

Fractured Tenure, Unaccountable Authority, and Benefit Capture: Constraints to Improving Community Benefits Under Climate Change Mitigation Schemes in Ghana

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Abstract

The debate on climate change and ecosystem services has grown substantially over the past two decades. The post-Kyoto protocol period particularly has witnessed increased formulation of financial mechanisms to compensate for green efforts towards carbon sequestration and reduction in deforestation. In most cases, communities substantially depend on forests for their livelihoods or their actions have a direct bearing on the sustainability of the forests. Will the economic incentives from emerging initiatives offer new sources of income to support rural livelihoods and reduce poverty? There is some doubt about this potential, because there is enormous evidence across the world to show that forest exploitation and use has not substantially benefited local people and Ghana is no exception. This paper draws on existing evidence in Ghana to show that the lack of secure community tenure rights and the dominance of unaccountable authority—which leads to benefit capture by local elites—are critical constraints to equitable forest benefit sharing. Building on the evidence, this paper argues that unless these issues are addressed in policy and practice, the potential economic benefits from the various emerging mechanisms under climate change and ecosystem services may not benefit local people; they may even reinforce the gap between the rich and the poor.

Keywords: forest governance, community benefits, climate change, reduced emissions from deforestation and degradation, Ghana

INTRODUCTION

In recent years there has been increasing interest among environmental and developmental circles in tropical forests as an important ecosystem and in the well-being of the people who live in or near them. Tropical forests provide a range of environmental benefits, in addition to valuable commodities such as timber and fibre, fuelwood, edible and medicinal plants, and game. Well-known forest environmental services include watershed

protection, recreation, landscape beauty, storehouse of genetic information, and the stabilisation of climate by sequestering carbon in biomass (Bishop and Landell-Mills 2002).

Forests play an essential role in the global climate change mitigation strategy as they have the potential to contribute to the global greenhouse gas emissions as well as act as sinks for carbon storage. Deforestation alone accounts for about 15 per cent of global greenhouse gas emissions—larger than the entire global transportation sector (Van der Welf et al. 2009; Angelson et al. 2009). However, as a global carbon stock, forest vegetation stores about 283 Gt of carbon in its biomass, 38 Gt in dead wood, and 317 Gt in soils (top 30 cm) and litter (total carbon content estimated at 658 Gt for 2005; Joint Liaison Group of the Rio Convention 2008).

In spite of the important roles of tropical forests, they are under severe threat in many parts of the world. During the 1990s, an average of almost 15 million ha of forest was lost every year mostly in the tropics (FAO 2001a, b). The loss of

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forests has been accompanied by a loss of the many valuable services that forests provide. Many of these valuable services do not enter into markets, and thus are ignored when forest management decisions are made (Bishop and Landell-Mills 2002). In order to address these problems, there has been increased formulation of financial mechanisms in recent years to compensate for green efforts towards carbon sequestration and reduction in deforestation.

The implementation of climate change related interventions, such as the ‘reducing emission from deforestation and degradation’ (REDD), however, has implications for the livelihoods and the welfare of local communities. Although these financial mechanisms are primarily conceptualised and undertaken as interventions to increase the value of standing forests and/or promote reforestation, many proponents have argued that they can also have positive impacts on poverty (Landell-Mills and Porras 2002; Pagiola, et al. 2002a). Many believe that these financial approaches can provide powerful incentives for and efficient means of conserving forests and the public goods they provide, while at the same time offering new sources of income to support rural livelihoods and reduce poverty in local forest-dependent communities where poverty tends to be more pervasive (Pagiola et al. 2002b). The question that needs to be answered is ‘how can these interventions actually benefit local communities and people in specific socio-political settings?’

Indeed, it is increasingly recognised that the complex land tenure system and the weak governance arrangements in many parts of Africa can hinder the potential of these interventions to contribute to poverty reduction in local communities. The challenge is to ensure that the financial benefits flowing from the implementation of these mechanisms are equitably distributed among all stakeholders, especially local communities. This is crucial because there is enormous evidence across the world to show that forest exploitation and use has not substantially benefited local people. Thus, even though the biophysical and spatial potential for carbon sequestration and mitigation of climate change in Africa is high, the socio-political potential is not (Unruh 2008). We argue that two issues in particular serve as critical constraints to this potential in Ghana—tenure security and unaccountable representation leading to unjust benefit sharing.

This paper emerged, in part, out of a study on tenure reforms in Ghana (Marfo 2009). The study investigated the extent to which tenure reforms under Ghana’s collaborative forest management policies have secured community tenure rights and recompensed their roles. Two cases were studied. The first case is the modified taungya system arrangement that seeks to provide improved land access to local people and offer opportunity to invest in their future through plantation development in degraded forest whilst ensuring forest conservation. The second is a unique case in which local communities bring their forest under a collaborative management arrangement with the state forestry service, building on the so-called ‘dedicated forest’ concept. These cases were located in the Afram Headwaters Forest Reserve

and Assin Fosu Forest District of Ghana (for more on the tenure study, see Larson and Dahal this issue). This paper is primarily based on a review of literature based on recent studies and analysis of issues on tenure and representation of communities in Ghana.

This paper begins with a brief review of initiatives towards the payment for climate change mitigation, particularly those relevant to Ghana. It follows with an argument establishing the existence of two critical constraints to the potential flow of benefits to local communities. This is followed by a discussion of the constraints in the context of recent climate-change related initiatives in Ghana, helping to draw lessons about the potential benefits that can actually reach local people under emerging environmental payment initiatives.

CLIMATE CHANGE MITIGATION EFFORTS

The era after the United Nations Conference on Environment and Development has been characterised by an intensive discussion on the need to pay for the intangible environmental services that tropical forests provide. Tropical forests provide many environmental services vital to the sustainability of the environment; however our paper focuses on climate issues associated with the Kyoto Protocol, which is the United Nation’s main response to climate change and expires in 2012 under the United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol, with the requirement that countries limit or reduce their greenhouse gas emissions as the central feature, thus gives economic values to emission reductions (UNFCCC 2007, 2008). The negotiators of the Kyoto Protocol included three market-based mechanisms—emissions trading, the clean development mechanism (CDM), and joint implementation—to help countries meet their emissions targets, and to encourage the private sector and developing countries to contribute to emission reduction efforts (UNFCCC 2007). Another mechanism that is in the developmental stages for agreement is the Reduced Emissions from Deforestation and Degradation (REDD). This is a proposed scheme to financially compensate countries to reduce such emissions by better managing forest resources. Specific to Ghana, the main initiatives have been CDM and REDD; these are briefly described.

The clean development mechanism of the Kyoto protocol

The CDM allows emission reduction (or emission removal) projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to one tonne of CO₂. These CERs can be traded and sold, and used by industrialised countries to meet a part of their emission reduction targets under the Kyoto Protocol (Richards and Anderson 2001; UNFCCC 2007). The CDM thus promotes sustainable development and emission reductions, as well as giving some flexibility to industrialised countries on how they can meet their emission reduction limitation targets. All proposed CDM projects only qualify for financial credits after going through a

rigorous and public registration and issuance process to ensure real, measurable, and verifiable emission reductions that are additional to what would have occurred without the project. This mechanism is run by the CDM Executive Board, also ultimately answerable to the countries that have ratified the Kyoto Protocol. The mechanism is seen as a pioneer as it is the first global, environmental investment and credit scheme of its kind, providing a standardised emission offset instrument, through the CERs (UNFCCC 2007).

In the context of the CDM, land use, land-use change and forestry (LULUCF) projects have an added value as trees can be grown in most areas of the world, providing various benefits to the poorest people in the poorest areas. LULUCF projects also tend to have a large number of 'co-benefits', such as erosion prevention, watershed protection, enhanced biodiversity, provision of forest resources for local people, and many more. There are cases where LULUCF projects can encompass emission avoidance—such as the avoidance of deforestation, reduction in fire risks or changes in forest harvesting (e.g., changing from conventional logging to reduced impact logging). Despite all the financial benefits associated with CDM, many African countries have not registered the definition of forest for their countries with the CDM Executive Board, let alone develop a project design document to source CDM funding for tree planting. Of the 53 countries in Africa, only 11 have provided their definition of forest—Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Madagascar, Mali, Morocco, Niger, Rwanda, South Africa, and Uganda (<http://cdm.unfccc.int/DNA/allCountriesARInfos.html>. Accessed on September 10, 2011).

Reduced Emissions from Deforestation and Degradation

REDD is a post-Kyoto Protocol mechanism that is being pushed for agreement in order to address the conservation of already existing forests. This aspect was not captured in the three initiatives of the Kyoto Protocol which are limited to afforestation and reforestation projects (Joint Liaison Group of the Rio Convention 2008). The topic of reducing emissions from deforestation and forest degradation in developing countries was first introduced at the 11th session of the Conference of the Parties to the UNFCCC in Montreal in December 2005 (Joint Liaison Group of the Rio Convention 2008). It has recently been established that deforestation and forest degradation are the sources of about 15 per cent of global carbon emissions, and therefore is a significant contributor to climate change. Indonesia is the world's third largest emitter, after the USA and China, due almost entirely to its forestry sector emissions. These emissions are caused largely by human activities such as agricultural and industrial plantation expansion, and legal and illegal logging, which generally tend to reduce the area of forests worldwide, particularly in tropical forests that would otherwise sequester carbon from the atmosphere. Such activities are in turn usually driven by the unregulated global trade in commodities such as timber and biofuels.

There is currently a concerted effort to agree on a global framework that would allow REDD compensation as an extension of the Kyoto Protocol. Currently, while developing countries may be compensated under the CDM (Clean Development Mechanism) for replanting forests (reforestation), or planting new forests (afforestation), no mechanism exists to compensate a reduction in deforestation and forest degradation. REDD is a response to this problem.

Implementation of REDD is proposed to go through 3 different phases with different eligibility criteria for each. The phases are in graduation, moving from the first through to the third—Phase 1: National REDD strategy development, including national dialogue, institutional strengthening, and demonstration activities; Phase 2: Implementation of policies and measures proposed in those national REDD strategies; Phase 3: Payment for performance on the basis of quantified forest emissions and CO₂ removals against agreed reference levels. REDD countries could skip a particular phase provided they meet the criteria for the next phase.

Participation in REDD is voluntary. However, liability for participating countries will increase with graduation from one phase to the next, with an eventual national sectoral commitment in Phase 3 (Angelson et al. 2009). REDD mechanisms can deliver other benefits, in addition to mitigating the effects of climate change. REDD can support livelihoods, maintain vital ecosystem services, and preserve globally significant biodiversity.

Ghana's participation in the climate change initiatives

Ghana signed the UNFCCC in 1992 and ratified it in 1995. Ghana developed its first National Communication on climate change in 1996, and the process to develop the second National Communication is currently in progress. Some issues being taken into consideration in the second National Communication include climate change technology needs assessment, and studies on vulnerability, impact and adaptation. Other aspects of the second National Communication that are currently underway include mainstreaming of climate change into development planning and greenhouse gas mitigation potential assessment, which will cover agriculture, forestry, waste, transport, and energy sectors. There are also REDD readiness activities, assessment of the economic aspects of climate change in Ghana, and a few proposals for CDM projects.

Ghana was one of the first countries to establish Designated National Authority for CDM project activities in Africa with the hope of taking advantage of the opportunities associated with mitigation activities like afforestation and reforestation. The potential of using the tropical forest of Africa to sequester significant amount of atmospheric carbon as one mitigation approach to climate change has attracted considerable attention (Unruh 2008, Wauters et al. 2008, Lewis et al. 2009). Recent studies conducted by Lewis et al. (2009) revealed that mature moist forests in Africa have been absorbing a net 340 million tonnes of carbon per year in recent decades. This amount is estimated to be equivalent to the total emissions from

deforestation in Africa, and much greater than fossil fuel-based emissions from the continent. However, to date there has not been a single project in Ghana that has yet benefitted from the financial mechanism under the CDM programme. Unruh (2008) attributed the inability of most African countries to exploit the opportunities in the afforestation and reforestation CDM to the complicated land tenure system. Another hindrance to African countries including Ghana is lack of both labour and equipment in establishing a credible monitoring and verification system in a project design document to get a CDM project registered. Notwithstanding these challenges, Ghana's Forestry Commission has teamed up with the Forestry Research Institute of Ghana and communities around the degraded Pamu-Berekum Forest Reserve, and is in the process of establishing a small scale community-based afforestation and reforestation CDM project in Ghana with assistance from the International Tropical Timber Organization in Japan to build capacity and create awareness in forest fringe communities. The community rubber out-grower programme in the western region of Ghana is also making efforts to attract carbon credit through CDM for the carbon being sequestered by the extensive community-based rubber plantations.

CONSTRAINTS TO LOCAL BENEFITS UNDER THESE SCHEMES IN GHANA

With all these efforts in Ghana, the question is 'to what extent will communities benefit from these initiatives to improve their livelihoods'? We explore two critical constraints based on existing literature and recent research and discuss lessons that can be learned from forest exploitation and management in Ghana. In this section we elaborate the observations made about these constraints, and then discuss the critical interventions needed in the next section.

Tenure security

In Africa, tenure relations in rural communities are often complex—local tenure systems may incorporate aspects of official legislation as well as traditional or customary tenure systems. For example, instead of one person having all the rights to a given plot of land and the resources on it, the 'bundle of rights' may be divided depending on the resource, e.g., the land is owned by one person, the trees by another. It may also be divided depending on the way the resource is exploited—one person may be considered the owner of a tree and have exclusive rights to chop it down or collect the firewood, but many other people may have rights to collect fruits or leaves. Or, the rights to the resource may change over time—one person may hold land for cultivation purposes during the rainy season while it becomes pasture with much less restrictive rules of access during the dry season (Freudenberger 1994). Another characteristic of local tenure systems is that they are often adaptive; evolving over time in response to changing ecological, social and/or economic conditions (Freudenberger 1994).

Diaw (2005) reports that rural lands in Africa continue to be predominantly governed by indigenous tenure principles, mingled with state law and occasional private titling. He asserts that "since at least the 1960s, numerous researchers have reviewed the systems of rights that govern African land and forest tenure to find that, far from disappearing, these systems, already complex in pre-colonial times, had further evolved into multidimensional constructs of econiches and overlapping rights" (Diaw 2005: 44). Discussing the formation and deconstruction of customary land tenure in Africa, Peters (2007) asserts that decades of revisionist analysis of African history have shown that customary or communal law and tenure were the joint creation of colonial officials and African leaders:

In the creation of customary law, colonial rulers confused territoriality with sovereignty, and confused African ritual authorities over rain-making or fertility with political leaders exercising authority at different scales (lineage, clan, chiefdom) over their people. Similarly, the multiple types of authority and sets of claims over land and its products were glossed as communal tenure, which became incorporated into the developing body of customary law (Peters 2007: 3-4; cf. Agbosu 2000: 15).

Even though the complications regarding land tenure systems in Africa are varied, Unruh (2008) mentions two main features of African land tenure systems that are most problematic—the pervasive disconnect between customary and statutory land rights; and legal pluralism in land. Citing several authors (Evers et al. 2005; Moyo and Yeros 2005; Bruce and Noronha 1987; Bruce and Fortmann 1989), he reports that even though most African populations conduct their lives with the idea that 'ownership' of land is based on occupancy, use, lineage, and other inborn rights, African governments often ignore customary tenure systems and regard such areas as part of the public domain, while at the same time lacking the capacity to enforce such a claim or resolve the problems that such a claim produces. The large social, legal, economic, and often cultural disconnect between statutory land tenure and customary or informal land tenure systems in Africa has compromised development, agriculture, nation building, and governance for decades (Unruh 2008; Peters 2007; Okoth-Ogendo 2000).

In many rural areas of Africa, there is often considerable variation in perceptions about what rights the individual, household, communities, and the state have regarding land, resulting in a situation of pronounced temporal and spatial 'legal pluralism' (Unruh 2008). The diversity of customary land tenure perceptions and systems in any one African country has frequently frustrated the African states' attempts to derive and implement a land law that applies to everyone (Maganga 2003; McAuslan 2003). The most common examples of legal pluralism regarding land worldwide occur in Africa, where due to the existence of both the wide variety of customary tenure, as well as formal tenure systems, accepting legal pluralism regarding land is an approach to practical governance (Unruh 2004; Bruce 2000).

The literature on land tenure in Ghana, particularly those connected with forest lands is rich (Agyeman 1994; Kasanga and Kotey 2001; Amanor 1999; Boni 2005; Marfo 2009), and points to a complex mix of issues that make tenure security somehow uncertain. This is because of the phenomenon of legal pluralism (governance of land by both statutory and customary laws) and the existence of a hierarchy in the traditional chieftaincy institution which leads to different levels of authority and multiple claims of ownership and tenure rights over land.

Land ownership in Ghana can broadly be divided into three categories—customary ownership, state ownership, and split ownership (a partnership between the state and the customary owners) (Larbi 1998; Larbi et al. 1998). Customary lands in Ghana are held by various stools (or skins),¹ families or clans, and are managed by custodians—chiefs or family heads (Agbosu 2000). Custodians of customary lands hold the land in a fiduciary capacity and they are accountable to the members of the land-owning community (Larbi et al. 1998). The customary sector holds 80 to 90 per cent of all the undeveloped land in Ghana with varying tenure and management systems (Kasanga and Kotey 2001).

State lands are those which have been expressly acquired from the customary owners by the state through compulsory acquisition or negotiation under the State Lands Act, 1962 (Act 125). They vary in size depending on the purpose of the acquisition, and leases of these lands are granted to statutory institutions and private individuals for development. Split ownership on the other hand occurs when the state takes over the legal incidents of ownership (the right to sell, lease, manage, collect rents, etc.) from the customary landowners and holds the land in trust for the land-owning community under the Administration of Lands Act, 1962 (Act 123). The landowners retain the equitable interest in the land—the right to enjoy the benefits from the land. This is generally referred to as vested land and it is managed in the same way as state lands (Larbi et al. 1998). Split ownership is seen in forest reserve areas where the land continues to be the property of the traditional owners while the government manages it for the collective good of the public. Thus, both statutory and customary laws govern land resources in Ghana (Kasanga and Kotey 2001), and indeed the 1992 Republican Constitution of Ghana recognises customary law. This means Ghana is a dual legal political entity where issues of rights can be contested by statutory and customary laws. As observed by Kasanga and Kotey (2001) these systems are poorly articulated and increasingly cause problems of contradiction and conflict, reflecting Unruh's concerns about the effect of legal pluralism.

Certain distinct schemes of interest exist in customary or communal ownership in Ghana. These include the allodial interest,² which is the highest proprietary interest known to exist in customary land and, in many traditional areas, acknowledged as being vested in their stools or skins only (Marfo 2009; Kasanga and Kotey 2001; Agbosu 2000; Bower 1993; Kasanga 1988). Individuals and families from a landowning community with allodial title to the land hold

the customary freehold to the land that they cultivate or that is allotted to them by the community. The holder of customary freehold has the right of occupation, which may be devolved to his successors *ad infinitum* (Marfo 2009; Kasanga and Kotey 2001). Many native people hailing from forest fringe communities have a customary freehold interest in their farmlands, which have been passed on from their predecessors.

There are additional configurations as well, such as common law freehold and usufruct rights. Customary ownership is associated with considerable problems—the boundaries of such lands are not generally surveyed and in some cases undefined, there may be conflicting claims to ownership, and there is no proper record keeping of judgements, dispositions, and other records relating to the land by the custodians. Land litigation is therefore frequent (Larbi et al. 1998; Knox 1998).

In Ghana, tree and forest tenure security is shaped by another set of rights overlaying this already very complex situation of land tenure. Several conditions complicate tree and forest tenure security and this has largely compromised access and distribution of forest benefits. While the legislative framework of Ghana (Act 547) offers tenure security for planted trees and forests (plantations), tenure rights over natural forest resources remain problematic both in law and in practice. Currently, the right to all naturally-occurring timber trees—whether on private or on communal land—is vested in the president in trust for the people. The use of such trees is controlled by legislation such as the Concessions Act of 1962 and it is an offence for an individual or community to cut or sell timber or merchantable tree species without permission from the appropriate government institution. The right to control and manage tree resources, including allocation of logging rights, is vested in the state.

Off-reserve timber originates from trees retained or nurtured by farmers for their ecological and subsistence benefits; farmers manage the trees to ensure their compatibility with the cropping system and the overall objective of land conservation. However, when such trees are matured for timber, they are treated as a naturally occurring resource, and by law rights to their harvesting are vested in the state, which allocates felling rights to timber contractors with the accruing benefits shared among stakeholders—but not the farmer. The revenue accruing from timber sales, irrespective of source of timber, is shared among the District Assembly, 'landowners' (Chiefs), Administrator of stool lands (public agency) and the Forestry Commission. Thus, off-reserve trees are raised by one group of people to be regulated and harvested by others who have no investment in the trees (Tropenbos International 2009).

Farmers therefore have no legal rights, either to harvest timber trees they maintain on their farms, or to any of the revenue accruing from timber extraction though they continue to exercise judgement over which trees to maintain on their farms during clearing for cultivation (Amanor 1999; Kotey et al. 1998). This is a strong disincentive to tree management and protection by farmers (Ardayfio-Schandorf et al. 2005), and

has grievous consequences on sustainable tree management as aggrieved parties in the benefit-sharing scheme find their own means of benefitting from the resource. For example, farmers are known often to sell trees to unauthorised people like chainsaw operators (Tropenbos International 2009). Others deliberately destroy seedlings and juvenile timber trees to ensure the protection of their crops from the effect of logging. For example, in a study of the contribution of forest resources to rural livelihoods in south-western Ghana, 26 per cent of the 160 survey households reported that they do not plant or preserve timber trees on their land due to issues of tree tenure (Acheampong 2003). As an elderly man from Sureso, a village in the Asankrangwa Forest District reported:

If I will not get anything from timber trees I protect on my land and if timber contractors will harvest them and destroy my crops, then I will destroy them while they are young in order to avoid future damage to my crops (Acheampong 2003: 252).

Another man from Kamaboi, a village in the Asankrangwa Forest District also reported as follows:

The most important tree we preserve on our farms is kola since we get direct benefit from the kola nuts when we sell them, and since no timber contractor harvests kola trees. As for timber species I kill them off because they are of no use to me. It is useless for me to protect timber trees for loggers to harvest them without benefiting from the trees (Acheampong 2003: 252).

Thus, “while legislation can criminalise the economic use of timber trees by farmers, it cannot prevent them from felling trees to make way for farming” (Amanor 2000: 316).

Even though farmers’ right of consultation before timber harvesting operations is now required by law, loggers rarely consult them when timber trees on their farms are felled. Farmers are rarely compensated for damage to food and cash crops resulting from logging operations on their land (Marfo et al. 2006; Hansen and Treue. 2009). In other words, farmers do not benefit from timber trees they protect on their farms. The frequency of conflicts related to on-farm logging compensation payment raises questions about the effectiveness of forest and tree tenure systems in Ghana (Owubah et al. 2001).

Although planted trees in Ghana are vested in the cultivator, the widespread misconception that all timber trees are vested in the government discourages farmers from planting timber trees. Most farmers argue that planted trees may be mistaken for naturally occurring trees and will therefore be appropriated by the government; they question how the Forestry Services Division would be able to distinguish between planted trees and naturally occurring ones (Acheampong 2003). Thus, it seems clear that forest and tree tenure systems in Ghana are ineffective with regards to the protection and management of timber species. These systems need to be reviewed to ensure that farmers benefit from the timber trees they protect on their farms in order to encourage them to plant or preserve such species. Such a review will also ensure that the various emerging mechanisms under climate change mitigation actually benefit local people by offering new sources of income to support rural livelihoods and reduce rural poverty.

Unaccountable representation and benefit sharing

Where do local communities fit into the structure of forest resource governance? To understand this, it is important to understand the nature of the prevailing local administrative and political governance system. Nevertheless, the relationship between chieftaincy as a traditional institution and land tenure is so complex that this paper cannot fully cover the subject here; hence this description will be necessarily brief (for some accounts on this, see Berry 2001; Marfo 2006).

Typically, communities in Ghana belong to traditional areas. These are a collection of villages/towns or communities under the traditional jurisdiction of a paramount chief or *Omanhene* (literally meaning the chief of the state)³. Each of these communities may have its own chief who is subordinate to the paramount chief. That is, the structure of chiefs is hierarchical. The lowest status is called the *Odikoro*, a caretaker chief who is normally appointed as a traditional leader in a village by the chief who ‘owns’ the land of the village. Next in the hierarchy is the *Apakanhene* (palanquin chief literally meaning the chief who is qualified to sit in a palanquin) or commonly known as *Ohene* or chief. A palanquin chief occupies a stool with its own stool land. The paramount chief and all the sub-chiefs (both palanquin chiefs and caretaker chiefs) and their elders in a traditional area constitute the traditional council, which is presided over by the paramount chief. Even though chiefs are the traditional heads of the geographical territory of their stool lands, they do not exercise absolute ownership rights, in particular alienation rights, over the land. The Chieftaincy Act (Act 370 Article 37) states that “Any transaction purporting to alienate or pledge any stool property shall be voidable unless made or entered into with the consent of the Traditional Council concerned”.

However, both customarily and in practice, paramount chiefs do not have absolute right over all stool lands under their traditional jurisdiction (see Owusu 1996; Berry 2001). Thus, while all chiefs are traditional authorities, their domain of jurisdiction is limited when it comes to rights over land.⁴ This makes it difficult to simply label a particular chief as a land owner. It is for this reason that royalties from timber and mineral exploitation from particular stool lands are distributed between both the particular chief of the land and the paramount of the territory over which that land is located.

In addition to these traditional structures, all communities belong to particular politico-administrative districts which in turn belong to regions. These are created by the statutory law under the decentralisation structure of the country. Again, the political leadership structures within districts are hierarchical. At the village level, electoral areas are represented by unit committees which consist of government appointees and elected members of the community. The committee is headed by an assemblyman who represents the electoral area (which can be a whole village or parts of it, depending on population size) at the District Assembly. The District Assembly is the highest deliberative and legislative body at the district level which formulates by-laws and executes central government

development programmes. The District Assembly is headed by the District Chief Executive, who is nominated by the President and endorsed by the Assembly.

In other words, traditional areas and District Assemblies represent two overlapping areas governed by customary or statutory laws with parallel jurisdictions and autonomy. Thus, local communities may fall under different sets of administrative and traditional jurisdictions at the same time. This is especially complicated as traditional areas still continue to be created due to the 'promotion' of some chiefs to paramount status.

With regard to forest benefit negotiation and distribution, chiefs continue to wield substantial influence (Marfo 2001; Ayine 2008; Larson et al. 2010).⁵ The paper argues that this is a significant constraint to the flow of benefits and must be corrected. The issue of benefit capture has been an important problem across developing countries (TBI 2005; Ribot 1999). In Ghana, benefit sharing is one of the major issues in policy discourse, and conflicts related to benefit sharing are pervasive (Marfo 2006). In a recent national forest sector prioritisation workshop, the issue of benefit sharing was ranked among the top five problems (Forestry Commission n.d.). Even though there has been some contention regarding the actual proportion of benefits, particularly by traditional authorities, this paper focuses on distribution of benefits.

To a large extent, there has been a systematic finding that forest benefits meant for communities in Ghana are often captured by local authorities, both traditional and government (see Marfo 2004; Opoku 2006; TBI 2005; Ayine 2008; Marfo 2009). For example, in the workshop mentioned above, it was strongly noted that farmers need to be considered as a separate community-based stakeholder group because of the unique role they play in off-reserve tree management (TBI 2005)—and because benefits fail to reach them.

The main forest benefits directed to communities have been royalties paid from stumpage fees, land rent collected from commercial loggers, and social responsibility agreements negotiated directly with communities.

Article 267 of the 1992 Constitution of Ghana prescribes a formula for the distribution of the net benefits (after deducting the forest management costs and the administration costs of the Office of the Administrator of Stool Lands) from the exploitation of natural resources: 25 per cent to the stool through the traditional authority for the maintenance of the stool in keeping with its status; 20 per cent to the traditional authority; and 55 per cent to the District Assembly, within the area of authority of which the stool lands are situated.

In spite of the statutory prescription for sharing forest revenue among the stakeholders, there is no such arrangement for the distribution and accountability of the revenue received within the stakeholder groups. This leaves decisions regarding the use of these funds in the hands of the local elites who receive them on behalf of the communities. Larson et al. (2010) present several observations about community negotiations for benefits and accountability of forest revenues. For example, Opoku (2006) observed that "chiefs tend to appropriate

royalties for their personal or household use and have often claimed that this is the meaning of "maintenance of the stool in keeping with its status". The argument by chiefs in Ghana is that it is the royalties allocated to the local government that belong to communities. In addition, by allocating 20 per cent of royalties directly to traditional authorities, the Constitution further blurs the customary law distinction between 'ownership' and 'political leadership' (Opoku 2006). However, the Constitution clearly orders that "ownership and possession of land carry a social obligation to serve the larger community and in particular the managers of stool lands are fiduciaries in this regard (Article 36, Section 8)." Thus, a total of 45 per cent of net forest revenue goes to traditional leaders without any obligation to account for and use it for the benefit of their subjects.

Though the use of forest revenue and the discussion of direct developmental benefits to communities have often featured in policy debates, it was only very recently that attempts at a systematic enquiry have begun. For example, Hansen and Treue (2009) provide a general overview of revenue received by the Forestry Commission, traditional authorities and District Assemblies. They observed that the District Assemblies considered their share of the forest revenue as internally-generated fund and that, in forest-rich districts, these may constitute as much as 30–40 per cent of annual internally-generated fund. The study reported that the revenue was used to finance general operations of the District Assembly, and only a small share was sometimes used for development projects. Moreover, even such projects did not appear to target communities from which the revenue originated (Hansen and Treue 2009). A similar pattern was found among the traditional authorities studied, with forest revenues mainly spent on recurrent costs, festivals, and land litigations. Interestingly, where projects were mentioned, they were typically related to construction and renovation of palaces.

Hansen and Treue (2009) indicated that several customary sharing arrangements are applied at the stool level where, for example, one-third of the revenue is retained by the chief, one-third by the stool (administered by the stool Treasurer) and one-third by the stool elders. Tracing the history of forest benefit sharing, Amanor (2005: 21) observed that chiefs have been given a favourable role by the state in the timber sector in return for centralising timber resources in the hands of the state. He further noted that both the colonial and the postcolonial states have privileged chiefs in return for appropriating timber resources from farming communities; in return chiefs have gained access to a large share of the royalties, without specification on their use beyond 'the upkeep of the stool', he concluded. Thus, one can argue that, effectively, at least two-thirds of all the stool revenue may end up in the private pockets of the chiefs and their elders. Thus, there is clear evidence that forest revenue sent to communities through the traditional authorities (45 per cent) and District Assemblies (55 per cent) are captured by these privileged institutions and to a large extent by the people who occupy privileged positions.

Interestingly, notwithstanding the situation of inequitable

flow of benefits to ordinary community people, there has been an impressive improvement in the proportion of gross forest revenue paid to community representative institutions. At the moment, the proportions of traditional authorities and District Assemblies are expected to increase since revenues are now shared 50: 50 between the Forestry Commission and other stakeholders instead of the 60: 40 that existed for forest reserve revenue.

Another area of forest benefit to communities that has significantly demonstrated elite capture in Ghana is the social responsibility agreement negotiation of community interest. The social responsibility agreement is a prescribed agreement by law (Act 547) between a timber firm and communities within a specific forest area to provide some social amenities and it is one of the legal requirements for the granting of a timber utilisation contract. Marfo (2001) investigated community social responsibility agreement negotiation in five communities in the Dome Forest Reserve area and observed that traditional leaders exerted substantial influence and control over decisions about community interests that were presented for negotiation. Prior to the introduction of social responsibility agreements, elite capture of community benefits from timber companies had been reported (see Ayine 2008). Ayine (2008) reports that in some cases of social responsibility agreement negotiation, a provision for marginal side-payments to chiefs and other community leaders were included in the agreement, and cited one case where USD 600 was to be paid monthly to the paramount chief. Ayine (2008) concluded that, while the legal framework provides an enabling environment for the negotiation of social responsibility agreements, the actual practice of negotiating and implementing these agreements to benefit communities leaves much to be desired.

More recently, through the modified taungya system which employs farmers to cultivate selected agricultural crops and at the same time plant and nurture trees in forest reserves, benefits to communities have been improved. The modified taungya system is a method of plantation establishment in which farmers are allotted parcels of degraded forest reserves to produce food crops and help to establish and maintain timber trees. The modified taungya agreement provides for benefits to be distributed among the Forestry Commission (40 per cent), the farmers (40 per cent), the traditional authorities (15 per cent), and the community (5 per cent). This is currently the main reforestation mechanism being promoted by the Forestry Commission, and is widespread especially in degraded forest areas.

DISCUSSION

From the above study, it seems clear that the institutional arrangements governing land and forest tenure and community representation privilege local elites who mediate and receive revenue on behalf of local people. The consequences have been highly insecure rights to trees—leading to their destruction or removal—and elite capture of benefits by unaccountable representative authorities.

The land and tree tenure arrangements in Ghana have been shown to be complex, governed by multiple legal regimes with differing levels of authority and control. They provide avenues for multiple claims of ownership and recognition of rights, a situation that fundamentally provides fertile grounds for conflicts, especially when commercial interests come to play (Marfo 2007). For example, the ownership of a tree standing on a farmer's land can be claimed by three actors. First, farmers, who, *de facto*, exercise control over which trees to fell or leave during preparation of land for farming have often claimed ownership of trees, especially when one follows conflict discourses (Marfo 2006). Second, the chief of the land where the farm is located could also claim ownership, especially if the farmer is a migrant who has only been rented a piece of land to farm; in this respect, the allocation of land does not include resources on the land. Third, at an even higher level of authority, the paramount chief who may reside in a far away town could also claim ownership, since he is the traditional lord over all lands under his jurisdiction. Thus, depending on the prevailing commercial and other interests at stake, these actors may invoke customary law and practice to claim ownership of trees or unencumbered forested landscapes. This situation, as expounded before, presents a real challenge for targeting benefits from exploitation of forest resources in practice.

In addition to this, it has also been shown that community representative structures such as chiefs and District Assemblies mediate benefit flows to communities and to a large extent determine whether ordinary people may indeed receive these benefit or not. This adds another layer of complication, especially when there is ample evidence that these structures have largely been unaccountable in benefit sharing, yet their positions are legitimised by both customary and statutory laws. Again, this poses a real governance challenge to any pro-poor and compensatory initiative that target benefits to ordinary local people.

Generally, the observation that both the REDD and CDM initiatives have focussed on using existing forest benefit sharing schemes provides an interesting context for discussing the potential benefits of these initiatives to local communities. Under the REDD initiatives to be undertaken, one can anticipate efforts to tighten controls over the exploitation of the remaining 1.6 million ha of tropical forests in Ghana being degraded at an annual rate of about 65,000 ha. If this happens, any alternative source of revenue that replaces stumpage fees will still be distributed among the traditional and local government authorities to compensate. This, in the face of the current reality, will reinforce existing inequities, adding more resources to the privileged community institutions rather than to the ordinary people.

Moreover, forested lands that are currently permitted to be converted for agricultural purposes may be protected under REDD programmes. Since the alienation rights of communal lands, for example, are held by the traditional authorities, such interventions may bring some economic benefits which, again, may not reach the farmer or ordinary local person who would have otherwise have had access to the land for farming. Thus,

limited access to forest lands under REDD initiatives may significantly affect the livelihoods of many ordinary people in forest fringe communities.

Under CDM initiatives, afforestation and reforestation programmes may also reinforce existing inequities. Again, this is because the land tenure system vests important rights such as alienation rights to traditional authorities. There is some evidence to establish that there are not sufficient incentives and tenure opportunities for tree planting especially by migrant farmers who 'rent' lands for agricultural purposes (Amanor 1999; Ardayfio-Schandorf et al. 2005). Even though there is substantial incentive for growing trees on private lands as guaranteed by Act 547 and the amended Plantations Development Fund Act of 2002 (Act 623), many local people may not be able to take advantage. They cannot strictly claim ownership rights over their farmlands, as they may only have customary freehold rights and alienation rights, especially for long term land use investment like plantation development.

With respect to reforestation programmes under CDM, the use of the modified taungya system as a collaborative mechanism for plantation development in state forest reserves, which provides significant economic incentives, also presents some major challenges. Marfo (2009) studied the implementation of the modified taungya system in the Afram Headwaters and made some important observations. The first is related to security of their investment against the threats posed by wildfire and theft. The second is related to their inability to trade their investment in short term economic opportunities. It was observed by Marfo (2009) that even though the modified taungya agreement had provisions for the plantation to be insured by the Forestry Commission, none of the studied cases had been insured. This was observed to be problematic due to the threat of tree theft by illegal operators and also the frequent incidences of wildfire. Moreover, even though farmers had assurance of 40 per cent benefit from the future revenue from tree sales, there was no way they could use this future capital as a collateral to negotiate opportunities for business alliance and credit to engage in other economic activities to support their livelihoods. This is particularly crucial if no direct financing will be provided to support farmers' livelihoods once trees cover the land.

Although opportunities for community partnerships do not necessarily improve returns to communities, it has been recommended that the way forward centres on creating more equal partnerships by raising community bargaining power, fostering the roles of brokers and other third parties, and developing equitable, efficient, and accountable governance frameworks (Vermeulen et al. 2008). Marfo (2009) further argued that building accountability mechanisms within communities is important as most small and medium investment funding opportunities target organised locals and groups. Therefore, as REDD and CDM mechanisms adopted in Ghana seek to work with communities, it is important to address issues of benefit sharing and accountability of representatives, not only by defining rights but also securing

investments and ensuring that people can use them for short term economic opportunities.

It is in the face of these realities that the debate about community benefits from climate change initiatives such as CDM and REDD should be situated. Even though Ghana has not yet received tangible financial benefits from its climate change programmes, these realities on the ground must inform policy makers, donors, and other stakeholders about what steps need to be taken now. There has been significant community resistance to forest operations in situations where local people have not seen tangible benefits from their involvement in forest protection and management. For example, Kotey et al. (1998) and other studies (see Amanor 1999) have reported that farmers have deliberately poured hot water on or uprooted seedlings and debarked trees to kill them, in response to lack of compensation payment for crops damaged on their lands by loggers. Thus, even though loggers paid stumpage fees for the trees, because the benefit sharing arrangements alienate farmers and there is no enforcement of payment for logging damages, trees on farms become a liability to farmers.

CONCLUSION

In the context of the CDM and REDD initiatives, one begins to wonder who will benefit if these initiatives use existing institutions of tenure and community representation. Who will make decisions regarding the use of the forests under these initiatives and how might communities be affected? Considering the privileged positions of the institutions of chieftaincy—as custodians and de facto owners of customary lands—and that of District Assemblies, these institutions remain likely to be chosen by intervening authorities to continue to represent communities to negotiate any future benefit sharing arrangements. In addition, their privileged positions to receive benefits on behalf of communities are likely to be sustained under CDM and REDD schemes, particularly because of the constitutional formula for benefit sharing.

The constitutional revision in Ghana which started in 2010 provides a unique opportunity to renegotiate the terms of the provision, at least to make explicit provision for accountability of these benefits. In effect, even though Article 36 seems to demand these bodies to act as fiduciaries, it seems that a further elaboration in the Constitution or by an act of Parliament may be needed. Without governance reforms that ensure accountability, it is argued that communities (at large) will continue to be alienated from decision-making and benefit sharing, reinforcing existing inequities. This may have adverse impacts on forest resources as farmers may continue to compromise and sell trees on their farms to illegal operators or continue to deliberately destroy them. The collaborative spirit needed for communities to be actively involved in protecting forest resources against wildfires and indiscriminate land clearing may also not be inspired.

In the final analysis, what is needed under both the CDM and REDD schemes is that existing forests are protected from

deforestation and degradation so that they contribute to climate change mitigation. Therefore, the key issue is how to create incentives for the actors who matter most for the mitigation of deforestation to be achieved. The paper argues that ordinary people in the communities who can protect forest resources individually on their lands and collectively with state forestry officials are an important target. Addressing the issues of tenure insecurity and unaccountability in benefit sharing will help meet the co-benefit of addressing poverty.

Thus even though emerging initiatives under climate change and environmental services may hold enormous economic incentives for forest-owning communities, Ghana has a long way to go in ensuring that such opportunities benefit ordinary local people. Admittedly, tenure issues are the most difficult to deal with in the context of Ghana, because of the complex nature of the system due to a mix of statutory and customary laws. However the time is opportune for some serious policy interventions and preparations before actual implementation of the schemes. Specifically, there is an urgent need to discuss the following: How can chiefs be compelled to act as 'true' customary fiduciaries, in accordance with the national constitution, and improve accountability of community finances that are deposited with chiefs? How can tenure insecurity issues in plantation development be addressed as plantations offer a better chance of increased community participation and benefits than natural forests? How can existing benefit sharing arrangements be reviewed to include other stakeholders like farmers, and how can benefit flows be made more equitable and tangible?

In a nutshell, this paper has attempted to assemble some empirical observations of the obstacles that can potentially hinder equitable flow of benefits to communities under any emerging interventions to maintain and improve forest integrity in Ghana. The time is opportune to engage stakeholders to take up these issues and discuss how to address them in both policy and practice.

Notes

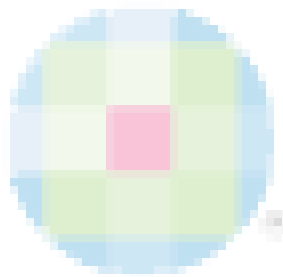
1. 'A stool' refers to a particular land-owning group represented by a 'stool' chief. It also refers to a community governance or administrative structure similar to dynasties (Kasanga et al. 1996). Note: A skin in northern Ghana is the equivalent of a stool in southern Ghana.
2. The 'allodial' title is coined on a Latin term 'allodium' used in feudal medieval Europe (1241) originally to designate the relationship of Simon de Montfort to some of his lands in France. It describes an absolute power of allocation but not necessarily a title of personal use (Hammer 1998).
3. A traditional area is an area within which a paramount chief exercises jurisdiction (The Chieftaincy Act, 1961, Act 81). The exception is the Asanteman, which is headed by a super-paramount chief who is also the King of Asanteman called the Asantehene. Asanteman is the geographical entity for all territories that fall under the Asantehene. This includes the whole of Ashanti (or Asante) region and part of Brong Ahafo region of Ghana.
4. Fay (2008) makes a useful discussion on the chiefs, and points to the need for analytical distinction between the concepts of authority and domain.
5. The subject of accountability deserves a separate section unto itself, but limited space will not allow that here. For a fuller discussion, see Marfo (2011) and Larson et al. (2010).

REFERENCES

- Acheampong, E. 2003. Sustainable livelihoods of forest fringe communities: Forests, trees and household livelihood strategies in southern Ghana. Ph.D. thesis. University of Hull, Hull, UK.
- Agbosu, L.K. 2000. *Land law in Ghana: Contradiction between Anglo-American and customary conceptions of tenure and practices*. Madison, WI: Land Tenure Center, University of Wisconsin-Madison Working Paper No. 33.
- Agyeman, V.K. 1994. Land, tree and forest tenure systems: Implications for forestry development in Ghana. African Development Foundation Research Report Series.
- Amanor, K.S. 1999. Global restructuring and land rights in Ghana: Forest food chains, timber and rural livelihoods. Uppsala: Nordiska Afrikainstitutet.
- Amanor, K.S. 2000. Farmers, Forestry and Fractured Environmentalisms in Ghana's Forest Zones. In: *Contesting forestry in West Africa* (eds. Cline-Cole, R. and C. Madge). Pp. 307-321. Aldershot: Ashgate Publishing Limited.
- Amanor, K.S. 2005. Equity in forest benefit sharing and poverty alleviation. In: *Equity in forest benefit sharing: Stakeholders' views*. Workshop Proceedings 3. Wageningen: Tropenbos International.
- Angelson A., S. Brown, C. Loisel, C. Peskett, C. Streck and D. Zarin. 2009. Reducing emission from deforestation and degradation (REDD): An options assessment report. A report prepared for the government of Norway. Meridian Institute. 100pp.
- Ardayfio-Schandorf, E., E.M. Attua, S. Agyei-Mensah, P.W.K. Yankson and A.B. Asiedu. 2005. Socio-economic perspectives of off-reserve forest management in the Goaso forest district of Ghana. Accra: Woeli Publishing Services.
- Ayine, D. 2008. Social responsibility agreements in Ghana's forestry sector, developing legal tools for citizen empowerment series. London: International Institute for Environment and Development.
- Berry S.S. 2001. Chiefs know their boundaries: Essays on property, power and the past in Asante, 1896-1996. Cape Town: David Philip.
- Bishop, J. and N. Landell-Mills. 2002. Forest environmental services: An overview. In: *Selling forest environmental services: Market-based mechanisms for conservation and development* (eds. Pagiola, S., J. Bishop and N. Landell-Mills). Pp. 15-35. London: Earthscan.
- Boni, S. 2005. *Clearing the Ghanaian forest: Theories and practices of acquisition, transfer and utilization of farming titles in the Sefwi-Akan area*. Accra: Institute of African Studies.
- Bower, P. 1993. Land tenure policy and development. In: *International land tenure*. Organized by the Royal Institute of Chartered Surveyors. December 1993. London: University of East London; Royal Institute of Chartered Surveyors.
- Bruce, J.W. 2000. African tenure models at the turn of the century: Individual property models and common property models. *Land Reform* 1: 17-27.
- Bruce, J. and L. Fortmann. 1989. *Agroforestry: Tenure and incentives*. Madison, WI: Land Tenure Center, University of Wisconsin-Madison Working Paper No. 135.
- Bruce, J.W. and R. Noronha. 1987. Land tenure issues in the forestry and agroforestry project contexts. In: *Land, trees and tenure* (ed. Raintree, J.B.). Proceedings of an International Workshop on tenure issues in agroforestry. Nairobi: Land Tenure Center, International Council for Research in Agroforestry. May 27-31, 1985.
- Diaw, M.C. 2005. Modern economic theory and the challenge of embedded tenure institutions: African attempts to reform local forest policies. In: *Institutions, sustainability and natural resources: Institutions for sustainable forest management* (eds. Kant, S. and R.A. Berry). Pp. 43-81. Amsterdam: Springer.
- Evers, S., M. Spierenburg and H. Wels. 2005. *Competing jurisdictions: Settling land claims in Africa*. Leiden: Brill.
- Food and Agricultural Organisation (FAO). 2001a. Global forest resource assessment. FAO Forestry Paper No. 140. Rome: Food and Agricultural

- Organisation.
- Food and Agricultural Organisation (FAO). 2001b. State of the world's forests 2001. Rome: Food and Agricultural Organisation.
- Fay, D. 2008. Traditional authorities and authority over land in South Africa. Paper presented at the Conference of the International Association for the Study of the Commons (IASC). July 14–18, 2008. Cheltenham, England.
- Forestry Commission. n.d. *Summary of priority issues in the forestry sector*. Accra: Forestry Commission.
- Freudenberger, K.S. 1994. *Tree and land tenure: Rapid appraisal tools*. Community Forestry Field Manual 4. Rome: FAO.
- Hammer, M. 1998. Stool rights and modern land law in Ghana. *Afrika Spectrum* 33(3): 311–338.
- Hansen, C.P. and T. Treue. 2009. The sharing of financial benefits from timber trees in Ghana: Issues of equity and economic incentives with emphasis on the off-reserve situation, in Tropenbos-International Ghana. Strengthening off-reserve timber management in Ghana. Proceedings of a national workshop held in Accra, Ghana. September 27–28, 2007. Kumasi: Tropenbos-International Ghana Workshop Proceedings 7.
- Joint Liaison Group of the Rio Convention. 2008. *Forests - Climate change, biodiversity and land degradation*. UNFCCC, CBD & UNCCD Analytical report of Forest and Biodiversity. 12 pp.
- Kasanga, R.K., J. Chochranc, R. King and M. Roth. 1996. Land markets and legal contradictions in the peri-urban area of Accra, Ghana: Informant interviews and secondary data investigations. Land Tenure Centre Paper 127. Madison, WI: Land Tenure Centre, University of Wisconsin–Madison; Kumasi: Land Administration Research Centre, University of Science and Technology.
- Kasanga, R.K. and N.A. Kotey. 2001. *Land management in Ghana: Building on tradition and modernity*. London: International Institute for Environment and Development.
- Kasanga, R.K. 1988. *Land tenure and the development dialogue: The myth concerning communal landholding in Ghana*. Cambridge: Department of Land Economy, University of Cambridge Occasional Paper No. 19.
- Kotey, N., J. Francois, J. Owusu, F. Yeboah, K. Amanor and L. Antwi. 1998. *Falling into place: Ghana country study*. Policy that works for forests and people Series No. 4. London: International Institute for Environment and Development; Accra: Ministry of Lands and Forestry, Ghana.
- Knox, A. 1998. Ghana country profile. In: *Country profiles of land tenure: Africa, 1996*. Coordinator: Bruce, J.W. Land Tenure Centre Research Paper No. 130. December 1998. Madison, WI: Land Tenure Centre, University of Wisconsin, Madison.
- Landell-Mills, N. and I. Porras. 2002. *Silver bullet or fools gold? A global review of markets for forest environmental services and their impact on the poor*. London: International Institute for Environment and Development.
- Larbi, W.O. 1998. Tenure transformation and land valorisation processes at the urban periphery of Ghana. In: *Proceedings of the International Conference on Land Tenure in the Developing World with a focus on Southern Africa*. Cape Town: University of Capetown. January 27–29, 1998.
- Larbi, W.O., E. Odoi-Yemo and L. Darko. 1998. Developing a geographic information system for land management in Ghana. In: *Proceedings of the International Conference on Land Tenure in the Developing World with a focus on Southern Africa*. Cape Town: University of Capetown. January 27–29, 1998.
- Larson, A.M., E. Marfo, P. Cronkleton and J.M. Pulhin. 2010. Authority relations under new forest tenure arrangements. In: *Forests for people: Community rights and forest tenure reform* (eds. Larson, A.M., D. Barry, G.R. Dahal and C.J. Peirce Colfer). London: Earthscan.
- Lewis S.L., G. Lopez-Gonzalez, B. Sonke, K. Affum-Baffoe., T.R. Baker, L. Ojo, O. Philips, et al. 2009. Increasing carbon storage in intact African tropical forests. *Nature letters* 457(7232): 1003–1006. doi: 10.1038/nature07771.
- Maganga, F. 2003. The interplay between formal and informal systems of managing resource conflicts: Some evidence from South-Western Tanzania. In: *Securing land rights in Africa* (eds. Benjaminsen, T.A. and C. Lund). London: Frank Cass Publishing.
- Marfo, E. 2001. Community interest representation in negotiation. A case of the social responsibility agreement in Ghana. M.Sc. Thesis. Wageningen University, Wageningen, the Netherlands.
- Marfo, E. 2004. Unpacking and repacking community representation in forest policy and management negotiations. Lessons from the social responsibility agreement in Ghana. *Ghana Journal of Forestry* 15&16: 20–29.
- Marfo, E. 2006. Powerful relations. The role of actor-empowerment in the management of natural resource conflict. A case of forest conflicts in Ghana. Ph.D. Thesis. Wageningen University, Wageningen, the Netherlands.
- Marfo, E. 2007. Legal pluralism and community access to forest: Conflicts and potentials for collaborative governance. Scientific report to IFS.
- Marfo, E. 2009. Security of tenure and community benefits under collaborative forest management arrangements in Ghana. A country Report. CIFOR/RRI Research Report.
- Marfo, E. 2011. Reconstructing the commons for equity and accountability in forest benefit sharing arrangements in Ghana: A time to reconcile law and custom. Hyderabad: 13th Biennial Conference of the International Association for the Study of Commons. January 10–14, 2011.
- Marfo, E., K.A. Adams and B.D. Obiri (eds.). 2009. Ghana case study of illegal chainsaw milling. Developing alternative to illegal chainsaw milling through multi-stakeholder dialogue in Ghana and Guyana Project. FORIG Research Report (CSIR-FORIG/TR/EM;KAA;BDO/2009/18).
- Marfo E., E. Acheampong and C. Osaе. 2006. An assessment of compliance with on-farm logging compensation payment regulations in Ghana: Implications for policy interventions. *Ghana Journal of Forestry* 19&20: 35–44.
- McAuslan, P. 2003. *Bringing the law back*. In: *Essays in land law and development*. Burlington, VT: Ashgate Publishing Limited.
- Moyo, S. and P. Yeros. 2005. *Reclaiming the land: The resurgence of rural movements in Africa, Asia, and Latin America*. London: Zed Books.
- Okoth-Ogendo, H.W.O. 2000. Legislative approaches to customary tenure and tenure reform in East Africa. In: *Evolving land rights, policy and tenure in Africa* (eds. Toulmin, T. and J. Quan). Pp. 123–134. London: Natural Resources Institute.
- Opoku, K. 2006. *Forest governance in Ghana: an NGO perspective*. A report produced for FERN, Forest Watch, Ghana.
- Owubah, C.E., D.C. Le Master, J.M. Bowker and J.G. Lee. 2001. Forest tenure systems and sustainable forest management: The case of Ghana. *Forest Ecology and Management* 149: 253–264.
- Owusu, M. 1996. Tradition and transformation: Democracy and the politics of popular power in Ghana. *The Journal of Modern Africa Studies* 34(2): 307–343.
- Pagiola, S., N. Landell-Mills and J. Bishop 2002a. Making market-based mechanisms work for forests and people. In: *Selling forest environmental services: Market-based mechanisms for conservation and development* (eds. Pagiola, S., J. Bishop and N. Landell-Mills). Pp. 261–290. London: Earthscan.
- Pagiola, S., N. Landell-Mills and J. Bishop. 2002b. Market-based mechanisms for forest conservation and development. In: *Selling forest environmental services: market-based mechanisms for conservation and development* (eds. Pagiola, S., J. Bishop and N. Landell-Mills). Pp. 1–13. London: Earthscan.
- Peters P.E. 2007. *Challenges in land tenure and land reform in Africa: An anthropological perspective*. Centre for International Development, Harvard University Working Paper No. 141.
- Ribot, J.C. 1999. Decentralisation, participation and accountability in Sahelian Forestry: Legal instruments of political administrative control. *Africa* 69(1): 24–57.
- Richards, K.R. and K.P. Andersson. 2001. The leaky sink: Persistent obstacles

- to a forest carbon sequestration program based on individual projects. *Climate Policy* 1: 41–54.
- Tropenbos International (TBI). 2005. *Equity in forest benefit sharing: Stakeholders' views*. Workshop Proceedings 3. Wageningen: Tropenbos International.
- Tropenbos International (TBI). 2009. Strengthening off-reserve timber management in Ghana. Proceedings of a national workshop held in Accra, Ghana. September 27–28, 2007. Ghana Workshop Proceedings 7. Kumasi: Tropenbos International.
- United Nations Framework Convention on Climate Change (UNFCCC). 2007. *The Kyoto Protocol mechanisms*. UNFCCC.
- United Nations Framework Convention on Climate Change (UNFCCC). 2008. *Climate change: Impacts, vulnerabilities and adaptation in developing countries*. UNFCCC.
- Unruh, J.D. 2004. Migration induced legal pluralism in land tenure: Implications for environmental change. In: *Environmental change and its implications for population migration* (eds. Unruh, J.D., M.S. Krol and N. Kliot). Dordrecht: Kluwer.
- Unruh, J.D. 2008. Carbon sequestration in Africa: The land tenure problem. *Global Environmental Change* 18: 700–707.
- Vermeulen, S., A.A. Nawir and J. Mayers. 2008. Rural poverty reduction through business partnerships? Examples of experience from the forestry sector. *Environment, Development and Sustainability* 10: 1–8. DOI:10.1007/210668-006-9035-6.
- Van der Welf, G.R., D.C. Morton, R.S. DeFries, J.G.J. Olivier, P.S. Kasibhatla, R.B. Jackson, G.J. Collatz and J.T. Randerson. 2009. CO₂ emissions from forest loss. *Nature Geoscience* 2: 737–738.
- Wauters, J.B., S. Coudert, E. Grallien, M. Jonard and Q. Ponette. 2008. Carbon stocks in rubber tree plantations in Western Ghana and Mato grosso (Brazil). *Forest Ecology and Management* 255: 2347–2361.
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