



Empowerment through Knowledge? A Study of Local Spatialised Knowledge Production in Ghana, and Its Exchange and Use for Forest Conservation and Governance

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Summary

The knowledge of indigenous and local people plays a crucial role in sustaining forest ecosystems, mitigating climate change, and preserving forest-dependent communities. This body of knowledge has gained recognition by scholars and policymakers from the global to the local levels in the quest to achieve sustainable forest management. The scholarly literature on the knowledge of indigenous and local people addresses: (i) the importance of local knowledge to forest and biodiversity conservation, (ii) the need to recognize the rights of indigenous and local people's, and (iii) the articulation and implementation of principles such as participation and the principle of Free, Prior and Informed Consent (FPIC) to enhance the ability of indigenous peoples to use their knowledge and to protect their rights. However, it scarcely examines how concepts such as knowledge brokering and participatory spatialised knowledge production can be combined to analyse the empowerment potential of local people in multilevel forest governance. This study is based on the argument that there is little research concerning how the production, exchange, and use of local people's knowledge in specific settings can lead to empowerment.

Against this background, this research addresses the question: How can local people in forest areas be empowered through participatory spatialised knowledge production and knowledge brokering in multilevel forest governance processes addressing forest conservation with particular reference to Ghana? Related sub-questions are:

1. How does the multilevel governance context of Ghana's high forest zone set the conditions for forest conservation and use?
2. Who are the holders of spatial knowledge of forest-based livelihoods and forest conservation in Ghana's high forest zone, how do they map ecosystem services relevant for their livelihoods and forest conservation (forest cover change and threats)?
3. How do knowledge brokering organisations make use of spatialised and non-spatialised community knowledge and what are their terms of knowledge exchange and use?
4. How can the production, exchange and use of local spatialised knowledge in multilevel forest governance contribute to community empowerment?

Chapter 1 justifies the need to conduct research into local spatialised knowledge production, exchange, and use in multilevel forest governance and how it can lead to community empowerment. This study positions itself in three major debates: on multilevel governance, participatory spatialised knowledge production and brokering, and local empowerment. Based on the signalled knowledge gaps, the chapter further presents the research questions and overall structure of the thesis.

Chapter 2 reviews theories on multilevel forest governance, spatialised knowledge, and empowerment, and the role that knowledge brokering and participatory spatialised knowledge production play in these processes. The theoretical strands adopted are interlinked and provide a strong basis for building the conceptual framework that guides the analysis in this study.

Chapter 3 elaborates on the methodology for this thesis. A multiple case study design was adopted for this research. Two forest reserves were selected based on the following criteria: (i) diverse management regimes so that various management regimes within a reserve i.e. conservation, production, reforestation, would be represented, (ii) degree of protection status – so that one totally protected forest reserve and one partially protected forest reserve was selected to enable a comparative analysis, (iii) degree of forest degradation so that one relatively well-preserved forest reserve and one degraded forest reserve were selected in order to enable a comparison

of challenges to conservation, and (iv) location in Akan-speaking regions because I speak the local language (Twi), which facilitated communication and trust among respondents. The criteria for the selection of specific study communities included: their location in the production management regime, accessibility, willingness of village authorities to participate in the research, and active involvement in forest conservation (established by the presence of actively functioning collaborative management groups such as the community biodiversity advisory groups (CBAGs) and the community fire volunteer squads (CFVS). In addition, Kyekyewere was selected as it is the only community located within a Globally Significant Biodiversity Area (GSBA). Data for this thesis was collected through a mixed methods strategy during a fieldwork period of 14 months. Research methods included the use of participatory mapping (p-mapping) techniques and Participatory Geographic Information Systems (PGIS), a household survey (N=598) to validate findings from p-mapping and PGIS, personal observations in five case study communities, a workshop involving 26 participants, including representatives of state and non-state organisations and spatial knowledge holders, 29 semi-structured interviews with state and non-state organisations involved in multilevel forest governance, 25 semi-structured interviews with spatial knowledge holders, and a review of academic literature, internet sources, and policy documents. This mixed method design provided multiple sources of evidence and assessment of information from diverse perspectives, thus assuring triangulation.

Chapter 4 describes Ghana's high forest zone in a multilevel governance context based on the literature and empirical findings from key respondent interviews. The high forest zone of Ghana is rich in biological diversity but poor in terrestrial fauna. Ghana's forests also make important contributions to the national economy as well as to the livelihoods, health and nutrition of forest-dependent communities. Since the advent of formal forestry in Ghana, both state and non-state organisations put efforts in place to better manage the forest sector through the enactment of policies, legislations, and various projects and programmes. Efforts to halt deforestation and forest degradation have led to forest governance initiatives such as the Voluntary Partnership Agreement (VPA) between Ghana and the European Union to combat illegal logging, and Reducing Emissions from Deforestation and forest Degradation, including conservation, sustainable forest management and the enhancement of forest carbon stocks (REDD+). Despite these efforts, empirical evidence from this research suggests on-going deforestation and forest degradation in Ghana's forest reserves.

Ghana's forest policies and its associated legislations have paid little attention to community empowerment through spatialised knowledge production, exchange, and use. However, the Forest Law Enforcement, Governance and Trade (FLEGT)/Voluntary Partnership Agreement (VPA) and Reducing Emissions from Deforestation and forest Degradation plus (REDD+) instruments are multilevel forest governance initiatives that can create opportunities for community empowerment, but are not fully implemented in Ghana. Currently, the VPA/FLEGT and REDD+ social safeguards are not tailored towards creating opportunities for community empowerment through spatialised knowledge production, exchange, and use. To ensure community empowerment, governance reforms must consider social safeguards that ensure effective participation and equitable benefit-sharing arrangements for affected local communities. When fully implemented, these initiatives may exacerbate deforestation and forest degradation if governance-related issues, especially regarding social safeguards, are not carefully considered and addressed.

Chapter 5 analyses the holders of spatial knowledge of forest-based livelihoods and forest conservation in Ghana's high forest zone and how they map ecosystem services relevant for their livelihoods and forest conservation (forest cover change and drivers). Holders of spatial knowledge on forest conservation were selected by traditional authorities based on their in-depth knowledge of the forest and the location of timber and non-timber forest products. The analysis reveals the following people as holders of spatial knowledge: (i) community members (either native or settlers) who have in-depth knowledge of timber and non-timber forest resources, (ii) those experts whose knowledge is mostly acquired through their association with the Forest Services Division (FSD), for example, as a member of the CBAG, CFCs, and CFVS, (iii) those whose knowledge is developed during their occupation as collectors of non-timber forest products (NTFPs), chainsaw operators, farmers or hunters, and (iv) community members who know the history of the community (mostly chiefs and elders). Local spatialised knowledge contributes to the overall knowledge of forests as the knowledge holders not only sketch-mapped the location and spatial distribution of the threats to forest conservation within the forest reserves, but also provided information on the people perceived to be causing such threats. Such information is not available on the records of forest inventories conducted by the Forest Services Division (FSD) within the forest reserves. The maps with the anticipated condition of the forest reserves in ten years' time provide insights which help the FSD to deal with the underlying drivers of deforestation and forest degradation. This suggests that local spatialised knowledge is so useful that institutional arrangements for forest management cannot be effective without active involvement of the local people. Moreover, local spatialised knowledge on ecosystem services revealed the uses and spatial distribution of plant, animal and timber species within the forest reserves. This revealed the importance of the forest ecosystem to the livelihoods of local people inhabiting both forest reserves (provisioning services) and the awareness of the importance of supporting and regulating ecosystem services and the need to conserve the forest ecosystem.

Chapter 6 provides an empirical account of the knowledge brokering organisations involved in multilevel forest governance and how they set their terms of knowledge exchange and use. These organisations are categorised as: (i) conservation or conservation and development organisations, (ii) research or knowledge organisations, (iii) advocacy networks, (iv) multilateral organisations, and (v) resource management organisations. These knowledge brokering organisations have roles within the range of knowledge managers, linkage agents, capacity builders, and knowledge consumers (i.e. collecting information about other people's knowledge). The majority of the knowledge brokering organisations recognise the importance of local people's knowledge and are involved in knowledge exchange with local people. The main type of knowledge exchanged is context-embedded knowledge, exchanged through methods such as interviews, focus group discussions, dialogue, resource mapping, and transect walks. Organisations engage in multiple programmes. As such, they have a blend of methods of knowledge exchange, with limited difference between the kind of organisation and the methods of knowledge exchange. This depicts the relevance of knowledge co-creation in which the sectoral knowledge of organisations is integrated with the spatialised knowledge of local people to achieve organisational objectives while meeting the needs of local people.

The opportunity structure provided by organisations was also analysed. The FPIC principle does not apply to local people as they do not have a right to self-determination. However, in this thesis we are concerned with the use of local

spatialised knowledge and so the distinction between indigenous peoples' rights and local peoples' rights is less relevant. Consultations by organisations at the national level, are less spelled out than those of international organisations; a considerable number of organisations did not consult local people before undertaking research or implementing a project and had no proof of consent. The latter is partly influenced by how community consultations are done in the Ghanaian context; based on verbal agreement. In terms of benefit-sharing arrangements, organisations do not engage in projects or research for monetary benefits. As such, the benefit that local people derive from their knowledge exchange is mainly non-monetary, for instance through acknowledgement in publications, to which they attach value.

Local peoples' participation in decision-making is influenced by factors such as the kind of organisation and the organisation's perception regarding the importance of local knowledge and donor requirements. It is mainly advocacy networks that meet the criteria of effective participation set out by international conventions, whereas obstacles to effective participation were mainly identified at the national level where a considerable number of organisations engage local people through tokenism. This is below the minimum engagement stipulated in international policy and law and is not in accordance with the FPIC principle. Moreover, national organisations offer few opportunities for organised community groups to hold them accountable. They include organised community groups in project implementation and in the design of specific programmes, but unlike some organisations at the regional and global levels do not engage community groups as board members with equal partnership. In terms of promoting local organisational capacity, organisations' involvement in creating awareness on local people's rights is low. Ignorance of local people's rights with respect to the exchange and use of their knowledge can result in disempowerment.

Chapter 7 explored how the production, exchange, and use of local spatialised knowledge in multilevel forest governance can contribute to community empowerment. It revealed that, first, the terms of local spatialised knowledge production reflect the power struggles inherent in the knowledge production process where the chief and sub-chiefs in each study community were involved in selecting the spatial knowledge holders for this research. Not all people with rich spatial knowledge in the study communities were included in the participatory mapping exercises, but many of them participated in the research through engagement in transect walks and validation meetings. The analysis also revealed the in-kind benefits (benefit-sharing arrangements) that the study communities required from my research through acknowledgement in my thesis and publications which they considered important. More importantly, the training and use of participatory mapping tools such as the Global Positioning System (GPS) served to empower the spatial knowledge holders as they applied the knowledge acquired to solve problems with the Forest Services Division of the Ghana Forestry Commission in their respective communities and to claim their rights.

Second, the analysis of the assets and capabilities of local communities revealed obstacles to community empowerment mainly in terms of community infrastructure and educational level. Living in villages with a poor community infrastructure and characterised by a low educational level, local people in the study communities belong to a vulnerable group. This hinders formal interactions in the English language and hence the application of the FPIC principle. Considering the importance of traditional authorities in the Ghanaian context, organisations and researchers can apply the FPIC principle and benefit-sharing arrangements through the customary governance structures. However, the customary governance structures may not always

ensure inclusive decision-making due to the strict hierarchical nature of these governance structures.

Third, the findings in both forest reserves suggest a bleak situation in terms of local people's empowerment outcomes under three dimensions of empowerment: 'power over', 'power to' and 'power with' and hence, their ability to have control over the exchange and use of their knowledge in multilevel forest governance. However, a potential empowerment outcome lies with local people's 'power from within' considering the likelihood that spatial knowledge holders have increased 'power from within' and 'power to' through affiliation with this research, which may have an empowering effect on their respective communities. However, this will remain limited without functional organised community groups ('power with') that can ensure that local people have a voice in ensuring that they benefit from the inclusion of their knowledge in multilevel forest governance.

Chapter 8 concludes the thesis by synthesising the key findings and answering the research questions; providing suggestions for further research and policy recommendations; and providing theoretical reflections. In summary, this research revealed that: (i) there is a need to find a balance in Ghana's high forest zone between the ability to provide continuing benefits to the national economy, the livelihoods of forest dependent communities, and competing conservation and development claims, (ii) within communities, people with forest-related professions hold rich spatial knowledge of provisioning and other ecosystem services important for their livelihoods, as well as of threats to forest conservation, (iii) organisations that use this knowledge generally practice tokenism when seeking community participation in forest governance, notably those at national level, (iii) with the exception of lobbying networks, knowledge brokering organisations offer a poor opportunity structure for community empowerment through spatialised knowledge production, exchange and use, (iv) the FPIC principle and benefit-sharing arrangements are poorly operationalised in Ghana, (v) there is a lack of functional organised community groups that can ensure that local people have a voice in decision-making regarding the exchange and use of their knowledge in multilevel forest governance processes, (vi) there is a lack of awareness of local people's rights with respect to the exchange and use of their knowledge both among local communities and national organisations, and (vii) there is a lack of formal education of the inhabitants in the study communities impeding their effective engagement in multilevel forest governance, with a language barrier becoming prominent in the first place.

With regard to these findings, this research has two limitations. First, the assets and capabilities of local communities have not been analysed at the individual level because that was beyond the scope of this research. However, this has limited the empowerment analysis as individual assets and capabilities that enable local people to benefit from the opportunity structures provided by knowledge brokering organisations were not identified. Second, this research analysed knowledge exchange from the knowledge brokering organisations' perspective. The knowledge discussed in the interviews was unrelated to the knowledge produced within the framework of this research. This has limited an analysis of how the brokering organisations exchange and use such spatialised community knowledge in multilevel forest governance and the empowerment outcomes thereof.

This leads to the following recommendations for further research. First, this research analysed the activities of 29 knowledge brokering organisations and how they use spatialised and non-spatialised community knowledge. Further research is needed on how the activities of the knowledge brokering organisations feed into multilevel forest

governance after the exchange and use of spatialised community knowledge. This will aid in the analysis of the empowerment outcomes of the activities of knowledge brokering organisations. Second, further research is needed on how the individual assets and capabilities of local people can help them benefit from the opportunity structures provided by the knowledge brokering organisations, so that some level of empowerment from the exchange and use of their knowledge in multilevel forest governance can be ensured. Third, research can be undertaken on the use of volunteered geographic information (VGI) to monitor forest degradation in forested landscapes as a way to enhance local people's engagement in forest governance and conservation. Mobile applications with specialised software can be developed for local actors who have the most knowledge related to forest issues for use in informing the appropriate authorities of the location of threats to forest conservation. Finally, the categorisation of knowledge brokers revealed that mostly the advocacy networks ensure effective participation of local people as opposed to research and knowledge organisations. The advocacy networks are also involved in programmes that lobby for legal reforms regarding indigenous and local community's lands, territories and resources. Further research can shed light on how and to what end FPIC and benefit-sharing are operationalised in different contexts; how they are linked to different knowledge types and brokering processes; and what role customary institutions play in this respect.

In further analyses on whether multilevel forest governance is socially inclusive, several dimensions need to be considered. These include the question of whether decision-making regarding forest governance reflects local needs; provides a platform for diverse stakeholders to have their voices heard regarding forest use and management; and gives specific attention to equitable access and benefit-sharing arrangements for different stakeholders, especially specifically regarding local forest use and the use of local knowledge. In this regard, this study distinguished between multilevel governance Type I and Type II, each of which has its particular characteristics, strengths and weaknesses. A blend of the two types ideally combines fixed jurisdictions with a flexible design, which allows effective collaboration among actors from multiple levels and with multiple function-specific jurisdictions. This resonates with recent calls in forest and landscape governance to combine multi-actor alliances with a well-functioning state authority capable of implementing the objectives of such alliances and the outcomes of their negotiations.

Recommendations for policy and practice are the following. First, there is a need for the operationalisation of the FPIC principle and benefit-sharing arrangements adapted to the Ghanaian context. The FPIC principle as currently framed by international resolutions is restricted to only indigenous peoples and so local people in the Ghanaian context are excluded as they do not have a right to self-determination. As such, the principle must be extended to cover local communities. With projects that make use of community knowledge, the issue of indigenous peoples' territorial rights and local peoples' rights is less relevant and so the FPIC principle can be used in negotiations to ensure empowerment of both indigenous and local people. In this regard, organisations should give due consideration to adequate funding and time allocated for FPIC in budget development; in-depth consultations through representatives of local people such as the chiefs and elders or actors at the community level such as the CFCs and the CBAGs; non-compliance penalty procedures in the event of the non-functioning of these community representatives, which could include consultation with District Assemblies; and using locally appropriate languages for communication. In addition, negotiations between local

communities and organisations must determine whether there is a need for a written or verbal consent, how long consent is granted and to what end.

Second, organisations and project developers that provide clear benefit-sharing arrangements to local people only do so out of moral arguments or good practice, as Ghana has not yet ratified the Nagoya Protocol. Through effective consultations local people will be able to indicate the benefits they intend to gain from any project that makes use of spatial community knowledge. In the case of long-term projects that span over a decade and imply that local people lose their access rights to lands, territories or resources and which involve other benefits than the non-monetary benefits from a research project, local people must be fully aware of the positive and negative impacts of such projects. Negotiations should enable local people to specify the benefits they intend to gain from such projects.

Third, capacity-building of local people is required regarding the exchange and use of their knowledge. In this regard particular attention is to be paid to the reform of the opportunity structure provided by organisations and institutional arrangements that cater for local people's rights to FPIC and benefit-sharing arrangements; their sustained inclusion and participation in matters related to the exchange and use of their knowledge particularly among organisations at the national level; and strengthening the participation of organised community groups in decisions regarding the exchange and use of their knowledge.

Fourth, governmental and non-governmental organisations should promote effective participation of functional organised community groups in Ghana's forest sector, with a view to enabling local people to have a voice in decision-making processes and avoiding misappropriation of spatialised community knowledge in multilevel forest governance.

Fifth, the concept of Globally Significant Biodiversity Areas (GSBAs) should be redesigned so as to avoid keeping degraded portions of forest reserves under strict protection, as these parts as well as the needs of local people may be better served through reforestation schemes.