However, service centres, made up of political appointees, took over the functions of the national committee issuing licences for the supply of premix to fishers. The premix was sold at a higher price, with the extra profits going to individuals and shortages created.

With the change in the government in 2000, the structure was changed to a national committee, regional coordinating committees and local committees. The local premix committee was responsible for the sale of premix directly to fishers. The fuel was sold to local landing committees at production cost and on to fishers with a mark-up, in order to provide funds for local development and administration. Even then, the regional committee took unilateral decisions and determined how premix was supplied and in what quantities. According to Abane et al. (2003), the number of privately owned premix outlets rose from 127 between 1995 and 1999 to 600 in 2006 and 900 in 2012.

The subsidy programme has faced various problems from the beginning, including fuel diversion onto the black market, leaving fishers unable to access it. Recently, this has been curtailed by dyeing the fuel and putting clear markings on tankers to prevent reroutes. Despite difficulties in management, the policy is extremely important to many fishers, particularly the artisanal fleet. Even though the World Bank and the government are still planning to phase out the subsidy through the Fisheries and Aquaculture Development Plan 2010-2015 (CRC, 2010), many believe this will be postponed as premix has been given a special concession as a social product and, as a result, will not be affected.

4.3 Mangroves

Mangroves are critical to sustaining production in the coastal fisheries through their role as nursery areas for fish species, including refuge from predators, high nutrient levels and shelter from physical disturbances (Manson et al., 2005). Some of these fish species provide a source of livelihood and food. Protecting mangroves has also been identified as a potential ‘triple win policy’ (UNEP, 2007; Tompkins et al., 2012). Mangrove timber is used for cooking fuel and smoking fish, as well as constructing houses. Trading in mangrove wood is another key livelihood source, suggesting maintaining the integrity of the mangroves for sustainable harvesting could have benefits for the poor. Mangroves also provide protection from erosion and storms and can thus support adaptation. Finally, recent studies show the carbon sequestration potential of mangroves (King, 2012).

In Ghana, six species of mangroves lie on a very narrow, non-continuous coastal area around lagoons in the west of the country and, to the east, on the fringes of the lower reaches and delta of the Volta River (UNEP, 2007). In the Lower Volta, the total estimated value of mangrove-related harvesting and the contribution to marine fisheries is over $6 million per year. This does not include other mangrove ecosystem services such as erosion control or trapping of pollutants (Gordon et al., 2009).

Ghana is a signatory to a number of mangrove-related international conventions, and various phases of the National Action Plans for effective implementation of these have included the protection of mangroves. However, despite these efforts, policy, law and institutional provisions made for mangrove forests are still inadequate. Between 1980 and 2006, the mangrove area in Ghana fell from 181 km^2 to 137 km^2, representing a loss of 24% (UNEP, 2007).

The Wildlife Division of the Forestry Commission and other agencies such as the Lands Commission and the Department of Town and Country Planning are responsible for implementing national policies and programmes for the management of mangroves and associated wetlands. Other relevant ministries and agencies are also engaged in their management. At the regional level is the Regional Coordinating Council. However, logistical capacity issues and inadequate communication and information-sharing to users limit first-level institutions (central government, academic institutions, local government, donor agencies). Poor attitudes towards mangrove and wetlands lead to their exclusion from development planning processes (Ajonina, 2011).

At the local level are various interest groups, including the district assemblies with their substructures, civil society groups, producer groups and trade associations, traditional authorities, commercial organisations and local communities around the mangrove forests.

4.4 The National Climate Change Policy

The need to formulate climate change policies consistent with Ghana's poverty reduction strategy and national development plans culminated in the National Climate Change Policy (NCCP) (GoG, 2014). The NCCP, developed through an extensive series of consultation workshops, recognises the contribution of fisheries to livelihoods in Ghana. Fisheries is not highlighted as a sector on its own but is addressed under the first of the five priority areas, on Agriculture and Food Security, which makes specific reference to fisheries-related issues. This includes a specific programme area to support adaptation in fisheries through actions such as:

- building and strengthening the capacity of extension officers in climate-smart agriculture to enhance support to farmers and fishers
- promoting capacity-building for farmers and fishers and building awareness on climate change issues and
- designing and implementing programmes on fisheries management and disease control that integrate climatic and hydrological parameters

The protection of mangroves is included under Priority Area 3 on Natural Resource Management, with programme areas focusing on improved marine and coastal ecosystem management and ecosystem-based adaptation. Priority Area 5 on Energy, Industrial and Infrastructural Development focuses on programmes to mitigate GHGs through adoption of low-emission and clean energy technology, as well as improving efficiency and the consumption and production of energy.

5.0 Climate-Compatible Development Options

The following section summarises discussions held with various stakeholders on their perspectives on the contradictions and competitions between the various actors as described for the policies described in Section 4 and discusses their potential for CCD.

5.1 Case Study 1: Fuel Subsidies and the Politics of Premix

Fossil fuel subsidies have been identified globally as a source of carbon emissions that constitute an obstacle to transitions to low-carbon societies (Whitley, 2013). In addition, it is suggested that the majority of subsidy programmes directly benefit the richest 20% of society (Arze del Granado et al., 2010). As a result, there is growing consensus worldwide on the co-benefits of reforming subsidies for fossil fuel consumption. This was manifested in the declaration at the 2009 G20 summit in Pittsburgh, in which countries aimed to phase out such subsidies.

There are, however, major political obstacles to reforming subsidies. Many reforms have quickly been reversed in response to protests, for example in Bolivia and Nigeria in 2011. The current ruling party in Ghana (the National Democratic Congress) promised to maintain the premix subsidy, and this is

thought to have played a key role in its success in the 2008 presidential elections (Crawford, 2012; Finegold et al., 2010): the previous government had tried to get people to support subsidy reform. Subsidies constitute 'a visible way to deliver benefits in exchange for political support' and therefore retaining them has a strong political logic (Victor, 2009).

In Ghana, there has been some step-wise removal of subsidies and linking of fossil fuel prices to global oil prices. In the fisheries sector, some subsidies on fuel have been removed, but not on the premix fuel artisanal fishers use. The premix subsidy has been deliberately left off the agenda for two main reasons. First, it is considered a social product that benefits artisanal fishers, a group regarded as poor and vulnerable. A number of interviewees, particularly those within fishing communities and their representatives, supported this argument. Despite clear consensus that the current distribution of the fuel is not ideal, removing it altogether was identified as something that would make people in fishing communities considerably poorer: fishers would be able to buy less fuel and travel less to fish, resulting in reduced catch. Fishers recently protested against the high costs of fishing, which has led to boats not being able to go to sea (Aklorbortu, 2014). Fish traders, most of whom are women, also argued that this had affected them and consumers, as when catches are low the fishers demand higher prices. The premix benefits a broader range of actors than just the fishers themselves.

Second, while subsidy removal is often proposed in the policy literature alongside 'compensation policies', this concept was not convincing to fishers' groups, who felt the government often neglects or excludes them and supply of subsidised premix is one policy that does benefit their livelihoods. From their point of view, if subsidies have to be removed, the savings made should be passed on to the directly affected communities.

Given the context of generalised distrust and corruption, subsidies that appear 'inefficient' on paper can be the best option in vulnerable groups' eyes.[2] Moreover, while it is easy to criticise a policy that gives incentives for fishing in a climate of growing scarcity, the options for alternative livelihoods are limited. Informal job markets get saturated easily, educated young people often find themselves unemployed and even attempts at supporting land-based 'alternative livelihoods' can falter in the face of land scarcity. In this context, some participants at the Learning Event feared removing the subsidy would actually lead people to move into illicit activities or to compete with other poor people for livelihoods. This questioned some of the assumptions made in favour of subsidy reform.

Nevertheless, there is widespread agreement that current distribution of premix fuel is imperfect, because it is subject to party political biases that favour some fishers over others. In some regions, it is not always fishers who oversee the distribution, as is stipulated by the law, but party functionaries. This creates opportunities for rent-seeking at different stages of the supply chain. There is thus scepticism towards the policy among some fishers' representatives, who argue party politics is detrimental to its impact.

Implementation of premix distribution that avoids these distortions would, in theory, be far more equitable. However, politicians have powerful incentives to control this inequitable and inefficient distribution (votes and client networks). There have been some attempts to improve distribution in recent years, with fishers' organisations appealing to the government to tackle corruption. Some people have been suspended for malpractice, and the fuel has been dyed so it can be tracked more effectively and its use prevented outside the fishing sector.

The majority of the stakeholders consulted expressed a desire for the fuel subsidy to be administered more efficiently and fairly rather than removed. It is unclear at the moment whether it would ever be politically feasible to remove it and, perhaps more importantly, whether it could be equitable. As fisheries are an open access resource that needs to be properly managed, some stakeholders were concerned about any policies that support overfishing. They argued there were potential adaptation

[2] This reflects Victor's (2009) analysis of India, where farmers view an electricity subsidy as a key test to judge whether politicians respond to their interests.

benefits to not supporting an unsustainable activity through the premix subsidies, and instead financing more effective social policies targeting poor fishing communities. Another suggestion was to provide incentives for those who fish properly. Fishers also have other demands that could be answered to 'compensate' for loss of the fuel subsidy. These include greater support to purchase boats and motors.

But the fishers generally hope responses to these demands will be additional to the subsidy rather than a substitute for it. Improving distribution of the premix so it is more efficient and equitable may depend on forming new political coalitions rather than removing politics altogether. The challenge would then be to identify those political actors who could gain by making a firm and genuine commitment to distributing the fuel according to the guidelines. However, it is questionable whether such an improvement would necessarily constitute major a 'triple win', as it would not necessarily bring about a significant effect in terms of the mitigation of GH emissions.

5.2 Case Study 2: Mangrove Protection

In Ghana, international commitments and strong traditional management systems have protected and regulated mangroves in some areas. But there is still increasing pressure by a growing population for the conversion of mangrove areas into settlements, fields or salt pans. The timber is also used illicitly for building material, fuel, smoking fish, etc. (UNEP, 2007). The damming of the Volta River in 1964 reduced downstream water supply, which affected a large stretch of mangroves, both ecologically and through intensified exploitation by communities that had lost their traditional livelihoods in agriculture and fishing (Rubin et al., 1999).

Many interviewees felt poverty was a major force driving mangrove destruction by coastal communities. Women trade mangrove wood in the absence of other livelihood options, and are highly dependent on mangroves for fuel and construction materials. Alternative cooking fuels, such as liquid gas, are expensive; it is also felt that fish tastes nicer and is better preserved when it is smoked using mangrove wood rather than with gas.

Protecting mangroves depends partly on understanding the land tenure arrangements in coastal areas. These vary across regions. In some areas, tribal chiefs own large tracts of land; in others it is families or clans that are the landholders. This is different to the situation for inland forests, which are owned by the government and therefore appear to be simpler to protect. Lack of clear land use policies means mangroves are often incorporated into community lands for use as firewood. Others consider that it is not so much the land tenure that is the key issue but rather that mangroves are considered a free resource and there are no incentives to protect them. One explanation for the lack of government interest is that, unlike with forestry, there are no possibilities for exporting timber.

One possibility is that, through Reducing Emissions from Deforestation and Forest Degradation (REDD)+ or other instruments, communities and authorities could receive payments for the ecosystems services mangroves provide. To date, REDD+ in Ghana has been considered in terms of the country's inland forests, but there are signs this could change. The Coastal Sustainable Landscapes Project, for example, is a government/US conservation project that is exploring mangrove potential for carbon sequestration in six coastal districts in Ghana's Western Ghana. The Netherlands Development Organisation has looked into the same possibility on the Volta coastline.

Another requirement is proper classification, mapping and zonation of land use activities. Pollution and contamination caused by diverse actors, such as illegal mining or construction of salt pans, are damaging to mangroves. A concern is the impact of the oil and gas industry, especially in the Amazuri wetlands in Western Ghana. Mangroves within Ramsar (Convention on Wetlands) sites are supposed to be under protection but only from activities within its boundaries. Activities beyond the boundaries can be addressed only through a national legal instrument such as the Environmental Protection Agency (EPA). Although the EPA has to approve development plans, the general view is that enforcement is weak and that it may be possible to pay off officials with bribes.

Support to ecotourism rather than standard resorts in areas near mangroves could also contribute to mangrove protection; this could include a national ecotourism accreditation. Crucially, any new policy reform must appeal to the needs of stakeholders in livelihoods, fisheries, forestry, industry and agriculture, who could have a role in mangrove protection.

A focus on alternative livelihoods may also be necessary, given the role of poverty and inadequate alternatives in mangrove destruction. For example, some NGOs have been piloting fuel-efficient cook stoves; gas could even be subsidised as an alternative fuel for cooking. Another possibility is to focus specifically on 'biodiversity hotspots', thereby concentrating resources in key areas. Some actors, particularly NGOs, advocate greater efforts to educate coastal people on the importance of mangroves in supporting livelihoods. In turn, local people could pressurise authorities more effectively.

All these different approaches to supporting mangrove protection depend on having institutions with strong incentives and the ability to implement policies. Yet there are major institutional barriers to effective protection in Ghana. The late 1980s and 1990s saw significant progress, but when donors pulled out and governments changed mangrove protection dropped off the political agenda. Degradation has since increased significantly. The agency in charge of protection, the Wildlife Commission, is under-resourced – and, in many cases, agencies move into activities beyond their remit in order to access finance, leading to overlaps and conflict between institutions. Moreover, mangroves do not have their agency, and thus are easily left out of environmental protection efforts. One view is that mangroves need their own dedicated institution; another suggest the replication of approaches used successfully by traditional authorities in some areas to ensure sustainable exploitation. Regardless of the approach taken, it is clear mangrove protection depends heavily on incentivising and empowering key government institutions as well as the appropriate traditional authorities.

6.0 Reflections on the Political Economy of Climate-Compatible Development

Here, we use our political economy framework to look at the context, competition and consequences for different interest groups of CCD actions, as outlined earlier.

One key aspect is the extent to which it is possible to implement policy in a context of wider power relations. What is the relative capacity of existing fisheries policies? Can a CCD approach emerge from this? In other words, what political economy factors constrain or support policy, how much control do relevant actors have over these and what is the potential for successful CCD to emerge?

Two key contextual problems constrain actors and affect the ability to implement policy. The first is that Ghana's artisanal fisheries are unable to meet demand and match the prices of imported fish. The second is that, given the livelihood options and low income levels of artisanal fishers and those dependent on processing and trading, hundreds of thousands of mostly poor people are locked into a process that gives them perverse incentives to fish (with many of them using subsidised fuel) when stocks are collapsing and unsustainable. These two issues are clearly intertwined.

Because of declining stocks (and lower prices of imported fish), Ghana is now importing half of the fish its people consumes. The fisheries minister has attributed this to poor governance, open access fisheries and illegal fishing (Ghana Web, 2014). In fact, this is only a partial explanation. Another factor is that imported fish is cheaper. Such imports, especially of farmed tilapia from China, Taiwan and other Southeast Asian countries, are significant and popular (The Fish Site, 2014). Hence, defending the livelihoods of the hundreds of thousands of inshore artisanal fishers and those who depend on fish processing and trading requires dealing with the impossible. Support for artisanal fisheries in the current context will perpetuate overfishing in a context where landed fish prices cannot anyway compete with imports.

Another problem is that, although much is said about illegal fishing (which undoubtedly happens with the artisan fleet), the effect of this on stocks has to be measured in relation to far larger take from deep-

water industrial fishing. Ghana can try to reduce the impact of trawler fishing within its territorial waters, especially when it is illegal, but it cannot control overfishing off all West Africa, where it affects stocks that would eventually be in Ghana's waters. A recent investigation of Spain's fishing industry showed it had been severely indicted for illegal activities, with some companies continuing to receive EU subsidies after they had been found guilty. Spain is the largest recipient of government and EU subsidies, taking in $8 billion between 2000 and 2012 (ICIJ, 2012). By contrast, Spanish aid to Ghana for a freezer plant that opened in 2013 was worth €1 million (The Fish Site, 2013).

While institutionalised mal-adaptive European subsidies and illegal fishing by European and other foreign trawlers continues, Ghana is ironically facing sanctions from the EU for its failure to control illegal fishing by its own fleet. As a result, MoFAD has threatened to impose penalties on any local vessel found to be engaging in IUU fishing. This dispute has been going on for several years, with the EU increasingly threatening Ghana while failing to act on its own fleet's illegalities (Copeland, 2014). There is also significant irony in the fact that pursuing Ghana for emissions from its poor fishers' use of premix pales into insignificance against the subsidies (reputed to be $27 billion a year) rich countries use to support their fishing fleets, some of which are used on fuel costs (Kende-Robb, 2014).

Within Ghana, disputes about the premix subsidy are the source of significant political conflict. After a reduction in the subsidy in 2013, the *Daily Graphic* found more than 500 boats had been beached when normally they would be out at sea (Aklorbortu, 2014). This had affected more than 30,000 people's livelihoods. The Inshore Fishermen Association was appealing to the government to restore the full rate of the subsidy. The government was itself facing a significant financial deficit, and argued that the higher rate of tax on premix would help reduce this. It also argued that so much fuel was diverted from its main target group that its intention was significantly damaged. After further price rises in April 2014, premix remains less than half the price of premium petrol.

There is no evidence of any intention to reduce GHG emissions in this change of policy on fuel subsidies. Thus, if premix continues to be sold at the higher price, any emissions reduction is a side product. There would need to be a full audit to ensure any people diverted away from fishing, processing and selling do not have to engage in alternative livelihoods that have greater emissions or other harmful impacts (e.g. deforestation).

This also shows how livelihoods can be interrelated. In the second case we saw how there is a serious need to bring mangroves into more sustainable use (both to support livelihoods that will continue to use the wood anyway and to provide coastal protection from possible climate change impacts). The key potentially beneficial linkage to fisheries is through the spawning and regeneration of stocks in protected mangroves. As in most situations, the policy implementation constraints derive mainly from a lack of incentives for those who use the wood to change their behaviour. Actors related to coastal fisheries do not see the need to protect mangroves, despite their significant function in spawning and protecting young fish.

Despite government acknowledgement in the NCCP of the link with climate change, there is little prospect of a significant change from the current situation, whereby existing protection policies have failed to protect the mangroves. Current restoration efforts are limited and patchy, and the Forestry Commission has not yet made significant steps, as historically mangroves are not included in the legal definition of forests and do not yield timber in the same way that inland forests produce an incentive for management and extraction. There is some hope that the scope for carbon credits will change attitudes in government. International Union for the Conservation of Nature staff point to the need for protection through biodiversity hot spots. Ramsar wetland mangrove sites appear to be reasonably well protected, so this may be possible. The recent Forest and Wildlife Policy (MoLNR, 2012) declares the sustainable management of mangroves to be one of its strategic directions.

In relation to both case studies, a further key context is the government's prioritisation of development, and whether pursuit of this will override the need to deal with climate change. The policy context is potentially contradictory, because, despite the NCCP and the National Climate Change Adaptation

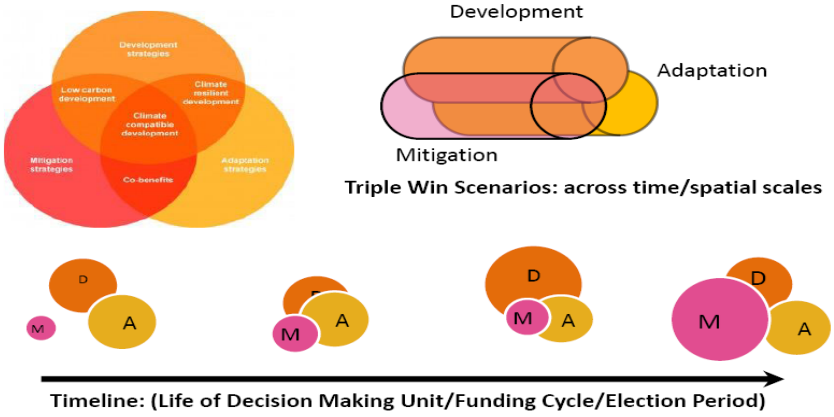
Strategy, the recent rapid development of the oil and gas industry does not seem to be regarded as a problem. The country is significantly energy-deficient, and at the moment sees major contributions from its renewable energy sources in hydro-electric power. But burning fossil fuels (and gaining revenue from its exports) is being traded against the benefits of economic growth. The distributional aspects of this would need to be fully accounted for to justify this as a development gain.

The premix and mangrove issues reflect a high degree of complexity; remoteness from any type of climate change agenda; inadequate recognition of the interconnections between mangroves and fisheries and mangroves and benefits for climate change; maladaptation for both climate mitigation and fisheries protection through subsidised premix; and poverty reduction for fisher and related livelihoods being seen as a political rather than as an equity issue that can lead to beneficial policies that can lead to CCD.

For both cases, interviews and discussions showed general agreement that any significant progress must be made through significant institutional change rather than new policies. In many cases, the appropriate guidelines to ensure policy objectives are met are already in place, but there is a need for greater understanding as to why they are not implemented. One danger of CCD is that it will simply add a set of objectives and a new discourse to mobilise projects without altering the pre-existing institutional failures that characterise policy-making in a number of developing countries.

The research also highlighted the need to see CCD more as a dynamic process, whereby the space available for triple wins changes over time. This would require understanding what forces are keeping the policy objectives apart, preventing synergies from happening. At the same time, these overlapping objectives are dynamic across time and space. At different places and times particular policy objectives will be more or less interconnected (Figure 2). This was clearly the case with Ghana's own climate change strategies, which have shifted as a result of different actors' interventions.

Figure 2: Dynamic Triple Wins across Space and Time



However, even this more dynamic conception of CCD assumes climate change responses assume that multiple policy objectives can have mutual benefits. Differences in the distribution of benefits of different policy goals make this far more difficult to achieve in practice. For example, because poverty reduction policies require a focus on the poor, who are generally responsible for low amounts of emissions so are less likely to have significant mitigation 'wins'. It was clear from our respondents that the majority of actors in Ghana prioritise development goals above adaptation to climate change; mitigation is considered attractive only where it can be achieved as a by-product, not as part of an explicit policy to drive towards low-carbon development.

In producing Ghana's climate change strategy, the drive towards low-carbon development was largely external, and subsequent consultations with stakeholders resulted in the de-emphasising of mitigation objectives in favour of development. Furthermore, key stakeholders rejected one of the policy reforms that could be framed as attaining 'triple wins' – namely, removal of the premix subsidy – as being anti-poor and inequitable. There was also general agreement that people in coastal communities prioritise visible interventions that respond to current development problems. If politicians appear to be focused on the short-term, this is often because they are responding to bottom-up pressure to deliver results.

This raises questions about whether 'triple wins' are feasible, or whether this could ultimately result in a backlash against the notion of low-carbon development. It may be that the most significant moves towards low-carbon development will be found in the industrial and energy sectors, where any changes are unlikely to have direct and feasible co-benefits for poor people. At the same time, requiring policies for the poor to achieve triple wins could lead to dilution of their own effectiveness in reducing poverty. CCD might do better to aim for successful development interventions that also deliver co-benefits for adaptation and mitigation rather than trying to hit the 'sweet spot' in the middle, right from the start.

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