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## Management of natural resources in a conflicting environment in Ghana: unmasking a messy policy problem

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Resource use conflict is an enduring problem for science and policy making. Using in-depth interviews and focus group discussions with resource users, policy makers and key informants, we explored four case examples of resource use conflict within lands and forestry, fisheries, oil and the mining sectors in Ghana. Results indicate that resource use conflict consists of a complex, non-linear system of balancing and reinforcing feedback loops that recur across resource sectors. The conflicts are difficult to clearly define, have many interdependencies and are multi-causal. Specifically, dysfunctional policy, commoditisation of land, infringement on rights of users, shift from communal to private land ownership, renegotiation of rights, and unclear roles and responsibilities of government agencies, exacerbate conflicts among resource users, managers and policy makers in Ghana. In addition, supranational policy such as the protocol of the Economic Community of West African States, which promotes free movement of people and goods within the 16-nation community, is a driver of conflict between native farmers and nomadic Fulani herders. Clear policy directions from government that outlines the specific roles of various departments involved in resource issues together with a holistic community participatory approach is therefore required to comprehensively understand and address such conflicts.

**Keywords:** conflict characterisation; governance, forestry, mining; land; fisheries; systems; Ghana

### 1. Introduction

The importance of natural resource use conflicts for science and public policy making is lasting since such conflicts transcend geographical boundaries and spatio-temporal scales (Akpalu and Parks 2007). In West Africa, where natural resources abound but are rapidly diminishing, conflicts have characterised the use and management of these resources (see Appiah-Opoku and Hyma 1999; Williams *et al.* 1999; Fiki and Lee 2004; Moore 2005; Akpalu and Parks 2007; Roma 2008). The quantum of financial resources spent in resolving such conflicts is a reflection of its significance to natural resource dependent societies. In order to understand and consequently address it, resource use conflict has been theorised using various discipline-specific perspectives, particularly in the contexts of political economy and political ecology. Political economists argue that the interaction

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of political and economic processes, such as commercialisation and commoditisation of natural resources that generate resource scarcity, shape the adaptive responses of the users and mediate relations and links between them while contributing to increased social tensions (Alston, Libecap, and Mueller 2000; Gylfason 2001). In this context, the power and vulnerability of the different resource use stakeholders are considered to be intrinsically political and economic in nature (Torvick 2002). Yet, political economy offers no serious treatment of the means of resource control and access, nor of their definition, negotiation and contestation within political arenas (Le Billon 2001).

Political ecology takes into account the socially constructed nature of resources. Here, contextual sensitivity, multidimensional power relations and multi-scalar analyses of resource use conflicts are emphasised (Le Billon 2001). Political ecologists have challenged Homer-Dixon's (1999) thesis that there is a causal link between resource scarcity and violent conflicts (e.g. Hartmann 2001). Basset (1988) observed, for example, that herder-farmer conflicts are equally intense in Cote d'Ivoire and Central Cameroon in West Africa, where grazing areas are relatively abundant. A plethora of structural factors contribute to the increasing incidence of conflict between pastoral herders and native farmers. These include resource scarcity (Braukämper 2000), decreasing interdependence of pastoral and agricultural economies (Tonah 2006), institutional failure to resolve conflicts (Beeler 2006; Benjaminsen and Ba 2009), the larger political context (Gausset 2005), historical context (Davidheiser and Luna 2008), or cultural differences between herders and farmers (Hagberg 2000). Fundamentally, political ecology succeeds in attempting to contextualise political and ecological explanations of human behaviour. Yet, it is not without its drawbacks. The neo-Malthusian and neo-Marxist nature of political ecology in a world where policy decisions are dominated by a global capitalist system is rather problematic (Walker 2005, 2006). In fact, it is argued that the ecology dimension is missing from political ecology (Walker 2005); likewise the policy dimensions (Walker 2006).

Other less dominant theoretical frameworks, but increasingly more influential understandings, of resource use conflicts have been emerging recently in response to the lapses associated with political economy and political ecology. This includes the framing of resource use conflicts as socially complex, messy or wicked policy problems (Shindler and Cramer 1999; MacKenzie *et al.* 2006; Hansen, Lund, and Treue 2009; Jentoft and Chuenpagdee 2009; Ritchey 2011). In this milieu, natural resource conflicts are characterised by messes (Lachapelle, McCool, and Patterson 2003; Lach, Rayner, and Ingram 2005; Balint *et al.* 2011), being made up of multiple, overlapping, interconnected subsets of problems (Brown, Harris, and Russell 2010; Balint *et al.* 2011) that cut across multiple policy domains and levels of government decision making (Balint *et al.* 2011), as well as being relentless (Weber and Khademian 2008). The nature and extent of resource use problems depends on who has been asked, that is, different stakeholders have different accounts and conceptions of what the problem is. Often, each version of this policy problem has an element of truth, yet no one version is complete or verifiably right or wrong (Jentoft and Chuenpagdee 2009; Balint *et al.* 2011). Such problems require innovative, comprehensive solutions that can be modified in the light of experience and on-the-ground feedback (Ney 2009).

In this paper, we move beyond these frameworks by focusing attention on a higher level of aggregation than the individual components or parts of the conflict system, by searching for patterns or order within complex conflict situations that would allow people to understand the systems dynamics better. In turn, this understanding would hopefully lead to better choices regarding the type and nature of any interventions undertaken to improve system capacity and performance.

Evidence in Ghana suggests that the magnitude, frequency and duration of conflicts associated with the use of natural resources have increased during the last few years (Hilson 2002; Taabazuing *et al.* 2012). Even though the Constitution, Acts of Parliament and various sector policies in Ghana set out some rights in relation to benefit sharing of natural resources such as land, forest and minerals, there is lack of clarity and accountability which often generates conflicts among various resource users, traditional authorities, district and local government and central government (Armah *et al.* 2011). Furthermore, the lack of clarity and uncertainties serve as indicators of government inaction (Armah *et al.* 2011). Previous attempts at resolution of resource use conflicts have been characterised by chronic policy failures (Hansen, Lund, and Treue 2009).

Approximately 70% of Ghanaians, particularly those in rural areas, derive their livelihoods from use or exploitation of natural resources such as land, forestry, fishery and mining (Akabzaa 2000). Since these natural resources are finite and the population continues to increase, together with the arrival of migrants, there is growing competition and disagreements over the access, control, ownership and distribution of benefits with respect to these natural resources (Torvick 2002; Balint *et al.* 2011; Luginaah and Armah 2012; Taabazuing *et al.* 2012). In the process, the poor and vulnerable tend to be out competed as their access to and the benefits they stand to gain from these natural resources are limited, thereby aggravating their poverty situation (Torvick 2002; Taabazuing *et al.* 2012). Those with weaker voices and power tend to be excluded from decision-making processes on exploitation of these natural resources, resulting in a high tendency of infringing upon their rights of access to and benefits from these resources (Akpalu and Parks 2007; Balint *et al.* 2011).

Our understanding of natural resource use conflict as a complex system of recurrent pattern, across space and time, is rather nascent. In fact, the magnitude, frequency, and duration of resource use conflicts are at least partly the result of past actions that were taken to alleviate them (Berkes, Colding, and Folke 2003; Bosch *et al.* 2007). The complex nature of resource use conflicts connotes linkages, non-linearity, hierarchical scale and emergence (Allen and Starr 1982; Gunderson and Holling 2002; Berkes, Colding, and Folke 2003), and these characteristics are not amenable to reductionist science. One of the key benefits of system thinking is its ability to deal effectively with such complex problems in a holistic manner and to raise our thinking to a level at which we create results we expect (Caufield and Maj 2001; Bosch *et al.* 2007). However, not much research has been done on natural resource use conflicts from a systems thinking perspective. Consequently, this study attempts to use systems thinking tools to delineate the nature of resource use conflict based on comparative case examples in the mining, lands and forestry, fisheries and oil sectors in Ghana. Case 1 involves conflicts among artisanal fishermen, trawlers and oil companies in Cape Three Points; case 2 deals with community compensation and forest boundary disputes and illegal logging in Goaso; case 3 involves conflicts regarding access to and distribution of gold mining resources in Tarkwa; and case 4 involves conflicts between migrant Fulani herdsman and farmers in Agogo. The comparison of the four cases enables us to provide a nuanced and strong explanation regarding the set of factors that exacerbate or reduce conflict and the dysfunctional nature of resource use related policies in Ghana. Using a systems perspective, the paper also attempts to identify the recurrent characteristics of such conflicts across resource sectors in order to draw out the big picture. The next section deals with the social cultural characteristics of the study area, which is followed by the results of the study. Thereafter, the paper discusses the findings. Finally, recommendations will be made based on the findings of this study.

## 2. Materials and method

### 2.1. Demographic, cultural and economic characteristics of the study areas

Figure 1 shows the four areas in which the study was conducted. Four cases were considered in this study regarding: conflicts among artisanal fishermen, trawlers and oil companies (Cape Three Points); community compensation and forest boundary disputes and illegal logging (Goaso); conflicts concerning access to and distribution of gold mining resources (Tarkwa); and conflicts between migrant Fulani herdsmen and farmers (Agogo). As much as possible, each case was selected to reflect a unique example and category of resource use conflict. Therefore, each case study is exclusive to a particular resource use conflict. In this study, Cape Three Points is the only coastal case where fishermen and oil companies have clashed over territories for fishing. In fact, at present there is no gold mining in Cape Three Points, neither are there any remarkable forest resources over which users may potentially clash. Similarly, gold mining is exclusive to Tarkwa whereas conflict between Fulani herdsmen and resident farmers over land use is exclusive to Agogo. Illegal logging is the exception since it occurs both in Goaso and Tarkwa. However, the scale of conflicts associated with illegal logging in Tarkwa pales in comparison with the issue of gold mining conflicts in Tarkwa. Moreover, it is common knowledge in Ghana that the Goaso area is rife with forestry-related conflicts. Although the drivers may be different, what we are trying to do here is present these cases to reinforce the fact that the lack of policy attention cuts across different resource sectors under the umbrella of natural resource management in Ghana.

The Jubilee Oil Field in the Atlantic Ocean is estimated to contain some 1.8 billion barrels, one of the largest finds in West Africa in recent years (Zounmenou 2009;

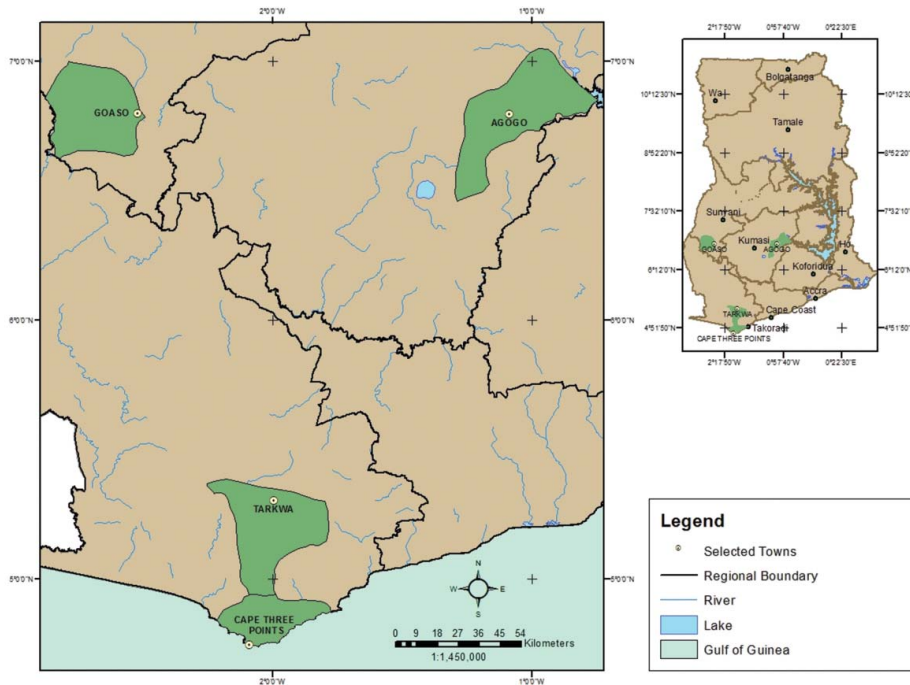


Figure 1. Map of Ghana showing the study communities. (See online colour version for full interpretation.)

Gyampo 2011). The Cape Three Points (*Atinkyin*) is the fishing community closest to the oil discovery sites and one of the communities directly affected by the oil and gas activities (Boohene and Peprah 2011). It is located in the Ahanta West District of the Western Region of Ghana and has a population of 106,215 with a density of 109 persons per square kilometre (GSS 2012). Approximately 60% of the total population is employed in the agricultural sector and the remainder is engaged in small-scale trading, fishing and other activities. In this community, the use of lights (increasingly used by canoe fishers since 2003), has to some extent taken the seasonality out of fishing – with lights attracting fish (juveniles) and fishers able to maintain a reasonable catch year round (McCaskie 2008). Although light fishing was declared illegal in 2010, its enforcement is rather weak. Immigration on a large scale takes place only in the fishing industry. Large proportions of fishermen in the District emigrate from other coastal districts during the major fishing season, which is normally between July and September, to the coastal areas of Ahanta West District.

Goaso is the capital of the Asunafo North Municipality with a population of 124,685 and density of 79.5 persons per square kilometre (GSS 2012). Approximately 80% of the entire population is Akan. Agriculture is the major driving force of the district economy, employing approximately 64% of the potential labour force in the district. The major agricultural activities include agro-based industries which offer employment to approximately 44.5% of the agricultural sub-sector – palm oil extraction, cassava processing, soap making and cashew processing. There are five forest reserves in the municipality.

The Tarkwa mining area has a total population of 90,477 with a density of 74.9 persons per square kilometre (GSS 2012). The major ethnic group in Tarkwa is the Akan who constitute approximately 70% of the population. The Tarkwa mining area alone is said to contain 44% of Ghana's closed forest, accounts for 30% of the country's gold production, approximately 39% of cocoa production, 50% of the country's standing commercial timber and 100% of manganese and bauxite production (Akabzaa and Darimani 2001). At present, however, mining has overtaken farming as the single largest economic activity in Tarkwa. It has the highest concentration of mining companies in the country and the West African sub-region, and possibly the African continent. Out of the 16 large-scale mines in Ghana eight of them are located in the Tarkwa mining area, producing a significant proportion of the country's gold output.

The population of the Agogo area is 140,694; a vast majority is Akan ethnicity (93.6%) and other ECOWAS nationals make up 4.7% of the population (GSS 2012). Agriculture is the predominant occupation among people aged 18 and older, comprising 53.9% of all occupations (GSS 2012). Agriculture is generally undertaken by smallholders with approximately 72% of the farmers cultivating less than 3 acres of land. Large-scale farming is virtually absent as only about 6% of the farmers cultivate more than 5 acres. Access to land is limited as the laws of Ghana do not allow freehold lease.

## **2.2. Qualitative comparative case study design**

Manipulative experimental design is challenging with large human communities and would benefit from a focus on explaining how comparative case studies are conducted. Case study design is apt for this study since we sought to understand why natural resource use conflicts are identical even though the resource sectors may be different. In addition, we sought to understand how the factors in the conflict system are interrelated and how these relationships give rise to recurrent patterns of conflict. In the present study, it is the nature of natural resource use conflict that is the analytical focus (case)

rather than the number of individuals or groups engaged in the conflict. By comparing the cases, we sought to highlight the similarities in the nature of the conflict even though the specific natural resource may differ.

### 2.3. Data collection techniques

A purposive sampling strategy (Miles and Huberman 1994, 27) was used to identify key informants and interviewees, selecting individuals most likely to generate productive and in-depth discussions related to the particular resource use conflict in each case. The selection criteria and recruitment strategy was developed in consultation with the natural resource and environmental governance (NREG-KASA) secretariat in Ghana. The selection criteria used included identifying key informants who were: deemed knowledgeable about resource use, management and policy processes; involved in decision making at the local level and other higher administrative scales; involved in conflicts emanating from the use of natural resources.

Three techniques, namely focus group discussion, in-depth interviews and document reviews, were used in this study. A total of 190 males and 100 females aged between 18 to 72 years were involved in the fully tape-recorded FGDs, in-depth interviews and key informant (opinion leaders, sub-chiefs, etc.) interviews in the four communities (Table 1). Specifically, Agogo, in the Ashanti Region, reflects land conflicts between farmers and Fulani herdsmen. Thirty males and 20 females were involved in the Agogo case study. Goaso, in the Asunafo District of Brong Ahafo Region, illustrates issues of disagreements on compensation and denial of any benefits from timber species on farms. Sixty males and 35 females were involved in the Goaso case study. Cape Three Points, popularly known as Atinkyin in the Western Region, reflects conflicts between artisanal fishers and large trawlers and oil companies. Fifty males and 20 females were involved in Cape Three Points study. Tarkwa, in the Tarkwa Nsuaem Municipality in the Western Region, illustrates the issue of rights of access to gold resources and unjust compensation system. Fifty males and 25 females were involved in Tarkwa case study. Separate FGDs were conducted for district assembly officials and the traditional authorities. The main purpose of the focus group discussion was to draw upon respondents' attitudes, feelings, beliefs, experiences and reactions in such a way that would not be feasible using other methods. These attitudes, feelings and beliefs may be partially independent of a group or its social setting, but are more likely to be revealed via the social gathering and the interaction which being in a focus group entails. Compared to in-depth interviews, which aim to obtain individual attitudes, beliefs and feelings, focus groups elicit a multiplicity of views and emotional processes within a group context (Kitzinger 1995). Focus groups are particularly useful when there are power differences between the participants and decision makers, when the everyday use of language and culture of particular groups is of interest, and when one wants to explore the degree of consensus on a given topic (Kitzinger 1995). The document review process

Table 1: Sample from study communities\*

Community	FGD	IDI residents	Key informants
Agogo	40	25	5
Goaso	45	35	15
Cape Three Points	7	7	8
Tarkwa	17	50	8

Note: \*10 policy makers were interviewed.

provides a systematic procedure for identifying, analysing and deriving useful information from existing documents. Document reviews can reduce duplication and even unearth both consistencies and discrepancies between official policy documents and the positions taken by politicians regarding access to and benefits sharing of natural resources. The document review also allowed us to identify gaps in policy documents that could be potential drivers of natural resource use conflict.

### 2.3.1. *Focus group discussions (FGDs)*

Our first questions on natural resource use conflict were in the form of participatory exercises – focus groups (disaggregated by gender) using proportional piling to show the relative importance of different resources (gold, water, trees, fish, etc.) to demographic groups. Men and women react most to dynamics surrounding the resources they prioritise, thus their discussions of protection, availability, access and conflict primarily concern those resources foremost in their minds (Burger and Gochfeld 2010). This is an important lens to understand the research data and also to navigate broader issues around natural resources and conflict in the study communities. The groups then drew maps of their communities and indicated where each of the resources listed in the first exercise could be accessed. They also indicated the boundaries of their communities (see Tripathi and Bhattarya 2004; Chapin, Lamb, and Threlkeld 2005; Cronkleton *et al.* 2010). Using this same map, we then discussed areas where conflict was likely to occur. We intentionally chose focus group discussions as a means to generate conversation and debate around questions of natural resources.

### 2.3.2. *In-depth interviews (IDIs)*

In-depth interviews with key informants such as the Stool Land Administrator, Executive Secretary of the Land Valuation Board, and the Minerals Commission, were conducted by the researchers. In addition, resource users (e.g. farmers, fishermen) and other key informants (e.g. opinion leaders) were interviewed in four communities in which resource use conflicts have been identified. The interview guide comprised 16 open-ended questions divided into four sections: background information (e.g. number of years spent in resource extraction), manifestations of natural resource use conflict, and risk factors for natural resource use conflicts and strategies for dealing with such conflicts. In addition, the interview guide specifically elicited information on access and availability of resources, the range of factors that might constrain access, processes for management and sharing of resources, and trends in the incidences of conflict. Furthermore, the guide sought to understand how resource access and availability had changed over time, and what people perceived to be factors in this change.

Since very little systematised information on comparative analyses of resource use conflicts in Ghana was available, interviewing politicians and civil society representatives became the main method of data collection. In this context, 10 policy makers (individuals and representatives of groups that have contributed to policy and laws on natural resource and environmental governance in Ghana) were interviewed. Five of the policy makers were members of parliament (MPs). Four of the MPs represent people of constituencies in which natural resource conflicts have previously been reported, whereas one MP represents a natural resource conflict-free constituency. All five MPs had previously made contributions to natural resource use during parliamentary debates, indicating their interest in the matter. One representative of the national coalition



on mining (NCOM), an organisation of over 100 civil society groups interested in mining, was interviewed. One representative of the civil society platform on oil and gas, an organisation of over 115 members, was interviewed. A representative from the secretariat of the civil society initiative on natural resource and environmental governance (NREG-KASA) was interviewed. Furthermore, a representative of the civil society coalition on land (CICOL), a body of 30 non-governmental organisations (NGOs), was interviewed. In addition, a representative of Forest Watch Ghana, a coalition of 32 NGOs on forestry, was interviewed by the researchers.

### *2.3.3. Document review*

A document review was carried out by examining relevant portions of the 1992 Constitution, Acts of Parliament, sector policies (lands and forestry, fisheries, oil, minerals and mining), and customary law. Specifically, the Minerals and Mining Policy (Act 703 of 2006), the National Water Policy (2007), and the National Land Policy (1999), the Forest and Wildlife Policy (1948), the Forest Protection Amendment Act (Act 624 of 2002), Timber Resource Management Act (Act 547 of 1997), Fisheries Act (Act 625 of 2002) and the First, Second, and Third Development Policy Operations for the Natural Resources and Environmental Governance in Ghana were reviewed for background information to this study. In addition, other relevant documents were reviewed, such as reports from various Ministries, Departments and Agencies (MDAs). Furthermore, Article 27 of the ECOWAS Treaty (1990) relating to freedom of movement and residence within the Community was examined.

## **2.4. Data analysis**

Transcriptions of the interviews were analysed according to the principles of grounded theory described by Strauss and Corbin (1990), using open and axial coding. The process involved breaking down, examining, comparing, labelling and categorising data, then putting data back together in new ways by making connections between categories according to a coding paradigm comprising conditions, context, interactional strategies and consequences. Text analysis of documents and interpretation of interviews were facilitated by the software NVIVO 9 (QSR International 2010).

## **2.5. Reliability and validity of data and process**

As Checkel (2008) and Gerring (2007) recommended, method triangulation was used to ensure best possible reliability and internal validity of data. Face validity was facilitated through the selection of individuals who were likely to have been involved in natural resource use conflicts. Credibility was obtained through the practice of 'theoretical saturation', that is, the interviewing of resource users (e.g. gold miners, farmers, fishermen) and key informants for the purpose of obtaining emic constructs and concepts related to resource use conflict continued until no further new terms were obtained. The first author coded all the information; stability was measured at the level of units of analysis on a systematic sub-sample of four interviews. Stability varied between 93.3% and 99.9% depending on the interpretation given to the formula proposed by Miles and Huberman (1994). The replicability of the classification of units of analysis into families and sub-families of codes was tested by another team member apart from the first author. The few discrepancies in classification were reconciled after discussion and reconsideration.

### 3. Results

Broadly, the results indicate that conflicts in the use and management of land, forestry, oil and mining resources have many interdependencies and are multi-causal, as shown in Figures 2, 3 and 4. These Figures were jointly developed with the interviewees and focus

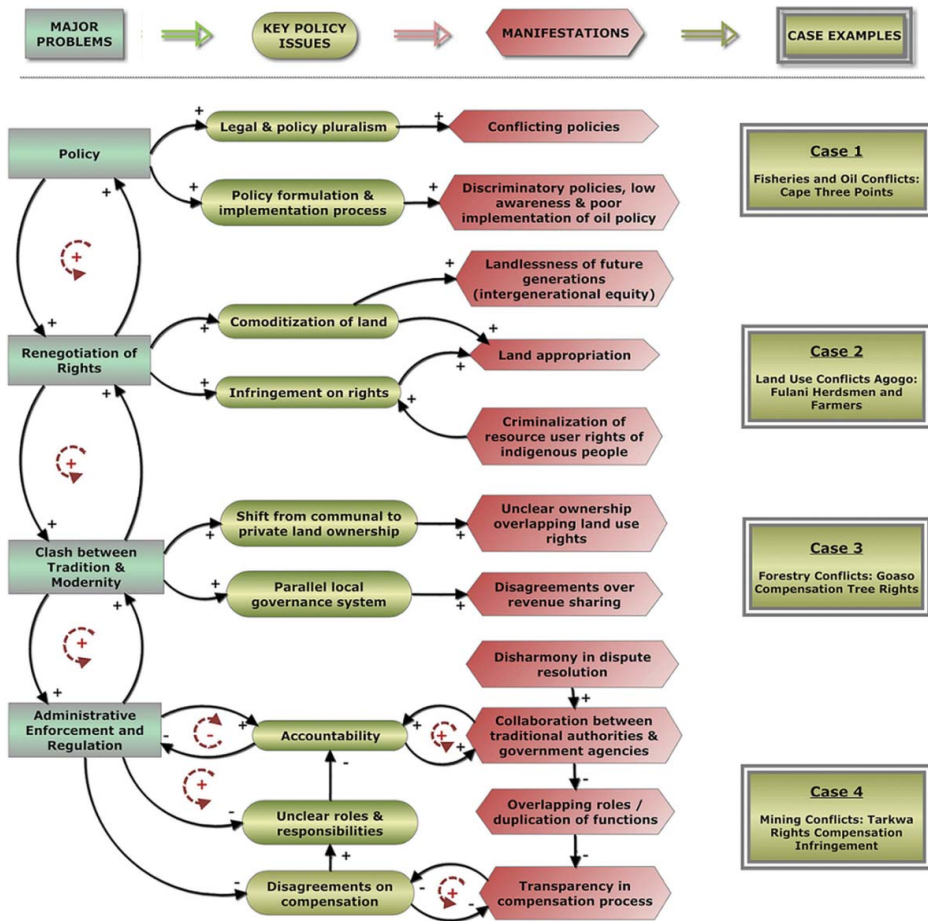


Figure 2. System of interdependencies in resource use-conflict-policy dilemma. Note: Figure 2, our conceptualisation of conflict (jointly developed by the researchers and study participants), is a four component system consisting of major problems which drive or generate resource use conflicts, key policy dilemmas, manifestations of conflict in resource use, and four case examples which reflect conflict across spatio-temporal scales. The arrows illustrate the causal connections between the variables. For example, the arrow from ‘commoditisation of land’ to ‘land appropriation’ shows that the more the commoditisation of land, the more its appropriation. The positive sign (+) at the tip of the arrow is used to designate positive polarity. Negative arrows are used to designate negative polarities. Specifically, positive (reinforcing) feedback loops enhance or amplify changes in the system; this tends to move the system away from its equilibrium state and make it more unstable whereas negative (balancing) feedbacks tend to dampen or buffer changes; this tends to hold the system to some equilibrium state making it more stable. A positive sign indicates same direction-an increase in one variable leads to a corresponding increase or a decrease leads to a corresponding decrease in the other variable to which it is linked. Conversely, a negative sign indicates opposite direction-a decrease in one variable leads to an increase in the other variable to which it is linked and vice versa.

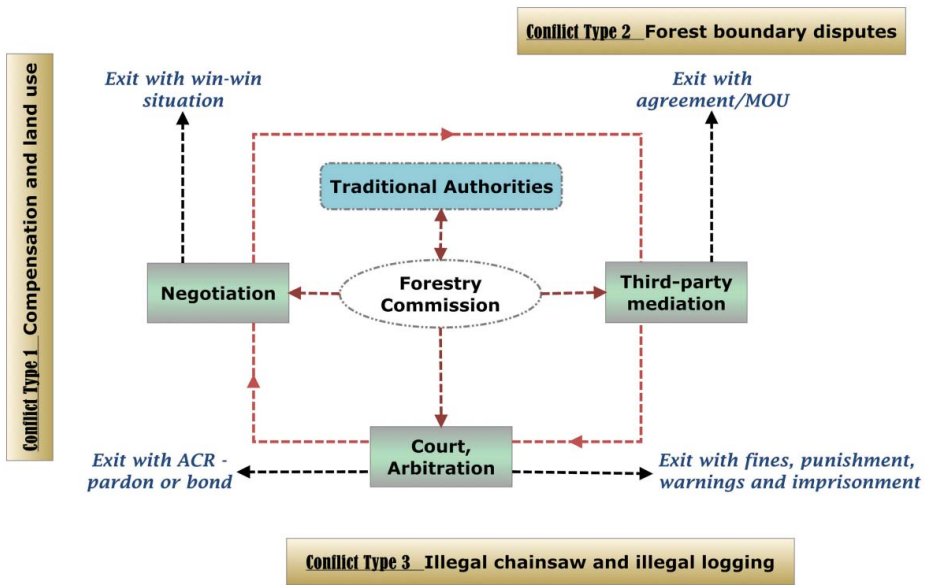


Figure 3. Conflict model source, adapted from Ros-Tonen *et al.* (2010).

group discussants. Regardless of the sector, resource use conflicts in Ghana exhibit similar characteristics.

There are delays in some of the cause-effect relationships in Figure 2. For example, commoditisation of land culminates in two parallel processes: land appropriation and landlessness of future generations. The latter might typically take 40 or more years to manifest, unlike the former. In the case of occurrence of the latter, it is usually difficult to associate it with commoditisation due to the wide temporal separation between the cause

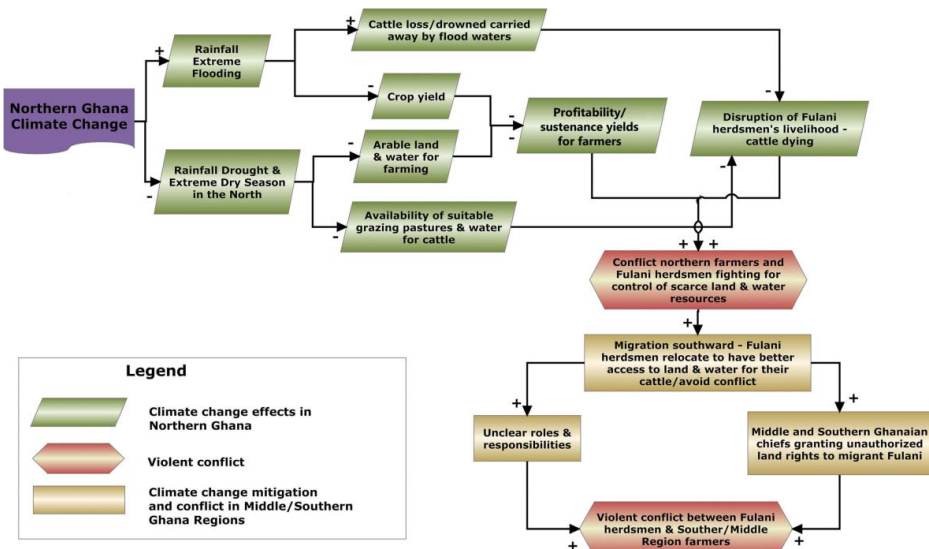


Figure 4. Causal loop diagram of land use conflicts between farmers and Fulani herders in Agogo.

and its effect. Notwithstanding the fact that the case examples were selected from different resource use sectors (mining, forestry, oil and fisheries and land), they exhibit similar policy dilemmas irrespective of the temporal order in which they occur and the spatial scope of the conflict. In [Figure 2](#), conflict can potentially emanate from existing or proposed policy, renegotiation of rights, differences between tradition and modernity, and enforcement of regulation. These issues hold several policy implications which, in turn, manifest as policy dilemmas.

There are several reinforcing and balancing feedback loops in [Figure 2](#). For example, the relationship between disagreements on compensation and transparency in the process is a typical reinforcing feedback loop; likewise, the relationship between land appropriation and infringements on the rights of resource users. Conversely, the relationship among enforcement and regulation, and roles and responsibilities, and accountability, is a balancing feedback loop. Another balancing loop is observed in the relationship among enforcement of regulation and accountability, and collaboration between traditional authorities and government agencies, overlapping roles, transparency in the compensation process, disagreements on compensation, unclear roles and accountability. The results on the drivers, causes and effects of conflicts in the use of land, forestry and mining resources follow.

### **3.1. Case 1: conflicts between artisanal fishermen, trawlers and oil companies**

Fishing and oil industries are intertwined in a complex relationship around the world. Fishing plays a major role as a source of livelihood, employment and income for many households, fishermen, fishmongers and fishing communities. On 15 December 2010, Ghana celebrated its first oil and gas find (in commercial quantities), marking the beginning of a billion-dollar industry. Most artisanal fishermen interviewed in Cape Three Points indicated that fish migrate to oil rigs, which are illuminated. Therefore, they were compelled to chase the fish to the oil rigs. However, there are restrictions on how close they can get to the oil rigs. Some of their fishing gears have been confiscated by the Ghana Navy that patrol the sea to ensure compliance with the restricted access to oil rigs. This is a potential source of conflict between the oil companies and artisanal fishermen.

In this context, one fisherman stated:

... the bright light on the oil rigs attracts our fish and we are also attracted by fish. So long as the oil rigs have light, our fish won't stop migrating there and we will go wherever the fish goes. We can't help it. It's our livelihood ...

According to some of the artisanal fishermen, another source of conflict is between them and pair trawlers.

In this context, some fishermen also said:

Do you know that when the trawlers are stealing our fish they turn off their lights? We don't even see it until it is so close. They destroy our fishing nets, which we purchased with loans further impoverishing us ...

Another fisherman hinted that:

If the Ghana Navy can enforce the ban on pair trawling in the way they have successfully prevented us from chasing fish that migrate to the oil rigs, this conflict between us and pair trawlers might reduce ...

Yet another fisherman said:

.. Now, we, artisanal fishermen are forced to sail our small open canoes farther out to sea in search of a decent catch. Intended only as inshore craft, our canoes are being sailed up to 300 kilometres offshore, where we are very vulnerable in the open ocean . . .

As a key informant, the *Apofohene* (chief fisherman) said that:

. . . decreased fish catches (in our community and elsewhere in Ghana) have resulted in increasing poverty of fisher folk and local fishermen have therefore resorted to the use of larger nets, and mesh sizes less than one inch, to harvest juveniles (Keta school boys). We know that some of my colleagues also use explosives and chemicals to be able to catch a lot of fish.

However, an official of an oil company in responding to the fishermen commented that:

. . .What can oil companies do? You don't want fishermen underneath the oil rigs. It is in the interest and safety of fishermen to stay away . . . If something disastrous happens we might be cited for negligence of duty . . .

According to three policy makers (one member of parliament and two civil society representatives) interviewed, communications and information are not always passed to the lower levels, as national fisheries administration staff fear loss of influence and decision-making power even in the existing era of decentralisation. This issue is further exacerbated where local, decentralised staff fall under wider administrative bodies, such as the Ministry of Food and Agriculture in Ghana. There, local level administrations and their staff have to be polyvalent, carrying out tasks including fisheries, animal husbandry, crop production and forestry. According to the policy makers interviewed, this often leads to one or more of these tasks receiving less attention than it should, depending on the capabilities, area of expertise and preference of the local head of the administration. Based on these narratives, it appears that the three major sources of governance (government, markets and civil society) operate in some isolation, and occasionally in conflict with one another.

### **3.2. Case 2: use of forestry resources and ensuing conflict**

Participants in the FGDs in Goaso identified three types of conflicts associated with the use of forestry resources in Ghana. These are compensation and land use, forest boundary disputes and illegal chainsaw and illegal logging (see [Figure 3](#)). Even though the national policy framework recognises the right of farmers to benefit from trees on their farms, this right is denied to farmers. Some participants in the Goaso area, particularly in the Gambia No. 2 and Bediako communities, alluded to this issue. Other participants referred to the unjust compensation paid farmers when their crops are destroyed during felling and evacuation of timber. In some cases, the farmers indicated they were not even paid any compensation, yet the timber contractors were not called to order.

[Figure 3](#) revolves around three key sources of forest and tree conflicts: those around (1) compensation and land use (e.g. illegal farming in forest reserves and crop damage compensation payments); (2) forest boundary conflicts; and (3) illegal chainsaw operations and logging.

Regarding conflicts on compensation and land use in Goaso (e.g. illegal farming in forest reserves and crop damage compensation payments), a 69-year-old male farmer stated:

... Thirty-four standing trees were felled from my farm. Species felled included *Terminalia superba* and *Ceiba pentandra*. Felling and haulage totally destroyed 46 mature and fruiting cocoa trees on my farm. I reported this incident to the assembly member who negotiated ₵ 340 (US\$170) on my behalf. The contractor, since then, has paid only ₵100 (US\$50). Because he reneged on his part of the agreement, the issue was further reported to the Goaso Forest Services Division for redress. They then invited the contractor for a meeting to settle the payment. But the contractor has refused to pay up ...

A 42-year-old female farmer also said:

... Ten (10) trees were felled from my farm. They were all *Terminalia superba*. This activity together with haulage and skid trails totally destroyed 26 fruiting cocoa trees, some mature plantain, cassava and pineapple. Altogether, about two acres of farm produce were damaged. When they wanted to start logging in my farm, they contacted me and said they would pay me due compensation immediately after the activity. They paid only ₵5 (US\$2.5) as permission fee but have, since, not returned to pay any compensation. Recently, a complaint was lodged with the Goaso FSD but it remains unresolved ...

These sentiments were corroborated by one policy maker who indicated that:

... I took personal interest in compensation and so visited various damaged farms. Up till now, 28 farmers have made such complaints. Their names and description of the kind of damage have been filed and submitted to the relevant company so they can fully pay for the damage ...

With regard to forest boundary conflicts, we found that neither the Forestry Commission (FC) nor communities in Goaso have managed to clearly define their actual forest boundaries. Our findings indicate that FC staff rely on cadastral maps which may be 20 years out of date, and are not easy to interpret in order to apply to the field reality. Another problem arising from poorly identified forest boundaries is that many smaller patches of forest are encroached upon without the FC's knowledge. Many forests are not contiguous blocks, but include scattered patches. In Goaso, most users knew the larger patches of community forest but not the smaller patches adjacent to private land, as they were not clearly defined. Interestingly, we found that forest boundary conflicts are relatively infrequent compared to either conflicts regarding compensation and land use or conflicts due to illegal chainsaw operations and logging. With regard to the latter, the conflicts particularly concern illegal chainsaw milling between the FC or farmers and chainsaw millers. In this context, farmers, traditional authorities and policy makers indicated that the following factors reinforce the existence of the problem: high demand of lumber for domestic use; connivance of some corrupt FC, military and police officials; lack of equitable benefits from timber to rural populace, connivance of culprits with traditional heads; forest fringe communities and law enforcement; and inadequate resources (human and logistics) of Forestry Services Division field staff to effectively monitor to ensure compliance. However, some policy makers interviewed indicated that self-governance occurs at the local level, in cases where traditional councils manage civil conflicts (e.g. incidences related to land conflicts which are non-violent) and deal with offenders without government influence or mediation by government officials. They also indicated that negotiation and mediation are employed by timber contractors involved in

conflicts related to social responsibility agreements (SRAs) and crop damage compensation to farmers. Arbitration occurs in the form of committees of inquiry, which assess conflicts such as illegal farming and logging in forest reserves and present recommendations for action.

### **3.3. Case 3: conflicts in the use and access to gold mining resources**

Broadly, the study found that five sources of resource use conflict characterise access to gold mining in Tarkwa. These include management and distribution of mining revenue, resettlement and compensation, environmental destruction, limited alternative sustainable livelihoods, and illegal small-scale mining (see [Figure 2](#)). These issues impact a large number of stakeholders and are interlinked. Thus, the impact of one source of conflict can be mediated through another. For example, environmental damage can be exacerbated by a lack of available alternative livelihoods. This is because individuals without alternative sources of income are more likely to engage in artisanal mining, which is known for its high, unregulated use of mercury.

In Tarkwa, local government institutions receive a relatively small percentage of extractive sector royalties; this severely impacts their ability to counterbalance the negative externalities of mining, such as pollution. According to the Office of the Administrator of the Stool Lands (OASL), the chiefs and their elders indirectly control the 25% of royalty revenue disbursed by the OASL to the Stools. It is currently difficult to determine accurately how royalty revenue is spent by the chiefs. However, our findings suggest that a majority of the revenue is spent on the Stool's palace, on traditional and/or ceremonial clothing for the chief, on the chiefs themselves, or on the traditional authorities. This has led to suspicion and erosion of confidence in the chieftaincy institution in Tarkwa and possibly in other mining communities in Ghana.

For example, several interviewees in Tarkwa hinted that:

... in the past, our welfare was very important for our chiefs and elders. However, lately, we aren't sure if this is the case. This is because they appear to be keeping the mining royalties to themselves instead of using it for community development ...

Community members, who never receive development funds or projects, are left with the perception that mining companies return little or nothing to the community. This perception underlies a sense of anger and entitlement toward mining companies.

In this context, some interviewees said:

... As for these mining companies, all they think about is profit. They have taken over our lands. They are depriving us of our livelihood and access to resources that our ancestors bequeathed to us. Yet, our chiefs are quiet. Why? We suspect our chiefs have been compromised ...

The breakdown of trust in chieftaincy further complicates disputes over revenue distribution, as well as those over land tenure ([Figure 2](#)). It also produces inter-generational and intra-tribal conflict, as different factions within a given Stool seek either to capture the rents accruing to the current chief or seek to remove the current chief as the first step toward securing a more 'equitable' distribution of revenue ([Figure 2](#)). Given that the current dysfunction within the revenue-sharing process benefits many of the current loci of power within Ghana – especially central government, the district assemblies, and the chiefs – incentives for reform are low.

At present, when an individual, a company or the government seeks to lease (or in the case of government, acquire) land from the holder(s) of the allodial and/or usufruct title, the acquirer must pay compensation. The current compensation policies only require payment for standing crops. Compensation does not cover the net current value of their land's productivity. In this study, this issue was problematised by all interviewees who are indigenes of Tarkwa. In this context, one cocoa farmer indicated that:

... The compensation process is not transparent. Can you imagine that the mining company determines which trees will be compensated for? In one of my farms, they combined several trees as one. Their excuse was the cocoa trees were not old enough ...

Some cocoa farmers asked:

... Do you know that a mature cocoa tree is valued for c 120 (US\$6), oil palm for c 8 (US\$4) a tree? The mining companies are not ready to pay more than the recommended plant population per acre as prescribed by the Ministry Of Food and Agriculture (MOFA), like 60 oil palm trees per acre. However, most of us have more plants than per acre than what is recommended by MOFA. This means we are being cheated ...

Broadly, the study identified four main reasons for community-company conflicts: lack of effective communication and trust between stakeholders, particularly between the companies and environmental and community NGOs; mining communities' lack of capacity and resources to critically assess companies' EIA reports; the lack of accurate, credible, and independent monitoring in many mining sites by the government, due to EPA's capacity constraints; and a lack of political will within the central government to address environmental concerns, possibly for fear such measures would discourage foreign investment. Our study found that there is tension between the mining companies' desire to provide social investment and the companies' aversion to creating a culture of dependence in the communities.

A mining official said:

We realize that the communities are increasingly becoming very dependent on us. This is reflected in the number and frequency of requests for assistance we receive from them. If we are not vigilant, with time they will be completely dependent on us. Only few of our alternative livelihood strategies in their communities have worked ...

Moreover, some interviewees in Tarkwa remarked that alternative livelihood strategies initiated by the companies do not meet their cultural needs. In this context, one farmer said:

... The company came to our community purporting to train us to engage in alternative livelihoods. I am a crop farmer but they gave me goats from the Sahel to breed and sell. In our culture, we don't rear livestock. The goats did not survive their first Christmas in my home. Is this livelihood sustainable?

Some interviewees also said:

There is one fundamental difference between us (community members) and mining companies. We receive empty promises while mining companies receive mining concessions ...



According to mining company officials interviewed in this study, galamsey (unregistered illegal mining) is the most critical challenge to their operations. However, there appears to be some divergence between upper management (Managing Director, Manager for the Work Environment), who seemed open to the idea of giving galamseyers some land to mine, and lower management, who felt the only long-term strategy was to crackdown on illegal mining and ‘fence off’ the company’s mines. The latter approach does not seem to be a viable solution, however, as a strong crackdown in 2004 led to an explosion in local crime and was then abandoned. Two of the three factors that make illegal mining so widespread and conflictual, namely widespread poverty and ineffective security and judicial sectors, are deep-rooted structural development challenges that will take time to be solved. It follows from its causes that illegal mining is a complex, multifaceted policy problem, for which no stakeholders, governments, NGOs, donors or companies, have either a clear strategy for addressing or the resources to implement alone.

#### **3.4. Case 4: Fulani-farmer conflicts in Agogo**

In Ghana, ecological borders are predominantly ethnic and cultural borders representing ethnic and cultural lines of demarcation where resource users meet to either co-operate or compete. Resource use conflict can have both positive outcomes (e.g. when it leads to the development of new institutions, new rules and empowerment of the marginalised) and negative outcomes (e.g. destructive violence, social breakdown). Our findings indicate that conflict between farmers and Fulani herders in Agogo is complex, multifactorial and multi-layered (see [Figure 4](#)).

Environmental, political and socio-economic factors interact to feed into mutual distrust among resource users (see [Figure 4](#)). A fundamental driver is competition for environmental resources (land, pasture, crop-residues, livestock passages and water points) caused by population growth, migration and land degradation. Differences between farmers and herders in cultural values and in the acceptance of modern and traditional laws further exacerbate conflict. One of the important challenges in dealing with this emerging conflict is supranational policy, which drives Fulani migration and persistence in Ghana. This policy promotes free movement of people and goods within the 16-nation ECOWAS community. What this means is that nationals of any of the 16 nations are permitted to cross each other’s borders and reside for a maximum of 90 days without a visa. In this context, one Member of Parliament said:

Good neighbourliness prescribes that the population of this country ought not to adopt hostile attitudes towards those entering the country. We expect that our visitors would also not give the people of this nation reason to be wary of their presence. These Fulani herdsmen are, however, abusing the proverbial Ghanaian hospitality. They have raped, killed, and destroyed large tracts of farms belonging to peasant farmers of this nation. Many Ghanaian farmers have borne the brunt of Fulani herdsmen and their rampaging cattle. What is the use of National Security in the country if it cannot even prevent the Fulani herdsmen from destroying farm produce and attacking farmers? . . .

We found also that conflict of interest is part of the fundamental relationship between some government officials (especially some assembly members and district chief executives) and Fulani herders (pastoralists), and between traditional authorities (chiefs) and Fulani herders. Conflict of interest stimulates competition, which in turn leads to violent or non-violent conflict. For example, our study shows that some Members of Parliament and DCEs hire Fulani herdsmen because there is a long-standing belief in the

sub-region that livestock thrives better when the Fulani herders are in charge. Some of these herdsmen render services to these influential people free of charge.

Some interviewees in Agogo said:

We know some of our political leaders have employed these herdsmen, otherwise, why are they reluctant to act when the herdsmen blatantly violate the laws of the land . . . ?

Several interviewees said:

In the Ghanaian context, the conflicts appear to have gone beyond a struggle over natural resources. When a weapon wielding Fulani rapes women of all ages or engages in armed robbery, what is natural resource about it? A crime is a crime. The Fulani may have a problem with property rights but surely he does well understand the meaning of marriage. And this is where the failure of the state to protect its citizens comes to the fore. If an American rapes in Ghana, he faces the law. A Ghanaian is not spared for breaking the law. If an Ibo, Yuroba, Mossi or Nzema commits an offence in Ghana, he is tried in court. So why should Fulanis be treated differently?

Other interviewees said:

We know that women in the three northern regions fear going to the bush to fetch shea nuts, baobab or dawadawa for home consumption lest they end up being raped. The herders slashed economic trees such as Shea for fodder. In Agogo, young boys can no longer go into the bush for rats. Yam, cassava and millet that are left in farm houses are broken into by the Fulani for their animals to feed on. Water sources were drying up and even ant hills are converted to cattle feed when the Fulani herders pour salted water on it. We live with such experiences now. They are no longer hearsay . . .

#### **4. Discussion**

Using the four case studies, we demonstrate that there is a clear lack of policy or political will to tackle what is turning out to be a complex resource management issue that has the tendency to drive some areas of Ghana into further strife.

It is important to remember that being an artisanal fisherman is a social identity and includes social and cultural knowledge and values and traditions that have been inherited from past generations. Loss of livelihoods therefore implies that traditional knowledge, which has been passed forward for generations, will be lost. Artisanal fishermen proposed measures needed to sustain their livelihoods and to reduce conflicts. These measures can be summarised in the improvement of the environmental situation in Cape Three Points and in the empowerment of the rights of the artisanal fishermen and include: zonation of the sea to prevent clashes between oil rigs and fishermen; increased exchange of knowledge and information; increased environmental protection; and development of policies protecting the interest of the artisanal fishermen. The over-arching aim of these measures is to improve the social status and the working conditions for the artisanal fishermen. The fishermen believe that most of the problems they are facing today could be resolved by governmental support. However, at present the artisanal fishermen feel abandoned and forgotten and there is a general agreement about the failures of governmental authorities to fulfil their commissions. To resolve the problems of artisanal fishermen, new policies aiding the fishermen are needed, as is a better enforcement of existing laws. However, the resources required to realise these measures would be extensive and would imply compliance of social actors from all sectors of the society, including authorities from local to national level.

Through various laws and policies by successive governments, the rights and access of farmers and indigenous people to natural resources have been encroached upon in the forestry sector. This finding is consistent with the findings of Akabzaa (2000). This implies diminishing benefits from these resources as there is a link between rights of access and benefits. For example, from colonial days up to the early 1990s, farmers could seek permission to cut a tree for personal use, but this was stopped by the Timber Management Act of 1997, which criminalised rights of indigenes to timber resources. Under the guise of modern forest management, the state could allocate timber concessions to merchants not only in forest reserves, but on farmlands without giving any benefits to the farmers who nurtured such timber trees on their farms (Akabzaa, Seyire, and Afriyie 2007). The chiefs are given a certain proportion of the income from the timber as royalties, with the vast majority of the people not deriving any benefits from the forest. These issues present useful lessons to guide policy review. Consistent with Armah *et al.* (2011) and Taabazuing *et al.* (2012), we indicate that communities will only gain the incentive to maintain forests if they have access to benefits from it and are involved in decisions on forest management planning. In agreement with Luginaah and Armah (2012), we also argue that lack of information on various policy provisions or differences in the interpretation of the policies can generate different responses from stakeholders, leading to conflicts (see Figure 2). There is constant renegotiation of the rights of citizens through the enactment of various laws that tend to criminalise the rights of people to their resource. This result confirms the findings of Whitehead and Tsikata (2003) and Aryee, Ntibery, and Atorkui (2003).

In Tarkwa Nsuaem Municipality, 1862 km<sup>2</sup> out of the total land size of 2354 km<sup>2</sup> has been leased out to multinational mining companies to prospect for minerals or undertake actual mining. This relates to the commoditisation of land, as shown in Figure 2. Even when the companies are not immediately making use of their vast concession areas, they prevent local community members from access to such lands for farming or other activities (Aubynn 2006). Akabzaa (2000) reported that between 1990 and 1998, a total of 14 communities with a population of more than 30,000 people were resettled within Tarkwa area. These displacements have generated conflicts and disagreements over value of compensation for affected livelihoods (MacDonald 2006). Traditional philosophy and practice do not separate trees from land as the owner of the land is also the owner of the trees on the land (Armah *et al.* 2011). However, state policies and laws seek to separate land ownership rights from tree ownership rights, with the state infringing on the ownership rights of traditional owners, as shown in Figure 2. Ownership of land resides in the Stool, clan or individual and the government can only dispose of land with the consent of the owner. However, various legal prescriptions effectively co-opt rights of ownership of forest as the state gives logging rights to concessionaires without consulting the owners of the trees (see Figure 2).

Understanding the institutional context is particularly important if we want to explain the dynamics of farmer-herder conflicts, for example, why some small-scale conflicts over natural resources are peacefully resolved and why others escalate (Moritz 2010). In the Agogo context, the institutional aspect, especially supranational policy, reinforces the problem. In particular, our findings showed that the ECOWAS policy of free movement of goods is a critical distal driver of the conflict in Agogo. However, because of the wide temporal separation (23 years) between the enactment of the policy in 1990 and now, previous studies failed to associate it with the Fulani herdsman-farmer conflict in Agogo. Fundamentally, farmer herder conflicts are very similar, that is a limited number of local people involved in minor skirmishes over crops, animals, water, or land (see Figure 4).

Yet, Moritz (2010) and Tonah (2006) demonstrate that these conflicts differ entirely depending in large part on the institutional context, which extends beyond the local site where the conflict takes place and includes regional, national and international levels. This observation is consistent with our findings. A diachronic study of farmer-herder conflicts as evolving and increasingly complex socio-political events within continually changing contexts and shifting patterns of interaction will help us to understand why some conflicts escalate but others do not. Such a focus on the dynamics of farmer-herder conflicts requires a systems approach and the in-depth study of a few case studies, as we have shown in this Agogo case study.

A basic criticism of the case-study approach is the problem of representativeness (Gerring 2007). How can we know whether a limited case study is representative, and what it is representative of? One productive way of resolving this could be to see case studies as the source of what Yin (2009) referred to as analytical rather than statistical generalisations. Analytical generalisation implies that inferences are drawn to a broader universe of cases which is theoretically and conceptually defined. In this sense, natural resource use conflict could be seen as having a set of general characteristics; yet there are also specific forms of conflict to which a given theory pertains and which thereby define the scope for analytical generalisation. This means that the findings may perhaps be generalised to understand natural resource use conflict in similar cases – but not, for example, ethnic conflicts at the sub-regional (West African) level. The theoretical perspectives will therefore only be strengthened or weakened, not ultimately refuted by the analysis which follows.

## 5. Conclusions and recommendations

The effectiveness of natural resource policies is a function of the level and quality of participation of actual users of the resource. In order to elicit a nuanced understanding of stakeholder dynamics, resource-user interdependencies, conflict perception by different stakeholders, and the role of policy and context in shaping these perceptions, an approach which is flexible, reflexive and amenable to cross-disciplinary framing and investigation of the problem is required. Such a strategy should be reflective, responsive and emergent, and be able to facilitate social learning among resource users in order to stimulate social change (action) and better policy outcomes. We conclude that resource use conflicts are not only fuelled by economic considerations but the perceptions (whether real or not) of unfair treatment and marginalisation in the decision-making process. Conflict resolution cannot be attained through legal means only, but a combination of legality, provided by the state, and legitimacy built on local people's rights and social justice.

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