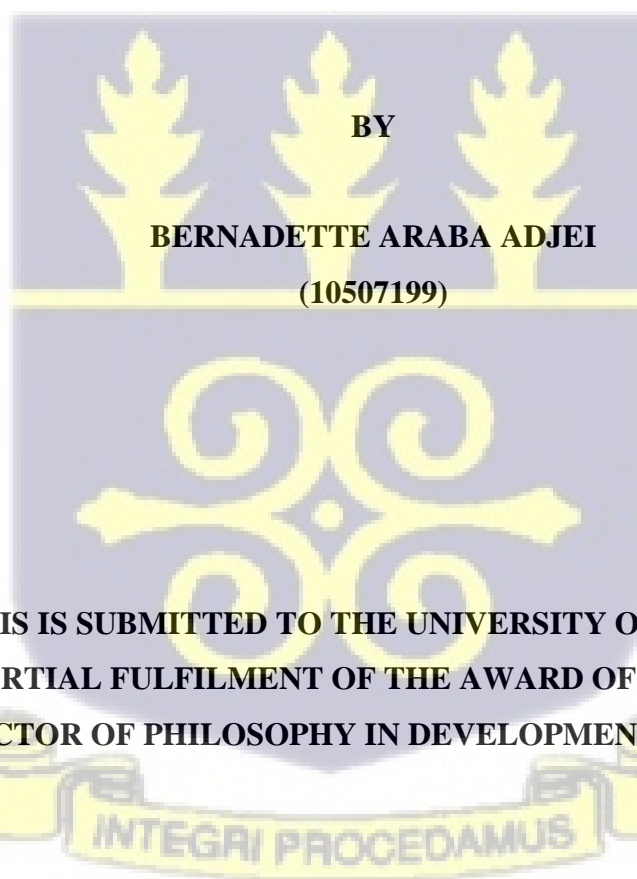


**UNIVERSITY OF GHANA  
COLLEGE OF HUMANITIES**

**LEGAL PLURALISM AND WATER RESOURCES GOVERNANCE IN GHANA –  
OUTCOMES OF FORMAL AND CUSTOMARY MANAGEMENT  
FRAMEWORKS**



**BY**

**BERNADETTE ARABA ADJEI**

**(10507199)**


**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA, LEGON  
IN PARTIAL FULFILMENT OF THE AWARD OF DEGREE OF  
DOCTOR OF PHILOSOPHY IN DEVELOPMENT STUDIES**


**INSTITUTE OF STATISTICAL, SOCIAL AND ECONOMIC  
RESEARCH**

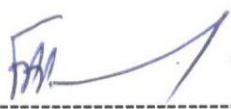
**JULY, 2019**

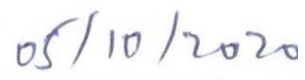
**DECLARATION**

I Bernadette Araba Adjei, hereby declare that this thesis titled '**Legal Pluralism and Water Resources Governance in Ghana – Outcomes of Formal and Customary Management Frameworks**' is an output of my independent research under the supervision of Professor Felix Ankomah Asante and Professor Akosua Keseboa Darkwah. As far as I know, no part of this thesis has been published or submitted to any institution previously. I also declare that references to other works are duly acknowledged.


  
-----  
**Bernadette Araba Adjei**  
(Candidate 10507199)

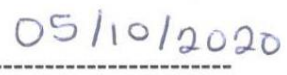
  
-----  
Date

  
-----  
**Professor Felix Ankomah Asante**  
(Principal Supervisor)

  
-----  
Date

Institute of Statistical, Social and Economic Research  
University of Ghana, Legon

  
-----  
**Professor Akosua Keseboa Darkwah**  
(Co-supervisor)  
Department of Sociology  
University of Ghana, Legon

  
-----  
Date

## ABSTRACT

The global call for effective water resources governance is anchored on the integration into the governance framework all systems and actors who in any way take decisions on water resources. This has been one of the main areas of focus of the MDG Goal 6. The call for integration points to the globally accepted Integrated Water Resources Management (IWRM) principles, which among others requires states to ensure the participation of all actors in the water sector. In many post-colonial countries, water resources are nationalized with full state control of these resources. This creates state control in the face of pre-colonial legal system, which still exists and creates some non-state actor controls. Institutional multiplicity then becomes a feature of governance. For modernist state water governance, however, the call for integration often focuses on state actors. Practically, integration in itself requires a careful consideration of varied actors, state and non-state, and the many legal/social fields (legal pluralism) from where they draw their power and legitimacy to act. Full participation of all actors is problematic in the face of nationalization. Additionally, ensuring full participation, especially of water users at the local level, means that there is the need to have a proper understanding of how all actors and local level water users are engaged in the water governance processes in the face of state controls. The nature of water resources itself means that water governance is enmeshed in land governance dynamics of ownership, use and control. Using a plural legal state such as Ghana as the focus, this study looks at two areas; the Weija Lake and the Lake Bosomtwe catchment areas, (the former having state control and the latter non-state dominance), to understand participatory water governance in a plural legal state. In unravelling the main tools of governance, which is decision making, actor roles, mandates and legitimacies are examined. A better appreciation of community level understanding and engagement in water governance leads this study to determine how knowledge and attitudes influence practices. Implications and outcomes of decision making and community practices is also focused upon. A study of law and

governance focusing on community involvement leads this study to a pragmatic multidisciplinary methodological approach. Qualitative in-depth interviews and focus group discussions were carried out with purposively selected actors from state institutions, traditional authorities, NGOs and community members. A network map methodology was used to assess power, authority, influence and legitimacy of actors. Political ecology and the common pool resources theories were the framework that guides the study of power and control over the water resources found in the study communities. Data analysis for the qualitative aspect of this study was done through thematic analysis. For the quantitative component of the study, heads of households were randomly selected from sampled communities at both study sites. Chi square and Probit regression models were used to test and estimate the relationships between the dependent knowledge, attitudes and practices variables and some selected independent variables. Descriptive statistics were also used to explain some findings on knowledge, attitudes, practices and outcomes.

This study has found that by law and practice, there is the divisions and overlaps of roles, mandates, power and legitimacy of water governance actors in Ghana. State actors have the legal rational power and legitimacy to control both water and land in the Weija Lake catchment area but only control water resources in the Lake Bosomtwe catchment area. Traditional authority non-state actors control land in the latter area but have traditional and spiritual authority and legitimacy in both sites. Supra state actors with pseudo legal rational legitimacy mimic state actions and have politico-administrative roles. Actors for governance of land resources differ from that of water resources. However, traditional perceptions that water and land are to be governed together as a unitary whole still exist. The state's governance framework that splits water and land governance, therefore, creates conflicts because land ownership and use embody water resources control considerations. Power and control over land translates into power and control over water. The separation of governance

brings about weakened legitimacies for water governance actors. Additionally, even where attempts existed for coordinated or integrated water governance decision making, state driven decision making occurred at one level while at the community level actors take decisions independently. The presence of authority figures and decision makers in the community contributes to the determination of legitimacy. Community member practices were found to be driven by their knowledge and attitudes. Additionally, attitudes and practices were shaped to a large extent by benefits received from water use and decision-making actors engagement of community members allowing them to participate in decision making. Overall, implications and outcomes of water governance tend to be negative for areas where the state controls water and land resources. Where non-state actors control land, water governance outcomes tend to be better. Also, the inability of an actor to implement and enforce decisions undermine their legitimacy and results in poorer outcomes. Non-state traditional authority actors commanded economic allegiances such as payment of fees and levies for the spiritual roles they played. Where there are a mix of strong actors acting in a coordinated manner, outcomes were more positive. This study recommends a focus on power and legitimacy as the basis for designation of roles in water governance, especially where multiple actors exist and have separate powers and controls over water and over land. A precursor to the introduction of governance systems at the community level should be a social science study to understand how community members view decision makers who can effectively carry out governance roles. The knowledge, attitudes and practices of community members are key considerations as it interfaces with decision making creating implications for water resources governance outcomes. This study has contributed to knowledge by focusing on actor roles in the framework of their power and legitimacies and also providing methodological input on the use of mixed methods in the study of legal pluralism in water governance. It has also established the water and land nexus as a key consideration for water resources governance in a plural legal system.

**DEDICATION**

To Mother Mary

## **ACKNOWLEDGEMENT**

I would like to express my profound gratitude to GOD ALMIGHTY for guiding me through the entire PhD programme to its successful completion. I owe a debt of gratitude to Prof. Felix Ankomah Asante and Prof. Akosua Keseboa Darkwah for constructive criticisms, guidance and encouragements that really contributed to making this thesis a reality.

Special thanks go to the Institute of Statistical Social and Economic Research and DAAD for the support given in all forms. I am very grateful to the Social Science Research Council for fellowships received during this programme. To my family and friends, I am grateful and say God richly bless you. Thank you all.

**TABLE OF CONTENTS**

DECLARATION .....	i
ABSTRACT .....	i
DEDICATION.....	v
ACKNOWLEDGEMENT .....	vi
TABLE OF CONTENTS .....	vii
LIST OF TABLES.....	xi
LIST OF FIGURES .....	xii
LIST OF BOXES.....	xiii
LIST OF ABBREVIATIONS.....	xiv
CHAPTER ONE.....	1
INTRODUCTION .....	1
1.1 Background .....	1
1.2. Problem Statement .....	8
1.3. Research Question.....	10
1.4. Objectives of the Study .....	10
1.5. Justification of the Study.....	11
1.6. Organization of Study .....	13
CHAPTER TWO.....	14
LITERATURE REVIEW, THEORETICAL AND CONCEPTUAL FRAMEWORKS ...	14
2.1. Introduction.....	14
2.2. Colonial Legacy and Modern State Natural Resources Governance.....	15
2.3. Legal Pluralism .....	19
2.3.1 Laws in Competition and Accommodation.....	20
2.3.2 Legal Interactions and Negotiations.....	22
2.4. State and Customary Legal Systems .....	24
2.5. The State and Integrated Water Resources Management .....	27
2.6. Local Knowledge Systems and Decision Making .....	32
2.7. Polycentricism and Decision Making .....	34
2.8. Implications and Outcomes; Nationalization and Multiple Actor Decision Making .....	36
2.9. Theoretical Framework.....	37
2.9.1 Political ecology theory.....	37
2.9.2 Common Pool Resources Theory.....	40

2.9.3 Framework for Analysis: Critical Moment Approach and Network Maps Approach .....	42
2.10. Conceptual Framework .....	44
<b>CHAPTER THREE .....</b>	<b>47</b>
<b>METHODOLOGY .....</b>	<b>47</b>
3.1. Introduction .....	47
3.2 Philosophical Underpinnings of the Study.....	47
3.3. Rationale for Selection of Methodology .....	49
3.4. Study Sites.....	51
3.4.1 Densu River Basin (Weija Lake Catchment Area) .....	52
3.4.2. Pra River Basin (Lake Bosomtwe Catchment Area).....	58
3.5 Research Design.....	63
3.5.1 Respondent Selection .....	64
3.6 Community Selection and Sampling.....	64
3.6.1 Weija Lake Community Selection .....	64
3.6.2 Lake Bosomtwe Community Selection .....	66
3.7 Data Collection .....	67
3.8 Methods of Data Analysis.....	70
3.8.1 Role of actors, power and legitimacy in decision making .....	70
3.8.2 Knowledge, Attitude and Practices. ....	70
3.8.3 Outcomes and implications of water resources governance .....	73
<b>CHAPTER FOUR .....</b>	<b>74</b>
<b>WATER RESOURCES GOVERNANCE IN GHANA.....</b>	<b>74</b>
4.1. Introduction.....	74
4.1.1 Water Resources Characteristics .....	74
4.2 History of Ghana’s Water Governance .....	75
4.3 Ghana’s Water Sector Reforms.....	77
4.4. Current Water Resources Governance Framework .....	79
4.5. Integrated Water Resources Management in Ghana Administration.....	81
4.6 Customary Water Governance Frameworks in Ghana .....	82
4.6.1. Traditional Authorities - Customary Law Water Governance Systems.....	82
4.6.2. Regulation by Traditional Rulers .....	83
4.6.3. Norms for Community Behaviour.....	83
4.6.4. Implementation and Enforcement .....	84
4.7. Water Governance Challenges in Ghana .....	84

4.8. Conclusion .....	86
CHAPTER FIVE .....	87
DECISION MAKING OF ACTORS, POWER, LEGITIMACY AND NETWORKS.....	87
5.1. Introduction.....	87
5.2. Actors’ Power, Authority and Legitimacy.....	88
5.2.1 Exercise of Power, Authority and Legitimacy .....	91
5.2.2 Water Users and Water Decision Makers - Roles and Mandates Water vrs. Land .....	98
5.3. Network of Actors.....	101
5.4 Validation of Network of Actors and Their Power and Influence Levels .....	105
5.4.1 Validation of Links and Relationships .....	105
5.5 Translation of Roles into Power, Authority and Legitimacy .....	111
5.6 Linkages between Actors Roles and Mandates.....	113
5.7 Patterns of Decision Making.....	116
5.8 Conclusion .....	120
CHAPTER SIX.....	123
KNOWLEDGE AND ATTITUDES AND PRACTICES OF THE PEOPLES IN THE STUDY AREAS - INFLUENCE ON WATER GOVERNANCE.....	123
6.1 Introduction.....	123
6.1.1 Key Variables and Model Estimation .....	125
6.1.2 Key Findings and General Socio-economic Characteristics .....	126
6.2 Knowledge .....	127
6.2.1 Knowledge of Actors.....	127
6.2.2 Knowledge of State Laws and Customary Norms .....	132
6.2.3. Knowledge of the Influence of Actors in Water Decision Making.....	134
6.3 Attitude.....	135
6.3.1. Willingness to Participate in Water Governance Initiatives .....	136
6.3.2 Effectiveness and Compliance .....	140
6.3.3 Personal Responsibility to Protect Water Bodies.....	146
6.3.4 Resolution of water governance issues .....	149
6.4 Practices .....	153
6.4.1 Actions and Initiatives of Community Members .....	154
6.5. Knowledge Production and Transformations Customary Law - The Case of Lake Bosomtwe Catchment Area .....	157
6.6. Conclusions.....	160

CHAPTER SEVEN .....	162
OUTCOMES OF WATER GOVERNANCE .....	162
7.1. Introduction.....	162
7.2. Key findings on Outcomes.....	163
7.2.1 Political Outcomes .....	163
7.2.2 Economic outcomes .....	170
7.2.3. Social outcomes.....	182
7.3. Conclusion .....	191
CHAPTER EIGHT .....	194
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....	194
8.1 Introduction.....	194
8.2 Summary of Key Findings .....	195
8.2.1 Actors’ legitimacy and decision-making roles.....	195
8.2.2 Community Knowledge, Attitudes and Practices.....	196
8.2.3 Implications and outcomes of water governance in legal pluralism .....	197
8.3. Conclusions.....	199
8.4 Recommendations.....	201
8.4.1 Roles, Mandates and Decision Making.....	201
8.4.2 Community Involvement.....	203
8.4.3 Governance Implications and Outcomes.....	203
8.5. Contribution to Knowledge.....	204
8.6 Areas for Further Studies .....	205
REFERENCES .....	206
APPENDICES .....	218

**LIST OF TABLES**

Table 3.1: Community Selection per location – Weija Lake Catchment Area Study Site .	65
Table 3.2: Community Selection – Lake Bosomtwe Catchment Area Study Site .....	66
Table 3.3: Description of variables for factors affecting Knowledge level of Water Management .....	72
Table 3.4: Description of variables for factors affecting Attitude towards Water Management .....	73
Table 5.1: Actors, roles and forms of legitimacy .....	98
Table 5.2: Actors space of operation and type of Legitimacy .....	101
Table 5.3: Network Maps - Roles and Power Networks - LBCA .....	107
Table 5.4: Network Maps – Roles and Power Networks - WLCA .....	107
Table 6.1: Socio-Economic Characteristics and Key Variables .....	127
Table 6.2: Probit Regression Analysis of Determinants of Knowledge of State Actors..	128
Table 6.3: Most influential in Water Governance .....	134
Table 6.4: Probit Regression Analysis of Determinants of Willingness to Participate in Water Governance Activities.....	137
Table 6.5: Forum Selection for Conflict Resolution .....	150
Table 6.6: Main water related livelihood activity.....	154
Table 6.7: Old and New Customary laws .....	158
Table 7.1: Economic, Political and Social Outcomes.....	163
Table 7.2: Consultation of community members .....	164
Table 7.3 Earnings from water resources .....	170
Table 7.4: Provision of sanitary facilities .....	184
Table 7.5: Occurrence of water related diseases .....	186

## LIST OF FIGURES

Figure 2.1.: Actor linkages and functional systems for water resources governance and their related outcomes Source: Author, 2018.....	45
Figure 3. 1: Weija Lake .....	54
Figure 3.2: Densu Basin .....	55
Figure 3.3: Map of Weija Lake Catchment Area showing the communities in the catchment area marked with red triangles.....	58
Figure 3. 4: Lake Bosomtwe Catchment .....	60
Figure 3.5: Map of Lake Bosomtwe Catchment Area showing the communities in the catchment area marked with red triangle .....	62
Figure 4.1: Ghana’s Ecological Zone with the River Systems.....	75
Figure 4.2: Hydrological Map of Ghana, showing River Basins and Study Sites.....	78
Figure 4.3: Current Water Resources Governance Framework.....	81

**LIST OF BOXES**

Box 6.1: Knowledge of Actors .....	130
Box 6.2: Knowledge of Actors – Non-state.....	131
Box 6.3: Gendered customary norms .....	133
Box 6.4: Knowledge on Influence of Actors .....	135
Box 6.5: Willingness to Participate in Water Governance Activities .....	139
Box 6.6: Effectiveness and Enforceability (LBCA) .....	141
Box 6.7: Effectiveness and Enforceability - WLCA .....	142
Box 6.8: Origins of community members, effectiveness, relevance and importance of laws .....	142
Box 6.9: Attitudes towards adherence to laws and customs LBCA .....	144
Box 6.10: Attitudes towards effectiveness (WLCA).....	145
Box 6.11: Personal/community Responsibility LBCA.....	147
Box 6.12: Personal/Community Responsibility WLCA.....	147
Box 6.13: Forum Selection (LBCA).....	151
Box 6.14: Forum Selection (WLCA).....	153
Box 6.15: Reasons for non-action LBCA.....	155
Box 6.16: Reasons for non-action WLCA.....	156

## LIST OF ABBREVIATIONS

A-Rocha	A Rocha
ADR	Alternative Dispute Resolution
AfDB	African Development Bank
AME	Average Marginal Effects
BFD	Bosome Freho Distric Assembly
BoD	Bosomtwe District Assembly
CBOs	Community Based Organizations
CMA	Critical Moment Approach
CREMA	Community Resources Management Association
CSIR	Council for Scientific and Industrial Research
CSO	Civil Society Organisations
DA	District Assembly
EPA	Environmental Protection Agency
FC	Forestry Commission
FGD	Focus Group Discussion
FRWB	Friends of Rivers and Waterbodies
GaS	Ga South District Assembly
GaW	Ga West District Assembly
GIDA	Ghana Irrigation Development Authority
GNWP	Ghana National Water Policy
GWCL	Ghana Water Company Limited
GWP	Global Water Partnership
HSD	Hydrological Services Department
IGO	Intergovernmental Organization
IWRM	Integrated Water Resources Management

KAP	Knowledge Attitudes and Practices
KVIP	Kumasi Ventilated-Improved Pit
LBCA	Lake Bosomtwe catchment area
MC	Minerals Commission
MDGs	Millennium Development Goals
MoU	Memoranda of Understanding
MWRWH	Ministry of Water Resources Works and Housing
NGO	Non-Governmental Organisation
SDGs	Sustainable Development Goals
UNDP	United Nations Development Programme
UNESCO	United Nations Education Social and Cultural Organization
VBA	Volta Basin Authority
VRA	Volta River Authority
WARMS	Water Resources Management Study
WSSP	Water Sector Strategic Plan
WHO	World Health Organization
WLCA	Weija Lake Catchment area
WLPA	Weija Lake Protection Association
WRC	Water Resources Commission
WSSP	Water Sector Strategic Plan

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background

Water resources are essential in supporting all forms of life. Water resource governance has attracted the attention of development planners over time. It received global attention in 1996 when the Global Water Partnership was formed, leading to the adoption of the guiding principles for a holistic water governance system. This was the genesis of the global move towards Integrated Water Resources Management (IWRM). IWRM principles point to the fact that water is a finite and vulnerable resource and in its management and socio-economic value should be considered. Additionally, water must be governed through a participatory approach involving users, planners and policy makers at all levels with special consideration for the role of women as key players in water planning (Dublin Principles, GWP, 1996). The global discourse on water before and after the Dublin Principles, however, tends to focus on issues of supply with little to no attention given to governance imperatives.

Integrated management or governance brings together a multitude of actors within a framework that displays actors with a spectrum of power and authority. This situation requires careful study and informed systems of governance that water managers can navigate for effective water governance. The Millennium Development Goals (MDGs), that drove global development action from the year 2000 until 2015, did not place much emphasis on water resources. The MDGs' main environmental focus was a charge for states to ensure environmental sustainability. Emphasis was, therefore, placed mainly on climate change considerations. With the expiration of the MDGs and the advent of the Sustainable Development Goals (SDGs), global attention has been redirected to water resources. SDG Goal 6 requires states to ensure availability and sustainable water resources and sanitation

for all. Much emphasis has, however, been placed on safe access, sustainable sanitation, pollution control, water use efficiency and international cooperation. Three of the specific targets under Goal 6 focus on the implementation of IWRM, protection of watersheds and supporting and strengthening local participation in water governance. Although, for most states, much attention has been on water supply and sanitation, more and more attention has been drawn to the need to heighten awareness and action in the area of the protection of raw water resources in water sheds and a fuller engagement of water users and policy makers in water governance especially at the local level. This is because before raw untreated water sources are available for supply, a range of actors are engaged in decision making and the process of access to water – that is the governance level. The United Nations Development Programme, in tracking the achievements of the MDGs and the progress of the SDGs, have detailed information on the number of people who have access to water and sanitation (UNDP, 2019) but there is very little information on the multitude and variety of actors engaged in water governance both at the national and global levels.

Some authors are of the view that IWRM is a challenging concept and may not be really an effective concept for water governance. (Biswas, 2008). Lautze (1998), in examining transboundary IWRM for West Africa, indicated that while in Ghana and Burkina Faso attempts had been made to adopt IWRM, the details of integration of governance systems (formal\informal) and information on actors is murky and unclear. The path to integration seems like uncharted territory and players have challenges on how to proceed. Lautze (1998) believes that this has resulted in ineffective water governance in the countries he studied. Questions have been raised on the processes for decision-making and how fully engaged stakeholders are in the IWRM process at the transboundary level in the Volta River Basin (West Africa) and Central America (Wong, 2016; Hileman, Hicks, & Jones, 2016) . Ampomah, Adjei and Youkhana (2008) have also questioned the level of state commitment

in an integrated transboundary water governance process, especially in the area of provision of funds for action. Most debates on water governance point to the range of actors, difficulties with effective engagement and integration, on one hand, and the commitment of the state to the governance process, on the other hand. This situation results in ineffective water governance. Integration of multiple actors brings into focus institutional multiplicity and legal pluralism. This means that understanding how integration works is having a full appreciation of pluralism – plural actors and plural legal systems. The fact that plural actors and systems exist in water governance seems to present challenges to the integration process.

The existence of this plural legal regime affirms the assertion that invariably there are a variety of legal orders in any space of human endeavour (Stevenson, 2007). The resultant effect is a complex interlinked system for the management and direction of society and its decision-making actors and local community members. These systems exhibit different platforms and arenas for governance at the national and local levels. Governance in this sense is seen as the process of decision making and implementation processes of various actors in society towards specific expected outcomes.

Individuals and community members who are natural resource users engage with the law which influences their practices in society. The negotiation of these different legal regimes and platforms often create tensions and conflictual outcomes depending on how actors drive or manage the socio-legal systems (Fisher, Bavinck & Amsalu, 2018). Since conflicts arise and tensions exist when multiple legal orders operate, it becomes necessary when studying governance systems operating in a legal setting, to look beyond the mere presence of laws to determine how law works in societal structures (Stevenson, 2007). von Benda-Beckmann (2005) has indicated that any study or analysis of any phenomenon in a plural legal system

should invariably look not only at institutions, rules and the roles of actors involved in the processes of governance but also examine the lived experiences of community members – the subjects of the law.

It is therefore clear that, often, water governance is twinned with legal pluralism. Water is a fluid and versatile resource, the governance of which is often enmeshed in a constellation of governance frames and requires careful consideration. It is argued and recommended that for an ideally workable water governance system to exist, water governance frameworks must integrate state laws (formal) and pre-existing religious or local customary law systems (informal) (Spiertz, 2000). The existence of an operational/water use management level (this level incorporates traditional water management systems), layered with a regulatory level, and a constitutional level of governance all in a hierarchical manner, is deemed to be the best way to create a workable water governance framework (Gulliet, 1998; Rogers & Hall, 2003). However, these levels and layers create legal pluralism, which is said to be the foundational cause for challenging outcomes in water resource governance (Sarpong, 2018; Shah & van Koppen, 2006; Spiertz, 2000). This is because the layering and integration of these multiple systems of governance structures, made up of indigenous and imported or supplanted governance systems, often lack synchronicity and coherence (Rogers & Hall, 2003; Sarpong, 2018; Shah & van Koppen, 2006).

Water resources in Ghana are under State control (Republic of Ghana Constitution, GoG, 1992, Water Resources Commission Act, (1996) Act 522) with a governance structure that is driven by state law.

Ghana, like many post-colonial states, has multiple sources of regulatory regimes for the management and control of various sectors of its economy. The foundations of governance

and decision making are embedded in several and multiple layers of laws and regulations. This means that there are many different actors who are engaged in management of all sectors of Ghana who obtain their ability to act from various sources of law (Article 11 of the 1992 Constitution). The varied types of regulations are accepted as part of the laws of Ghana in the 1992 Ghana Republican Constitution. Under section 11 of the 1992 Ghana Republican Constitution, the sources of law in Ghana is listed to include the Constitution itself, laws of Parliament, the common law and customary laws. These multiple sources of law in Ghana are to guide the interpretation of any issues in conflict.

This has given rise to the existence of ‘legal pluralism’ in Ghana – a country characterized with the presence and application of more than one type or system of law. The laws and regulations are in a recognized hierarchy where state law is given supremacy over other kinds of legal and social orders i.e. common laws and customary laws. For a country like Ghana, the kind of legal pluralism that exists is the ‘classic’ or ‘narrow’ type, which reflects the presence of an original and surviving traditional legal regime that has been imposed upon or supplanted by a plethora or range of legal systems from external sources (Griffiths, 1988). The process of ‘supplantation’ attempts to makes state law superior to other existing legal systems. This happened with the introduction and existence of colonialism over a period of time and has resulted in changes in the social and political ordering of society (Griffiths, 1988) including the Ghanaian one making it different from pre-colonial times. The vestiges of these colonial legal forms still exist and are operational deepening the plural regimes of governance. In Ghana, precolonial customary water governance systems co-exist with the formal state water governance system, creating a plural system of formal and informal institutional water governance structures (Lautze, Barry & Youkhana, 2008; Sarpong, 2018) with many different actors. These actors take decisions, implement them and expect certain optimum outcomes. Sarpong (2018) and Opoku-Agyemang (2005) have

identified some of these multiple legal regimes and actors and linked these to the challenges for water governance in Ghana. They are of the opinion that there is a lack of clarity in roles and mandates of the various actors within the water sector. Also, these actors are not well coordinated in their operations and do not synchronize their activities leading to poor water governance outcomes.

Another important aspect of legal pluralism and water governance in Ghana is the water and land question. This is especially so because water resources by their nature are connected to land and transcends boundaries. Land and water are intertwined and traditionally, land governance arrangements influence water governance. In Ghana's pre-constitutional era, the definition of land resources was inclusive of all that is on the land and water (Ollenu, 1962). The ownership and control of land had also typically been under the control of traditional rulers. In fact, the 1992 Ghana republican constitution, confirms land ownership by traditional rulers. Therefore, in Ghana today, about 80 per cent of land resources are under the control of traditional authority (Aryeetey, Ayee, Ninsin & Tsikata, 2007). Water resource governance engages varied actors throughout its course. The water course refers to the to the distance and space the water travels or passes from its source to the delta where it empties into the sea. Typically, in many states, the formal state property rights arrangements for land are superimposed on water without careful consideration of the characteristics of water and its varied uses (Meinzen-Dick & Nkonya, 2007). As early as 1903, state attempts to manage water resources had seen the enactment of a Rivers Ordinance that regulated the commercial use of certain rivers. However, focus was on water use and not its conservation. No attempts had been made to nationalize water resources and any customary arrangements for water governance had apparently remained undisturbed. The nationalization of water resources of Ghana in 1996 saw the introduction of complete state control over the governance of all water resources (Section 12, Water Resources Commission Act, Act 522).

This meant that any water resources on or under any land (be it privately owned or community owned) has been placed under the control of the state. Regulations have been put in place to regulate commercial water use activities and water concessions. Therefore, such activities, concessions and contracts require parliamentary ratification (Article 269 of 1993 Constitution). In the process of gaining rights to use water resources, much of the focus for action are on the operations of state actors and their activities. The Water Resources Commission (WRC) operates through a multi stakeholder governing board made up sixteen members comprising primarily state actors with two non-state actors. This system is replicated at the basin level (a feature of IWRM) to carry out the mandates of the commission. The detailed nuances of the multiple legal fields and actors present at the local level, however, escape the attention of policy makers, especially in the process of law making and enforcement. Quite often, reports on water governance cite problems with implementation and lack of enforcement as the principal challenges to water governance in Ghana. In seeking to understand this phenomenon and all its attendant nuances, this study has chosen to examine water governance in Ghana within the context of two cases: the Weija Lake and the Lake Bosomtwe catchment areas. These two catchment areas present interesting cases of socio-political structures for water governance. The Weija Lake Catchment area (WLCA) is located in the Greater Accra Region of Ghana, in the national capital. The area forms part of the Densu River Basin, which lies in the most urbanized and industrialized region of Ghana. The catchment area hosts a water supply dam that has strong state institutional controls of the water body itself and the land surrounding the lake. In 2015, military structures were put in place by the state for the management of this area. On the other hand, the Lake Bosomtwe Catchment Area (LBCA), lies at the centre of Ghana in the Ashanti Region. This enclosed water body lies in a sheltered valley in a predominantly rural area with a traditional authority political governance structure. The nature of the governance structures in these two areas seem to present multiple socio-legal fields and

multiple actors for water governance of a diverse nature. This study, therefore, examines these governance frameworks to better understand the implication of these differing socio-political governance frameworks on water governance.

## **1.2. Problem Statement**

In water resource governance in a plural legal system, actors who take decisions are seemingly influenced by power play at various (local, national and international) levels at which they operate. The power to take decisions and implement them are based on the authority and legitimacy of the actors present in the governance structure. In the Ghana water governance framework, these issues of power, authority, legitimacy, involvement of actors in decision making and the resultant outcomes have not been given critical attention. When actors are confronted with plural legal systems, the processes involved in how individuals and members of society negotiate, make choices, take decisions and implement these systems are not clear.

The focus of studies in legal pluralism is quite often on individuals as they elect one legal system or the other to get certain rights or benefits. Conflict situations and how individuals select a forum for conflict resolution engage many academics. Some global and regional studies have often focused on legal pluralism and land transactions (Boamah & Walker, 2016; Kobusingye, van Leeuwen & van Dijk, 2016; Tchatchousa-Djomo, 2018), or marriage transactions (Manuh, 1988; Miescher, 1997; Vatuk, 2013). These studies have concluded that legal forum selection to obtain rights or resolve conflicts are the main elements in legal pluralism. 'Legal forum' here refers to the type of legal system selected by individuals as the means to address a need. It may be the state/formal, customary or religious legal system. When conflicts occur in any social situation, actors presented with multiple plural legal systems often elect a conflict resolution forum best suited for their

needs (Manuh, 1988; Vatuk, 2013) by negotiating and selecting a system that easily solves their problems in a short time. In effect, individuals will select a forum that has less complexities or bureaucratic trappings as is often the case for land transactions (Boamah & Walker, 2016; Vatuk, 2013). Some studies on legal pluralism and natural resources such as Laube (2006) on water irrigation systems management, and Teye (2013) on forest resources governance, however, moved beyond conflicts to look at interlinkages in the networks of formal and informal actors. Their studies have shown that actors network and undertake negotiations when faced with plural legal fora. Issues such as the forum actors engage in and their sources of power/authority, power dynamics and how it impacts these actor networks were not given careful consideration. The nature of water resources, the various actors it engages, their power to act, the bundles of rights and uses makes water governance different, especially when legal pluralism is placed in the mix (Meinzen-Dick & Nkonya, 2007). Water resource governance systems are unlike what happens in other social arenas or types of natural resources. Water traverses geographical space. Governance occurs at several levels notably, decision making on the raw water resources (water in the natural state, untreated) infrastructural development and access to supply. Yet, water governance issues that often engage scholars are that of access and supply. It is necessary, however, to engage with the issue of actors and how they operate in a plural system to address a fluid asset such as water. The kinds of actors in a plural legal system, their sources of power, authority, legitimacies, and what drives their decision-making praxis should also be studied. The manner in which they act and the attendant outcomes is reflective of the legal forum in which they find themselves and this needs examination. This, in essence, is the problem this study seeks to unravel. This study is a deviation from the common focus of the water governance literature in Ghana (mainly in the form of Annual Reports) that seems fixated on problems of water governance on poor coordination, clash of mandates and poor governance outcomes. The focus here is on the kinds of actors, their roles and mandates and

their power to act. Also, the kinds of outcomes are left at ‘lack of coordination’ and are often not well clarified as material or immaterial and this study is an attempt at such a clarification.

The focus on the Ghana water sector is principally on uncoordinated planning of state actors and how that results in developmental challenges. A case in point is Ghana Millennium Development Goals report which indicates that Ghana attained about 75 per cent coverage in water services delivery, but achieved only about 14 per cent delivery in sanitation services (Ministry of Water Resources Works and Housing report on MDGs, 2016 - unpublished). This report also attributed failure to attain optimum water management objectives to ‘poor water governance’. This report was in line with earlier ones such as the Water Resources Management Assessment (WARM) study that focused on governance by state actors (World Bank, 1994). The WARM (1994) study reported that a clash of mandates of formal state institutions had created poor outcomes for water governance. Un-coordinated state actor actions highlight the fact that not much attention is given to actors outside the state structures. The study, therefore, focuses on state and non-state actors, their roles and interactions, the manner in which individuals at the community level engage in water governance and the implications of all that for water governance outcomes.

### **1.3. Research Question**

How do the plural legal frameworks for water resource governance in Ghana affect governance outcomes?

### **1.4. Objectives of the Study**

A key objective of this study is to explore and understand the outcomes of water governance in a plural legal system. Based on the general objectives of the study, specific research questions are as follows:

1. to find out the roles and mandates, powers/authority of the decision-makers and how they take decisions
2. to determine the knowledge, attitudes and practices of community members in relation to water governance
3. to understand the institutional and community level implications and outcomes of plural legal water governance

### **1.5. Justification of the Study**

Water governance in Ghana in a plural legal system presents some problems of multiple actors and poor coordination. Studies on legal pluralism focus on law and state actors and less on how law operates in society (Spietz, 2000). Most studies focus on water infrastructure and irrigation schemes (Laube, 2007), and access and supply (Franks and Clever, 2007), but not much attention is given to issues like governance. Although water governance-related developmental studies have often identified governance systems as key to a good water governance (AfDB, 2008, UNESCO, 2014), empirical studies on the various types of actors and layers of governance are scanty. Rogers and Hall (2003) have mentioned, however, that an examination of water governance frameworks must take into account the varied actors and their legal mandates (legitimacies). A scan of literature on water governance in the presence of plural actors tends to focus on social issues and conflicts in selection of one legal system or the other. In reference to Ghana, studies on legal pluralism have focused on marriage (Manuh, 1988,) property rights (Miescher, 1979), land (Boamah & Walker, 2016) and forest conservation (Teye, 2013). Attention to plural actors in water governance has looked at users of irrigation schemes (Laube, 2006) and state actors' engagement with Integrated Water Resources Management (Agyenim-Boateng & Gupta, 2012). Government and donor commissioned reports point to the evident clashes of mandates and roles of state actors and attribute same to poor coordination of actor activities

resulting in poor water sector outcomes (WARM, 1994; MWRWH Annual Report, 2012; WRC Annual Reports, 2011- 2016).

Although Sarpong (2018) and Opoku-Agyemang (2005) have given some attention to the plural nature of Ghana's water governance framework (with special reference to state and traditional authority actors), they have not empirically studied this phenomenon, especially the roles and activities of actors. These studies were textual assessments of laws and regulations on the water sector. Detailed attention has not been given to how actors obtain power to act, the power dynamics and how they interact in their operations or the synergies and clashes present. Also, how individuals and community members engage in water governance has not been well explored. Recommendations, however, point to the fact that for a better understanding of the role of law in society, interpretation of legal text only is not enough to fully address issues that engage water governance practitioners (Spietz, 2000; van Koppen, 2010). A better approach is a full study of how law operates in society. Also, for most studies of natural resources, governance tends to focus on resources themselves leaving evidence gaps for community level engagement in governance (Macura, Secco & Pullin, 2015). Ghana's water governance structure has not been properly analysed in the context of legal pluralism, paying attention to the full range of actors and how they engage with the governance process. Additionally, the impact of this phenomenon on the practices of community members and its institutional implications have not been the subject of an in-depth study.

This present study moves beyond the point of a mere textual study of legal systems and water governance and goes into society and looks at law in action. Using two study areas, where state actors and non-state actors dominate respectively, this study adopts an approach that transcends that of purely legal studies and delves into a legal anthropological approach

– that is an empirical study of society and water governance. This is an attempt to bridge the knowledge gap on water resource governance and outcomes in Ghana. This study is necessary as it provides invaluable insights into the power structures and operations in the water governance framework in Ghana.

### **1.6. Organization of Study**

This thesis is organized in eight chapters. Chapter One introduces the study by stating the background of the study, the problem to be investigated and the objectives. It goes further to provide the justification of the study. Chapter Two is a review of literature exploring the framework for this study and detailing out the legal framework for water resources governance and debates on legal pluralism. A discussion of the concepts and theories on which this study is anchored is carried out as well as the theoretical and conceptual framework adopted. Chapter Three explains the philosophy behind the study, descriptions of the study sites and the methods used to collect and analyse data for the purposes of this research. Chapter Four presents the water governance framework in Ghana with a description of the actors and the study's contextual setting. The next three chapters (Chapters Five, Six and Seven) are the empirical chapters which present the findings and discussions for the three objectives. Chapter Eight provides the summary of key findings, conclusions, recommendations as well as this research's contribution to knowledge, and proposes areas for further study.

## CHAPTER TWO

### LITERATURE REVIEW, THEORETICAL AND CONCEPTUAL FRAMEWORKS

#### 2.1. Introduction

The review commences with a look at the body of work that defines how water governance has evolved under state control especially the post-colonial state (with plural legal orders) and how that has shaped the water governance discourse. Focus is given to the fact that institutional multiplicity has become a feature of water governance with its attendant complexities and debates. Since institutional multiplicity and legal pluralism are often intertwined, this chapter focuses on the debates on the issues of plural legal systems in societies with focus on post-colonial states, and how that phenomenon guides the enquiry into the workings of its laws and norms. This framework is then extended to water governance, which is a key natural resource with relevance for how societies use laws.

Natural resources such as water are found in many communities across the world. In many pre-colonial states, natural resource systems were governed in a holistic manner and the connection between land and water was recognized (Ollenu, 1962). Existing national and global governance frameworks recommended that water and land were considered and managed as a combined environmental media. The definition of a river basin or catchment area considers the area of land over which the water flows into a common terminus (1997 UN Watercourses Convention). This means that water and land are intrinsically interrelated. The concepts of riparian rights (riparian rights refer to the concept of water and land ownership and control being controlled by one person) have traditionally driven governance, management and ownership due to the particular characteristics of water resources which links it to land resources. Rights to land implies rights to water. Therefore, territory over which water transcends and the kinds of community governance structures found and

operating there ultimately influences how water is governed at the micro level. Historically and in pre-colonial times, local community governance was generally based on accepted norms and rules in communities.

For water governance, the presence of plural systems exists and creates special contestations, especially in the area of rights and control (Meinzen-Dick & Nkonya, 2007). This is especially so as the multiple actors are not congregated in one system alone, but in the formal and informal traditional norms and systems. Most of these historical norms were aimed at providing a framework for supporting livelihoods and did not have different rights and controls over land as separated from norms and laws over water ownership and use (van Koppen, Giordano, Butterworth & Mapedza, 2007).

## **2.2. Colonial Legacy and Modern State Natural Resources Governance**

The desire by man to control and manage natural resources, including water, is historical and much focus has been on agrarian water use with latter considerations on industrial water use. With the creation of modern states, state control of water became an issue of interest as well as questions on which actors could participate in decision making, and the level at which governance should be carried out. Therefore, market forces gained an influence and importance in water governance (Woodhouse and Muller, 2017). Earlier, writers such as Caponera (1992) had indicated that water governance arrangements depended on a range of factors including but not limited to physical conditions, socio-economic settings, power relations, and local level religious beliefs. However, state level power dynamics and local level norms and beliefs are often not properly synched in modernist governance frameworks. This has antecedents in colonial state natural resources governance.

The colonial state was driven to control the local colonial economy of colonized people. As such laws were made for the control of certain aspects of the society Tamanaha (2008). In many countries in Asia and Africa, colonialism created a system of governance where state law and local law co-existed, especially, through the systems of direct and indirect rule (Ouderago, 1996). In the governance framework, state law often attempted to supplant local law, especially for natural resources governance structures. Boamah and Walker (2016, p. 86) have indicated that in the area of land governance that space is “haunted by the colonial vestige of legal duality reflected most prominently in its customary and statutory legal land systems”. Political transformation aimed at changing the local economy transcended into the management of several aspects of the society and natural resource management did not escape this net. Gibbs (2009, p. 1) argues that in their general governance framework,

“...that colonists brought with them ideas for ordering nature and tools for transforming landscapes that led to inappropriate and destructive water management and the silencing of local voices and knowledge systems”.

This assertion is echoed by D’Souza (2009) who calls this a ‘colonial hydrology’ aimed at shaping a terrain different from Europe with Eurocentric social ordering frameworks with doubtful levels of success.

D’Souza (2009, p. 84) further asserts that this then created a

“messy reality in which these contingent interventions were made was one in which hybrid forms of rule existed, where the European legal distinction between the control over things (property) and the rule over people (sovereignty) was constantly being dissolved ...where the distinction between state and society, public and private, property and relationship, ...sacred and secular, were blurred”

The belief is that with colonial intervention, European notions of governance and control was privileged over local systems. He believes that this governance system was shambolic. The reality was systemic interventions that did not create optimum governance results. This is the reality in which water governance exists in many post-colonial states. The multiplicity

of actors, separation of ownership and control among others is the space in which water governance operates and navigates. Gibbs (2009) is of the opinion that modern water governance frameworks such as Integrated Water Resources Governance perpetuates water and land governance separation with consequences he sees as problematic. A case of interest is South Africa, a state whose governance system has displayed state transformations with hegemonic power and control to democratic rule. A trace of the history of colonial water governance in South Africa traces how personal property considerations in water governance has moved from state control to considerations for basic human right to water (Funke, Oelofse, Hattingh, Ashton & Turton, 2007). This historical movement over space and time reflects a nexus between decision making and power exhibiting varied actors with varied socio-economic needs (Swatuk, 2010). The modern state's attempt to create a working water governance framework has seen a move from private ownership and control to strong state controls to public good considerations and the network of multiple actors. This has, however, not been producing effective outcomes because the balance between the state's role and that of other actors is not done efficiently (Claassen, 2013). Principally, integration is lopsided. State control, knowledge and power are privileged over all other actors who are not fully recognized and integrated. The attempts to merge and navigate pre-colonial, colonial and post-colonial governance frameworks is done in the face of a dominant state. However, daily water governance decision making engages many other actors who are not fully accounted for in the state framework. Even in the state, central water governance actors do not solely take decisions and previous power holders do same at both the local and national level. This has led to a system where the state attempts to govern water resources in the face of multiplication of institutions and actors, resulting in complexities for water governance.

### **Institutional Multiplicity and Decentralization**

Literature on institutions has over the years attempted to distinguished between types of ‘institutions’ and most commonly two categories come up; formal and informal. ‘Formal institutions’ are seen to be state legal constitutions, contracts that guide transactions and government agencies and bodies. ‘Informal’ institutions are seen as encapsulated in norms that govern society such as traditions, customs, moral values, religious beliefs, and norms of behaviour of a historical nature. Most often when considering institutions, there is a sense of hierarchy where formal institutions are seen as having a stronger force than the informal. This is attributed to the kinds of power and legitimacy that seem to accompany the ‘formal’ institutions. Enforceability of rights and responsibility tend to place formal intuitions on a higher pedestal.

State natural resource governance often hinges on the creation of a central governance organization or agency. Governance is not only at the national level and often sector reforms lead to decentralization, which ends up creating more institutions with actors possessing state authority and legitimacy to act. Often, attempts to make governance participatory results in the inclusion of local level structures. However, issues of local interest and the balance between national level expert knowledge and local level comes up thwarting the aims of the decentralization process (Larson & Soto, 2008). The varied sources of power and legitimacy of these actors create complexities for decision making in the face of negotiation of benefits and resolution of conflicts. In the absence of well-organized local level bodies that push the interest of locals, decentralization does not achieve its expected impact (Meynen & Doornbos, 2004).

Decentralization tends to result in ‘institutional multiplicity’ introducing more and new institutions and creating plurality in institutions, authorities and regulations (Kobusingye,

van Leeuwen, & van Dijk, 2016). In some instances, the institutional multiplicity that results creates more confusion and corruption due to the lack of clarity in roles of state and non-state actors (Norsoo, 2018; Tchatchoua-Djomo, 2018). What becomes evident is legal pluralism at playing out in polycentricism (the process of decision making by autonomous actors), which Benjamin (2008) believes can lead to effective local level self-government if all actors negotiate a collaborative governance system.

The issue of multiple legal frameworks and how they shape decision making has been explored in the legal pluralism literature and a careful assessment of positions, interests, power and authority of all actors at the local and national level and even the consideration of international interests when they exist has been recommended (Meynen & Doornbos, 2004).

### **2.3. Legal Pluralism**

The existence of multiple laws and norms accepted by a state to order social relationships (Griffiths, 1986, 1988) creates what has been referred to as ‘semi-autonomous’ legal regimes (Moore, 2001). This strong legal pluralism (Merry, 1988) often results in contestations and tensions that are driven by the elements of competition, interaction, negotiation and isolation of laws and norms. The power that drives the roles and mandates of actors may relate, support, complement, clash or frustrate each other (Griffiths, 1988). Questions of superiority and resilience arise when in the determination of ‘what is the law’. One system is premised over the other because it better controls behaviour or citizens are more likely to elect one law or the other to grant them rights or provide for their needs or solve their problems (Tamanaha, 2001, 2008). If one wants to determine what law is in society, i.e. that ‘norm’ that drives action and behaviours, then the system which is able to

survive clashes; complementarities and accommodation can be determined as what the law is (Tamanaha 2008).

### **2.3.1 Laws in Competition and Accommodation**

Where people in formerly colonized states are confronted with legal pluralism, Zips (1996) thought that the motivation for citizens to resort to one system was driven by elements of cost, time and convenience. The lack of fairness and familiarity of some decision-making actors served as a demotivation for individuals. Manuh (1988) affirms this when she looked at factors that drove people to engage the customary court in Ghana and concluded that lack of accessibility will constrain the influence of the dominant sphere (national) making it uncompetitive.

In a study on land space where strong legal pluralism exists, Boamah and Walker (2016) are of the view that in many instances rules governing actors' decisions on land use are aligned with multiple legal systems which are competing for legitimacies. Rule selection by decision-making actors drives categories of legitimacy and illegitimacy. However, the determination of legitimacy seemed to be premised on legal rational authority and other forms of legitimacy are not given much premium. Actions outside state frameworks are seen as 'transgressions'. To them, informal systems can be teamed with unauthorized or illegal action:

“[W]ithin this context (land), an inquiry into transgressions on land use decisions/actions must address the following mechanisms: the rules transgressed; motivations for such transgressions; and the rules that should be used to determine whether an action is legitimate (legal, formal, authorized) or illegitimate (illegal, informal, unauthorized)” (Boamah and Walker, 2016, p. 93-94).

These categorizations of legal frameworks outside the state as illegitimate (Boelens, Shah & Bruins, 2019) privileges the state's decision making over local level knowledge. This can

result in disempowerment of the local community which is not able to fully participate in decision making (Duarte-Abadia, Boelens & du Pre, 2019). State and non-state law seem to compete for legitimacy in such instances.

However, much as the state may be privileged in decision making, in certain ways, the state is put in the shade when multiple laws are pitched against each other. Such instances include when “bureaucratic processes increase transaction costs ...” (Boamah & Walker, 2016, p. 86). Vatu (2013) agrees with this and thinks that bureaucracy, cost and time in the formal courts as well as the fear of reprisals and shame that women confront from the local courts determine which legal system they engage with. Following this, the assertion that societal structures influence the manner in which actors engage with one system of law or another (Miescher, 1997) is an important consideration as the kind of society will influence the way people engage with legal systems.

Accommodation of laws considers how co-existing legal systems seek to divide and share power in a multicultural state. This is what Shachar (2001) refers to as multicultural accommodation. This is because in the process of multiple layers, no one legal system can be the sole source of control over a situation. It is important to recover the diffusion of power and control. It is, therefore, necessary to give attention to the internal power generating aspects of local communities and not believe that power is only concentrated at the national level (Ekern, 2018). The encounter between various legal systems leads to cross influences (Thomas, 2018) horizontally and vertically (Shachar, 1998). Therefore, state governance must necessarily accommodate minority groups’ legal regimes in whichever state it is found (Bond, 2008). Joint governance then seems to be the ideal in such circumstance (Shachar, 2001) taking full account of all views to achieve a ‘jurisprudential hybridity’ (Nursoo, 2018).

Where laws are in competition, the process of integration and accommodation must be done fully considering the people who are the subject matter of the law and how their interests are considered. The factors that drive alliance with one law or the other requires careful consideration. This is especially so if the different aspects of the different legal frameworks can provide complementary benefits to people.

### **2.3.2 Legal Interactions and Negotiations**

In plural legal regimes, interactions and negotiations are driven by power dynamics inherent in the roles played by such actors. Most of these power dynamics have evolved over time and space, especially in the governance structures of post-colonial states. In some instances, the kind of colonial governance structure gives certain powers to actors outside the state as in the case of the undisputed political power of traditional rulers in Burkina Faso. Ouedrago (1996) is of the view that tensions between the state and traditional authorities are subjected to a fine balancing act, which thrives on complementarities that history has directed. In post-independent Ghana (Nkrumah's post-independence government) attempts had been made to break, co-opt or even coerce the chieftaincy institution to suit the power structures of modern Ghana, placing them in diverse paths (Allman & Rathbone, 2001; Rathbone, 2000). In this sense, the process of navigating legal pluralism results in isolationism for one system of law as it is not given much attention in the general governance framework. Non-state customary law, may, however, thrive in the informal spaces. Where the state driven governance system does not fully consider other systems of law that co-existence, certain complex implications may lead to undesirable outcomes. Where local law is not given due consideration, in a state's legal system, imposition of state law makes the administration of justice inherently limited and non-inclusive and a case may be made for decolonization (Nursoo, 2018).

When legal systems are in competition, people who act under these laws are propelled towards selection of laws (election of legal forum) based on a number of considerations including bureaucracy, cost and convenience, (Boamah & Walker, 2016; Manuh, 1988; Vatuk, 2013; Zips, 1996). One system may be ignored or isolated if it repeatedly brings up cost and complexities in obtaining rights (van Koppen, 2010). In some cases there is negotiations for rights as happens in the case of water governance (Bruns & Meinzen-Dick, 2001).

Where one actor is more powerful than the other, in the display of authority, decision makers tend to promote or ignore one legal system over the other (Nursoo, 2018; Tchatchousa-Djomo, 2018; Kobusingye, van Leeuwen & van Dijk, 2016; Miescher, 1997; Ouedrago, 1996). Most importantly, a legal system may be preferred or ignored due to issues such as clarity in the roles and mandates of actors (Tchatchousa-Djomo, 2018; Kobusingye, van Leeuwen & van Dijk, 2016).

It can be inferred that where legal systems are interacting, how actors act together and negotiate and integrate their roles is dependent on how power dynamics are considered as playing out. Depending on how clear decision-making actors themselves are on their power and legitimacy, it creates a clearer path for action. A strong point for integrating multiple actors is the identification of the sources of power of these different actors and a consideration of how, within the context of action, each is able to carry out its role in co-existence with each other. This requires an assessment of the roles of power and action and not just the resultant conflict from co-existence of plural legal systems and actors. Also, how plural actors in the water governance framework interlace in applying state and customary laws requires careful empirical consideration.

#### **2.4. State and Customary Legal Systems**

Water governance is a political practice interlaced with social issues (Ezzamel & Reed, 2008). Factoring institutional multiplicity and how the different institutions engage each other brings up considerations of how politics and social issues interrelate. At the first instance, a consideration of institutions at play draws one to the debates on what constitutes institutions and what they seek to achieve. Institutions are meant to organize behaviour and exist in all spheres of life. Institutions are the set of formal and informal rules that organize society and social spaces, socially, politically, and economically (North, 1990). The categorization of institutions as formal or informal is premised on regulation and structure. Formal institutions are those under the reach of regulation (legislation), taxation and legal rights to property and any other entity falls into informality (Guha-Khasnobis, Kanbur & Ostrom, 2006). These dichotomies portray classifications that consider elements such as reach of officialdom and degrees of structures to determine formality and everything else becomes informal. These are, however, economic categorizations and a look at institutions needs to consider a multi-scale analysis of base level structures (Moran & Ostrom, 2005).

In this vein, institutions may be seen as systems that are established and are key in ensuring social structure and relationships between these structures (Hodgson, 2006). To be classified as an institution, such a body must have existed over time and so has shaped the behaviours of actors both consciously and unconsciously. Therefore, actors that fall within state structures and those that do not, such as non-state actors, are all deemed to be institutions, because adopting the ‘formality and informality’ dichotomies may lead to the premising of one over the other. In this study, the term ‘formal’ is basically to distinguish state actors that are mandated to act with legal instruments and the policies, laws and regulations from others that do not. Here there is no attempt to make value judgements.

The interplay of the formal and informal is a case of politics and power play which defines how the state deals with individuals and how individuals perceive the state (Stevenson, 2007). Discussions on power and decision-making of actors reflect the position of actors and the manner in which they negotiate power. Depending on the goals of interaction, tensions are negotiated and positions may shift as actors' orientation shift and apparently illegitimate action may be deemed legitimate. Therefore, where the state fails to undertake some perceived duties and ignores its duties, with time, these activities, outside regulation and previously deemed illegitimate, may become de facto legitimate (Stevenson, 2007). The reach of regulation changes and notions of formality or informality may be subject to reassessment. How the state performs its political and regulatory practices is what other actors relate to and will deem legitimate. It can be asserted that although a state may be strong or weak in certain areas of operation, its presence and power can be a key consideration in claims of power and legitimacy.

The state is often weak when it comes to issues of water resources governance (Aloa, 2007; Rogers & Hall, 2003). This weakness is exemplified by the lack of structures, especially at community levels and focus and control over some aspects of governance (like provision of water services), while ignoring others such as involvement in decision making. However, governance actions of non-state actors exist and, therefore, questions of the superficiality of state attempts to nationalize and control water resources may arise. There is, however, not much clarity of what happens in the spaces where the state is absent and in which actors are filling this void.

Ghana's 1992 constitution recognizes customary law as the community's traditional norms of behaviour and practices that have existed over a long period and has crystalized to order societal behaviour (Article 11 of the 1992 Constitution). Customary law includes principles,

values, world views, codes of conduct and established practices which are enforced by community institutions and usually at the local level (Cuskelly, 2011) and tend to be peculiar to a particular area and evolved over a long period of time (Chokozho & Latham, 2005). Commonly, in one country, variations of customary law may be present and there is often no pristine customary law (Moore, 1998). However, where customary law is influenced, the question arises of the level of acceptance of the hybrid norms.

In the face of the repugnancy provisions that privilege state law over customary law if the customary law is deemed to be in conflict with state law and common law, seems to place customary law in a constant battle of justifying itself to be worthy of law with the courts as the champion of this course (Atupare, 2014). In reality, however, this 'test of law' is not a common occurrence and in many local communities, especially for water resources, where which law is at play may not be a question that is often raised.

Some writers believe that for natural resources use, management and governance, it seems that customary law and norms are quite well developed and resilient (Nkonya, 2006). This is especially so in land and water allocation and dispute settlement where customary laws and institutions are most often deemed influential and effective (Nkonya, 2006). Some development practitioners, however, believe that the role of customary law in natural resource management is not given much premium (Duarte-Abadia, Boelens & Roa-Avendano, 2015, Huber, 2019). This leads to the imposition of state directed governance structures on communities without considering the local knowledge and customary law regimes (Friedman & VanNijnatten, 2016; Swyngedouw & Boelens, 2018). State structures then tend to be ineffective, especially in the application of formal rules and implementation of programmes and projects (Chirayath, Sage & Woolcock, 2005).

Ultimately, though the state and customary structures are often seen as complementary at times, in competition at other times and sometimes overlap with each other,

“the relationship between the chief and the modern government is based on two characteristics: competition and mutual dependence. The two actors aim to expand their power, and this is always at the expense of the other actor, so that they are in competition. But they also need each other to exercise their power, and in this they are mutually dependent.” (Ray, Adriaan & van Nieuwaal, 1996, p11).

In pointing out the relationship between the state and customary law actors, the arguments in legal pluralism and how regimes can be in completion, but also complement each other, seems to be made. The co-existence of state and non-state actors and the mutual dependence of these actors requires investigation, especially for water resources governance in Ghana.

## **2.5. The State and Integrated Water Resources Management**

Global natural resources governance discourse is driven by the structural framework of the state (Mohamed-Katerere, 2001; Clement, 2010). Additionally, the nature of the state and its policy towards ownership and control influences natural resources governance (Guillet, 1998a.). Quite often, nationalization has been adopted as the route through which optimum governance can be achieved (Khan, 2013). This leads to the creation of a central state body to govern natural resources. For water resources, the common policy direction usually adopted is the Integrated Water Resources Management (IWRM). Water governance depends on many factors such as the physical, socio-economic, political power relations and religious beliefs (Harris, Kooy & Jones, 2011). The concept of IWRM adopts a process of governance that aims at integrating multiple actors in the water sector for a holistic governance framework. The adoption of an integrated process for water governance means that actors must fully consider interrelated issues in a nuanced way. IWRM, however, is seen as an instrument of state supremacy, which does not adequately consider the difference in actors in a systematic way (Hailu, Tolossa & Alemu, 2018). In some governance

frameworks, involving multiple actors, however, does not mean that power dynamics of all actors (formal and informal) are given due consideration (Duarte-Abadia, Boelens & Roa-Avendano, 2015).

To fulfil the aspirations of a ‘modern state’, many countries have turned to nationalization of water resources with reasons that water is a national asset just like minerals and forests for which water needs national management. Some writers contend that, often, nationalization of water and the adoption of IWRM have led to issues of separation of ownership and control. This separation often causes problems in governance (Berle & Means, 1932; Fama & Jensen, 1983; Ezzamel & Reed, 2008). In the process of nationalization, national level water governance is privileged over local level water governance (Boelens, 2014, Atkins, 2019, Huber, 2019) with presumptions and value assumptions about the common good. Power, on the other hand, is expressed apparently on behalf of all citizens (Ezzamel & Reed, 2008)). The process of nationalization results in the vesting of rights of control in the state to be managed for and on behalf of all citizens regardless of where they are located.

In the state’s legal framework, however, local customary norms are recognized in so far as it does not conflict with national laws and statues (Atupare, 2014). This means that although the state controls resources, local level norms still exist albeit in a contested manner. Plural legal systems, therefore, exist with differing levels of autonomy creating semi-autonomous fields to order society and human behaviours (Griffiths, 1988; Moore, 1986, Merry, 1998). As much as IWRM seeks to integrate all state actors, the state still has multiple legal fronts and faces in the process of governance. It is, therefore, debatable how nationalization and absolute state control is possible and the state can have full control of water resources when legal pluralism is existent. Although states may have statutory control over natural and water

resources, many contestations exist on issues of governance and ownership and effective separation (Ezzamel & Reed, 2008).

As indicated by D'Souza (2009), lines are blurred and more so because there is no neat compartmentalization of actors and the roles they play are equally influential (Bruns & Meinzen-Dick, 1998, Meinzen-Dick & Nkonya 2007) although they may be autonomous in creating a semi-autonomous field of legality (Merry, 1988). The manner in which this interrelation of actors is studied has, however, been problematic. Basically, for a phenomenon like legal pluralism, especially for water resources governance, there has not been great exposure in the legal science dominated approaches to the role of 'laws' in society (Spiertz, 2000). Recent discourse on water infrastructure development and the interplay between the state and local communities point to how the relationship between these players displays hegemonic attributes. Arguments point to the fact that modernist approaches to water governance ignores local livelihoods in favour of nationalized concerns and interests (Friedman & VanNijnatten, 2016).

Also, in some instances of nationalization, water infrastructure development and uses tend to create certain urban/rural dynamics where the needs of water users in urban areas are also privileged over the rural (Hoogesteger, Boelens & Baud, 2016). Nationalization and state control, therefore, introduces some contestations for governance, actor engagement, power play in decision making and how legal pluralism is navigated. The presence of multiple actors with different actors, all of whom take decisions, brings up issues of how multiple decision-making centres engage and align in a polycentric whole. With actors having autonomy and control over land, water or both, key issues of ownership and control get lost in the nationalization discourse as complexities in the groups of actors, bundle of rights and uses that interlink water and land governance (Meinzen-Dick & Nkonya, 2007). Issues of

management, rights, ownership and control are also thrown into a quandary (Carlisle & Gruby, 2017), especially in societies where water and land were traditionally considered as a unitary whole. The many implications of legal pluralism point to systems where roles and rights are often unclear and conflicted (especially where the state plays the dominant role (pointing towards nationalization) in water resources governance Meinzen-Dick & Pradhan, 2001).

Questions may arise if nationalization is superficial, especially where governance contestations abound. It is of interest to discover how water governance plays out in a legally plural system where there are alternate actors taking decisions for water resources control and use. Also, in instances where the alternative legal systems, apart from the state, are appreciably functional, how does water governance work out in the framework of nationalization?

Commonly, in the framework of multiple actors for water resources, the state's operation at the macro level interfaces with local level community action. These varied and multiple centres for decision making possibly take decisions without strong coordination (polycentric decision-making systems, Ostrom 1961), a robust system or a divergent system for decision-making may be created with many unclear implications. In ignoring these many constellations of actors in governance and justifying nationalization, the state's technical knowledge is privileged over that of the local community (Adams, Brockington, Dyson & Vira, 2003). What nationalization of water means for local communities has engaged attention globally, especially in the area of water infrastructure development. Some studies have considered the kinds of statutory structures and processes which produces and perpetuates hegemonic systems of power, access and control which impact community

members significantly in diverse ways (Ballabh, 2008; Boelens et al 2014). However, in the case of Ghana, this issue has not engaged much attention.

Sarpong (2018) and Opoku-Agyemang (2005) indicate implications of nationalization and plural water governance in Ghana. They relate how the lack of co-ordination of the plural water resources actors in Ghana create administrative challenges that impact the enforcement of state laws. This has happened with the passing of a law (WRC Act, 1996, Act 522) by the state by which the authority and power of traditional rulers and customary rights holders are deemed extinguished. However, to them, legislation did not change the power structures and social ordering in the water governance framework on the ground. More specifically, the introduction of state law, without a careful road map for integration of both customary and state law, has created tensions in governance structures. The perceived neglect by state actors of the moral/cultural roles of non-state actors has led to negative ecological outcomes. Customary laws had succeeded in keeping certain water bodies in a pristine state because of how the social order had strict behavioural control through spiritual laws (Opoku-Agyemang, 2005). The regional adoption of IWRM, mostly through an unmodified and uncontextualized process, has led to uncoordinated governance without tailoring the IWRM to the local conditions in Ghana and Burkina Faso (Lautze, Barry & Youkhana 2008).

Although in the 1992 Constitution of Ghana, water resources were nationalized, in the process, there has been an alienation of the very individuals and actors who needed to be integrated. It seems that water governance in a plural legal system is not nuanced. The fact that there are separate but interlinked legal order actors with varying degrees of legitimacy and powers to act and the kinds of implications and outcomes have not been given much attention. Institutional and situational contexts that shape the whole water governance

regime do not often engage water policy makers because of the focus on allocation and delivery (Cleaver & Hamada, 2010). However, these contexts are often situated in intersections of plurality of norms and structures. Water governance is often nuanced in a context of culture and power (Guillet, 1998b). Therefore, it is important in exploring the issues of water governance to do a critical study of said context and the settings present to ascertain which outcomes are presented at any point in time. This is because water justice considerations focus not only on access for use but also access to decision making and control (Swyngedouw & Boelens, 2018).

Some key questions arise when one considers issues of the implications of state-controlled water governance in a plural legal system. Firstly, it is worth considering who the key decision-making actors are likely to be and how they devolve power, authority and legitimacy to make decisions in such systems. The kinds of decision-making structures and the knowledge base of actors that drive decision making and what kinds of implication or outcomes arise.

The presence of multiple actors, their sources of power and control, the dynamics of interactions and how national and local level interactions play out draws this work towards the selection of theories on power and decision making and natural resources management, especially at the community level.

## **2.6. Local Knowledge Systems and Decision Making**

Nationalization of natural resources carries with it notions of the ‘common good’ and the management and development of water resources for the benefit of all members of society both near and far from the water resources. This has been critiqued as a means of privileging of national interest over the local interest and that it carried with it the disempowerment of

local governance structures (Atkins, 2019; Ezzamel & Reed, 2008; Hommes & Boelens, 2017). In the midst of the legislated control of water resources, the importance of issues of power and decision making are often subsumed under considerations of addressing the needs for water distribution and water markets (Boelens, 2014; Hommes, Boelens & Matt, 2016; Huber, 2019). Local level complexities are ignored in favour of a national interest, which is seen as ‘malleable and contested’, sometimes driven by international interest and policy directions (Laube, 2007; Atkins, 2019). Nationalization becomes market driven and liberal economic conditions thrive. Socio-economic and socio-environmental issues then become steeped in frustrations and contestations (Friedman & VanNijnatten , 2016). The justification of national interests also leads to the side-lining of local epistemologies as the agenda, driven by scientific and legal discourse, is applied to direct governance. Indigenous livelihoods are ignored in favour of nationalized interests and concerns through which local communities lose decision making powers (Boelens, 2014; Roth, Boelens & Zwarteveen, 2015; Romano, 2016). A better understanding of local level involvement in governance is best done when local knowledge and involvement in decision making is connected to higher (macro) level power dynamics (Ioris, 2016).

The linkage between knowledge and power is hinged on interaction and engagement of actors. Knowledge and power are relational and should not be considered as ‘discrete entities’ but should be considered as inseparable, (helping to unpack power dynamics. Therefore, to understand how governance is carried out at all levels, knowledge should be considered as part of the process of obtaining and exercising power in decision making. This also means that governance decision-making should not be considered only at the level of formal and informal, state and non-state actors, but at all levels where decisions are made and carried out and this includes at the local community level as well. In doing so, the power and knowledge of local people should be studied and understood, especially as researchers

opine that state water governance is done in a manner that seem to side-line local interest and involvement.

## **2.7. Polycentricism and Decision Making**

In multiple actor governance frameworks, actors operating under an overarching system with political and legal autonomy may take decisions jointly or individually. This concept of polycentric decision-making framework was first developed by Polanyi (1951) and advanced by Ostrom (1972), who indicated that a

“polycentric political system is one where “many officials and decision structures are assigned limited and relatively autonomous prerogatives to determine, enforce and alter legal relationships” (Ostrom 1972, in McGinnis 1999: 55-56).

Power to take decisions are, therefore, autonomous but limited to the extent of the power of the actor. Aligica and Tarko (2012) explained that the elements of this framework show a “... structural feature of social systems of many decision centers having limited and autonomous prerogatives and operating under an overarching set of rules” (p.1).

Functionally, such a framework allows an analysis of a governance system inhabiting multiple actors and allows for

“...a robust analytical structure for the study of complex social phenomena...a challenging method of drawing non-ad hoc analogies between different types of self-organizing complex social systems.” (Aligica & Tarko, 2012, p. 259).

In essence, ‘self-organizing’ is an important feature of actors in a polycentric system. These kinds of actors are not static, nor are they in tidy compartments as concurrent decision makers, but are said to be like a ‘dense’ network of decision makers able to act on their own. These points and centers of decision making may also be seen to be transitory or changing in nature. Although decision making actors may support each other or detract from each other, the degree and level of such interdependence and independence or autonomy is not

clear in literature (Carlisle & Gruby, 2017). Further, the weakness of the state to control all aspects of governance makes the workings of a polycentric system attractive to investigate a plural legal system (Smith, 2019). Therefore, to fully understand how decision-making actors in a plural legal system support and learn from each other, academic enquiry is necessary.

Environmental governance structures make collaborative governance, in the form of polycentric governance, attractive for a number of reasons. Most environmental governance structures engage multiple actors and typically show elements of a governance that is deemed to be “top down” and reflective of state hegemony irrespective of the presence of multiple often autonomous actors. Common features of such governance structures are that the knowledge of actors is derived from expert research at the state level, with a pre-set objective and a clear separation of policy makers (macro level) and stakeholders (micro level). However, environmental governance should have elements of horizontal governance, which embodies ‘governance on the inside’. Such a system should ideally have features of policy creation emergent from community level needs, lay knowledge privilege with participatory aspects of knowledge creation. Also, pluralism is embraced with local content dependent policies (Smith, 2019). In this kind of governance, the multiplicity and divergence in institutions and actors is fully embraced.

Ghana’s strong legal plural system exhibits elements of polycentric decision-making and this can be adequately investigated in the water governance framework to see how polycentric decision-making plays out there. The multiple actors in the state and non-state arenas engage each other on the basis of their power and legitimacies that require in-depth analysis. This study investigates who these actors are, their basis of power and legitimacy, how they take and carry out decisions in order to determine the level of polycentricism in

Ghana's legal pluralistic water governance framework. The structure of the governance framework, the degree of autonomy of actors, their levels of power and legitimacy to make decisions and how they evolve are not clear from previously studies.

## **2.8. Implications and Outcomes; Nationalization and Multiple Actor Decision**

### **Making**

Governance in plural legal systems has macro and micro level implications. At the decision-making level, certain institutional level outcomes result from the manner and scale in which actors engage with one other. At the micro community level for water, multiple scale governance also presents certain outcomes. These two kinds of outcomes are, however, not in neat compartments, but interlace and influence each other. In many IWRM oriented states, pre-arranged outcomes which gear towards services provision seem to be the norm, and seems to defeat the purpose of governance which aims to allow the system to adapt to context of many actors and social dynamics (Lautze, 2011).

As commonly seen in water governance literature, at the community level the two kinds of outcomes often referred to are material and non-material (Cleaver & Hamada, 2010). Material outcomes are livelihoods, health, markets and ecology, among others. Non-material outcomes are institutional issues such as allocation of water rights, political voice, cultural rights, implementation and enforcement of rules (Cleaver & Hamada, 2010). Issues of accessibility and quality, which focus on variables such as water quantity, quality and availability, which affect livelihoods, are some of the outcomes of water governance (Franks & Cleaver, 2007). Water governance outcomes are, therefore, broad based. They may be social (health), cultural, political (decision making), economic (livelihoods), and ecological/environmental.

Water governance empirical studies mostly focus on social outcomes such as access to water supply and infrastructure (Lenton & Muller, 2009, 2012). A few studies in Ghana have focused on economic outcomes and some findings of interest postulate that water users in informal economies (in Volta and the Limpopo basin on water use for small scale irrigation agriculture) are burdened with bureaucratic processes in acquiring water rights (van Koppen, 2010). This study concluded that ignoring the institutional dynamics of plural legal systems in which small scale water users operate creates administrative burdens because state actors do not pay heed to the already existing informal networks. The implications and outcomes of water governance in a plural legal system are enmeshed in considerations for addressing water needs and are not given full attention. This study attempts to highlight these implications and outcomes.

## **2.9. Theoretical Framework**

Focus on multiple actors and their contextual decision-making processes, the involvement of community level actors and its implication points this study towards the political ecology and the common pool resource theories. The political ecology theory focuses on decision making and impact on the environment while the common pool resources theory focuses on community level engagement resource governance. These theories animate this study and are discussed below.

### **2.9.1 Political ecology theory**

While theorist explored how political decision making affected the economy (political economy theory), the effects of politics and power dynamics on the environment led to the development of a spin off theory first theorized by Thone (1935) as the "political ecology" theory. While it was considered as a relevant theory for human geography and human ecology, in 1972, anthropologist Eric R. Wolf in his work titled "Ownership and Political

Ecology" (ref), further expounded the theory by considering how rules on personal ownership and inheritance (power dynamics) were affected by issues of power and control in the local and larger society (tiers and scales) and its impact on the local physical environment. In the 1970s and 1980s other writers sought to develop the theory and significant among these was Piers Blaikie. He did this while considering the socio-political origins of soil erosion and how land ownership/use patterns affect the environment. Overall, the theory of political ecology has a broad scope and interdisciplinary nature. There are three common fundamental assumptions gleaned from the work of Bryant and Bailey (ref). Firstly, that environmental changes do not affect society in a homogenous way: political, social, and economic differences have a role to play in the unequal distribution of costs and benefits. Secondly, it is assumed that environmental changes must necessarily affect the political and economic status quo in a society. And thirdly, with the unequal distribution of costs and benefits, pre-existing inequalities are reinforced or reduced as a result of ever changing power relationships.

The political ecology theory assumes that environmental decision making is politically motivated. When decisions have to be made to manage natural resources, decision makers are more inclined to negotiate for benefits. The process of negotiation for benefits in the use of natural resource ultimately impacts how environmental decision making is carried out (Little, 2007). Changes to the environment occur from the interactions of actors who are seeking their own benefits. The changes may be positive or negative.

At the community level, political forces and power relations shape human knowledge and affect, among others, management practices. Water governance is never neutral with power laden relationships resulting in unequal costs and benefits for different actors (Boelens, Hoogesteger, Swyngedouw, Vos & Wester, 2016; Boelens, 2014 Norman, Baker & Cook,

2012). Water is inherently political in nature with politics, culture, local knowledge, values, property arrangements and power relations all put together to present the system of ordering human behaviour (Boelens, 2014). Therefore, in instances where the legal-administrative frameworks are focused on benefits to large scale users more than any other factors, there are likely to be problematic governance implications (Duarte-Abadia, Boelens & du Pre, 2019). State control and community level responses are deemed to constitute ‘class struggles’ (Andreucci, Garcia-Lamarca, Wedekind & Swyngedouw, 2017) as community interests are subsumed under the national interest. These struggles are also seen as ‘socio-ecological’ struggles with impacts on society and the environment.

The complexities and contextual nature of water governance and the socio-political nature of community-based practices and customs affect water governance (Friedman & VanNijnatten, 2016). State involvement and control of water resources assume that the state is taking decisions on behalf of all citizens. However, invariably, decisions are power-laden and where market structures are privileged, commercial and industrial uses, as well as urban rich uses, are given more consideration. Preservation and conservation are, however, not prioritized (Ballabh, 2008). Such power considerations and its dynamics cannot be ignored as modernist water governance structures try to do (Boelens, Perreault & Voss 2018). Equally important and worthy of attention is the consideration that power to take decision is not just a product of law but day to day action and control especially of local actors (Romano, 2016).

The political ecology theory is appropriate for this study as it is in tune with the basic assumptions of legal pluralism, which assumes that actors take decisions and negotiate for benefits which best serves their interests. Another basic assumption of the political ecology theory is that costs and benefits linked to environmental decision making and the changes

that result are often unequally distributed since actors do not have the same opportunities and rights. This theory is in sync with this present study which seeks to ascertain which legal system presents specific rights and opportunities. This study is also aimed at determining the kinds of political, social, economic and ecological outcomes of water governance. Through this study, we ascertain how water governance decision making focuses not only on environmental considerations but social, political and economic changes for the benefit of decision makers. Also, these changes will not affect members of society in a homogenous way but will depend on the power dynamics of communities. Similarly, the characteristics of the members of society may determine the governance outcomes and benefits they obtain.

Through the political ecology theory, this study investigates how political, social, and economic differences of community members affect governance outcomes and leads to the uneven distribution of costs and benefits to members of the society. The assumption that the unequal and uneven distributions further reinforce, increase or reduce existing social, economic, political and environmental inequalities is further assessed in this study. Applying this framework, this study explores implications and outcomes of water governance decision making in a multi-actor decision making governance situation.

### **2.9.2 Common Pool Resources Theory**

Common Pool Resource theory was known to have first been proposed by Ostrom (1990). It assumes that environmental resources that exist and are open for use by many are likely to be over-exploited. This theory is premised on local level governance and control and that the lack of a central force to control its use will lead to dissipation and misuse of available environmental resources. This theory further assumes that community members take rational decisions for self-benefit and that centralized control is not very successful as it is

ignored or deficient. Local level uses cannot be excluded or prevented even if their uses are seen as illegitimate. Ostrom's main thesis is that there is unfettered access to the supply of resources with little commitment to controlling or successful monitoring of uses. Ostrom, therefore, proposes what are known as 'design principles' which requires that for an environmental governance framework to work well, there should be clearly set boundaries for use, monitors, who are either resources users or accountable, graduated sanctions, which can be altered by users themselves, commitment to controls and local level rights to alter rules. This theory favours community level ownership and control of natural resources and seems to demonize private property rights. However, where there is a possibility of cooperation, especially where free riding is beneficial, state control can lead to the marginalization of local participation in governance.

When natural resources are available in communities and are open for use, there are divergent views on uses, rights, tenure at the local level between local and national actors – this is prevalent in natural resources governance (Adams et al., 2003) The divergence of views by different actors on resource uses and the position of the state which often sees control in such a way that other users outside the state net becomes illegitimate is a common feature of natural resources governance. Often locals insist on inherent rights, and advocacy groups also call for local level rights which often drives discourse on natural resources governance. It is, therefore, important that governance analysis considers issues from all these angles. This should help to investigate and find out how decision-making regimes at the national and local levels obstruct, are neutral or facilitate the governance framework. There should be knowledge of situational and contextual variables because local level knowledge is crucial and should not be ignored (Ostrom, Gardner and Walker, 1994).

### **2.9.3 Framework for Analysis: Critical Moment Approach and Network Maps**

#### **Approach**

In this study the framework for analyzing environmental decisions is based on the political ecology and common pool resources theories.

#### **2.9.3.1 Critical Moment Approach**

In the process of decision making, actors do not have equal levels of power, legitimacy or interest. Endogenous actors (actors with main power) and shadow exogenous actors should be identified and their roles mapped (Khan, 2013). A ‘critical moment’ exists and points to an episodic moment at which actors make decisions. The Critical Moment Approach (CMA) helps one to situate the particular or sensitive time or period where power drives action. The identification of what the CMA is, is of vital importance because it “...assists in identifying who plays on whose ground, and whose interest(s) is dominant.” (Khan, 2013, p. 469). In this sense, the time, place and space in which decisions are made and by whom are important points in analyzing the decision-making frameworks. It is possible that the critical moment’ for decision making may be at one critical moment or a constellation of moments and spaces. It can also be a certain circumstance or a range of circumstances.

As another means of analyzing the decision-making praxis of actors, this study adopts a network mapping approach to determine actors’ relationships and levels of power and authority.

#### **2.9.3.2 Network Mapping Approach**

To understand the relationships between the various actors in water governance and their power and influence patterns in decision making, a network mapping approach is best suited to discover these patterns. The use of the network mapping approach allows actors to clarify

opinions on the roles and activities of key actors and how they are networked in a decision-making situation (Schiffer & Hauck, 2010). This approach allows actors' roles to be defined and the types of influence clarified. Schiffer and Hauck (2010) surmise that the network mapping tool can be used to examine networks at any level be they at the micro level (local) or macro (national, international, or global) level. These levels of analysis assist the researcher who is using the political ecology theory to also examine the application of the theory across scale. Also, at the local micro level, it validates a researcher's opinion of power and influence in a community.

Certain levels and steps are proposed when applying network mapping, although these steps can be modified to suit the research question of any study. The first level is in-depth interviews with individual key actors/informants. At the next stage, a focus group discussion confirms and validates findings from the primary interviews and confirms the linkages traced between actors. In line with the invitation to extend the method as appropriate, in this present study, a third level is introduced. The interviewees were asked to determine which actors they deemed to have the power and their levels of legitimacy on a scale. Data was analyzed at three levels depending on the specific objectives of the study. Firstly, there was a visual representation of maps before these maps were transformed into computer graphics for visual analysis, which led to a quantitative analysis of influence maps (Schiffer & Hauck, 2010). In this study, these steps were adapted with a scoring system of a scoring scale of 1-5, one being the weakest and 5 the strongest.

Schiffer and Waale (2008) recommended that where certain actors exist outside existing hierarchies they may be identified and included in the network mapping analysis.

A method of analysis such as the Net-Mapping integrates in-depth and comparative studies of networks, presenting the roles and mandates of various actors in any given governance situation and are important for analysing a governance-related study (Schiffer & Waale, 2008).

The application of the critical points at which actors take decisions, understand power and influence the different levels of actors allows this study to understand the strengths and weaknesses of actors, their levels of power and how they interact to take decisions. In this, the primary decision makers (endogenous actors), and the secondary shadow influencers are identified. Network maps allows this study to ascertain the level of influence and its secondary actors may be as influential as primary actors.

### **2.10. Conceptual Framework**

The conceptual framework for this study has three main components. The first component is reflective of multiple polycentric actors, the second component shows the institutional arrangements and levels and points for decision making, while the third component indicates the implications or outcomes of decision making. Component three has two levels, which comprises outcomes both at the level of institutions and at the community levels. The components show, by way of arrows, the links between decision making, institutional arrangements and implications or outcomes. This framework is driven by the theories and concepts that animate this study and is set out in **Figure 2.1**.

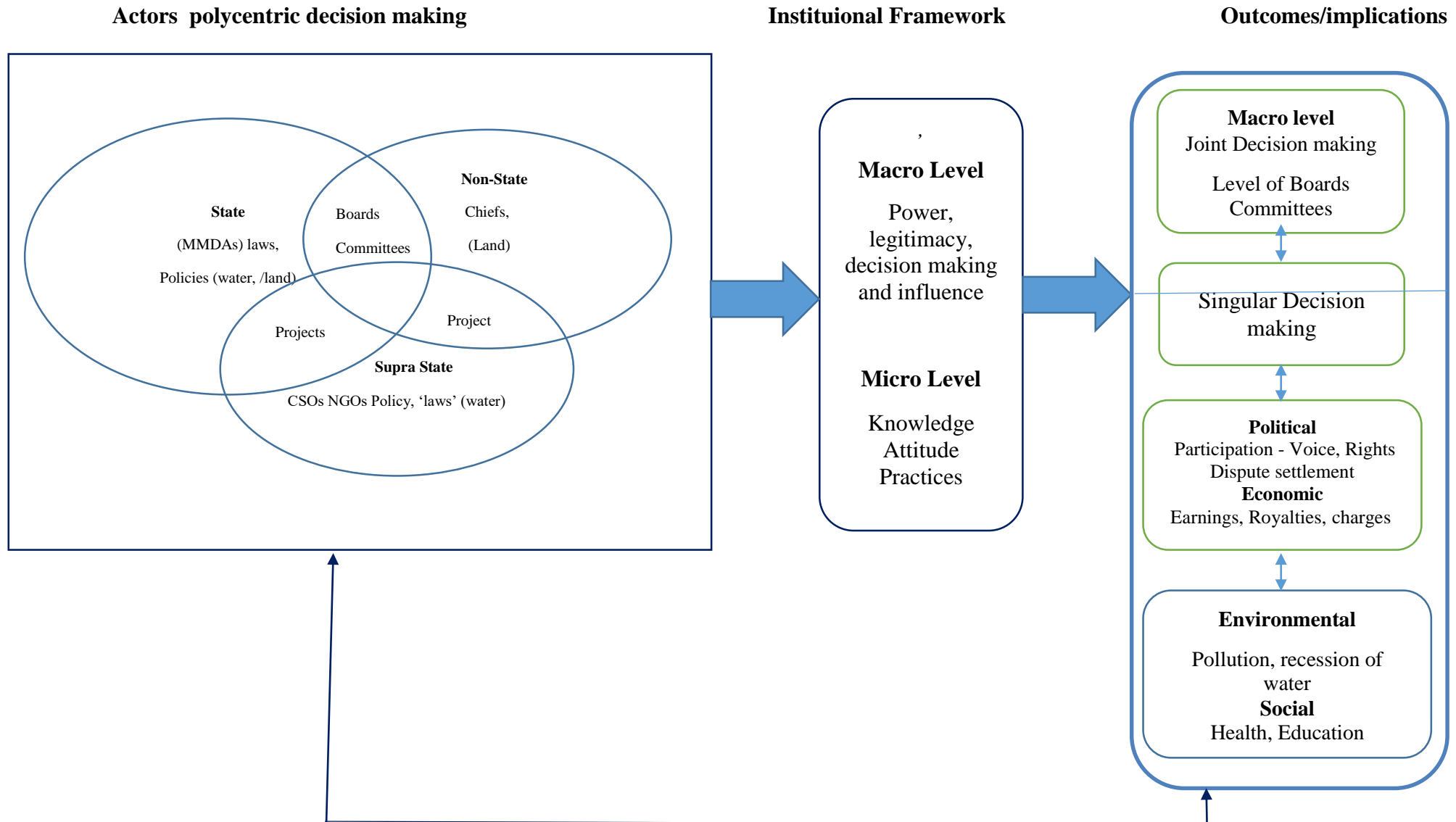


Figure 2.1: Actor linkages and functional systems for water resources governance and their related outcomes Source: Author, 2018

In Figure 2.1, the first component shows the groups of actors present in water governance who have been categorized into state, non-state and supra state actors. Any actors who take their authority from state laws and regulations are placed in the state actors' categories. Actors at the local level with traditional authorities are in the category of non-state actors. Actors identified as community-based organizations, non-governmental organizations or international actors who may influence policy and programmes are put in the group of supra state actors. Based on the basic assumptions of the political ecology theory these actors interact as seen in component two to take decisions at the macro and micro levels. At the macro level, interaction is at the level of boards and committees for the state and non-state actors; the level of interaction is at the project level for the state and supra-state actors. The point for common interaction by all actors is unclear and therefore blank. Also, the overall coordinating actor for decision making and action by all actors is undetermined. The interaction among the actors may have implications and outcomes at the macro and micro levels. At the macro level, the times and spaces for decision-making is driven by power, influence and legitimacy. At the macro level, interactions for decision making are also influenced by how community level structures and knowledge are privileged in such a manner that it influences attitudes and practices. Therefore, power, legitimacy and influence will impact macro and micro level outcomes. The nature of polycentric decision making may have implications for governance at the macro and micro levels.

Macro level outcomes reflect how decisions are taken either jointly at the level of boards and committees or in project formulation. On the other hand, decisions may be taken in isolation from each when structures for decision making are not identified or considered by actors. At the micro level, decisions made by state, non-state and supra state actors may result in how community members are engaged in decision-making and have a voice. Also, the physical state of the resources that may be in the state of depletion or neglect may be reflective of uncoordinated governance as Ostrom (1990) proposes. Therefore, benefits may not be optimum, leading to certain environmental, social and economic outcomes.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1. Introduction**

This chapter is a discussion of the methods and means adopted to collect and analyse data in order to answer the stated objectives of this study. The chapter discusses the philosophy grounding the selection of methods, the description and selection of the study sites and respondents. It also discusses the methods of data collection and analysis.

#### **3.2 Philosophical Underpinnings of the Study**

The process of water governance in plural legal systems presents multiple actors interacting and working together to take decisions and implement them in a socio-economic and political setting. A phenomenon like this, especially for water resources governance, has been greatly under-exposed in legal science dominated approaches to the role of 'law' in society. In studying individuals and actors, there should be an understanding of the social arenas in which they move (Spiertz, 2000). A study on the real position of actors and people who use and manage water resources in relation to the law requires a different methodological approach from that used in traditional legal studies. A mix of anthropology and positivist scientific methods is therefore recommended (Spiertz, 2000). This present study lends itself to understanding the laws and norms through which water governance decision-making is done and also understanding people in a social setting, the complexities present therein and their mode of interaction and negotiation. To fully understand how decision-making is carried out, by whom and when, a pragmatist approach is adopted to be able to obtain knowledge from various sources through all appropriate means. Peirce (1905, 1998) argues that to understand human knowledge, societal concepts and how individuals

operate in society, the practical uses and successes of such knowledge and concepts should be examined. The emphasis is on practical application of knowledge examined through human experiences.

Modern pragmatist theorists like Habermas (2002) explained that knowledge is best understood when information from multiple social actors are examined to see how they fit socially accepted and recognized normative settings. In effect, not only individual in-depth knowledge is acceptable, but it should be squared against general societal perceptions, something that a core qualitative and supplementary quantitative study will do effectively. A qualitative method allows the deep probing of individuals in society (Bryman, 2008). The quantitative aspect of the study will provide the means to predict and obtain general knowledge as a counterpoint to in-depth experiences (Cresswell, 2013, 2014; Ahiadeke, 2008). This is because subjectivity in research is not enough (Habermas, 2002). There should be a point at which information from all sources should be coordinated to reflect, to a large extent, general societal opinions in order to reach a level of agreement and generalization. The use of a pragmatic study design allows the researcher to apply various methods of enquiry to be able to engage a wide range of actors in order to clarify meanings and assess consequences of action (Cherryholmes, 1992), while viewing issues from a general societal perspective.

Therefore, in this study to get the viewpoint of individuals, a qualitative approach is adopted with in-depth interviews. However, in line with pragmatist thought, this approach is bridged with a quantitative methodology to use positivist scientific means to ascertain society's views on water resources governance within a plural legal system. While adopting a mix method approach in a case study format, this method provides an encompassing and complete data for analysis.

This becomes a contextual study as it appreciates the workings of a governance framework and the people who operate in it, while noting that a key mode of enquiry is the engagement of members of the society. Knowledge obtained from society is dependent on context (Kukla, 2000).

This study presumes, ontologically, that socio-political settings influence how actors behave. Additionally, environmental and external influences affect how actors take decisions. Epistemologically, understanding behaviours and actions of actors requires an understanding of their social setting (Bryman, 2009). Since this study seeks to answer a social question, an in-depth study of actors in their social setting is required. This study, therefore, sources knowledge from actors and individuals in selected study sites. To fully understand the different plural legal systems, this study investigates the basis of authority of actors in these legal systems and how they obtain legitimacy to order societal relations and interactions. Additionally, because this is a study of law and society, the study of legal texts and an examination of how these texts apply and operate in society is necessary. To argument information gathered, data and information were triangulated from textual analysis to experiences of actors. Quantifiable data was also obtained. The study, thus, uses a core qualitative supplementary quantitative research approach where the core component is a complete mode of enquiry with the supplementary component applied to extend the study for a more complete understanding (Morse & Niehaus, 2009).

### **3.3. Rationale for Selection of Methodology**

This study adopts an interdisciplinary framework by straddling law in society in relation to natural resource governance. This is a deviation from a sole examination of legal texts to study how people engage with the law (Spiertz, 2000). When examining situations in a plural legal system, it is necessary that the focus of study shifts away from law as a codified

body of texts to the individual who stands at the intersection of many different legal domains. These individuals are those who use natural resources and operate in social structures that are embedded in several different layers of social organization. These layers include various bodies of cultural tradition, ideas and ideologies, and regulatory institutions (von Benda-Beckmann, 1994). Further as von Benda-Beckman (1995) explains, any study in natural resource and law must be pegged at the level of the day-to-day practices of actors, everyday social relationships and the interest of actors. However, for a water governance study, this study moves further. Not only does this study lend itself to case studies, which is a method of in-depth enquiry of any phenomenon (Yin, 2006), but also allows a general view of society as well, it also adopts a qualitative and quantitative methodology in data collection and analysis within the case study frame. This multidisciplinary mode of enquiry allows a more expansive data collection and analysis for a better understanding of the governance framework (Ostrom, 1990).

In the examination of the knowledge of people in communities, a Knowledge Attitudes and Practices (KAP) survey approach is adopted. This survey methodology aims at gaining an understanding of community members and has been a common feature of medical anthropology, although the usefulness of KAP surveys for other forms of studies to understand human behaviour has been highlighted (Launiala, 2009). Typically, the KAP survey aims to assess the knowledge levels, attitudes and practices of individuals to better understand their activities in relation to the phenomenon under study (Banda et al., 2007, Sibiya & Gumbo, 2013). Guidelines on a KAP survey targets data on knowledge about an issue, thoughts, beliefs and feelings (attitudes) and activities (practices). KAP surveys are intended to find out the gaps in knowledge, cultural beliefs, or behavioural patterns and triggers of actions and practices. In sum, a KAP study is a relevant tool that provides an

interdisciplinary approach to the study of people in a community (Launiala, 2009). It quantitatively captures the life experiences of community members.

KAP surveys are widely applied in academic and non-academic studies and have been used to assess the knowledge, attitude and practices of students on issues related to water, sanitation and hygiene in selected schools in South Africa (Sibiya & Gumbo, 2013) using a chi square analysis for a comparative analysis on urban and rural attitudes of residents. A variation of KAP was used by Jacobson and Marynowsk (1997) to study ecosystem management policies in the USA, where knowledge was found to influence practices.

The logic behind the adoption of these methods is to ensure that, in line with the pragmatic approach, comprehensive data is collected and analysed.

### **3.4. Study Sites**

In this study, the Weija Lake in the Densu River Basin and Lake Bosomtwe in the Pra River Basin Catchment Areas are the two study sites selected. Using the urbanized Weija Lake Catchment Area (WLCA) (state controlled water supply dam) and the rural Lake Bosomtwe Catchment Area (LBCA) (a natural lake in the central part of Ghana with dominant traditional authorities) this study attempts to illustrate the implications for water governance in a plural legal system. This selection gives a basis to compare how state law and customary norms are operationalised when taking decisions and implementing them, the tensions that arise and how they are navigated. The next sections give a description of the study sites and justification for selection.

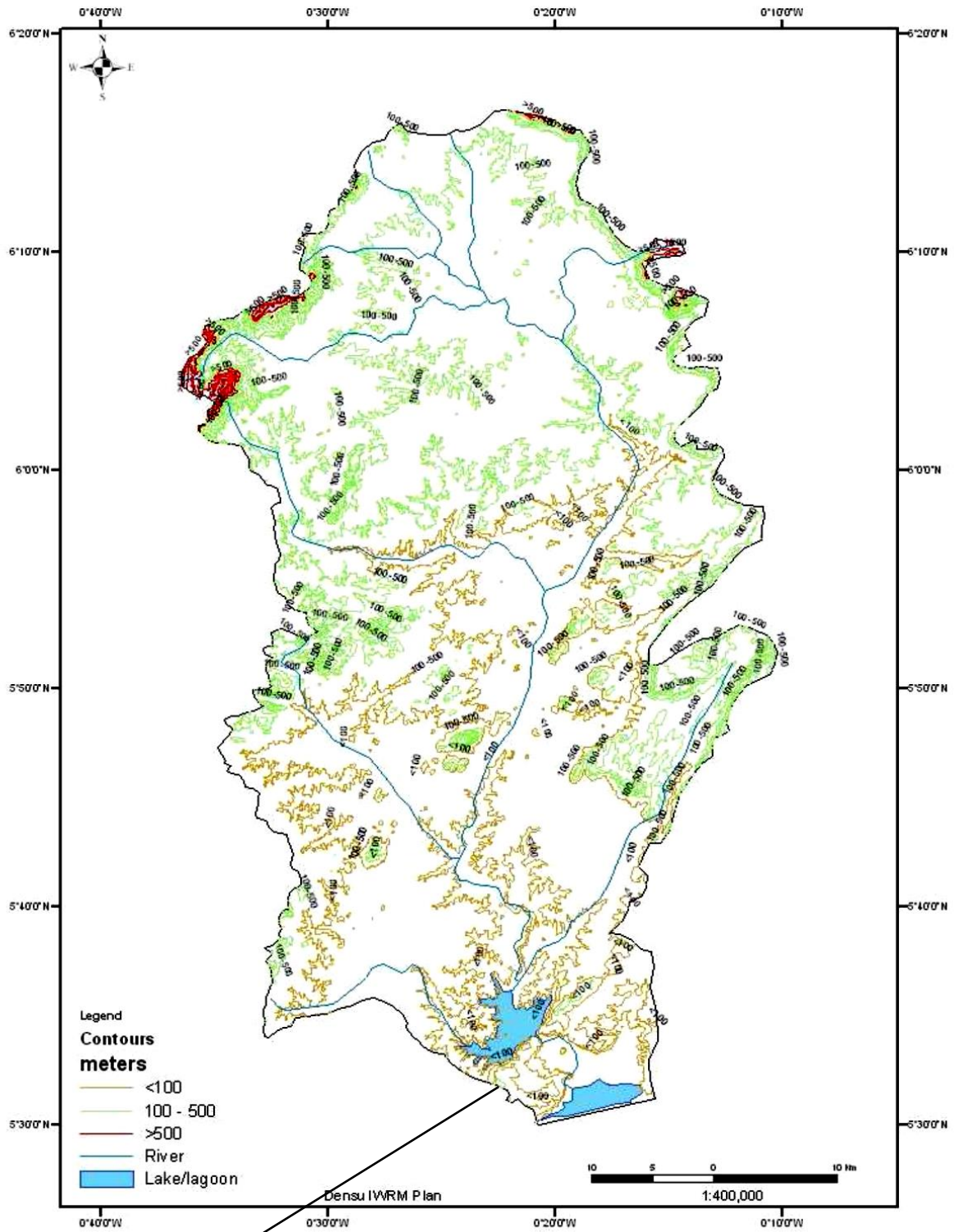
The two areas are selected to afford an opportunity to do a comparative study and on the basis that they are two disparate water resources governance regimes across Ghana. Both

sites host plural actors from both the state and non-state fora. This allows for an assessment of the interplay between plural actors and systems. The Weija Lake Catchment Area (WLCA) is in an urban setting with a water supply dam. The actors present are state, non-state and supra-state. However, the state has control over this land space through a passing of an Executive Instrument (130) in 1977, by which the land area is fully under state control. In the Lake Bosomtwe catchment area, the land space is not under state control. Rather, the area is under the control of traditional authorities. The state's presence is found in the form of the District Assembly, the Ministry of Tourism and the Ghana Tourist Board who are involved in tourism, which is a predominant economic activity in that study area. The water resources are under state control. For both study sites, the water resources are under state control through nationalization in 1996 (Water Resources Act, Act 522, 1996). Land is controlled by the state in Weija Lake Catchment area and by the traditional authorities in the Lake Bosomtwe catchment area.

#### **3.4.1 Densu River Basin (Weija Lake Catchment Area)**

The Densu Basin is situated in the South Eastern part of Ghana. In the year 2003, baseline studies were carried out prior to the establishment of a river basin structure to determine the best fit administration for the needs of the basin. The studies concluded that the Densu Basin was the most stressed river basin in Ghana as it drained some of the most commercialized and populated sections of Ghana, that is the Eastern and Greater Accra regions (WRC-Baseline Studies, 2003). The Densu Basin governance board was established in 2004 (the first basin structure of its kind in Ghana) with a set of operational guidelines regulating its activities. The main aim and objective of the Densu Basin Board was to address and manage the basin in line with the roles and mandates of the Water Resources Commission (DBB Regulations, 2014). The roles of the board were to ensure that the programmes and plans of the WRC were carried out effectively at the local level. Membership of the management

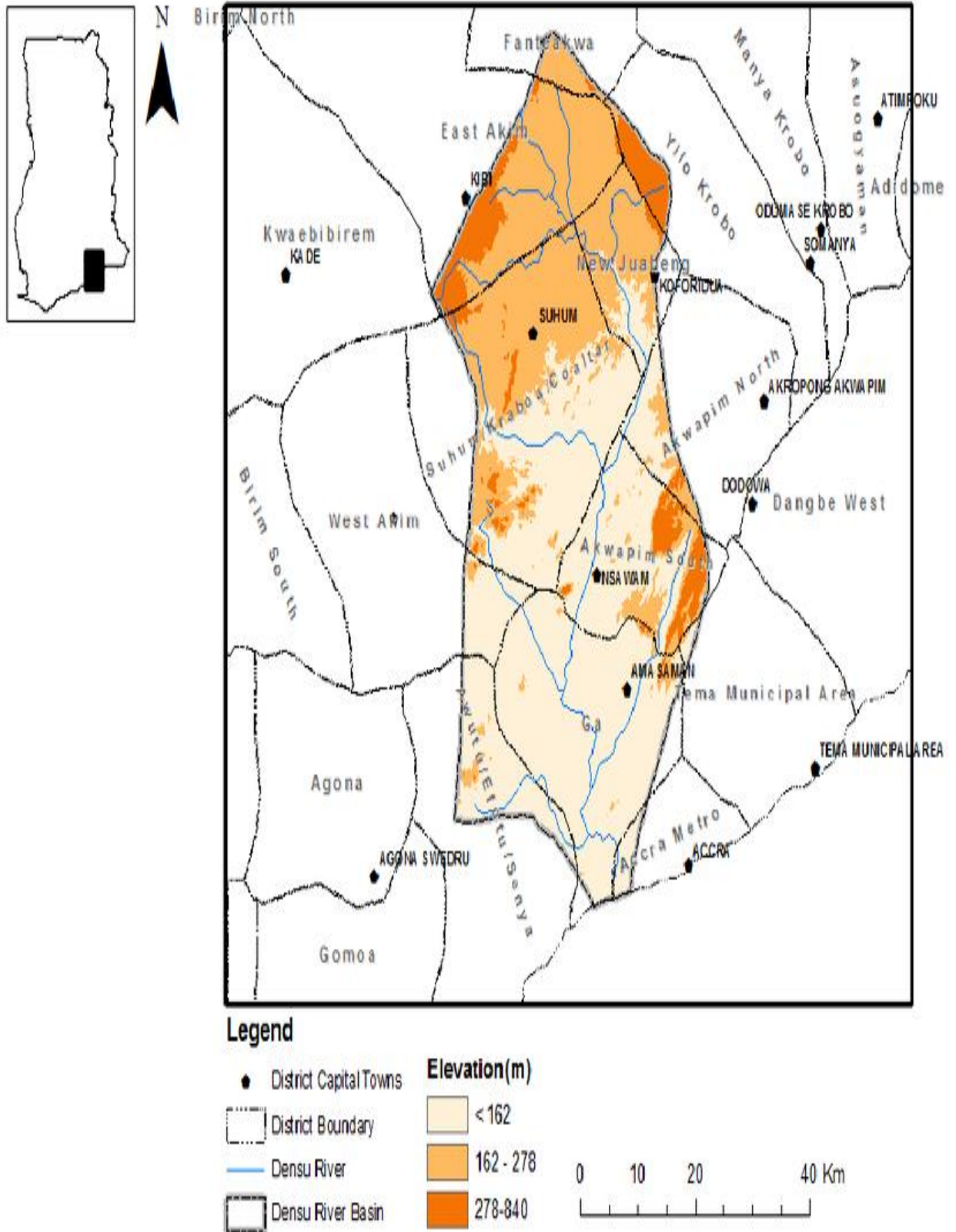
board was made up of district assemblies, (among which is the Ga West and Ga South District Assemblies), the □Greater Accra Regional Coordinating Council, and civil society representation and traditional authorities. This presents a mix of state, non-state and supra state actors. The decentralized local government structure, (i.e. the District Assembly), is responsible for management of natural resources and development plans at the local level. The Ministries of Health, Food and Agriculture and Gender and Social Protection are included in the membership of the Board because of the particular sector development concerns. In particular, issues of pollution and their attendant health issues in the basin, the livelihoods of the local people and other issues were identified in the baseline studies prior to the setting up of the basin office. Other state actors on the board are the Environmental Protection Agency (EPA), and the Forestry Commission (FC) needed to address general environmental concerns, especially because parts of the Densu Basin are well forested. The source of the Densu River starts from the Atewa Forest a mineral rich area that needs protection from developmental exploitation. Another state actor is the Ghana Water Company Limited (GWCL). For social concerns, the National Commission on Culture, a representative from an Orthodox Church, and a prominent traditional authority (non-state) in the basin are represented. Another supra-state actor is a Non-Governmental Organisation represented on the board. Figures 3.1. and 3.2. show the Densu Basin, its hydrological characteristics and its physical and geographical location in Ghana.



Map 2.1: Topography of the Densu Basin

Weija Lake

**Figure 3. 1: Weija Lake**  
Source: WRC, IWRM Plan 2012



**Figure 3.2: Densu Basin**  
Source: WRC, IWRM Plan 2012

## **Weija Lake**

The Weija Lake lies in the Densu Basin part of the Greater Accra Region, which is an urbanized area with pressure on water use and allocation (WRC Annual Report, 2013). The Weija Lake or Reservoir was created in 1977 as a replacement for an earlier one which was washed away in 1968 (interview with the GWCL Plant Manager, May, 2017). It was created by Ghana Water Company Limited (GWCL) through damming of the River Densu mainly to satisfy the demand for potable water supply. The Weija Reservoir/Dam, located about 17 km west of Accra, is almost at the mouth of the 116 km long River Densu, which takes its source from the Atiwa-Atwiredu Mountain range in the Eastern Region of Ghana. It falls in the Ga West and Ga South Districts. The current dam provides water to the western parts of Accra, and supports irrigation projects, as well as fish farms. The reservoir area is low lying with undulating topography and isolated ridges.

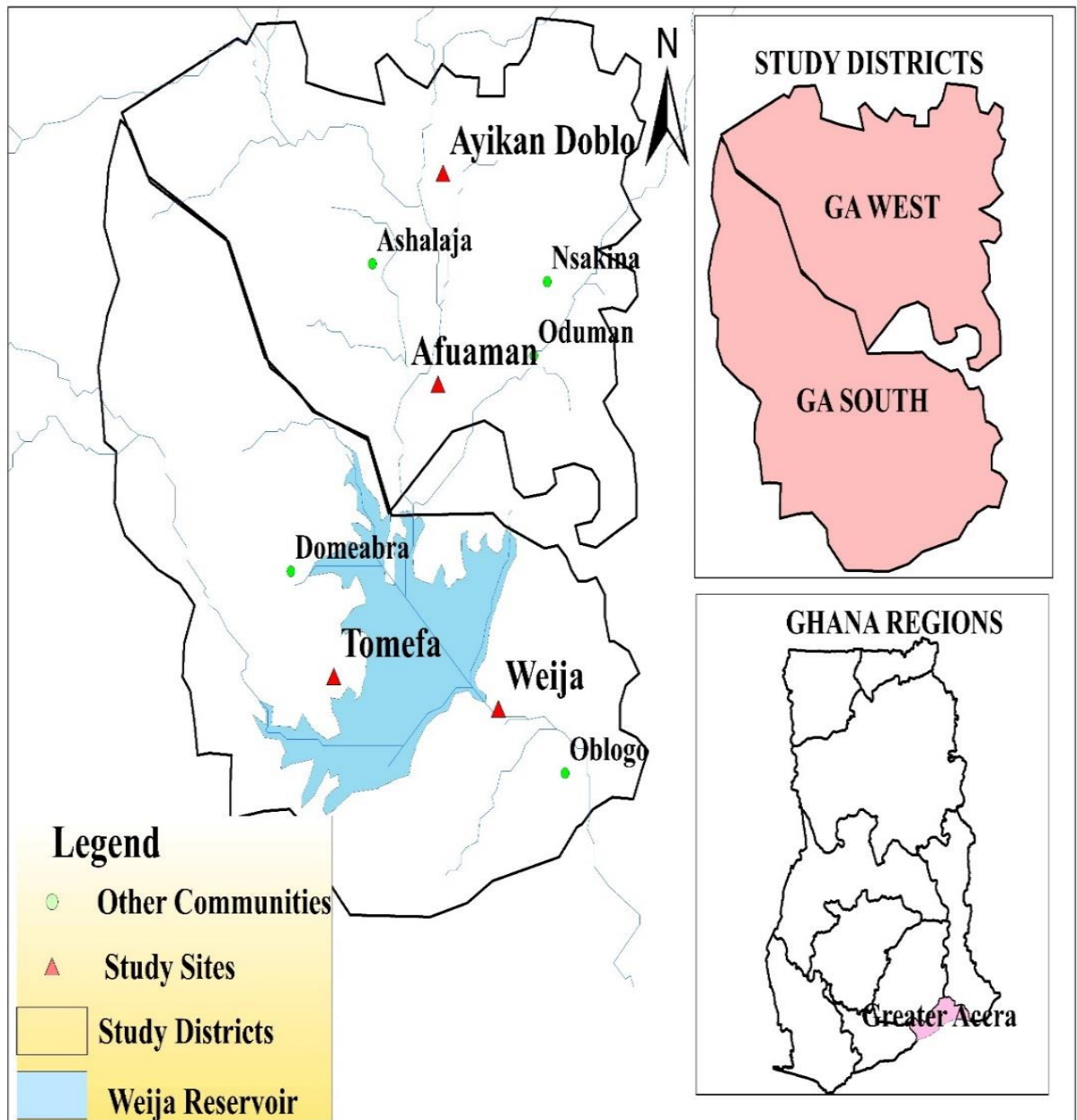
The predominant water use and economic activities in the catchment area are water supply, fishing or aquaculture and crop farming. Major crops in this area include maize, cassava, sugarcane and irrigated vegetables. Untreated domestic waste water is discharged into the lake, which is a land-based activity that creates negative impact on the water body (Asante, Quarcoopome & Amevenku., 2008).

Communities in the catchment area, both indigenous and settler, mainly engaged in fishing and farming and have been in this location preceding and since the creation of the dam. The creation of the dam in the 1880s saw the resettlement and reallocation of some communities. Most of the communities have moved back into the buffer areas around the dam (interview with Densu Basin officer and the Plant Manager of GWCL, May, 2017). There are seventeen communities around the lake, each of which has a traditional ruler. This catchment area shows an interesting mix of a dominant state presence. There are traditional authorities in all lake side communities.

In the year 2015, the Weija Lake Catchment Area was declared a military zone. In the same year, WRC declared that by the very nature of the Weija Lake it is a no-go area for aquaculture practices (Executive Secretary, WRC, April, 2017). Available studies on the Densu Basin tend to focus on physical parameters of the water such as water quality issues, especially of the Weija Lake (Asante et al., 2008). However, a study of the indigenous knowledge of local people in the Weija catchment area and how it impacts the management of the water body concluded that in setting up water resources management structures, traditional knowledge should be incorporated into governance schemes. The organizational structures and decision-making formats and the legal aspects of water resource management was also recommended for further study (Ampomah, 1999).

A justification for selecting the Weija Lake Catchment Area is that it houses a lake that has been developed as a part of an infrastructure developed for water supply for the national good (interview with Densu Basin officer and the Plant Manager of GWCL, May, 2017). The dam/lake is situated within a state acquired land. It is managed by a state actor, the Ghana Water Company Limited, and is one of its over eighty (80) water abstraction points. This study site is the most urbanized site with more of a state institutional setting for governance. It provides a good mix of actors for land use and water use governance dynamics to be studied.

**Figure 3.3** is a map of the basin indicating communities studied (indicated in red triangles) and the national administrative districts into which they fall.



**Figure 3.3: Map of Weija Lake Catchment Area showing the communities in the catchment area marked with red triangles**

Source: Geography Department, University of Ghana, 2017

### 3.4.2. Pra River Basin (Lake Bosomtwe Catchment Area)

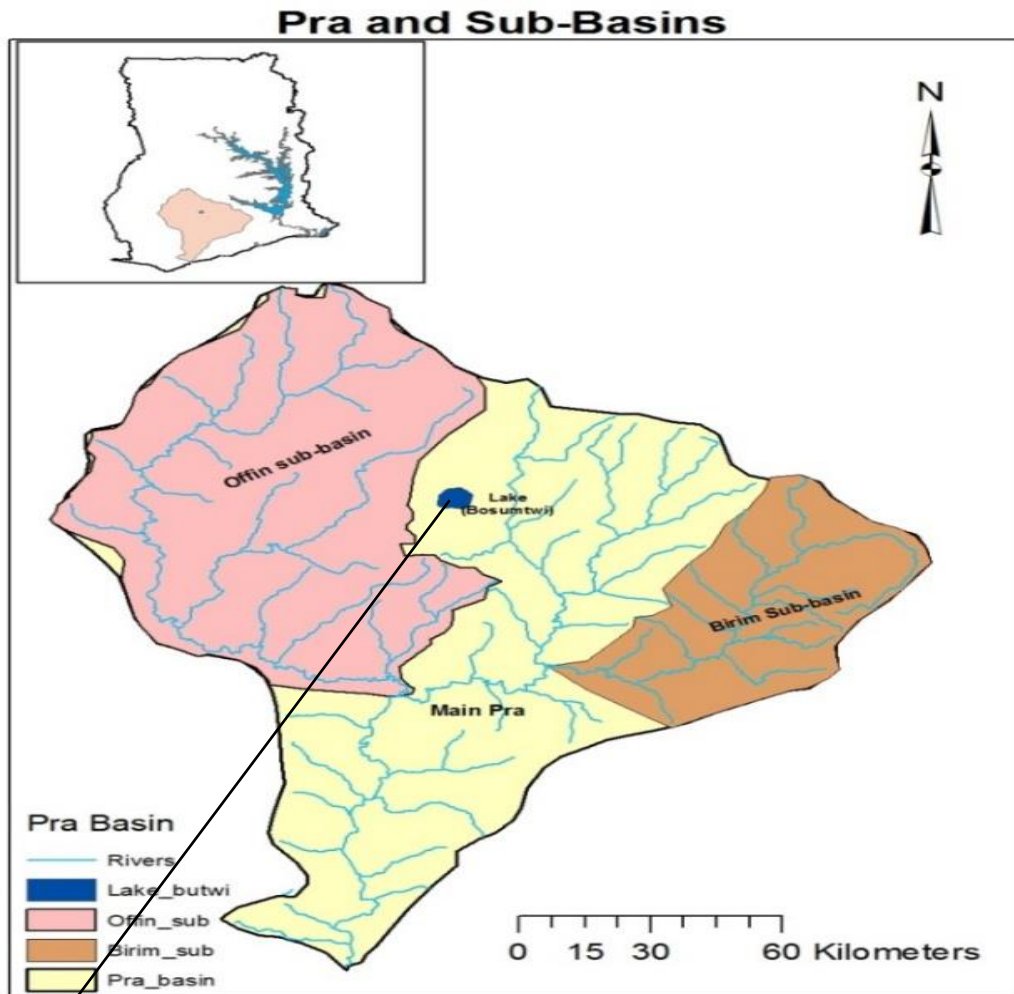
The Pra Basin is situated in the central part of Ghana. It is made up of three major tributaries, namely the Birim, Anum, and Offin rivers. The drainage area is about 22,106km<sup>2</sup>, with an average elevation of about 300m and generally less than 600m above sea level (Pra Basin IWRM Plan, 2014). A prominent feature of this basin is the Lake Bosomtwe, (in the Offin sub-basin) a natural lake discovered in the 1800s, which is believed to have been created

through a meteoritic impact. The lake is a major tourist attraction and attracts tourists throughout the year (Pra Basin IWRM Plan 2014).

The Water Resources Commission established a River Basin Board in 2012 to oversee water governance activities in the basin. The Pra (Offin) Basin is the fourth basin that the Water Resources Commission (WRC) has established a River Basin Board and its Secretariat as the decentralized management body to facilitate the implementation of Integrated Water Resources Management (IWRM). This is to provide a coordinated development and management of water, land, and related resources for optimum socio-economic development and sustainable management of vital ecosystems.

The Pra Basin is one of the most extensively and intensively used river basin areas in Ghana in terms of settlement, agriculture, logging and mining. The Pra Basin's Board is made up of varied stakeholder representation (17 members in total) participating in management process in the Pra Basin include: Metropolitan/Municipal/District Assemblies, Governmental Departments/ Agencies, Community Based Organizations (CBOs), Non-Governmental Organizations (NGOs), and Traditional Authorities. This comprises both state, non-state and supra-state actors. The activities of the Pra Basin Board include, among others, the regulation of the water resources of the basin and the establishment of regulated buffer strips/areas to protect the quality of open water bodies (rivers and lakes) and enhance community livelihood systems. In September 2016, Lake Bosomtwe Catchment Area was declared a biosphere reserve by the Environmental Protection Agency and the Water Resources Commission under the Man and Biosphere Programme of UNESCO.

**Figure 3.4.** depicts the Pra Basin showing Lake Bosomtwe's location in Ghana.



Lake Bosomtwe

**Figure 3. 4: Lake Bosomtwe Catchment**

### **Lake Bosomtwe**

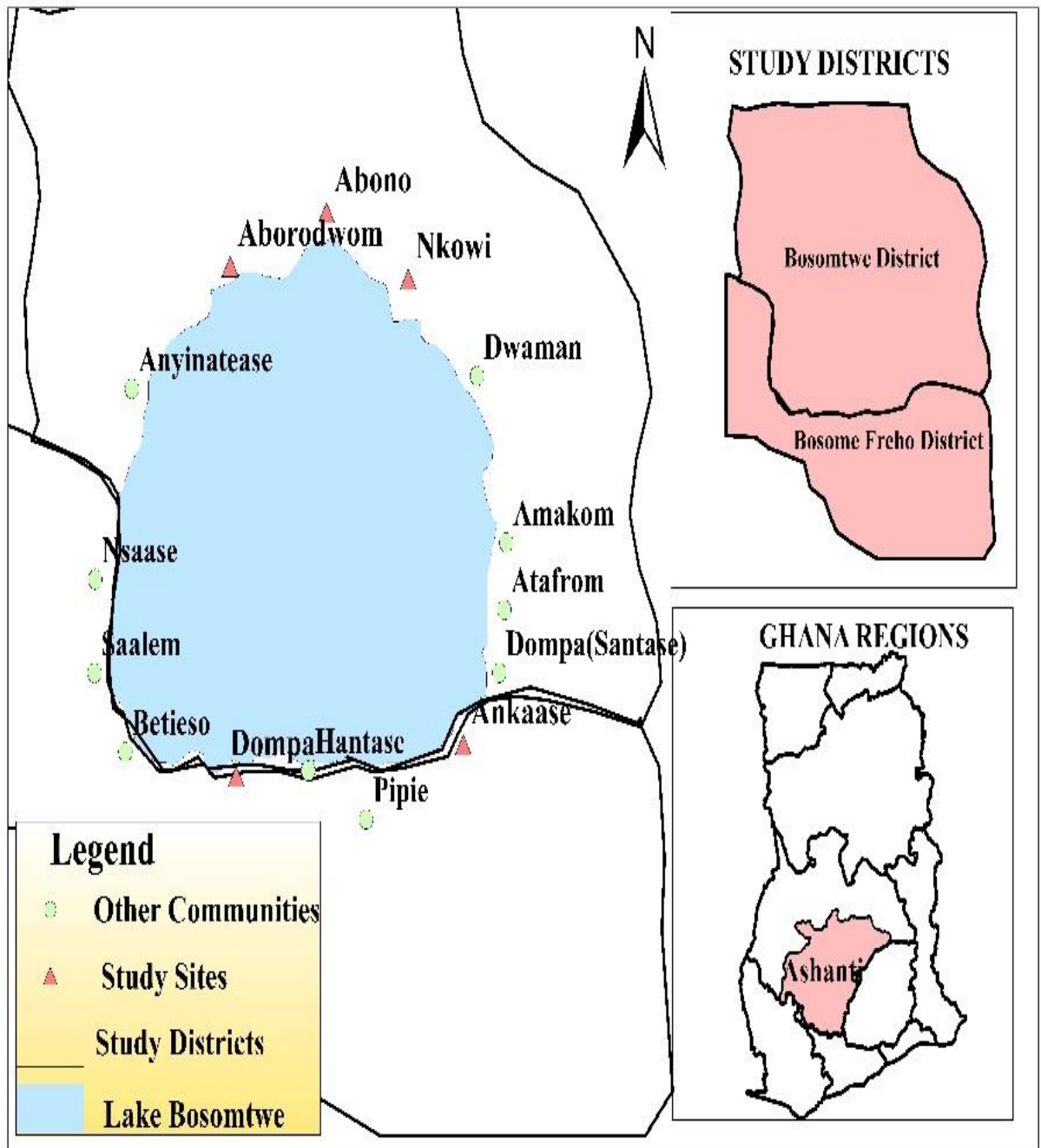
Lake Bosomtwe is a natural lake in the Ashanti Region of Ghana, located about 33 km south-east of Kumasi and north east of the Adansi Mountains. It has a drainage area of about 106 km<sup>2</sup>, and a depth of about 78m. At its widest part it is about 11km in diameter. The nearest towns to the lake area are Ejisu and Abono to the east and linked to Kumasi, Kuntanase and Bekwai.

The state actors in charge of administration in this area are the Bosomtwe and Bosome Freho District Assemblies and the Water Resources Commission through its Pra Basin Board. In

the last five years, conflicts over organized fish farming in the lake had gained much attention from actors in the catchment area and the media. In the year 2015, the WRC declared the lake a no-go area for aquaculture due to its ecological nature (interview with the Executive Secretary of the WRC, 2017). The main water uses and economic activities in the area are farming, fishing (local community level) and tourism/hotel industry.

The justification for the selection of this study site is that it has a strong traditional authority presence in the riparian villages, which lie in the Asante paramountcy. State actors such as the District Assembly and the Pra Basin Board of the WRC, are legally mandated to control the water resources in the area and are located some distance away from the water body.

**Figure 3.5** shows Lake Bosomtwe with the study communities around it, indicated with red triangles.



**Figure 3.5:** Map of Lake Bosomtwe Catchment Area showing the communities in the catchment area marked with red triangle

Source: Geography Department, University of Ghana, 2017

Both study areas are under the control of the Republic of Ghana and the water resources are nationalized under the provisions of the Water Resources Commission Act, (1996) Act 522.

The state controls all water resources in both areas and the land in the Weija Lake Catchment Area. The land in the Lake Bosomtwe Catchment Area is, however, under the control of traditional authorities.

### **3.5 Research Design**

A concurrent mixed method was adopted for this study, with a largely qualitative design supported by a quantitative component. The purpose of such an approach was to allow the researcher make up for whatever weakness a sole method may have and to cross-validate the information collected (Creswell, 2014, Driscoll, Appiah-Yeboah, Salib & Rupert, 2007). The case study approach allows the exploration of a “... real - life, contemporary ... multiple bound systems (cases) over time, through detailed, in depth data collection involving multiple sources of information... and reports a case description and case themes” (Creswell, 2013a, p. 97). The adoption of a multiple case study means that one can better understand the differences and the similarities between the cases. Also, this allows a level of analysis in each situation and across situations (Yin, 2003).

Although Gustafsson (2017) indicates that analysing multiple case studies provides an expansive and detailed work which can be time consuming and costly, the phenomenon under study here cannot be adequately explored with a sole case study. On the other hand, it is believed that “[C]ase study methodology serves to provide a framework for evaluation and analysis of complex issues. It shines a light on the holistic nature...” (Heale and Twycross (2017, p. 1) of an issue under study. This is what this present study attempts to do. It is important to understand that in a case study where both qualitative and quantitative methodologies are adopted care must be taken for proper triangulation (Bryman, 2008). In undertaking in-depth interviews, focus group discussions, validation meeting, field

observations, a survey and triangulating with secondary data (content analysis), a robust set of data is obtained and used (Morse & Niehaus, 2009).

The contents of documents and legal texts were analysed to understand governance processes as applicable in the context of this study (Erlingsson & Brysiewicz, 2017). The process of analysis is iterative because when the trends presented quantitatively require clarification, qualitative data is used to supplement the information collected. In this way both qualitative and quantitative methods of data collection and analysis are used simultaneously to complement each other (Morse & Niehaus, 2009).

### **3.5.1 Respondent Selection**

For the qualitative aspect of this study, respondents were selected based on the appropriateness of their contribution to knowledge creation for this study. At the institutional level, the respondents were purposively selected because of their roles and mandate in the water sector in Ghana. The selection process was based on the functions the respondents perform. These actors were identified from texts, documents and field observations.

## **3.6 Community Selection and Sampling**

### **3.6.1 Weija Lake Community Selection**

There are seventeen (17) communities in the Weija lake catchment area. Of these communities, ten (10) are indigenous and seven are resettled communities. A multi-staged approach was used in selection of communities, taking into consideration the geographical location (north, south, east and west) of the communities. At the first sampling stage, the communities were grouped into locational clusters from which four were randomly selected.

The selected communities are listed in **Table 3.1**. They were Tomefa to the West, Weija to the South, Afuaman to the East and Ayikai Doblo to the North.

**Table 3.1: Community Selection per location – Weija Lake Catchment Area Study Site**

No.	Community Name	District	Geographical Position
1	Tomefa	Ga South	West
2	Weija	Ga South	South
3	Afuaman	Ga West	East
4	Ayikai Doblo	Ga West	North

**Source:** Author field work, 2017

### Sampling

A multi-stage sampling technique was used. In the first instance, in order to obtain the sampling frame for communities in the Weija Lake Catchment Area, households were listed. The screener questionnaire was used and the focus was on the ‘old community’. The ‘old community’ refers to the relatively older settlers in the area and those who are also closer in physical distance to the water body. The justification for this is that, new settlers in the area may not be familiar with the use, management and control of water resources in the area. Also, upon observation, the researcher realized that the ‘old community’ has direct use of the Weija Lake and its tributaries. It was therefore prudent to purposively select the respondents from such sections of the community (Patton, 2002, Creswell, 2013a).

At the second stage of sampling, the total number of households in the residential structures were then listed and recorded. The households were then assigned specialized numbers, usually a combination of the structure number and the household number with WG (Water Governance) as a main identifying mark. The total number of households listed and included in the sampling frame. An Excel computer function was used to select the sample size of 50 and replacement size of 20 (Ahiadeke, 2008; Creswell, 2013b).

The sample size was determined based on the formula proposed by Krejcie and Morgan (1970) for social science research as follows:

$$s = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P (1-P)} \dots\dots\dots(3,1)$$

where

**s** = required sample size.

**X<sup>2</sup>** = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

**N** = the population size.

**P** = the population proportion (assumed to be .50 since this would provide the maximum sample size).

**d** = the degree of accuracy expressed as a proportion (.05).

Using the formula ‘s’ fifty households were selected per community with a total of two hundred households for the Weija Lake Catchment Area study site.

### 3.6.2 Lake Bosomtwe Community Selection

There were a total of twenty-four (24) communities in the Lake Bosomtwe catchment area. The communities were grouped into clusters according to their location on the four cardinal points – north, south, east and west as done for the Weija Lake Catchment Area. For this study site as well, out of twenty-four (24) communities, a total of four communities were selected being those around the periphery of the water body. These are Nkowi (East), Abono (North) Aborodwum (North-East), in the Bosomtwe District Assembly and Ankaase (West) and Dompaa (South) in the Bososome-Freho District Assembly. At the initial stage Aborodwum was selected. However, it had about 7 households and Abono which was in proximity was purposively selected and twinned with Aborodwum. Table 3.2 shows the characteristics of the communities selected.

**Table 3.2: Community Selection – Lake Bosomtwe Catchment Area Study Site**

No.	Community Name	District	Geographical Position
1.1	Abono	Bosomtwe	North
1.2	Aborodwum	Bosomtwe	North-East
2	Nkowi	Bosomtwe	East
3	Ankaase	Bosome Freho	West
4	Dompaa	Bosome Freho	South

**Source:** Author 2017

## **Sampling**

Sampling in the Lake Bosomtwe Catchment Area followed the same format as that done for the Weija communities using the same sampling techniques discussed in section 3.6.1. The major striking characteristics of the communities in the Lake Bosomtwe catchment are smaller than that of the Weija Lake Catchment Area in terms of household numbers and sizes.

### **3.7 Data Collection**

In-depth interviews were conducted with twenty-four (24) state actors - an average of two persons in every institution identified. State actors are – the Water Resources Commission, the Water Research Institute, the Environmental Protection Agency, the Ministry of Chieftaincy Affairs, and the District Assemblies. In each of these organizations, the head of the institution and the officer in charge of water resources planning were interviewed.

For non-state actors, actors identified as carrying out activities in both catchment areas were selected. This was to give a common ground for data collection. An interview guide was developed taking due account of the objectives of the study. Available representatives of these NGOs were interviewed. Community based civil society organizations (CSOs) were also identified in the study areas, contacted and interviewed. In this process, two CSOs were interviewed. Interview guides were customized according to the kind of actor being interviewed. Samples of the interview guides are attached on Appendix One.

After the institutional interviews, community level interviews were conducted. In total, up to three in-depth interviews were conducted with the key informants in each community. Key informants were assembly men or youth leaders in each community. In all, fifteen in-depth interviews were conducted in each study area. The interviews sought the

characteristics of the selected respondents, their water use activities, length of stay in the community and views on actors, their roles, their interactions and views on water governance outcomes. It also sought respondents' knowledge on water governance norms and rules, their interaction with other actors in decision making and implementation and their opinion on effectiveness of governance practices on the side of all actors.

Two Focus Group Discussions (FGDs) were conducted in each community. These were composed of community leaders and older members of the community and a female focus group discussion. This is because these groups were identified as good sources of in-depth knowledge of the social systems and decision-making processes in the communities. The information collected from the in-depth interviews were validated in these focus group discussions.

For the selection of members of the focus group discussions, the eligibility criteria was individuals whose work and livelihoods related to the water resource in question (fisher folk, farmers, commercial actors) and are taking decisions for water management and allocation. The two study sites have existing water management committees, which were engaged in focus group discussions as well. Whenever possible, men and women were to be of equal numbers. However, all efforts were made to include women. For the community members, anyone who had no direct water use relationship for either domestic services or livelihood support was excluded. There were a number of actors in these study sites who had commercial activities in the water catchment area. Some were interviewed because their activities were deemed to have a direct impact in the water resources. Others in this category were, however, not to be included if they did not have a direct link to water management in the sense of having a role in water decision making, allocation or using it for their commercial activities. Also, actors who did not have any interactions or relationships with each selected actor were not interviewed or engaged.

After the qualitative data collection, a survey of a total of four hundred and forty head of household interviews was carried out for the quantitative aspect of this study. At the first stage, a screener questionnaire was administered to selected community members who had a direct water use activity. From the listed number, fifty households were elected with twenty households as replacements in case of unavailability or refusal. Enumeration was carried out over a period of three weeks in each study site. In a few cases, replacements were used due to absence and refusal. Data was collected over the Easter holidays for the Weija communities and for Lake Bosomtwe, the May first public holiday fell within enumeration days. Also, during listing, community members indicated their preferred availability on non-farming days, which were Mondays. Saturdays were funeral days and enumeration had to be structured around these constraints.

When interviewees consented, the interviews were audio recorded. When consents were not given, the researcher resorted to hand-written notes. The quantitative data was captured on CAPI tablets and stored in STATA. In the process of conducting the focus groups discussions, information was elicited on how the individuals in the group broadly saw issues introduced. Consensus points were noted. Divergent views were also noted. In addition to these methods above, observational studies were used. Here, the researcher used observation while in the communities for data collection and observed how community members related to water resources, how they used it and what they did when an issue arose. The information was recorded in writing and in the validation meeting some of this information was clarified. Non-participant observation was carried out over the two years where community engagement was carried out.

### **3.8 Methods of Data Analysis**

In this section, the methods of analysis for each objective, according to how information was gathered and what is required to answer the questions raised.

#### **3.8.1 Role of actors, power and legitimacy in decision making**

The roles of actors and their decision making needs to be considered, taking account of how these actors interact and which actor has power and legitimacy to take and implement decisions. A content analysis of laws, documents and texts were carried out coupled with a thematic analysis of interviews. . To understand how the processes of interaction and engagement of actors was driven by power and influence they possess, a NetWork mapping framework was used. This framework primarily traces power and influence patterns of actors (Schiffer & Waale, 2008). A simple scoring method is applied to show the levels of power and authority of selected actors. In this study, scores ranged from 1 to 5 in ascending order with one reflecting lowest level of power and authority and five showing the highest level of power and authority. Combining the scores given by all participants in the mapping framework, simple averages were used to ascertain the scores of actors. Actors with the highest scores were seen as those having the most power and legitimacy. Results were presented through descriptive statistics and framework of networks of power and authority.

#### **3.8.2 Knowledge, Attitude and Practices.**

To understand how community members engage in water governance, their practices were ascertained as a function of their knowledge and practices. At the first instance, respondents' knowledge levels were described. Data on attitudes were collected on a Likert scale and assessed as it related to their practices. An ordered logit regression model to analyse data collected and the variables are described in Table 3.3.

Chi square analysis was used to ascertain which independent variables significantly affects levels of knowledge, attitudes and practices. Using this approach Banda et al. (2007), the empirical model of the ordered Probit regression analysis to ascertain the knowledge of individuals as the dependent variable as against selected independent variables is specified as:

$$KNO_{inskn} = \beta_0 + \beta_1 Age + \beta_2 Educ_d + \beta_3 1.earnw + \beta_4 1.compr + \beta_5 1.meet + \beta_6 attp + \beta_7 Dist(GAW, GAS, BoD, BF) + \beta_8 1.female + \varepsilon \dots \dots \dots (3,2)$$

Where **KNO<sub>inskn</sub>** is the Probit estimator when the dependent variable is the binary knowledge of actors indicator.

Key dependent variables for the analysis are knowledge of actors, knowledge of customary law and knowledge of state law. Knowledge of actors/institutions and laws was the basis to ascertain the kind of knowledge present and privileged in the communities. Also, the study sought to find out if certain attributes, physical or social, influenced knowledge creation and power.

For analyzing attitudes, willingness to participate in water governance programmes, attitude towards effectiveness of state actors and laws, and attitude towards effectiveness of customary actors and laws were the key variables considered. Using Chi Square analysis, location is used to see how it affects practices of community members. Independent variables considered were socio economic variables such as sex (female as dummy), age and education status (educ), where education refers to community members who have completed secondary school education (Senior High School) or higher. Other independent variables considered are (earnw) community members who make a living from water resources; (compr) presence of community water governance programmes, (meet) attending community meetings and (decision) involvement in decision making. Probit regressions were carried out where the variable were dichotomous.

**Table 3.3: Description of variables for factors affecting Knowledge level of Water Management**

Variable	Description	Measurement	Expected sign	Variable type
<b>Dependent Variable</b>				
Knowledge	Level of Knowledge of laws governing Water Management	Yes and No	NA	Dichotomous
inskn	Knowledge of actors	Yes and No	NA	Dichotomous
knclaw	Knowledge of customary law	Yes and No	NA	Dichotomous
knslaw	Knowledge of state law	Yes and No	NA	Dichotomous
<b>Independent Variables</b>				
Age	Age of Respondent	Years	+	Continuous
Gender	Gender of respondent	1 = Male 0 = Female	+/-	Categorical (Dummy)
Education	Education level(SHS or higher)	1 = Educated 0 = Lower than SHS education	+	Categorical (Dummy)
earnw	community members' who make a living from water resources	1 = Yes 0 = No	+	Dichotomous
compr	presence of community water governance programmes	1 = Yes 0 = No	+	Dichotomous
meet	attending community meetings	1 = Yes 0 = No	+	Dichotomous
decision	involvement in decision making	1 = Yes 0 = No	+	Dichotomous

The empirical model for the Probit regression analysis for attitude is specified as follows using the same set of independent variables:

$$Att = \beta_0 + \beta_1 Age + \beta_2 Educ + \beta_3 1.earnw + \beta_4 1.compr + \beta_5 1.meet + \beta_6 1.attp + \beta_7 Dist(GAW, GAS, BoD, BF) + \beta_8 1.female + \varepsilon \dots\dots\dots(3,3)$$

**Table 3.4: Description of variables for factors affecting Attitude towards Water Management**

Variable	Description	Measurement	Expected sign	Variable type
Dependent Variable (Attitude)	Positive attitude towards Water Management	3 = Agree 2 = Undecided 1 = Disagree	NA	Ordinal
att01c	Willingness to participate in water governance programmes	Yes and No	NA	Dichotomous
att05	Attitude towards effectiveness of state actors and laws	3 = Agree 2 = Undecided 1 = Disagree	NA	Ordinal
att08	Attitude towards effectiveness of customary actors and laws	3 = Agree 2 = Undecided 1 = Disagree	NA	Ordinal

### 3.8.3 Outcomes and implications of water resources governance

Objective three of this study focused on the implications and outcomes of water governance. Here, both qualitative and quantitative data was collected and analysed to understand the practices of community members. The data was, therefore, deductively analysed based on these already identified themes and then the information used in the discussion of findings. Here also, data from observational studies were coded and used as well. For the quantitative aspect of the data, Chi square analysis was used to assess how the dependent variables of practices relate with the location of community member. Descriptive statistics were used to describe political, economic, social and environmental outcomes.

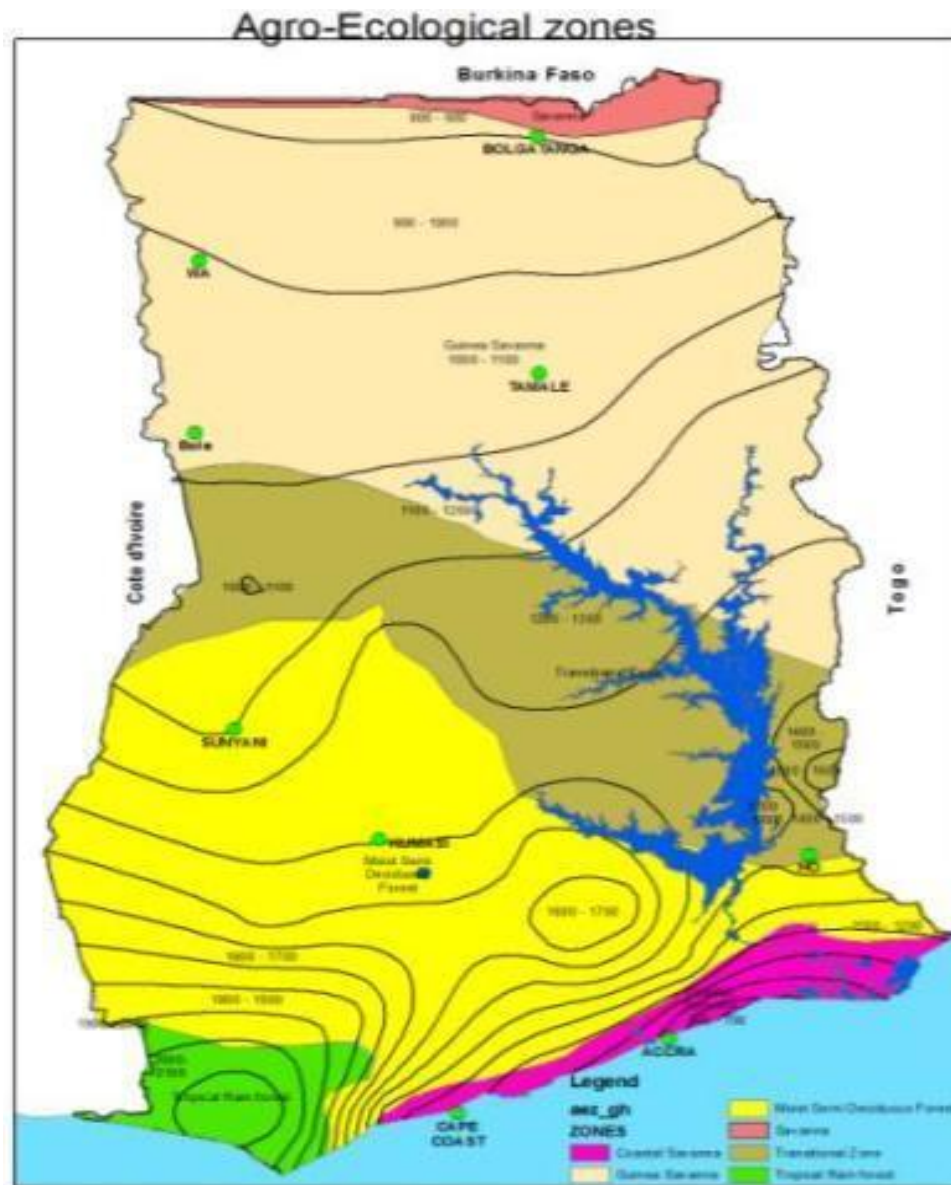
## CHAPTER FOUR

### WATER RESOURCES GOVERNANCE IN GHANA

#### 4.1. Introduction

##### 4.1.1 Water Resources Characteristics

Ghana's total water resources availability is about 53.2 km<sup>3</sup>/yr with an estimated 30.3 km<sup>3</sup>/yr generated internally (Ghana N-IWRM Plan, 2012). The average volume of water is estimated at 283.1 km<sup>3</sup>/yr of available water resources from internal renewable resources. Ghana also gets water resources contributions from transboundary shared water resources in the volume of about 22.9 km<sup>3</sup>/yr (WRC N-IWRM Plan, 2012). There are three main river systems namely the Volta Basin, South-Western Basins and the Coastal Basin systems contributing 70%, 22% and 8%, respectively of the country's water resources (WRC, N-IWRM Plan, 2012). Figure 4.1 represents Ghana's water resources profile in the ecological zone.



**Figure 4.1: Ghana’s Ecological Zone with the River Systems**  
 Source: Ghana N- IWRM Plan 2012

#### 4.2 History of Ghana’s Water Governance

Water resources found in communities were subject to communal ownership and use with community people having free access and use of water points. In the colonial era, common law was introduced and riparian considerations influenced the management of water resources in a way that water and land were seen as one and the definition of land comprised all fixtures and physical properties of the land including water courses (Ollenu, 1962). Therefore, water resources and land were seen as a unitary whole and governance of land

comprised water governance. The first attempts at establishing a separate water management framework using formal management systems was the enactment of the Rivers Ordinance of 1903, Cap 226. This law addressed issues of navigation, dredging and abstraction (collecting of water from the water body) of water for commercial and mining activities. For water resource preservation and protection, the ordinance addressed issues of damage to banks or river beds or any other activities but also had a commercial link in the sense that damage was supposed to be prevented so as not to thwart the navigation of commercial vessels. Before and during the period of validity of this ordinance, navigation by water was an important national developmental tool and most exports to the southern part of Ghana were transported on water. Predictably, this ordinance covered fourteen (14) rivers located mainly in the southern part of Ghana.

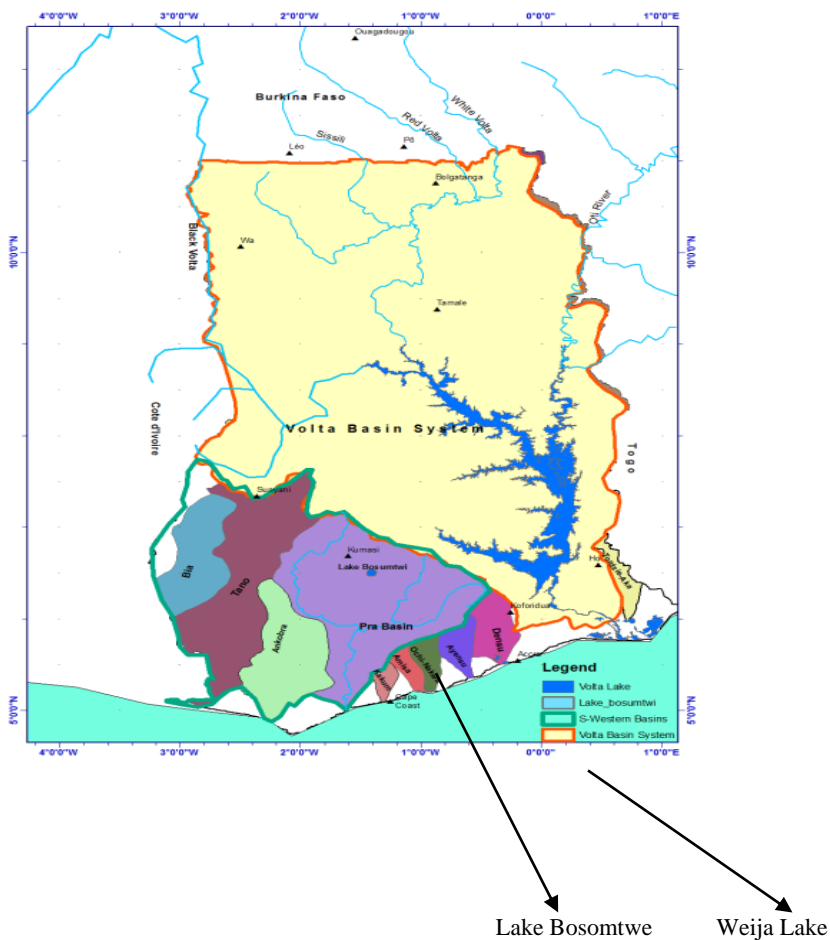
Pre and post -independence, state governmental institutions were established to handle aspects of water resources use for energy production (VRA), agricultural irrigation (GIDA) and water supply (GWCL). There was, however, not a single overarching Ministry or body to manage water resources. This persisted until the 1980s when the management of water resources in Ghana came under review due to the processes of the Structural Adjustment Programme under which the World Bank called for institutional reviews (WARMS, 1994). A Water Resources Management Study was initiated in 1994 to undertake a diagnostic study of Ghana's water sector with the aim of improving water resources governance in Ghana. This event is marked as one of the crucial turning points for water governance in Ghana. The study concluded that Ghana did not have a coordinated sector agency for water resources management, but rather a single purpose water use governance system. The study, therefore, recommended the setting up of a coordinating body for water resources governance. This led to the establishment of the Water Resources Commission in 1996.

### **4.3 Ghana's Water Sector Reforms**

Ghana's water resources management trajectory had been a system of fragmented institutional management until 1996 with the enactment of the Water Resources Commission Act (1996) Act 522. By this Act, all raw water resources were vested in the President of Ghana to be managed for and on behalf of the people. Following this Act, legislative instruments were made to operationalize the Act. These were the Water Use Regulations in 2001, the Drilling License and Groundwater Development Regulations in 2006, and the Dam Safety Regulations in 2016. In 2007, the Ghana National Water Policy was adopted by the cabinet of Ghana. It categorizes water management into raw water resources administration, urban water management, and community water and sanitation management. It recognized the contributions of transboundary water to Ghana's water resources and formally recognized Ghana's international transboundary water management obligations. Subsequent to this, the WRC formally adopted the Integrated Water Resources Management (IWRM) framework. Through this, a basin/catchment approach of raw water administration is adopted. This system of management was preceded by a baseline study, which took into consideration the problems and stress for water use at the user level, considering all water use activities in the basin. In order to ensure good governance, the policy recommends subsidiarity and solidarity principles – the participation and engagement of community members in decision making.

Under the policy, the first river basin administration was established in Ghana in 2004, which is the Densu Basin<sup>1</sup> in the south eastern part of the country. The river takes its source from the Atewa forest and drains into the sea from the Weija Lake at Accra in the capital city of Ghana. The river is categorized as the most stressed (stressed in terms of heavy use and pollution introduced from the cities and towns in the basin), one and the initial baseline studies showed a dire situation. However, subsequent analysis of the water in certain parts of the basin showed improved water quality (WRC Annual Report, 2013) especially for the

Weija Lake (a source of drinking water for parts of the Greater Accra and Central Regions) due to the presence of institutional structures and some level of coordination. However, issues of enforcement of water management regulations are still seen as problems facing the basin. As part of its activities, the basin administration undertakes ecological monitoring of the basin twice a year (WRC Annual Report. 2012). However, what is lacking is the systemized scientific study of the basin over space to give a full picture of progress of land and water use in the basin to fully inform planning. Subsequently, six river basins structures have been established out of sixteen river basins in the country. These are the White Volta Basin (2006), Ankobra River Basin (2008), Pra River Basin (2010), Tano River Basin (2012) and the Black Volta Basin (2016). **Figure 4.2.** is a map showing Ghana's hydrological river basins.



**Figure 4.2:** Hydrological Map of Ghana, showing River Basins and Study Sites  
**Source:** N- IWRM Plan-WRC, 2012 adapted by author

The latest formed basin is for the Black Volta, which was established in 2016. Ghana seems to be administering a mixed method of top-down and bottom-up – where governmental policies have been put in place but, at the same time, basin-wide approaches to water management are being practiced. The age and length of existence of these basin establishments do not allow for proper analysis of how the management structures are feeding into the overall development strategies for Ghana. Lessons on water governance from global best practices such as the importance of research and needs assessment are relevant. Also, the iterative processes of review of water management policies and plans to reflect present needs of water users (Lenton & Muller, 2012) is necessary when looking at water governance concerns.

The volumes and portions of Ghana's water resources (over 70-80%), which are part of an international water course (GNWP, 2006) make it very important that Ghana's participation in international water management is given priority. Although the GNWP (2006) affirms the government's commitment to participate in transboundary water management, Ghana's political commitment has not been forthwith as it took over five years for some of the country's financial commitment to the Volta Basin Authority to be settled (8.6% of total outstanding debt) while the other countries, like Burkina Faso, had settled up to 97.8% (VBA Biennial Report, 2012-13). An examination of the current water governance structures on Ghana gives a global picture of Ghana's water resources governance framework.

#### **4.4. Current Water Resources Governance Framework**

The main framework for water governance in Ghana is the Ghana Water policy, which has adopted the Integrated Water Resources Management approach to regulate three main areas: water resources (Water Resources Commission - WRC), urban water (Ghana Water

Company Limited- GWCL) and rural water (Community Water and Sanitation Agency - CWSA). For raw water resources, the Water Resources Commission Act. Act 522, 1996 has nationalized water resources (Section 12 of Act 522) and created the legal framework for water governance in Ghana. Under this Act, the commission is charged with the mandate to manage surface and ground water resources and coordinate all policies in relation to it. The WRC is in charge of all surface and ground water resources. The definition of water resources excludes stagnant waters and wetlands (Section 35). Under this framework, the Commission has brought together a broad range of actors made up of regulators, (Environmental Protection Agency, Forestry Commission, Minerals Commission), major water users (Volta River Authority, GWCL, Ghana Irrigation Development Authority) scientific research institutions, (Ghana Metrological Agency, Centre for Scientific and Industrial Research) traditional authorities and civil society. This framework has created a network of actors who operate at both the national and local levels.

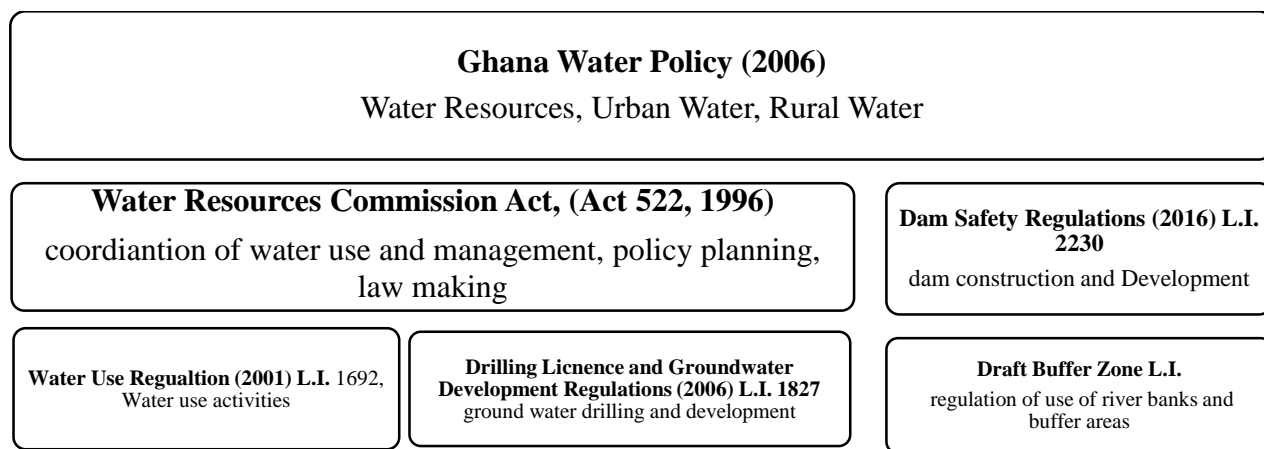
Other laws are the Water Use Regulations L.I. 1692 (2001), which regulates water use activities and sets out processes for acquiring water rights. Activities that require the acquisition of water rights through a permitting system are domestic, industrial, mining, fish farming, irrigation, hydropower, recreational and underwater wood harvesting. Domestic water use is prioritized and subsistence water use for agriculture does not require obtaining a water right. Therefore, most common water use practices fall into the common pool resource use framework, where there is supposed to be free unrestricted access to the resources. Regulation occurs for uses that fall in commercial categories or high volumes.

Another legal instrument is the Drilling Licence and Groundwater Development Regulations L.I. 1827 (2006), which regulates the development and use of groundwater resources in Ghana. Under this L.I., companies and individuals who drill, develop and use

ground water resources are licenced and directed on the use of groundwater. In 2016, the Dam Safety Regulations L.I. 2230, (2016) were passed to regulate the design, construction and maintenance of dams. This law puts in place systems for emergency preparedness and control.

In 2012, the WRC, together with the Ministry of Water Resources Works and Housing, proposed a Buffer Zone Policy to provide policy guidance on acceptable uses of land along and around water bodies within prescribed distances. As part of the implementation strategies the policy recommends community and land owners engagement to ensure their acceptance of the state land use control. A draft Buffer Zone Legislative Instrument is under preparation.

Figure 4.3. shows the legal framework for water resources governance in Ghana.



**Figure 4.3: Current Water Resources Governance Framework**

Source: Author, 2019

#### 4.5. Integrated Water Resources Management in Ghana Administration

Ghana sought to implement the Water Sector Strategic Plan (WSSP), which was an output of the World Summit on Sustainable Development in Johannesburg in 2002. Countries were called upon to come out with water sector management plans that target water management at basin level in an integrated manner. In the year 2000, the Global Water Partnership

defined Integrated Water Resources Management (IWRM) as a process of water, land and other related resource management in an integrated and holistic manner. In an effort to achieve this aim, basin offices have been established to manage water at the local level (Ghana N-IWRM, 2012). There are six basin administrations at present. These are the Densu River Basin (2004–Koforidua), White Volta Basin (2006 – Bolgatanga), Ankobra River Basin (2008 – Tarkwa), Pra River Basin (2010 – Kumasi), Tano River Basin (2012 – Sunyani), Dayi River Basin (2014 – Ho) and Black Volta River Basin (2016 – Wa).

#### **4.6 Customary Water Governance Frameworks in Ghana**

##### **4.6.1. Traditional Authorities - Customary Law Water Governance Systems**

Sarpong (2018) had identified the existence of customary law water governance systems and intimated that these systems had not been considered in the formal state water governance framework. Opoku-Agyemang (2005) had explained that customary laws for water governance is community based with some common trends such as the protection and setting reserves of sources of water bodies across Ghana. These areas are deemed to be sacred groves and entry and uses are restricted through the use of taboos and other forms of prohibitions with spiritual connotations. He indicates that this is a common practice across many local communities in Ghana. Another form of customary law water governance system is the concept of ‘off days’ or closed seasons where community members are not allowed to enter a water body or its environs to engage in any water use activities on specific days.

In the context of this study, traditional authority regulation of water bodies has been categorized to be carried out in two main ways. Firstly, regulation in the form of duties that are directly carried out by the traditional rulers and their spiritual team and secondly, rules and norms in the community that have evolved over the years and orders societal behaviour.

The first type, substantially, comprises the regulation of physical access to the water and spiritual duties which include, 'cleansing' and 'abundance'. The second type of regulation often restricts behaviours such as restriction of certain activities in the water body and its surroundings.

#### **4.6.2. Regulation by Traditional Rulers**

Traditional authorities are called upon to grant permission and access to water users to physically enter and use the water body. This is usually for fishing practices and abstraction of the water for other multiple commercial uses. Access fees could be in cash or in kind, that is, a portion of fish caught. This means that access fees can be paid before entry into the water or after benefits have been obtained. Spiritual duties were discovered to be of two kinds. Firstly, it encompasses pouring libation during festivals to appease the gods and increase fish yields. These sacrifices are carried out at the end of a closed season. The second kind of spiritual duty is the pouring of libation to 'cleanse' the water when someone drowns and dies in the water body. These duties are carried out with either the fetish priests or designated spiritual heads in the community such as the 'Wolumo' in the Ga traditional area in the Greater Accra Region where the Weija Lake is located.

#### **4.6.3. Norms for Community Behaviour**

The other kind of customary law regulation are norms that have evolved over time to control the water use behaviours of community members and is commonly and universally accepted by all members of the society. These norms range from prohibitions on which days to abstain from going to the water body and certain activities such as washing soot covered cooking pots in the water. These behavioural controls tend to have gender dynamics with certain restrictions affecting only women. Common to both study areas was the restriction of females swimming, bathing or stepping in the water when menstruating. In the Lake

Bosomtwe Catchment Area, women are not allowed to bath in the lake at all. These rules are not written and yet known by all community members. Community members self-regulate and there is no formalized ‘policing’ system established. Breaches of these norms are reported to the traditional authorities for action.

#### **4.6.4. Implementation and Enforcement**

Unlike state laws, where specific sanctions are attached to statutory obligations for the customary norms, there were no specific fines. In cases where fines were applied, these were left to the discretion of the traditional authorities. In the same way, for the rules of access, the fees and charges to be paid are fixed and are also left to the discretion of the traditional authorities. Community members felt obliged to obey them because all members of society accepted these norms. Non-compliance attracted fines which may or may not be honoured by community members. Refusal and failure to comply with fines is deemed to be more recent as community members believe that there is a lack of respect of customary laws, which seems to be a norm of more recent evolution.

#### **4.7. Water Governance Challenges in Ghana**

The effective governance of water resources has been seen globally as an important trigger for the fulfilment of the development aspirations of many nations. Problems associated with water have been seen not as issues of scarcity but one of poor management of the resource. The assertion being made is that water is available, but not accessible for human use in some regions of the world because of how water has been managed (Lenton & Muller, 2009). The dynamism and unpredictability of water resources require that flexible and adaptive approaches to their management be adopted. Yet, the scales at which water flows and is used “often cut across political and administrative boundaries, economic agglomerations and social and cultural groupings, complicating decision making and posing significant

governance challenges” (Woodhouse & Muller, 2017, p. 228). Effective water resources management or water governance must consider the political, social, economic and administrative systems and delivery and supply issues in equal parts (GWP, 2002), especially, because water decisions cannot be separated from social and economic practice (Woodhouse & Muller, 2017). Lautze, Giordano and Sanford (2011) are of the view that water resources management embodies the creation and use of structural and non-structural measures to control natural and man-made water courses and systems for the beneficial use of the human and for satisfying environmental needs. To Grigg (1996), the study, planning and monitoring of techniques for water use should be one of the key foci of water resources governance. These points draw attention to water resources management practices which ultimately have an objective to develop society and take care of the developmental needs of countries for the achievement of acceptable livelihoods for its people. This conceptualization of water governance is narrow and does not take into consideration the fact that the source from which the water is obtained is often enmeshed in a constellation of actors who are operating in a plural system. For water to be available in adequate quality and quantities for supply for livelihoods, the decision making around the raw water resources should be given keen attention. This broadened concept is captured by the Integrated Water Resources Management (IWRM) framework, which according to the Global Water Partnership (GWP, 2000) is the process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems. Basically, the combination of land and water management is proposed to create an effective water governance framework. In this mix, there should be social equity, economic efficiency and environmental sustainability (the three Es).

The IWRM process must work towards promoting the coordinated development and management of water, land and related resources to achieve a maximization of economic

and social welfare in an equitable manner while not compromising vital ecosystems. Governance challenges arise when governments focus on infrastructural needs for water use, ‘hard management’ and not putting much focus on governance ‘soft management’ aspects to create a coherent whole. The lack of a holistic planning of water governance, especially, where it is done within multiple legal regimes means a failure to integrate social equity concerns, economic efficiency and environmental sustainability considerations of state.

Ghana faces water governance challenges of full scale and complete coverage for administration because, of the sixteen river basins within the country, only seven (7) have an administrative system in place to date. As the WRC seeks to implement IWRM, the coordination of governance with all stakeholders remains problematic. Further, the National IWRM Plan and Basin based IWRM Plans points to capacity constraints and lack of effective institutional coordination as one of the key challenges in the water resources governance sector.

#### **4.8. Conclusion**

This chapter discussed the water governance framework in Ghana and situated the interplay of the various actors that play roles within the water sector. It has chronicled the historical antecedents of water governance in Ghana and how the water resources legal regime was established after a call for water sector reforms. This chapter then espouses the laws, regulations and policies in the water sector in Ghana.

## CHAPTER FIVE

### DECISION MAKING OF ACTORS, POWER, LEGITIMACY AND NETWORKS

#### 5.1. Introduction

The presence of multiple social fields and the different legal systems that govern the activities of actors within these social fields create a plural legal system. The decision-making process of the varied actors found in these fields is driven by the types and levels of power, authority and influence they possess. Legitimacy is achieved when there is legality (sound legal systems), effectiveness of procedures for the fair distribution of resources (Blount-Hill, 2017). Effectiveness is achieved by decision makers when they have legal force, follow procedures and are able to fairly distribute benefits to community members. Due to the fact that multiple actors are presented for water governance in Ghana, this chapter, therefore, assesses the roles of actors, their claim to power and their involvement in the decision-making framework.

A plural legal system often shows a mix of actors with different roles which are not at the same level. Some of these roles may be either of a dominant or subservient nature (Merry, 1988, 1991). In any plural legal framework, legal systems and norms are not homogenous nor equal and may be in competition or complementary depending on the societal sphere under consideration. Different as these actors are, the fora from which they draw their legitimacy and their ability to act are diverse and different based on how society has been structured and ordered (Mitchell, 1988). The underlying societal power structure may be a determining factor. Historical antecedents, the influence of colonialism or international influences sometimes colour power dynamics and the actors' legitimacies. Power dynamics and contestations in the decision-making process arise and create a system that engenders conflicts at times. From a review of relevant legal texts, documents and individual

interviews, this study has surmised the underlying structure that gives these three categories of actors their legitimacy and power. These have been put into three categories.

The categories of actors are state, non-state and supra-state actors. State actors obtain right to act and operate from Acts of Parliament and regulations. Non-state actors draw their authority to act from norms that have evolved in society and local communities. Acceptance by members of the community is a basic determinant of legitimacy. Supra-state actors obtain their legitimacies from a range of sources depending on where they operate. The state may grant them rights to act, while acceptance by community members solidifies their legitimacies. For example, donor projects and programmes are one of the principal routes to act on engagement and acquisition of rights. The roles of actors are driven by the power and legitimacy they possess.

## **5.2. Actors' Power, Authority and Legitimacy**

Power and authority is commonly defined in the social sciences and politics, as the capacity or ability of an individual to influence the actions, beliefs, or conduct (behaviour) of others. For an individual to have *authority*, such an ability must be backed by legitimacy that can be obtained in a number of ways. One of the prominent power theorists Foucault surmised that while an individual may have power and authority over his subjects this power can only be fully operative when the subjects of the power remain ignorant of their ability to oppose the power. He theorized that because the full extent of the power is undetected, it remains elusive. This concept of power remains fluid and for an analysis of power and control this can prove problematic.

A three-dimensional model is proposed by Clegg (ref) with his "circuits of power" theory. Here he sees power at three distinct but interacting levels, episodic, dispositional, and

facilitative operating at the macro and micro levels. The *episodic circuit* is the micro level and is seen in the form of irregular exercise of power. Here, power brokers look at issues that bring conflicts from day to day interactions and communication. At the macro level, *dispositional circuit* is made up of practice and socially constructed meanings that inform member relations and legitimate authority while the *facilitative circuit* drives the process of network mechanisms and enforcement and punishment. To Clegg, these three power circuits although independent have a common interface that drives empowerment or disempowerment.

On the other hand, Gene Sharp, posits that power depends ultimately on where it is drawn from. His key theme is that to obtain power there must be an external force. To him the state obtains its power from the subjects and such power remains legitimate only as long as the subjects allow it to be so. Here he resonates with Foucault. Björn Kraus draws on Max Weber's definition of power, and sees power in two ways "instructive power" and "destructive power". Power is instructive if it determines action and destructive if it controls action to the detriment of the opportunities of the individual. This view of power dynamics brings on board the ability to look at power outside epistemological discourses about power theories, to more nuanced look at positionality in the power debates. This individualizes power and places it at the micro level.

This study leans towards an assessment of power as a force or source that drives the action of macro level actors in decision making processes. In this sense while having considered the discourse of power above, Weber's typology of power and legitimacy is considered as the more appropriate model for analysis as it allows a retro-fitting of the actors found in the study area into the three tiered power, authority and legitimacy model.

Weber's (1978) categorization of power and authority is applied to analyse actor's power. 'Power' connotes the ability to impose one's will upon and take decisions that affects others in the face of resistance while 'authority' reflects power to act based on legitimacy. Legitimacy is obtained through three main ways. State law, traditional customs accepted over time or a personal charisma. These allow an actor to impose his will in an accepted manner. Actors whose legitimacy is based on formal laws have rational legal authority. Where legitimacy and authority have evolved through presence in a community over time subject to general acceptance to lead and prescribe norms of behaviour, 'traditional authority' is established. In some instances, an actor has, through their own initiative and persuasive power, obtained the power to act - that is charismatic authority.

In this study, where the roles of actors are based on legal rational legitimacy, they are referred to as 'formal' state actors. Actors who have obtained their rights to act in the community over time and through practice are referred to as informal (or non-state) actors. These actors are traditional authorities or community groups that have operated in the community over time and are accepted by community members. The third category of actors identified in this study are those who have not directly derived authority from state laws nor gained traditional authority through their lengthy stay in the communities; rather, they may have gained a right to act in the community through their collaboration with the state and non-state actors. Their activities in the communities give them acceptance putting into charismatic authority. However, it can be concluded that their sources of legitimacy are a hybrid of the legal rational, traditional and charismatic. This is because they have drawn authority from all three types of power/legitimacy discussed above. These actors are classified as supra-state actors. They emerge from the international scene and operate at both the national and local levels through projects and programmes. The state actors are categorized as endogenous actors because they are directly involved in the governance

process with direct decision-making power and control over the management of resources. Supra-state actors are shadow exogenous actors because they have direct decision-making powers or control, but have influence, according to Khan (2013). Non-state actors are exogenous actors with power and control at the local level unlike state actors who operate at the national and local levels.

### **5.2.1 Exercise of Power, Authority and Legitimacy**

State actors exercise direct decision-making power and have the right to exert power and authority through laws, regulations or norms in the community. The decisions made are implemented and enforced with punitive sanctions and penal codes. Non-state actors apply moral codes that lead to behavioural controls. The enforcement powers of the state actors are in the form of imprisonment and fines prescribed through law, while for the non-state actors, social repercussions such as public humiliation or fines may apply. This study discovered that in the case of the Weija Lake Catchment Area (WLCA), the state exercised its authority through military force in the form of military posts to control human activities. Community members identify the presence of the state actor as a body present to control community behaviour. The following summarizes views of community members on the presence and mandates of State actors in the WLCA:

*“Due to excessive flouting of the laws, especially near the Weija dam and its operation areas, the authorities resorted to military interventions.... the presence of the military helps the water...”* (Community member, Weija community, WLCA, April, 2017)

A link is established between force and assistance in governance. The legal rational authority of the state is duly recognized. There is no military presence in the Lake Bosomtwe Catchment Area. Another form of legal rational authority discovered were the elected assembly members who were found in each of the communities in both the LBCA and the WLCA. These assembly members represented the decentralized local government body, the

District Assembly (DA) and relayed the concerns and issues arising in the community on all issues related to the district assembly. By law, the Water Resources Commission (WRC), Environmental Protection Agency (EPA), and the district assemblies are mandated to govern the environment and water use activities in these two study areas.

State actors with sole water governance mandates obtained through nationalization are the Densu River Basin Board and the Pra River Basin Board. They manage the water use activities in the study sites under the direction of Integrated Water Resources Management Plans. These basin boards are not physically present in the study areas over 20-30 kilometres from the water bodies. There is the Ga South Municipal Assembly located in the Weija community about three kilometres from the lake. For the Lake Bosomtwe Catchment Area (LBCA), the closest state office (Bosomtwe District Assembly) is at Kuntense, a distance of over 5 kilometres from the water body. State actors are therefore not readily available or accessible to community members. Centres for decision making are at arms-length.

Non-state actors with traditional authority and control in the study communities were discovered to be physically present in every study community. Traditional authority governance structures for each of the study communities consisted of chiefs, sub-chiefs, spiritual leaders (Wolumo, WLCA and fetish priests or priestesses). A palace and shrine were found in each community. The traditional authorities have historically recognized mandates to rule and manage activities based on the discovery of the living space or founding of the communities. In the LBCA, the traditional rulers and some families controlled and owned land. The lake was, however, under the spiritual control of the Asamanehene. In the WLCA, the land is under state control under E.I. 130, (1977). Traditional authorities, although not having formal rights to the land, are seen as the

overlords of the land and have spiritual control over the water. These non-state actors have moral and spiritual roles in the communities.

Although in the WLCA, traditional authorities and community members identified state actors as the principal actors mandated to govern water resources, some sentiments were raised on the basis of legitimacy. Traditional rulers did not fully accept the state presence in the form of military personnel. This was attributed to the fact that traditionally acceptable processes for approval for entry into the community was not followed by the state. The traditional authorities were of the opinion that state's application of statutory control of the land translated to muzzling of the traditional authorities who are the original owners of the land. Quite often, lack of consultation by the state was intimated. In the traditional authorities FGD in the Weija community, this point was made repeatedly and summed up as follows:

*“...they brought this military or security here without informing us, and I had to address that issue to them before they came here to render apology... You see, ... as tradition demands I (had to) send errand people to them (GWCL) to inform them that we heard they have brought this thing (military forces) without our consent and knowledge ... is that proper? So, they came here begging. Before they came and introduced those they brought in here. So, as I told you, they have just side-lined us totally. Because at the end of it all, what they know is that government executive instrument is on it so our hands are tied so we can't do anything.” (FGD, Weija Community WLCA, May 2017)*

Although authority and control are recognized, the legitimacy of such a claim is doubted. Non-state actors, although present in the communities and having moral and spiritual power, do not have any statutory powers over water or land resources. They are not legally mandated to implement or enforce any rules or norms. Their powers and authority are only of a social/cultural/moral nature without penal options. Under the Chieftaincy Act, traditional authorities are not empowered by law to carry out penal sanctions. Non-state actors have limited powers over water resources and play roles assigned by the state as seen

in the Water Resources Commission structure. Under state law, roles and powers over water and over land are separated. However, at the community level, there is recognition of some authority and control of these non-state actors even if it is not backed by statutory law. This creates a complex governance structure for water and ultimately impacts outcomes.

The Lake Bosomtwe Catchment Area presented a different water governance dynamic. The state has nationalized the water resource and it is under the control of the WRC. The District Assemblies (DAs) carry out tourism activities in some of the communities. For non-state actors, traditional authorities are present in all communities. A community-based group known as the Community Resources Management Association (CREMA) is charged with community level water resources governance. This association was formed as the result of a state and supra state actors' collaboration. The United Nations Educational Scientific and Cultural Organization (UNESCO), the supra-state actor, collaborated with primarily the EPA and, to some extent, the WRC to create this governance framework. Community members, however, link this activity to UNESCO. Through this project, a pyramid governance structure is formed with community representation of a local CREMA whose executive officers are scaled up into a general lake CREMA. Community members elected the CREMA members and granted them democratic power and authority. The legitimacy of this group is, however, conflicted as not all community members accept the right of this group to make, implement and enforce laws. The CREMA project has introduced laws commonly referred to at the community level as 'UNESCO customary laws' to govern water use behaviours in the community members. In most discourse, the 'customary' is dropped and it is referred to as 'UNESCO laws'. Community members in the LBCA often differentiated between already existing customary laws and the newer CREMA/UNESCO laws. The effectiveness of the latter was often in question and it is doubtful if the legal-norm transformations have been successful.

These ‘UNESCO laws’ can be seen as an attempt to ‘advance’ previous customary law in the communities, which were deemed to be ineffective for realising state water governance objectives. State laws themselves were not being applied and the ‘advanced’ customary laws were to fill this gap. Interviews with EPA and WRC indicated that the basis for these newer laws were scientific research which had shown pollution levels were high and the water was receding. This external assessment and intervention on local law is an attribute of legal pluralism identified by Merry (1991) that customary law is often influenced by state law and no pristine customary law. However, such influence often tends to be subtle making its acceptance more feasible. The UNESCO laws are an ‘attempted amendment’ of customary law to reflect ‘modern realities’ according to state actors. Local knowledge and beliefs were not privilege and scientific research was deemed enough. The implementation and enforcement of these amended laws is, however, left in the realm of customary laws. It is not aligned with state procedures to allow its enforcement in the court system. Monetary fines could not be enforced by CREMA who indicated their last resort is to report to the police, which means taking them back into state enforcement mechanisms. This legitimacy of this community-based organization (CSO) governance system that seeks to be a hybrid of non-state and state systems is called into question. The supra-state actors are indirectly engaged in governance by directing the creation of governance structures and laws. In doing so, the supra state actors are mimicking state authority and their kind of legitimacy can be termed ‘pseudo-legal rational’.

In the Weija Lake Catchment Area, the researcher learnt of the existence of a CSO, the Weija Lake Protection Association (WLPA). WLPA was established in 1996 as a community representation framework for socio-political governance of the lake for conservation purposes. WLPA is made up of representatives from all seventeen communities around the Weija Lake and has an executive body. This actor has not evolved

an elaborated structure, nor has it evolved any rules for governance apart from its constitution with state objectives. They had undertaken some tree planting and education activities. WLPA, however, does not have well-established structures and clear state backing. Neither is the association sponsored by any supra-state actor. The nature of the water body being a water supply dam seems to influence attention from international actors and NGOs. The executive members of this group intimated that attempts to control behaviour of water users had resulted in police action against them leading to abandonment of their operations. Lack of funding was a major factor for non-action and in the last five years, no activities had been carried out.

The researcher chanced upon ARocha Ghana (the local branch of an international NGO), a supra-state actor, operating in both the LBCA and the WLCA, although their activities were more vibrant in the LBCA. There they provided livelihood support activities for community members. This actor entered the communities on their own accord and provided livelihood support and environmental services. They could be termed as exogenous shadow actors as compared to the endogenous actors (state) with direct authority to act (Khan, 2013). These endogenous actors provide governance support and due to their activities have obtained charismatic legitimacy. They are widely accepted, operate and remain in these communities because their work brings benefits to the community members. They do not maintain a physical presence on each community, but have focal groups through which they operate.

The roles of the three groups of actors can be seen as strong or weak depending on the kind of authority they have, their legitimacy and the roles they play. State actors have legal rational legitimacy and operate through laws. Although not physically present in the communities, state actors have law backing their actions. However, in spite of the law, the acceptance of state actors seems to be undermined by their lack of presence in the

community. Non-state actors are usually accepted by community members. Although there are no written rules on the leadership of these non-state actors, they have traditional legitimacy. In all study communities, traditional authorities were found physically present and carrying out roles for community ordering. However, control and authority seem to depend on whether or not mandates are on land or on water. This concern is duly discussed in the next section. Supra-state actors are present and active in study communities obtaining the right and legitimacy to be in the communities through the benefits they provide to community members.

State actor presence in the WLCA is strong, but not so in the LBCA. In both study areas, non-state actors have a presence and legitimacy in the area of cultural and moral powers over water. However, there are some controls over land. In the LBCA, the non-state actor's power over land is formal unlike in the WLCA where land is formally controlled by the state actor. It is informal as the land is under state control. However, even in that situation, traditional authorities are seen as overlords of the land and where other actors are introduced into the governance setting their involvement needs to be sought. Non-state actors in the LBCA seem to have more powers and control over their territories than those in the WLCA. The former has statutory control over land and spiritual control over water. Those in the WLCA have just spiritual control over water. Through a network maps approach, the strengths, power and influence of actors and their patterns of influence are established in section 5.3.

Based on Weber's typology of power, authority and legitimacy, and the existing patterns of power and authority of identified actors, actors are categorised based on their roles, and types of legitimacy in Table 5.1.

**Table 5.1: Actors, roles and forms of legitimacy**

	<b>Actors</b>	<b>Roles</b>	<b>Legitimacy</b>
1.	<b>State</b> Water Resources Commission, Environmental Protection Agency, District Assembly, Ministry of Agriculture, Forestry Commission, Ghana Water Company Limited,  Ghana Tourist Board	Law making, implementation Enforcement	Legal Rational
2.	<b>Non-state</b> Traditional Authorities,	Moral and Spiritual Authority	Traditional
3.	<b>Supra-State</b> UNESCO, CREMA NGOs, CSOs	Establishment of politico-administrative structures, ‘law making (UNESCO laws)’ Conservation, advocacy, Livelihood support	Charismatic  Pseudo-legal rational

Source: Author, 2018

## **5.2.2 Water Users and Water Decision Makers - Roles and Mandates Water vrs.**

### **Land**

Mandates and roles give actors power, authority and control over water and/or over land. Since water use activities straddle the spaces between water and land, ownership, control and use issues tend to merge. It was found that land owning and use activities influence water governance practices in the study communities. Decisions made on land use influences water use activities. Some water uses of recent emergence (in the last 10 years) has pointed to this. Most of these tend to fall outside state water governance actors’ control

and regulation and thrive in the informal water governance space (van Koppen, 2010). The activities of emerging actors such as estate development and tourism and their interactions with non-state decision making actors tend to happen in the 'informal' spaces. This has implications for or shape the state's expected water governance outcomes.

Emerging actors are seen to be negotiating between decision making actors and tend to align with actors from which they gain the most benefit. These actors are exogenous; they act in such a way that they influence endogenous actors. However, it is not a critical event (Khan, 2013) that triggers their decision to align with decision makers, but certain critical circumstances. The critical circumstance identified by this study is the absence of regulation and benefits. As Wassermann (1990) indicated, human rationality is driven by individual gain. These emerging actors are an enduring presence making their identification and roles important as they influence governance trends and outcomes. The presence of multiple actors with differing autonomous authority to take decisions serves their interest and cannot be ignored.

In the WLCA, emerging actors comprised estate developers and water tanker operators who draw water for sale. That of the LBCA comprise tourist site operators and holiday event planners. These actors obtain the right to use the water and gain access to the land from non-state actors such as the traditional authorities or private land owners. Tourist permits and business operating licences are obtained from the District Assemblies. These permits do not have environmental conditions nor do they make the acquisition of environmental permits a compulsory requirement. Therefore, although under general environmental policy considerations these activities should be carried out subject to the acquisition of environmental permits from the EPA and the WRC, none of the actors found in these areas could produce such a permit.

In essence, the emerging actors obtain the right to act and carry out their activities on both the land and water by straddling spaces controlled by different actors and acquire the legitimacy from two or more groups of actors who operate in different arenas. This study discovered that these emerging actors select which actor they resort to obtain permissions from. Where the process of acquiring permits or licences from state actors is bureaucratic, such a system is ignored. It was commonly observed that state actors in the study sites take no steps to direct the actions of these commercial actors. Interviews with emerging actors showed they defer to the traditional authorities first and then to the DAs to obtain rights to operate (Community members, WLCA Weija Community, June, 2017). Their activities are not captured in the state's plans such as the Integrated Water Resources Plan (2012) of the WRC. In the WRC planning frame and the database on water users, only those registered are considered in water allocation and future uses planning. The activities of these emergent actors which were neither numerous nor extensive previously are now expanding with many new land use practices covering large areas around the water bodies in both study sites (FGD, Community members, Weija community, WLCA, April, 2017). These power brokers, who act to entrench power, control and authority of mainly non-state actors have escaped the scope of planning.

Water and land use and the point in time when they merge in decision making and action are critical circumstances for water governance. Table 5.2 shows the roles of actors and the areas of mandate to give clarity on the points of intersection of actor actions. These intersections are pointed out in section 5.3.

**Table 5.2: Actors space of operation and type of Legitimacy**

<b>Actor</b>	<b>Space of operation</b>	<b>Source of Legitimacy</b>
State (Environmental Protection Agency, District Assembly, Ministry of Agriculture, Water Resources Commission, Water Research Inst., Ghana Water Comp. Ltd.)	Regulation over land  Regulation over water	Legal rational
Traditional Authority	Regulation over land (Weija/Bosomtwe) Regulation over water (Weija/Bosomtwe)	Traditional Traditional
Supra-state (UNESCO)	Regulation over water	Charismatic/  pseudo legal rational

**Source: Author 2018**

### **5.3. Network of Actors**

At both the national and local levels, the relationships between actors and how they engage in the decision-making platform is primarily based on their legitimacy and power. Relationships are, therefore, analysed at both the national and local levels. State, non-state and supra state actors are linked depending on how they relate to one another based on their role and mandates in practice. Relationships are seen as strong or weak depending on the power and capacity to engage with another actor. Relationship is based on a legal rational power and is a strong link signified in a bold red line. Relationships shaped by a pseudo-legal rational power are weaker ones and are signified with broken thick black lines. In some instances, the relationship between actors is based on traditional legitimacy with informal links and the lines are weaker broken blue lines.

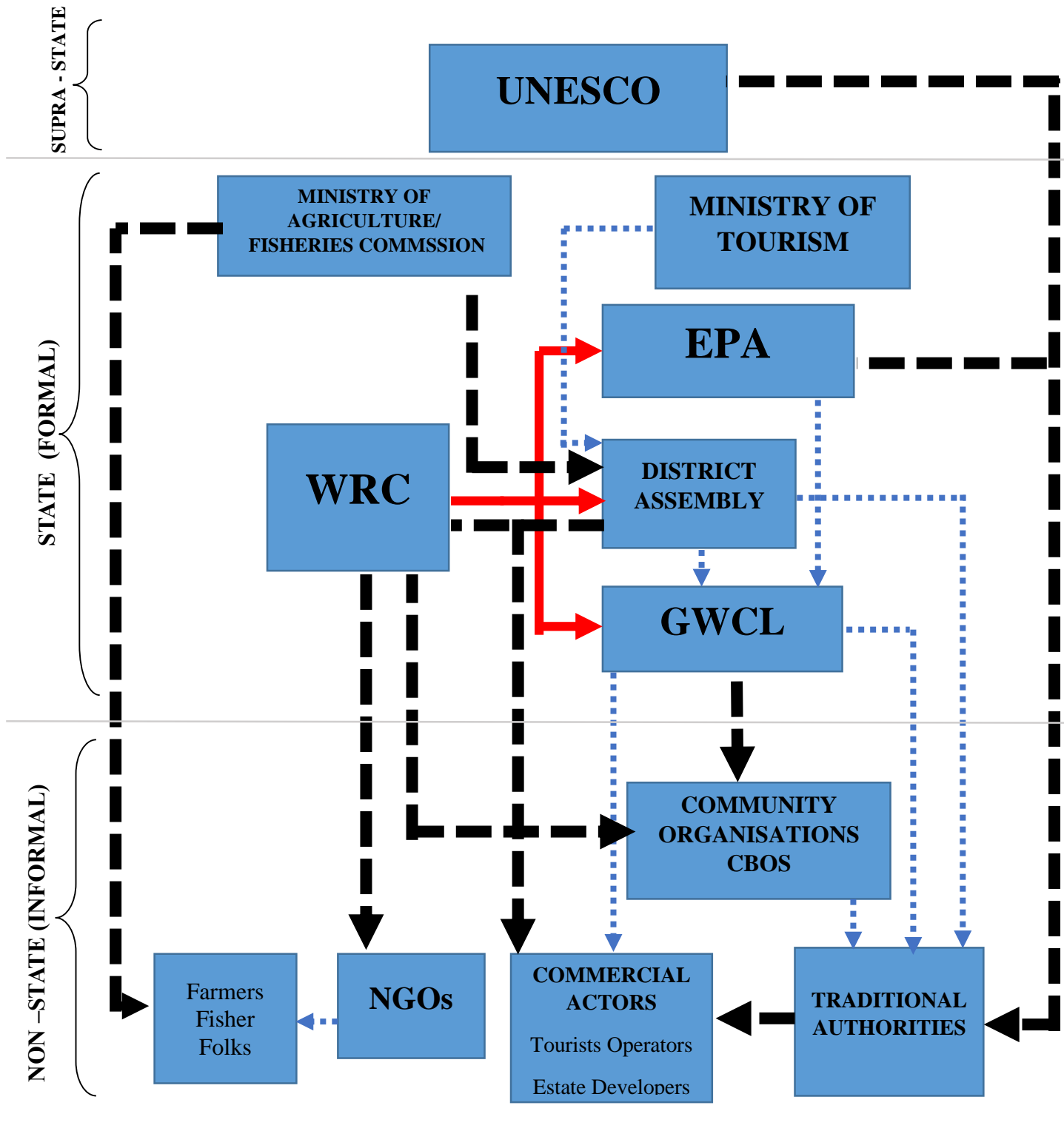


Figure 5.1: Actors' Network Mapping

Key

- Red = strong legal/formal
- Thick broken black = strong informal
- Light broken blue = weak informal

Source: Author, 2018

The supra-state actor, UNESCO, relates to the EPA through a project and not statute or law creating a strong but informal linkage with the EPA. A similar relationship is mapped between the traditional authorities and UNESCO because of project level engagement - strong informal relationship. The role played by the WRC is a relatedly weak one, brought in as a stakeholder not the main actor. WRC has strong legal mandate and incorporates the EPA, the district assemblies and the GWCL in its governance structures, in the process creating a strong formal relationship. These governance structures do not include supra-state actors and NGOs in the study areas and, therefore, the mandates and links are not strong formally. However, due to operational relationships, there are strong informal links. The relationship between the WRC and the emerging actors are informal and weak. Although the WRC has the legal mandate to regulate emerging commercial actors, the relationships, although existing in statute and law, are in reality quite weak. This is because WRC does not strictly regulate them although aware of their presence.

In assessing the governance relationships, the district assemblies' relationship with traditional authorities in relationship to water governance is weak. No areas of collaboration were discovered. The district assemblies do not consult much with the traditional authorities on water issues. In a similar vein, there is not much of a relationship between the district assemblies and the GWCL. The district assemblies, however, have a strong legal relationship with the WRC and serve on the River Basin Boards at the local level.

The links between the EPA and the traditional authorities are informal but with strong links. This is because the EPA maintains some relationships with the traditional authorities in order to enter the communities for water governance initiatives. With other state actors such as the GWCL, there are virtually no links and the relationship is seen as weak. Apart

from the legal regulation by the EPA for general environmental permits, the EPA displays no power over the activities of the GWCL. EPA has a strong informal relationship with the district assemblies because although there is no legally mandated relationship when it comes to water issues, the EPA consults the district assemblies on many issues including that of water resources. In the WLCA, the traditional authorities and the community members indicated that the engagement and relationship between the GWCL and traditional authorities was quite weak. However, the GWCL has a stronger informal relationship with community organizations such as the WLPA.

In the LBCA, the relationship between the district assemblies and the Ministry of Tourism in the Lake Bosomtwe catchment area is a weak one. This is because the study did not find any strong collaborative efforts between the Ministry of Tourism and the district assemblies. The district assemblies have market-based structures for tourism that do not engage the ministry. On the other hand, the Ministry of Agriculture and the Fisheries Commission have strong informal links with the local farmers and the fisher folks and also the district assemblies. The district assemblies have a strong informal relationship with the agricultural and fisheries ministries. Most activities by these ministries are done through the cooperation of the district assemblies. However, the day to day activities of the fisher folk and farmers who are water users are not regulated by the district assemblies.

The relationships and linkages between non state actors show interesting dynamics as well. Mostly, farmers and fishermen in the study sites related with some state actors, but to a limited extent. This is in the nature of some agricultural assistance for crop farmers. No regulations were discovered for the farmers. Subsistence fishing in the Weija Lake Catchment Area is not regulated or licenced. The only interface discovered was that the GWCL regulates fish landing bays but not how fishing was carried out. The regulation of

any fishing activity by the WRC and EPA relates to a ban on commercial fish farming. This restriction also applies to the Lake Bosomtwe, although these bans are not set formally by law. The only form of fisheries regulation discovered in the LBCA was a signage by the Fisheries Commission informing community members about net sizes (Abono) in Lake Bosomtwe but none was found in the WLCA communities. That is the extent of the regulation of fishing.

The NGOs discovered in the study sites relate to the WRC, the EPA and the traditional authorities in strong informal links. The NGOs enter the communities through the traditional authorities and for all programmes and meetings involve the state actors. They, however, do not engage in any way with other water users, especially the commercial ones or other actors such as the Ministries of Tourism and Agriculture. Even in the LBCA, where the NGOs had provided agricultural livelihood support, they did not consult the relevant ministries. The traditional authorities relate to the supra-state, UNESCO, the state (the WRC and the EPA) and commercial actors with strong informal links. They have no relationship with the Ministry of Food and Agriculture and have very weak link with the community organizations, the GWCL and district assemblies. They, however, have no strong relationship with the Ministry of Tourism. Although the traditional authorities are consulted in many programmes, they indicated that they are called upon in information dissemination not decision making and implementation.

## **5.4 Validation of Network of Actors and Their Power and Influence Levels**

### **5.4.1 Validation of Links and Relationships**

Relationships and linkages were validated by engaging with state and non-state actors and community members in a network maps meeting. This was done at the local/community and national levels. The aim was to confirm the types of relationships between the actors based

on their power, authority and legitimacy as perceived by actors. The strengths and weaknesses of authority were also assessed considering roles on land and on water. From the engagements with actors, the various actors confirmed that the strengths or weaknesses of these relationships and networks are dependent on power and influence.

Participants were presented with the groups of actors found and operating in their communities. The discussion with actors focused on the patterns of influence in decision making, power/capacity and enforcement powers on land and on water resources. This is because the link between water and land in decision making has been repeatedly referred to and through this validation activity this link was established and validated.

The process of validation allows the study to discover which actors the community members perceive as having the power to control water resources (Schiffer & Waale, 2008). The validation process considered which actor has more power and control over land and over water resources. As in Figure 5.1, state actors, the EPA, the GWCL, the WRC, and the district assemblies were the actors presented to meeting participants. Non-state actors were the traditional authorities and an option was given to select additional actors from the non-state actors or the supra-state actors. Based on the actor in the particular study site, variations were made. In the LBCA, participants selected CREMA. In the WLCA, participants debated on an NGO (the Weija Lake Protection Association) and concluded that the presence, work and influence of NGOs and CSOs have declined in the basin over the last 5 years. They, therefore, discarded that option to have an additional actor included and only considered the state actors and the traditional authority actors.

As recommended by Schiffer and Waale (2008), the validation activity scores were assigned, in ascending order, to determine the strengths or weaknesses of the actors present.

An actor with a score of five (5) means a strong role or powerful presence and a score of one (1) reflected a very weak role or presence. The scores were in this order; Score 1 = Very low    2 = Low    3 = Normal/Average    4 = High    5 = Very High.

The participants in this meeting were eight (8) (out of the seventeen (17) catchment communities) for the Weija lake catchment and eleven (11) (out of the twenty - four (24) in the Lake Bosomtwe Catchment Area. These numbers are representative (Schiffer & Waale, 2008) as the aim of the activity is to get a cross-section of views on facts that have been already gathered from a number of other sources. Tables 5.3 and Table 5.4 present the results from the two validation meetings.

**Table 5.3: Network Maps - Roles and Power Networks - LBCA**

	<b>Decisions</b>	<b>Enforcement</b>	<b>Land</b>	<b>Water</b>
	<b>Scores (1 - 5)</b>	<b>Scores (1 - 5)</b>	<b>Scores (1 - 5)</b>	<b>Scores (1 - 5)</b>
EPA	2.2	2.2	3.0	1.9
District Assembly	4.2	4.0	3.5	3.3
Water Res. Comm.	2.8	2.7	2.0	4.5
Traditional Auth.	5.0	3.7	4.6	2.8
Others - CREMA	2	2.8	2.4	3.1

\*Score 1 = Very low    2 = Low    3 = Normal/Average    4 = High    5 = Very High

**Source: Author, 2017**

**Table 5.4: Network Maps – Roles and Power Networks - WLCA**

	<b>Decisions</b>	<b>Enforcement</b>	<b>Land</b>	<b>Water</b>
	<b>Scores (1 - 5)</b>	<b>Scores (1 - 5)</b>	<b>Scores (1 - 5)</b>	<b>Scores (1 - 5)</b>
<b>EPA</b>	1.8	2.8	2.5	2.5
<b>District Assembly</b>	2.3	3.3	2.8	2
<b>Water Res. Comm.</b>	5	4.5	2.5	4.8
<b>Traditional Auth.</b>	2	2.3	4	1.5
<b>Ghana Water Company Ltd.</b>	3.5	3	3	3.5

\*Score 1 = Very low    2 = Low    3 = Normal/Average    4 = High    5 = Very High

**Source: Author, 2017**

From Table 5.3., in the LBCA, the EPA was seen as weak in decision making (2.2), enforcement (2.2), and power over water (1.9). For power over land EPA scored 3. On the project level, however, EPA is the primary actor and implementer of water resources with strong informal links to other state and non-state actors. This was a curious finding as the state gave primacy to EPA but for community members and other actors, the EPA is not powerful or authoritative.

The district assembly scored 4.2 in decision making, and 4 in enforcing their decisions. For control over land, they scored 3.5 and 3.3 over water resources. This finding is somewhat expected as the district assembly is the main driver of tourism activities for the lake. It undertakes tolling of access to the lakeside and visitors to the lake side communities whatever their mission paid a fee at a gate before descending into the valley where the lake is situated. This gives the district assembly appreciable power and authority.

The WRC was recognized as having a high level of power and authority over the water resources scoring 4.5. However, curiously, although WRC was seen as having power, when assessed on role in decision making it scored 2.8 and for enforcement powers were ranked 2.7. Power over land showed a score of 2.0. This meant that although the WRC was said to be powerful, in reality, it has very little power to take decisions or enforce them. This is a lack of legitimacy and raises the questions whether nationalization is superficial. For traditional authorities they scored strongly on control over land (4.6), decision-making (5.0) and enforcement role (3.7). Control over water (2.8) was low, but overall, they had a strong showing of power, authority and legitimacy.

On supra-state CREMA, participants scored and validated the kind of power and influence CREMA wielded. The participants scored them low on all indicators. CREMA scored 2 in

decision making, 2.8 in enforcement, 2.4 in power over land for water management, a better score of an average of 3.1 was assigned. Enquiries into why CREMA did not have much influence, the focus group respondents gave a number of reasons for its weakness. The length of existence of this actor which was formed in 2012 (inaugurated in 2016) was an attribute. It was believed that it was ‘finding its feet’ so to speak. It would seem that length of time in the community will give it a legitimacy akin to traditional authority. Lack of a sustained and regular funds weakened its ability to implement and enforce and, therefore, obtain appreciable power and ultimately legitimacy. Also, weak enforcement power was attributed to the inability to impose any fines or punishments. The CREMA structure relied on traditional rulers for punishment yet the latter does not have power to issue punitive sanctions. Therefore, enforcement power was also linked to authority and legitimacy. Although EPA, WRC and the traditional authorities had backed the creation of the CREMA, the latter’s inability to order community actions showed a weak level of power, authority and legitimacy.

In the LBCA, as indicated earlier, traditional authorities scored highest on power and authority. They were seen as very influential in land governance (4.6),f decision making (5) and ability to enforce their decisions (3.7). Traditional authorities were, therefore, viewed as authoritative and legitimate. In the area of decision making and enforcement of decisions regarding water resources, however, the traditional rulers were scored 2.8 which is just an average rating of power and authority. It would seem that the legitimacy of the traditional authorities was not strongly linked to roles over water but over land. A score of three out of four indicators gives the traditional authorities an appreciable level of legitimacy.

The WRC is seen as a key decision maker for water resources, but has an average level of power and influence as an enforcer of these decisions. It is of interest to note that although

from the views of the people in the study community, the WRC scored higher than the EPA (2.8/2.2) as an influential actor for water resources governance with more authority than the EPA, in practice the EPA is the key implementer of a water governance project sponsored by a supra-state actor, UNESCO. The traditional authority is stronger in the LBCA.

In the WLCA (Table 5.4.), the EPA scored 1.8 in decision making and 2.8 in enforcement. Power over land was scored at 2.5 and this was the same for water. It is obvious that the state actor in the form of the EPA is not seen as a powerful or influential actor in this area. Same was realised for the district assembly, which scored low on water governance, 2.3 in decision making, and a higher 3.3 for enforcement. Over land and water, they were ranked 2.8 and 2, respectively. The score for enforcement was higher because the state enforced building regulations and siting issues. The WRC scored high on enforcement and decision making with scores of 4.5 and 5, respectively. It was seen as having a high level of power over water with a score of 4.8 but a lower level of power (2.5) to control issues over land. The network meeting was, however, of the opinion that WRC related poorly with community members and other actors like the NGOs. The NGO actor representative indicated that support provided them by the WRC had become non-existent over the last 5 years (NGO representative, Weija, June, 2017). This issue of weak coordination and lack of full engagement by the WRC was confirmed by the traditional authorities who had also indicated in the traditional authority FGD that linkages with state actors are quite weaker. This was seen as a weakness in the role of the WRC. The GWCL was seen as an influential actor scoring 3.5 in decision making, 3 in enforcement, 3 in control over land and 3.5 over the water. The presence of military makes this actor a powerful one. However, the fact that the GWCL focused mainly on water supply and did not take much action or focus on the interests and livelihoods of communities near the lake, makes the legitimacy of this state

actor somehow contested. Community members interest is not privileged, creating a level of hostility and ambivalence towards the GWCL and undermining its legitimacy.

The power and authority of traditional authorities was evaluated as quite poor. In decision making (2) and enforcement (2.3) and control over water (1.4) scores were low. Over land resources, they scored 4. This seemed to confirm the assertion in the traditional rulers FGD that they do not have much say in water governance in the WLCA. They explained that their stool lands had been taken over by government and managed by the GWCL. The high score on land reflects the superficiality of the state's control over land. They continued to give out land to developers, which the traditional authorities indicated led to their being involved on land disputes and spending a lot of time in the law courts (Traditional Authorities FGD, Weija Community, April, 2017). Overall, traditional authorities in the WLCA area are weak with little power, authority and legitimacy especially for water governance.

### **5.5 Translation of Roles into Power, Authority and Legitimacy**

Nationalization and statutory control of land in this catchment area seem to have disempowered traditional authorities in the view of community members and other actors. The traditional/spiritual duties of traditional authorities, such as pouring libation in times of festivals or 'cleansing' the water when people die by drowning, give them some power and authority. This does not seem to translate into control and decision making. Power seems shared with the state actors who equally have dominant power in the WLCA.

How roles translate into power, authority and legitimacy over land and over water is shown in Table 5.5,

**Table 5.5. Levels of Power, Authority and Legitimacy**

STATE	STRONG	WEAK
	State law on acquisition of land and water	State law on water only
	Military presence	No military presence
NON-STATE	WEAK	STRONG
	No formal authority control over land/water	No formal authority control over water
	Contested controls over land	Formal state recognized control over land
	Spiritual control over water	Spiritual control over water
SUPRA-STATE	WEAK	STRONG
	no presence/no project	present/project and influence governance structure creating CREMA and new customary laws
		Accepted by traditional authorities and translated to local people

Source: Author, 2019

Power, authority and legitimacy to take decisions vary from the power to implement or enforce the decisions made. In the both the LBCA and WLCA, traditional authorities have a high level of power to take decisions, especially over land and, to an extent, over water. The control over land and spiritual control over water gives the traditional authorities in the LBCA strong roles and a higher level of power. The decision-making power of the state in the LBCA is generally seen as weak because although the state has statutory control over water, the lack of control over land affects the state’s control over activities that affect the water. The state power displayed by the district assemblies is related to commercial tourism and not general planning and control. The EPA has, through a collaborative effort, introduced a community governance system into the area; from the community point of view the EPA is not seen as a strong actor. Overall, the state is weak in the LBCA. Supra-state actors play livelihood support roles and, in some instances, influence the state. However, the strongest set of actors in the LBCA are the traditional authorities with their firm control over land and their spiritual control over water resources.

In the WLCA, the state appears to wield some strong power, control and influence over water and land. Military presence solidifies the state's control. The district assemblies and the EPA are not seen as strong power brokers in the WLCA. Although non-state actors in the WLCA have spiritual control over water, the contested nature of land ownership and the full state control over the water and land weakens the traditional legitimacy of the traditional authorities. Supra-state actors in the WLCA, in the form of a CSO (WLPA) and other NGO (Water Health), are not recognized by community members as having any water governance power. In the WLCA, there is also no catchment wide project or programme by a supra-state actor such as exists in the LBCA. Conclusions can, therefore, be made that the state actor is the strongest in the WLCA while the non-state and supra-state actors are weaker in water governance.

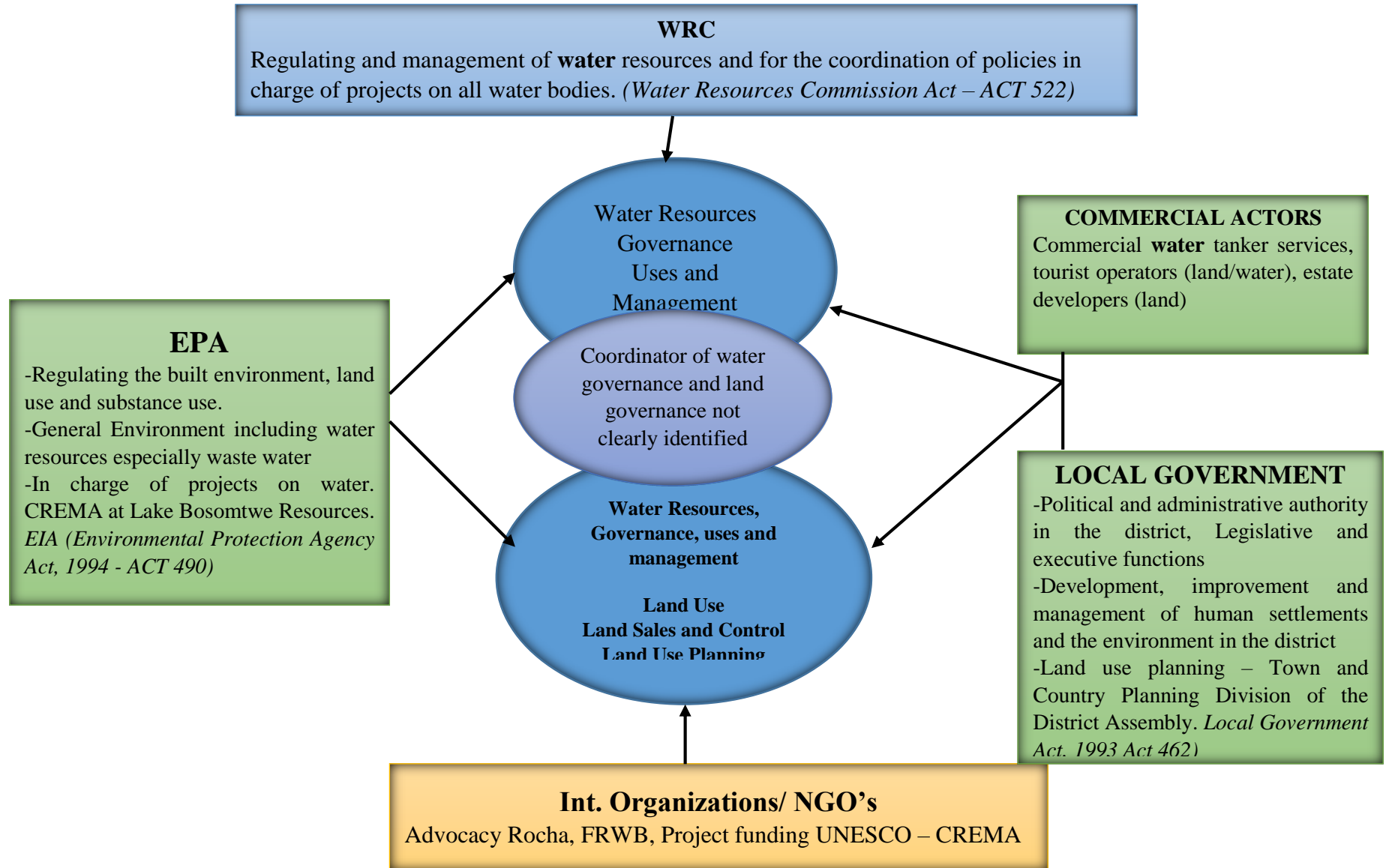
Power and authority over land and over water is diffused and the perception of power and influence of actors is linked to their ability to control community members' actions in relation to water or land. Therefore, to select an actor to play a role in governance interventions, the community context is relevant and should be duly considered. The assessment of the power and influence of state, non-state and supra-state actors, as determined by community members, assign power over land to stronger wielders of power. The fact that water resources are to be considered as a unitary whole by IWRM principles, power and control residing in different actors means that water governance decision making is done in a diffused manner.

### **5.6 Linkages between Actors Roles and Mandates**

Significantly, the separation of actors' roles, mandates and power over land and water is reflected in state law and plans. This has translated to how non-state actors view and carry out power and authority. Therefore, water governance suffers from lack of coordination.

The attempts to nationalise water resources and place them under state control seems to have resulted in integration of state actors but further disintegration of the roles of non-state actors along the line of land and water controls. These relationships and linkages between actors and their roles over land and over water are presented in Figure 5.2.

Legal rational and traditional legitimacies back the roles and mandates of actors which move across spaces of land and or water. This means that at a point in time the critical circumstances that trigger decision making may be influenced by which kinds of power are held and over what land or water. Also, the spaces where the power or influence of one actor is dominant influences how decisions are made and carried out. For state actors, institutional arrangements do not show a coordinating body for land and water governance. Figure 5.2, therefore, shows how mandates over land and over water overlap.



**Figure 5.2: Water and land governance linkages**  
Source: Author, 2017

The figure reflects that actor mandates and powers and influences over water and land are not strongly linked. There is no common actor clearly coordinating how land and water governance issues are operationalized, especially where they interlink and relate. This has implications for patterns of decision making and implementation.

### **5.7 Patterns of Decision Making**

In exercising their power and authority to make decisions, actors act together or separately. Decisions taken at the level by the WRC brings together the state, non-state and, in some instances, the supra actors in section 5.2., in a collaborative effort. This happens at the national and basin levels of the WRC boards and committees, projects and water transactions. Figure 5.2 indicates that commonly, the WRC consults other state actors, the traditional authorities and other supra-state actors.

Monocentric decision-making, however, occurs in some instances. In the LBCA, the district assemblies take sole decisions on tourism, such as tolling and charging for entertainment events on the lake. The traditional authorities also receive tourism charges at an information centre. The traditional authorities are also the sole decision takers on issues of land sale. In the WLCA, taking decisions on introduction of military and controlling land use activities was done without the involvement of other actors. Non-state actors also collect fees and charges to allow access for fishing and for sacrifices.

At another level, polycentricism is truncated. In the LBCA, while the district assemblies are tolling for tourism, the traditional authorities also collect fees from tourists, which has on some occasions created conflicts. Community members saw this as ‘double tolling’ and called for its abolishment as there was a clash of power and legitimacy. The following statement evidence this point:

*“About a year now, a white man came here, they hustled 1 million (old Ghana cedis) out of the man and the white man run to... I am talking about the Information Centre...He came with a car, they said he should enter the building [the information Centre] and the white man said he won't enter the building and now [he] called police people and they [the police] took 1 million from him and then the madam [District Chief Executive] at the top, sent the report and they came to take back the white man's money and gave it back to him...So if it is the top they will take the toll, they should take it that one time...” (Female FGD, Abono, LBCA, May, 2017)*

In a plural legal system, where diverse actors exercise the power and authority and take decisions in an uncoordinated manner, this can undermine the legitimacy of actors. In the LBCA, land sales and transactions are fully coordinated, while land use is uncoordinated. The district assemblies expressed this as one of the challenges to their legitimacy. A case in point are the sentiments expressed by the District Chief Executive of one of the Assemblies in the LBCA. He said that:

*“I think the major problem we have concerning the lake Bosomtwe has to do with the encroachment. People are building and others are engaging in farming activities along the lake. Even though we have the CREMA which is aiming to protect the lake, the traditional authorities are not helping. Rather they are **the ones giving out the lands to these encroachers**” [emphasis mine] (District Chief Executive, Bosomtwe District, LBCA, June, 2017).*

Another point was expressed that while state actors seek to carry out their mandates by controlling land use in order to have effective water governance, issues, non-state actors with legitimacy to control land take decisions that are contrary to the actions of the state actors' actions creating conflicts. This point was summed up by the following statement:

*We have designated a buffer zone where any other activity shouldn't exceed but people are encroaching beyond these buffer zones. When you meet these encroachers and ask them why they are building or farming in those areas, they tell you that they got the land from a traditional authority on a specific land tenure basis” (District Chief Executive, Bosomtwe District, LBCA, June, 2017).*

This lack of a common platform and the inability to take decisions together is seen in how state and non-state actors act in contrast and at divergence.

Similar circumstances exist in the WLCA where the decisions by the state actor to introduce the military was taken without consultation of non-state actors (see section 5.2). On the other hand, traditional authorities collect charges and sacrifice fees to grant access to the water without the involvement of state actors. In this case the non-state actors claim to have the sole authority over the water resources in spite of the state's legal rational legitimacy.

Community members expressed views such as;

*We pay it to the chief of Ngleshie Amanfrom because they are the owners of the lake, the lake is theirs. Whenever we go for fishing we have to pay. The land owners claim the water and the fishes are for them so you have to pay them* (community member, Weija Community, WLCA, May, 2017)

These seem to strengthen the legitimacy of the non-state actor in spite of state legitimacy gained through nationalization. Even where the state has control of the land near the water body, community members give some recognition to non-state actors beyond the buffer zone (traditional authorities of Ngleshie Amanfrom) whose decision making impacts what happens on the waterbody. In both study areas, emerging actors engage state and non-state actors separately resulting in lack of coordination for control of their actions.

The level of polycentric decision making occurs concurrently with monocentric decision-making (Figure 5.3.). While multiple actors are taking decisions, on one hand, at the same time and on another level, decisions are taken solely without consulting other actors across scales and territories. This creates an uncoordinated water governance framework. Legal plural systems and actors are pitched against each other. This also weakens the legitimacy of state actors in spite of nationalism. Additionally, this action has institutional implications and socio-economic outcomes.



such integrated systemized community engagement was found for the water resources governance. Communities, therefore, took action or acted independently without recourse other communities whose activities affect the water body.

## **5.8 Conclusion**

This chapter has examined the actors in water governance in Ghana and how they operate in a plural legal system. The actors identified in this study range from state actors, non-state actors and supra-state actors. They gain their legitimacy to act through legal rational traditional and charismatic or pseudo-legal rational legitimacy, respectively. With the nationalization of water resources, the state brings together actors from the three categories above to take decisions for water and implement them.

From the study areas, it was discovered that in the LBCA, non-state actors have the strongest power and influence. Their statutory power and influence over land translates to overall power in the catchment although their control over water is limited to spiritual authority only. A new governance structure introduced by supra-state actors through the state and non-state actors has influenced the water governance framework. The creation of CREMA allowed community level participation in water governance. Validation of roles of decision making actors showed that non-state actors have firm controls over land in the catchment area which combined with their spiritual roles gives them a stronger hold on power than the state actor.

In the WLCA, the state actors are the strongest with a physical presence (military) and have control over land resources in the designated buffer area around the water body. Although the non-state actor (traditional authority) was recognized as the 'over lord' of the land, having no statutory control over land makes them a weak force in spite of their recognized

spiritual controls over the water. In spite of this, non-state actors outside the buffer area with legitimate control over land have some power and their actions impacts activities related to the water body. Supra-state presence and action was weak. Overall, the LBCA presents two strong actors (non-state and supra-state) while the WLCA has one strong actor, the state.

For decision making, mandates and roles over land and water converge. State coordinated decision making which allows for a level of cooperation exists for water resources were seen as a form of polycentric decision making. At the community level, however, autonomous uncoordinated decision making occurs, especially in instances where actors seek benefits.

In ascertaining power and influence where actors could take decisions but could not enforce them, this impacted their legitimacy. In the case of the LBCA where the state could take decisions over water but could not enforce them led to a weakening their legitimacy. In a similar vein, in the WLCA, where non-state actors could take some decisions over land but not enforce them, the legitimacy of non-state actors was weakened. As Blount-Hill (2017) puts it, legitimacy is foundational in building trust in any governance system. Therefore, where power is seen as ineffective, legitimacy is contested. Non-state actors' power and legitimacy to act is driven by benefits and gains for both the actors and the beneficiaries (Cashore, 2002).

The multiple actors present on the water governance space has led to institutional multiplicity which translates into multiple levels of decision making in diverse spaces. This has characterised the water governance framework in the LBCA and the WLCA with its attendant implications. In both study sites, decisions are made either jointly and separately driven by the levels of power and control by the various actors. This convergence and

divergence has led to certain implications for water governance. In sum, there are three types of actors/power brokers: state, non-state and supra-state with different kinds of power and legitimacy seen from the perspective of three different groups. Key informants believe that in LBCA, non-state actors have power to take decisions but the state has enforcement power. In WLCA, the state has power to take decisions and enforce it. In both areas, the community members believe the non-state actors are influential. However, the state believes it has no power to enforce because the lack of control over the land weakens the state's power and authority. It is clear that control over land translates to greater power and legitimacy. However, governance of land and water are separated and there is no consistency and common mind with a changing dialectic on dominant power and authority. Yet in this shifting situation, there is an attempt to manage water resources which is a combination of both. The result is an incongruent sense of power and authority. In the unclear situation, what does the local level engagement in water governance look like? What influences local peoples' knowledge, and how they think and act? The next chapter seeks to answer these questions.

## CHAPTER SIX

### KNOWLEDGE AND ATTITUDES AND PRACTICES OF THE PEOPLES IN THE STUDY AREAS - INFLUENCE ON WATER GOVERNANCE

#### 6.1 Introduction

The previous chapter assessed the roles of macro level state and non-state actors in the plural legal system for water governance in Ghana and how they take decisions based on their power and authority. In the processes of implementation, community members become engaged in the governance processes. Spietz (2000) and von Koppen (2010) have recommended that water governance should be explored not only at the level of laws but also at the level of how law works in society, especially how it engages members of society. As a result, this study examined how the people in the catchment areas relate with laws, regulations and institutions that govern water in their communities. This “hydro-social” assessment is best carried out with an estimation of the diverse spaces in which community members move and operate. It has been recommended that the kinds of knowledge community members possess and how this knowledge influences their actions is one of the best ways of understanding people’s engagement with any system. The water governance framework in the context of nationalization has implication for local level involvement and can be analyzed in the context of how their knowledge and attitudes and practices affect the governance process.

Nationalization of water resources carried with it power and knowledge dynamics which drives actors’ action. Knowledge itself

... involves ‘multiple social realities’, unequal powers, and diverse ways ... of construing and ordering the world, [and] not as a simple accumulation of facts or as being unified by some underlying cultural logic, hegemonic order or system of classification. Knowledge emerges out of a complex interplay of social, cognitive, cultural, institutional and situational elements. It is therefore always essentially provisional, partial, and contextual in nature, and people work with a multiplicity of understandings, beliefs and commitments...” (Boelens, Shah & Bruins, 2019, p. 18).

Knowledge, therefore, influences belief systems and action. It is, therefore, essential when understanding community members' engagement with the water governance process to appreciate their knowledge and how it influences their attitudes and practices. In assessing knowledge, one must recognize the fact that knowledge itself is a socio-political construction. Knowledge is entangled with aspects of authority, control and power (Swyngedouw & Boelens, 2018). In assessing the involvement of community members in water governance, this chapter creates a link between knowledge, attitude and practices and how these affect governance. The aim is to establish how governance is shaped by community members' knowledge and attitudes.

Community members' knowledge was assessed on what they knew of identified actors or institutions, and their knowledge of state laws and customary norms. Responses to knowledge questions were dichotomous. Attitudes were also assessed to understand community members' willingness to engage with the governance processes and their views on effectiveness of water governance actors as this may direct which actor they align with in cases of forum selection in resolution of conflicts or issues arising. Also attitudes of personal responsibility in water governance were assessed as this could direct decisions and actions.

Attitudes were determined by assessing variables such as willingness to engage in water governance, view on effectiveness of actors/laws, power and authority, feelings of personal responsibility and regard for actors through forum selection when water resources issues arise. These were assessed on a Likert scale. Questions about practices focused on the community members' actions and initiatives on water management. Practices were assessed by enquiring what is done regularly or periodically to manage water resources. These actions and initiatives were to show how community members engage with the governance process.

### 6.1.1 Key Variables and Model Estimation

This objective was analyzed both qualitatively and quantitatively. For the qualitative analysis, thematic analysis were carried out with the development of codes and themes. For the quantitative aspect of analysis, analysis was carried out at the district level because a means test showed differences in the results for districts which could not be seen when analysis is done at the whole study site level. From the WLCA, ‘GAS’ represents Ga South District Assembly, ‘GAW’ represents Ga West District Assembly, while ‘BoD’ represents Bosomtwe District Assembly, and ‘BFD’ represents Bosome Freho District Assembly.

Key dependent variables were knowledge of actors, knowledge of customary law and knowledge of state law. For analyzing attitudes, willingness to participate in water governance programmes, attitude towards effectiveness of state actors and laws, and attitude towards effectiveness of customary actors and laws were the key variables considered. Independent variables were socio economic variables such as sex (female as dummy), age and education status where education refers to community members who have completed secondary education (Senior High School) or higher. Other independent variables considered were community members’ who make a living from water resources, presence of community water governance programmes, attending community meetings and involvement in decision making. Probit regressions were carried out for the dichotomous variables. The Probit model is estimated as follows:

$$KNO_{inskn} = \beta_0 + \beta_1 Age + \beta_2 Educ_d + \beta_3 1.earnw + \beta_4 1.compr + \beta_5 1.meet + \beta_6 attp + \beta_7 Dist(GAW, GAS, BoD, BF) + \beta_8 1.female + \varepsilon \dots (6,1)$$

Where  $KNO_{inskn}$  is the Probit estimator when the dependent variable is the binary knowledge of actors’ indicator.

The two study sites were located in areas which had different socio-economic characteristics. Based on these characteristics, certain assumptions were made. It is assumed that people in urban areas have better knowledge on issues than those in rural (Doannio, Konan, & Attiah, 2004; Rani & Theresa, 2018). For assessment of knowledge, this study proceeds on the hypothesis that assumes three basic assumptions:

- a. that community members in the LBCA have less knowledge of statutory water governance actors than those in the WLCA;
- b. that community members in the LBCA have less knowledge on statutory water governance laws and regulations than those in the WLCA;
- c. that community members in the WLCA have less knowledge of customary water governance norms than community members in the LBCA;

Practices were described upon analyzing Chi Square outputs and results were supported by qualitative data.

### **6.1.2 Key Findings and General Socio-economic Characteristics**

Overall, a cross-tabulation of the data (Table 6.1) shows that of the sampled population, 43% is female and the average age is 52 years with the oldest members found in BoD (56.07years). Overall, about 16% of the sampled populations were educated above secondary education. Of the sampled population, respondents in the WLCA were found to have the highest educated population (GAW (23.7%) and GAS (23.3%) with BoD having the lowest educated population (8.2%).

**Table 6.1: Socio-Economic Characteristics and Key Variables**

<b>K and Attitudes Variables</b>	Overall (%)	GAS (%)	GAW (%)	BoD (%)	BFD (%)
Knowledge of State Institutions	58.3	75.3	49.5	54.1	58.4
knowledge of customary law	82.1	83.6	91.8	89.8	64.4
Knowledge of State law	39.6	37.0	13.4	39.8	66.3
Attitudes on willingness	40.4	24.7	37.1	37.8	57.4
Attitudes on effectiveness of State law					
Agree	27.6	20.5	28.9	25.5	33.7
Undecided	43.6	47.9	56.7	46.9	24.8
Disagree	28.7	31.5	14.4	27.6	41.6
Attitude on Effectiveness on Customary laws					
Agree	30.4	27.4	30.9	26.5	35.6
Undecided	14.1	24.7	10.3	11.2	12.9
Disagree	55.6	47.9	58.8	62.2	51.5
<b>Socio-economic Characteristics</b>					
female	43.1	35.6	32.0	56.1	46.5
Age in years	52.67	45.53	51.14	56.07	56.00
Education >SHS	16.0	23.3	23.7	08.2	10.9
<b>Practices Variables</b>					
Earnings from Water	30.6	37.0	20.6	39.8	26.7
Presence of Community Programmes	27.1	11.0	10.3	37.8	44.6
Water Gov. meetings	28.2	15.1	05.2	27.6	60.4
Involvement in decision making	06.2	05.5	07.2	06.1	05.9

**Source: Household survey, 2017**

## 6.2 Knowledge

In the assessment of knowledge of community members, this study looked at three knowledge variables. These were knowledge of state laws, knowledge of customary laws and knowledge of the actors. The reason for this variable determination was to enable the study ascertain community members' knowledge of actors with power, controls and legitimacy.

### 6.2.1 Knowledge of Actors

Overall, Table 6.2 shows the Probit analysis of the determinants of knowledge by catchment areas. GAS D.A. was chosen as the base location and reference category because for

knowledge it has two state offices located there (the DA and the GWCL) and epitomizes the ideal scenario of access to knowledge of state actors in water governance.

**Table 6.2: Probit Regression Analysis of Determinants of Knowledge of State Actors**

VARIABLES	Overall		WLCA		LBCA	
	Knowledge State actors	Marginal Effect	Knowledge State actors	Marginal Effect	Knowledge State actors	Marginal Effect
Location (ref. = GAS)						
GAW	-0.778*** (0.214)	-0.264*** (0.068)	-0.967*** (0.232)	-0.323*** (0.068)		
BoD	-0.746*** (0.220)	-0.252*** (0.070)				
BFD	-0.708*** (0.237)	-0.238*** (0.075)			0.006 (0.211)	0.002 (0.069)
Gender (Dummy female)	-0.140 (0.152)	-0.050 (0.054)	0.328 (0.239)	0.110 (0.079)	-0.579*** (0.213)	-0.193*** (0.068)
Age	0.005 (0.004)	0.002 (0.002)	0.016** (0.008)	0.005** (0.002)	-0.002 (0.006)	-0.001 (0.002)
Education > SHS	-0.095 (0.209)	-0.034 (0.075)	0.105 (0.275)	0.035 (0.090)	-0.093 (0.375)	-0.030 (0.123)
Earnings Water resources	-0.321** (0.159)	-0.116** (0.057)	-0.469* (0.257)	-0.159* (0.086)	-0.109 (0.220)	-0.036 (0.072)
Presence Community Programmes	0.452*** (0.172)	0.159*** (0.058)	0.083 (0.401)	0.028 (0.132)	0.638*** (0.204)	0.216*** (0.067)
Calling meetings	0.173 (0.180)	0.062 (0.064)	-0.469 (0.413)	-0.161 (0.141)	0.469** (0.213)	0.157** (0.070)
Attending programmes	-0.259* (0.148)	-0.094* (0.054)	-0.044 (0.240)	-0.015 (0.080)	-0.665*** (0.212)	-0.219*** (0.066)
Involvement decision making	0.918*** (0.340)	0.281*** (0.078)	0.631 (0.485)	0.192 (0.127)	1.450*** (0.544)	0.374*** (0.081)
Constant	0.639** (0.281)		0.073 (0.401)		0.445 (0.410)	
Observations	369	369	170	170	199	199
r <sup>2</sup> <sub>p</sub>	0.0772		0.124		0.158	
ll	-231.3		-99.85		-114.8	

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Source: Household survey, 2017**

According to the results being the GAW (WLCA) as compared to being in the GAS reduces the respondents' knowledge of state actors by 26.4% points. This is significant at 1% level of probability. The reasons for this outcome could be the fact that communities in GAW (Tomefa and Ayikai Doblo) do not have proximity to state actors. In essence, there is no

presence of state actors in their communities. Communities in GAS, especially Weija community has a DA office and the office of the GWCL. The knowledge levels of state actors for communities in this category did not show any level of significance for communities in the LBCA.

For gender, the results further show that being a female located in LBCA as compared to being a male reduces the knowledge of state actors by 19.3% points at a level of 1% probability. This result was not significant for females in the WLCA. Female respondents indicated their non-engagement with state actors in decision making, a factor that could decrease their knowledge levels.

The analysis on age revealed that a positive relationship existed between age and knowledge of state actors. This relationship was significant at 5% level of probability for respondents in the WLCA. This implied that as a unit increase in the age of respondents in this catchment area occurred, it led to a 0.5% point increase in the respondent's knowledge of state actors.

Earning for people residents in the WLCA showed a negative relationship with knowledge of state actors. This was significant at 10% level of probability indicating that as earnings increases by a unit, knowledge reduces by 16% points. This seems curious and defeats a prior assumption that people making more earnings from the water would be more engaged with state decision making actors.

The Probit analysis results for knowledge of state actors further showed that apart from attending programmes which showed a negative relationship with knowledge of state actors in the LBCA, presence of community programmes (21.6% points), state actors calling for meetings (15.7% points) and community members' involvement in decision making (37.4% points) showed a positive relationship with their knowledge of state actors. These

were significant at 1%, 5% and 1% levels of probability, respectively. There was no significance level in the WLCA. The results for the LBCA could be attributed to the creation and presence of the CREMA that has created a platform for engagement with the community leading to increases in knowledge of state actors. Therefore, community level engagement and involvement are a strong determinant of knowledge.

A qualitative assessment discovered that supra and non-state actors had more engagements and interactions with community members in the LBCA. This could explain the higher knowledge level of actors by community members in the LBCA. Therefore, the presumption that more urbanized WLCA had more knowledgeable community members was rejected.

Some explanations offered by community members are presented in Box 6.1. It is evident that community members' knowledge of actors is linked to actors' presence and the frequency of engagement with community members. Therefore, knowledge here is tinged and seems to hinge on engagement with and involvement of the community in the governance process.

**Box 6.1: Knowledge of Actors**

<p><b>State Actors, presence and roles</b>  (LBCA) <i>Water Resources (Commission) comes around 2 to 3 times a year to educate the people but it is all forgotten after a while when they are gone.</i> (Community member, Abono, May, 2017)  <i>The council (District Assembly) takes the money for water tourism and do not do anything or develop the community</i> (Community member, Abono, May, 2017)</p> <p>(WLCA) <i>For the one in charge of the water body it is the government when the water belongs to them for example the lake in Weija but not the Doblo [the Doblo is a tributary of the Densu River which drains into the Weija Lake]</i> (Community member, Ayikai Doblo, May, 2017)</p>
<p><b>Non-state actors (NGOs) presence and roles</b>  (LBCA) <i>Because I have not seen any government institution around besides Friends of the Earth, an NGO that also comes around yearly.</i> (Community member, Nkowi, May, 2017)  <i>The government in partnership with UNESCO have planted trees along the shores and stopped smaller fishing net activities</i> (Community member, Abono, May, 2017).  <i>NGOs are more helpful than the government.</i> (Community member, Ankaase, May, 2017)</p>

**Source: Author's field work 2017-2018**

Apart from state actors, community members expressed some knowledge of non-state actors, especially traditional authorities. Community members identified traditional authorities as key actors, in their communities and in doing so placed much emphasis on their spiritual roles - this was so in both catchment areas (Box 6.2). This emphasised the fact that power and authority for decision making is not only recognized in formal regulatory regimes of legal rational legitimacy but also socio-cultural regimes dynamics as well. This seemed to deepen the legitimacy of these actors in these communities. The belief that the communities and the water bodies belong to the traditional authorities or the gods, respectively, shows the value of these actors and the role they play (LBCA). Managing a system that is hinged on a multiple legal system with these dynamics means that governance systems must recognize and embrace these dynamics. In the WLCA, where the non-state actors were recognized, power dynamics accompanied this recognition. The fact that traditional authorities sought permission from the state actors to perform spiritual duties was seen as something that weakened the non-state actors once again enforcing the fact that knowledge is tinged with power.

**Box 6.2: Knowledge of Actors – Non-state**

(LBCA) *The communities belong to the traditional leaders and so they make the important decisions* (main actors) (Community member, Ankaase, May, 2017).  
*The water body is a god and it is the traditional rulers that handle it* (Community member, Domba, May, 2017).  
*All the decisions we know here are from the traditional authorities* (Community member, Abono, May, 2017).  
*It is the priestess [fetish] because she protects the god of the water* (Community member, Domba, May, 2017).  
(WLCA) *The chiefs are subsidiary to the government and as such do not take the important decisions* (Community member, Weija, April, 2017).  
*They do not have control over the dam, they even seek permission from Water Works before they do annual rituals* (Community member, Weija, April, 2017).

**Source: Author's field work 2017-2018**

A difference was identified in views on traditional authorities in the LBCA and the WLCA, especially, as regards the roles they play. In the LBCA, traditional authorities are seen as

powerful while in the WLCA, they are seen as weaker with a weakened power, authority and legitimacy. In the WLCA traditional authorities are deemed to be subservient to the state and, therefore, do not have a dominant role or mandate in water resources governance. This confirms the power and authority framework in the network mapping activity in Chapter Five where non-state actors in the WLCA are seen as quite weak in water governance and enforcement of laws and regulations.

### **6.2.2 Knowledge of State Laws and Customary Norms**

In this section there was an examination of the community members' knowledge of state laws and customary norms was carried out. A cross tabulation of communities at the district level and their knowledge of state laws showed (Table 6.1) that, overall, about 40% of respondents knew of some state laws. Respondents in the in the LBCA (BFD) had the highest knowledge 66% and those in the WLCA (GAW) had the lowest level of knowledge (13%).

An assessment of the knowledge of customary norms and laws, showed that, overall, 82% of the sampled population had knowledge of customary laws. As many as 91% of the sampled population in the WLCA (GAW) have knowledge of customary laws and the lowest showing was 64% (LBCA – BFD). This is almost the same as the highest level knowledge for state law. Notably being the urban area (WLCA) did not mean higher levels of knowledge of state law.

Customary laws tended to be more of behavioural controls and prohibitions and some have gender dimensions. Restrictions that applied to females did not apply to males. For example, there is a differentiation on the persons allowed to bathe in both water bodies and the locations and times during which bathing could take place. Females believed to be in their

menstrual cycles are not allowed to bathe in or even as much as step into the water body. The norms mentioned in Box 6.3 were common to both study sites and shows no marked differences.

**Box 6.3: Gendered customary norms**

***Gendered Restrictions***

*Females cannot bath at the bank of the water body; a menstruating female cannot cross the water body; one cannot go to the lake while wearing a red dress (Community member, Afuaman, April, 2017).*

*Girls do not go to the river side on Friday (Community member, Tomefa, May, 2017).*

*Females do not go to the rivers on Sundays (Doblo) and on Friday (Densu) and during menstruation (Community member, Ayikai Doblo, April, 2017).*

*Females do not bath in water do not go to fish on Sunday do not pour dirty water into the river (Community member, Afuaman, April, 2017)*

**Source: Author's field work 2017-2018**

These customary laws seemed to be self-policing as people believe that it was in their own interest to obey them. Community members were of the opinion that foreigners were more likely to flout them as they did not see the legitimacy of these. In both the LBCA and the WLCA, common sentiments expressed was that those who drowned in the water are foreigners who do not comply with customary laws (section 6.3.1.). The power, authority and control measures by customary norms were recognized to a large extent.

Overall knowledge of actors and institutions seems to be driven by the degree and extent of engagement between actors and community members, information obtained from community programmes and in community meetings where they engage on decision making. Neither location nor formal education influenced how much people know or their views on the legitimacy of actors and laws. Making earning from water resources did not seem to be a major driver of knowledge levels to any significant degree.

### 6.2.3. Knowledge of the Influence of Actors in Water Decision Making

In the final section of the assessment of knowledge, this study looked at community members' views on the actors they see as influential. This is because having established knowledge of actors and laws, ascertaining influences was more deemed necessary and not just inferred. In the LBCA about 36% of community members were of the opinion that state actors (WRC) are influential in water decision making but as many as 59.30% thought that traditional authorities are more influential. This confirms the assessment that the traditional authorities are more influential and, therefore, more legitimate in the LBCA. Although the state is seen as hegemonic in the WLCA, it was significant to note that 53.5% of community members still believed that traditional authorities had some influence. This can be attributed to their informal control over land where they were seen as 'overlords' in areas beyond the buffer zone around the lake. But even in the buffer areas there was some contestations on land as traditional authorities still sought recognition as 'land owners'.

**Table 6.3: Most influential in Water Governance**

Location	State.	Non-State	Individuals	Other	Total
LBCA	72	118	0	9	199
%	36.18	59.30	0.00	4.52	100.00
WLCA	70	91	1	8	170
%	41.18	53.53	0.59	4.71	100.00
Total	142	209	1	17	369
%	38.48	56.64	0.27	4.61	100.00
Pearson chi2(3) = 2.3102 Pr = 0.511					

**Source: Household survey, 2017**

As Box 6.4 indicates, community members were of the view that being in charge of the whole country and providing funds and logistics gives an actor influence. For the traditional authorities influence, 'ownership' and spiritual controls gave an actor influence when it came to water resources governance. These reasons were common to both study sites. Therefore, influence was equated to ownership, and control. Even for spiritual roles giving spiritual protection was seen as granting a position of influence.

**Box 6.4: Knowledge on Influence of Actors**

***State Actors***

*It is the government who manages the whole of Ghana and so the water is included* (Community member, Weija, April, 2017)

*The government provides the logistics and funds to manage the water and so takes the important decisions* (Community member, Weija, April, 2017)

***Non-State Actors***

*The communities belong to the traditional leaders and so they make the important decisions* (Community member, Abono, April, 2017)

*The water body is a god and it is the traditional rulers that handle it* (Community member, Dompaa, April, 2017)

*It is the priestess because she protects the god of the water* (Community member, Dompaa, April, 2017)

**Source: Author's field work 2017-2018**

In all, this study found that the knowledge levels of community members in the study communities did not solely depend on where they are located. Factors such as sex, age, being consulted and attending programmes and meetings influenced knowledge levels at varying degrees. Also, community members attributed their knowledge of actors to the actors' presence and activities in their communities. Power and influence of non-state actors were also linked to a more obvious presence in the study communities. It was evident that the state's control of water resources had not diminished the power or control of other actors outside the state. Presence and control over land contributed to knowledge of these actors. Community member's knowledge of actors was driven by how much they saw and engaged with these actors. Arms-length governance seemed to be linked to a weaknesses in power, authority, control and legitimacy.

### **6.3 Attitude**

Attitudes were assessed on the following points: willingness to take action and personal responsibility to protect water resources and forum selection, effectiveness of state laws and customary norm and actors and attitude towards water conservation practices. In all, how positively or negatively a community member viewed responses to these issues were assessed through a five-point Likert scale.

This study proceeds on some basic assumptions based on the discussions by Ewruhjakpor (2010) that knowledge is a determinant of attitudes and willingness affects positive attitudes (Stoutenborough & Vedlitz, 2013). Also, positive attitudes towards the environment are seen as triggers for environmental conservation (Heberlein, 2012). Therefore, this study proceeded on the assumption that community members in the LBCA who are in a more culturally sensitive location had a better attitude to water governance than those in the WLCA. This is premised on the fact that environmental attitudes may be premised on cultural differences rather than local conflicts (Gangaas, Kaltenborn & Anderassen, 2015).

### **6.3.1. Willingness to Participate in Water Governance Initiatives**

To better understand the attitudes of community members, the study sought to establish at the first instance, their willingness to partake in water governance initiatives. Baldassare, and Katz (1992) used ‘willingness’ as a measure for attitude in a silence study as did Sarwar et al. (2018), who scored willingness as the first positive indicator in an attitudes study. The study proceeded on the assumption that community members in the LBCA are in a more rural setting and, therefore, shared more positive attitudes (Table 6.4).

Overall, about 40% of the sampled population were willing to partake in water governance activities. More people showed willingness in the LBCA (57% BFD) than the WLCA (25% GAS) (Table 6.1). The Probit regression analysis of determinants willingness to participate in water governance activities is shown in Table 6.5. BFD in the LBCA was chosen as the base location and reference category because for attitudes it is in recent years opening up to tourist activities and epitomizes the ideal scenario of willingness to engage in water governance activities to open up the area for tourism activities.

**Table 6.4: Probit Regression Analysis of Determinants of Willingness to Participate in Water Governance Activities**

VARIABLES	Overall		WLCA		LBCA	
	Willingness	Marginal Effects	Willingness	Marginal Effects	Willingness	Marginal Effects
Location (ref cat. BFD)						
GAS	-0.929*** (0.241)	-0.321*** (0.078)				
GAW	-0.478** (0.234)	-0.174** (0.084)	0.381 (0.247)	0.114 (0.073)		
BoD	-0.647*** (0.206)	-0.232*** (0.072)			-0.682*** (0.217)	-0.242*** (0.073)
Knowledge of state laws	0.011 (0.157)	0.004 (0.054)	0.193 (0.280)	0.059 (0.088)	-0.202 (0.203)	-0.070 (0.070)
Knowledge of customary laws	0.330* (0.200)	0.109* (0.063)	0.699 (0.435)	0.182** (0.092)	0.232 (0.241)	0.080 (0.082)
Gender (Dummy female)	-0.021 (0.153)	-0.007 (0.052)	0.396 (0.245)	0.123 (0.077)	-0.261 (0.200)	-0.093 (0.071)
Age	-0.002 (0.005)	-0.001 (0.002)	0.007 (0.007)	0.002 (0.002)	-0.009 (0.006)	-0.003 (0.002)
Education > SHS	-0.693*** (0.226)	-0.220*** (0.063)	-0.560* (0.325)	-0.157* (0.081)	-0.815** (0.350)	-0.267*** (0.098)
Earning a living	0.424*** (0.159)	0.149*** (0.056)	0.183 (0.269)	0.056 (0.084)	0.544** (0.213)	0.195*** (0.075)
Presence of Community programmes	-0.007 (0.172)	-0.002 (0.059)	-0.142 (0.404)	-0.042 (0.115)	0.040 (0.197)	0.014 (0.069)
Attending Meetings	0.131 (0.182)	0.045 (0.063)	0.144 (0.423)	0.044 (0.134)	0.143 (0.208)	0.050 (0.074)
Involvement in decision making	0.973*** (0.305)	0.335*** (0.093)	1.566*** (0.504)	0.511*** (0.127)	0.598 (0.398)	0.205 (0.128)
Constant	-0.064 (0.350)		-1.907*** (0.547)		0.625 (0.462)	
Observations	369	369	170	170	199	199
r <sup>2</sup> _p	0.114		0.149		0.115	
ll	-220.5		-90.47		-121.8	

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Source: Household survey, 2017**

From the results of the Probit regression analysis (Table 6.4), the attitudes of respondents' willingness to participate in the water governance activities showed that being in the BoD as compared to being in the BFD reduces the willingness to participate in water governance activities by 24.2% points at a 1% level of probability. The reason could be that respondents

in the communities in the BoD such as Abono and Nkowi are exposed to the effects of tourism which some saw as negative.

From the analysis, the results showed that having knowledge of customary laws and being located in the WLCA, increases the willingness to participate in water governance activities by 18% points at a 5% level of probability as compared to those living in the BFD. Knowledge of state law did not seem to have any effect on the attitude of willingness for respondents in both catchment areas.

For formal education (dummy SHS>), the analysis showed an overall negative relationship between education and willingness to participate in water governance activities by 22% points at a 1% significance level. This trend was replicated in both catchment areas and were significant at 1% (WLCA) and 10% (LBCA). At WLCA being educated at SHS level or higher as compared to others reduced to participate in water governance activities by 15% points and for the LBCA it was at a 26.7% points. This showing in the analysis on education seemed to reflect the cynicism of educated people when called upon to engage in water governance activities as the triggers of action were based on feelings of ownership, authority and control of the water resources. Some felt that since the state is the owner of the resources it should be responsibility for governance action (see Box 6.14 and Box 6.15).

Generally, earnings increased willingness attitudes of respondents by 14% points at 1% level of probability. At the catchment level, earnings also influenced willingness attitude by 19.5% points at 1% level of significance for respondents in the LBCA whereas in the WLCA, it showed no significant relationship. This result is reflective of reasons given by respondents (see Box 6.5, Box 6.14 and Box 6.15) who linked benefits and making a living from the water resources to willingness to engage in water governance activities.

The Probit analysis results on attitudes further showed that overall, involvement in decision making increased willingness attitude by 33.4% points at 1% level of probability. At the catchment area level, involvement in decision making increased the respondents' willingness to participate in water governance activities by 51% points at a 1% level of probability in the WLCA. This relationship was also positive for the LBCA but not significant.

To supplement that data above, some findings from the qualitative study were referred to for some explanations on people's attitudes. It was confirmed that for people in the LBCA, making a living from the water body tended to positively influence the attitude of willingness (Box 6.5). This supports the results of the Probit regression analysis which as shown that earning affects attitudes. Also, the feeling that the water body should be sustained for future generations influenced positive attitudes. However, involvement in decision making are strong determinants of attitudes.

**Box 6.5: Willingness to Participate in Water Governance Activities**

**Water Governance Linked to Livelihoods**  
**(LBCA)**  
*Such programmes protect the water and make the water good enough for livelihood use and tourism (Community member, Abono, April, 2017)*  
*The water is used by all the community people and so when preserved will serve us all (Community member, Ankaase, April, 2017)*  
*In order to protect Bosomtwe lake for our use and foreign exchange (Community member, Abono, April, 2017)*  
**(WLCA)**  
*For me like this I am a fisherman so it is just like protecting my source of income (Community member, Tomefa, April, 2017)*  
*If I will get paid for it, I will take part but one can also do it voluntarily to help the community (Community member, Ayikai Doblo, April, 2017)*  
**Sustainability**  
**LBCA)**  
*Because if we don't protect the water we our grandchildren might not come to meet it (Community member, Nkowi, April, 2017)*  
*In order to preserve and beautify the water body for ourselves and visitors (Community member, Abono, April, 2017)*  
**(WLCA)**  
*Because our ancestors have protected it from their time till now and so it is now our responsibility to also do same if not better (Community member, Afuaman, April, 2017)*

**Source: Author's field work 2017-2018**

In sum, making a living and involvement in decision-making are the strongest influencers of a community members' willingness to act. Location and education do not positively influence willingness to act.

As Box 6.4 shows the community members linked their willingness to participate in water governance initiatives with the potential of getting benefits from the water as important triggers to their attitude of willingness. This supports the quantitative analysis results. Additionally, some sustainability considerations seems to be at play with concerns of participating for the benefit of future generations. This will mean that decision making actors need to appreciate the stand point of community members in matters of the communities' water governance actions. All these factors discussed above shows that the presumption that being in a more traditional authority influenced setting improved willingness cannot be supported. It would seem that Stoutenborough and Vedlitz's (2013) assertion that environmental protection considerations were one of the greatest influences on willingness to conserve water resources is a valid assertion.

### **6.3.2 Effectiveness and Compliance**

Perception on effectiveness does not seem to depend on location alone, but other factors such as ability of actors to enforce laws and regulations and their presence in the community. Also, knowledge seemed to improve attitudes and perceptions of effectiveness of an actor an assertion borne out by Tornimbene et al. (2013) and Mala (2009).

Effectiveness seemed foundational to legitimacy. It seemed that community members though customary laws were more effective and in this way granted more legitimacy to non-state actors. However, where enforcement was poor, legitimacy was shaken.

While some believed that people saw laws as effective, many more felt that because community members are not involved in decision making, it was not obeyed and, therefore, ineffective. Where people do not see any improvement in laws or feel that others do not obey the laws it is seen as ineffective. People's attitude towards the effectiveness of laws is influenced by how these laws are enforced (Box 6.6).

**Box 6.6: Effectiveness and Enforceability (LBCA)**

**Effectiveness and relevance of laws**

*The people in the community respect and follow the laws given by the government through the District Assembly (Community member, Abono, May, 2017)*

**Ineffectiveness and Irrelevance**

*The community members disobey the laws since they don't involve us in their decisions (Community member, Ankaase, April, 2017)*

*And because we do not take part in its formulation, we will not obey the laws (Community member, Domba, April, 2017)*

*The laws are not effective at all because we do not see the relevance (Community member, Abono, April, 2017).*

*The laws are not any effective because there hasn't been any improvement in the water related issues (Community member, Abono, April, 2017)*

*The government laws are useless. We observe them here but we have heard that people in other communities do not so what is the essence of the law (Community member, Nkowi, April, 2017)*

*The laws are good but because implementation is left to the committee who are members of the community, the laws are not effective (Community member, Aborodwum, April, 2017)*

**Source: Author's field work 2017-2018**

Also, for many community members, there will be no incentive to obey the laws if community members do not see positive water governance outcomes. Some point to the fact that the implementation body must have a higher authority to ensure compliance because community members do not have the power and authority to enforce law. The linkages between enforceability and effectiveness was seen from some of these reasons gleaned from the LBCA as set out in Box 6.6. and the WLCA in Box 6.7.

In general, community members made a strong link between effectiveness and enforceability. Similar views expressed in the WLCA are in Box 6.7 In most communities,

community members were of the view that if enforcement was not done, the law was ineffective.

**Box 6.7: Effectiveness and Enforceability - WLCA**

**Enforceability and Effectiveness**

*Because the government is not here to punish, the laws are not effective* (Community member, Afuaman, April, 2017)

*The laws are just given without mechanisms for punishment. People do not obey it* (Community member, Weija, April, 2017).

*If something is to be effective, we need to monitor it* (Community member, Ayikai Dablo, April, 2017).

*The government laws are not enforced and as such not effective* (Community member, Weija, April, 2017)

**Source: Author's field work 2017-2018**

Another twist to the findings on effectiveness which is worthy of note is the fact that the attitude of community members to the relevance and effectiveness of water governance laws and norms seemed to be linked to the origins of community members. Being an indigene (originating from the community), a settler or a visitor seems to have an influence on the attitudes towards obeying laws and norms and, therefore, the views on its effectiveness (see Box 6.8).

**Box 6.8: Origins of community members, effectiveness, relevance and importance of laws**

**(LBCA)** *Some of the laws are binding only on the natives of this community but foreigners come to do what they want* (Community member, Abono, April, 2017)

*The people in the community obey the laws but people (from) outside breach the laws* **(WLCA)** (Community member, Weija, April, 2017)

**Source: Author's field work 2017-2018**

In effect, origins and the sense of belonging to the community seems to affect the attitudes towards obeying laws. There were conflicting statements on foreigners to the community and indigenes respecting laws and norms. There seem to be a difference between which laws attract compliance. When it came to state laws it was common to hear that lack of compliance by indigenes was not frowned upon by other indigenous community members and, therefore, these behaviours persisted. Some common statements were: *'We have love*

*for ourselves, we are a family in this community so no one would like to report any wrong doing of a family member'* (Community member, Abono, April, 2017). Often, the effectiveness of law, inability to correct wrong doing and ensure 'acceptable' behaviour were seen as the factors militating water resources governance effectiveness. Migrants were said to be more likely to breach customary laws.

A fundamental issue was the link between the success of a governance regime and how community members saw the process of law making, enforcement of laws, on one hand, and the benefits that obeying the law brought to community members, on the other hand. It can, therefore, be concluded that the authority to enforce water governance laws and norms, the sense of ownership of the governance process (involvement in decision making) and the benefits that can be obtained from a working legal system influenced attitudes towards water governance. Therefore, to gain legitimacy as a law maker, factors such as community members' acceptance to be bound and their views on the purpose of that law contributed to the legitimacy of the legal system.

Basically, social ordering is grounded in participation and acceptance. Further, the issue of compliance and or adherence to state laws and customary norms are linked to the ability of the issuer of the laws/norms to enforce them and exact punishment. These views seem to principally reflect attitudes towards state laws more than customary norms.

For customary norms/laws, the views above seem to differ to an extent. Customary norms are basically the set of rules that have evolved at the local level based on acceptable behaviours, moral values and religious beliefs. Therefore, there is 'acceptance' embedded in the fabric of this type of law. This study found that community members seem to have a better attitude towards customary norms which they saw as more acceptable. Where

community members felt that these norms were ineffective, they attributed this to the fact that when community leaders were also non-compliant community members have no incentive to be compliant. This somehow influenced willingness of community members to respect the norms and, therefore, comply with them.

The question of ineffectiveness and non-enforcement seemed to go with lack of stiff penal sanctions (aside moral suasion or force) attached to customary norms/laws. This affects compliance, which tends to be generally low. Among the reasons given were that traditional rulers do not have the power to punish offenders with penal sanctions. Whatever punishment can be given was of a moral and/or spiritual nature.

**Box 6.9: Attitudes towards adherence to laws and customs LBCA**

**Attitude towards adherence**

*The norms are adhered to because there are sanctions attached to breach of the norms (Community member, Nkowi, April, 2017)*

*The citizens adhere to the norms because the chief says so and as a **sign of respect** needs to be obeyed (Community member, Nkowi, April, 2017)*

**Attitude towards non-adherence**

*The customary norms are not effective because the leaders do not enforce the norms and people do what they want (Community member, Abono, April, 2017)*

*The customary norms are not obeyed in recent times because there is no chief (in Asaaman) in charge of the lake who will perform the rituals needed to make the lake fruitful (Community member, Ankaase, April, 2017)*

*The people do what they want because they do not get anything from the lake (Community member, Dompaa, April, 2017)*

*There is unemployment and people are hungry, they can't obey the norms and go hungry (Community member, Dompaa, April, 2017)*

*This is because the community people do not get the needed benefits, such as fish (Community member, Ankaase, April, 2017)*

**Source: Author's field work 2017-2018**

The lack of punishment and lack of benefits from the water body contributed to the ineffectiveness of laws. The traditional authority and DA to whom breaches were reported tend to ignore or fail to punish the offenders appropriately. From the traditional authority FGD discussions, traditional rulers indicated that they lacked enforcement powers because

the state does not allow them to punish offenders. The other dominant reason in the LBCA was that when community members saw no link between obeying laws and norms and economic benefits from the water body, positive attitudes and compliance are not an attractive option (see Box 6.9).

In the WLCA, attitudes on effectiveness and compliance was linked to knowledge of the laws and actors, (see Tables 6.5.). Where there was a lack of knowledge and visibility of state actors, community members were of the view that these actors and laws were ineffective. Where community members did not know state water governance laws they could not give a view on their efficacy or otherwise. Where actors are visible as in the case of the WLCA, (military), community members attributed effectiveness (see Box 6.10.).

**Box 6.10: Attitudes towards effectiveness (WLCA)**

**Attitude towards adherence**

*They are effective because there are security officers to enforce the government laws (Community member, Weija, April, 2017)*

*It has been effective since the soldiers started patrolling the water and checked fishing methods (Community member, Weija, April, 2017)*

*Water Works (GWCL) are very strict when it comes to water management (Community member, Weija, April, 2017)*

**Attitude towards ineffectiveness and non-adherence**

*I don't know of the [water] laws even though I know there are laws so I can't tell whether they are effective or not (Community member, Ayikai Doblo, April, 2017)*

*Government has too much responsibility and the district assembly is not even connecting well with the local people. The laws are good but are not being implemented (Community member, Tomefa, April, 2017)*

*Not effective because of poor enforcement (Community member, Tomefa, April, 2017)*

**Source: Author's field work 2017-2018**

In both study areas, community members were of the view that actor effectiveness is linked to compliance and enforcement. Where the state actors are present people feel that governance was effective. Community members also believed that for a system to be effective it needs to integrate all members of the community.

The factors that affect the effectiveness of state law and customary law are similar in the sense that lack of the ability to engage community members in law making and also the lack of the ability to enforce law affects its effectiveness. Community members feel that customary law is ‘our law’ so are more inclined to see it as effective and so respect it.

### **6.3.3 Personal Responsibility to Protect Water Bodies**

In addition to views on effectiveness, views on responsibility for governance was assessed. Therefore, another measure of attitude was an ascertainment of the views of community members to find out if they felt that they had a personal responsibility to protect the water body. Since some community members depended on the water resources for their livelihoods these links were deemed important. Although overall only 30.6% (see Table 6.1) community members make a livelihood from water with the BoD having the largest number (39.8%) and GAW having the lowest number, 20.6% many community members linked personal responsibility to the ability to get livelihoods benefits from the water body such as gaining revenue from tourism (LBCA). On the other hand, some community members indicated that protecting the water resources was the responsibility of traditional authorities and other community members. Also, some community members indicated that personal responsibility was not enough to protect water resources. Rather, a collective community responsibility was what was needed. This seems to indicate that community cohesion is a factor for water governance. Additionally, community members felt that ownership was linked to responsibility. Views from both study sites are presented in Box 6.11 and Box 6.12.

**Box 6.11: Personal/community Responsibility LBCA**

<p><b>Personal Responsibility</b></p> <p><i>Water is important for us all; it is my personal responsibility to manage it (Community member, Abono, April, 2017)</i></p> <p><i>As a good native of the community, it is right I make it my personal responsibility to protect the lake (Community member, Ankaase, April, 2017)</i></p> <p><i>I should be responsible concerning water resources because they are legacies for the future. We all depend on the resources (Community member, Abono, April, 2017)</i></p>
<p><b>Community Responsibility</b></p> <p><i>I should be responsible concerning water resources because they are legacies for the future. We all depend on the resources (Community member, Abono, April, 2017)</i></p> <p><i>The moment you are born into this town managing the water becomes your responsibility (Community member, Abono, April, 2017)</i></p> <p><i>A personal responsibility is not strong enough to protect the lake lots of hands are needed (Community member, Abono, April, 2017)</i></p> <p><i>The lake serves all of us in terms of domestic use and fish, and it should be all of our responsibility (Community member, Nkowi, April, 2017)</i></p> <p><i>Water is very important to us all. We all use water resources and everybody should make it a priority to care for them (Community member, Ankaase, April, 2017)</i></p>

**Source: Author's field work 2017-2018**

**Box 6. 12: Personal/Community Responsibility WLCA**

<p><b>Personal Responsibility</b></p> <p><i>It is my responsibility but without authority I can't do anything (Community member, Weija, April, 2017)</i></p> <p><i>We are the users and so we have to protect the resource (Community member, Afuaman, April, 2017)</i></p> <p><i>Water is life! We can do nothing without water and as such it is a personal responsibility to manage water (Community member, Weija, April, 2017)</i></p>
<p><b>Community Responsibility</b></p> <p><i>Without water there is no life. We need to protect water in order to live. It is therefore everybody's personal responsibility (Community member, Weija, April, 2017)</i></p> <p><i>We all use the water body and so it is everybody's responsibility (Community member, Weija, April, 2017)</i></p> <p><i>We drink the from the water resources and should be our responsibility to protect it (Community member, Weija, April, 2017)</i></p> <p><i>It is not my personal responsibility alone because it belongs to the entire community (Community member, Weija, April, 2017)</i></p>

**Source: Author's field work 2017-2018**

In both study sites, many community members said emphatically that they take personal responsibility for water governance. To do this, they indicated that they would take personal

steps to properly manage water but also indicated that water governance is a community responsibility. Also, personal responsibility and initiative was linked to approvals from state actors such as the DAs and non-state actors, namely the traditional authorities allowing community members to act.

A difference existed in how community members in the LBCA and the WLCA viewed personal and community responsibility. Assertions of a stronger personal responsibility was identified around the LBCA; however, in the WLCA, community members indicated a lesser responsibility as the Weija Lake/Dam is controlled by the state actor GWCL and, therefore, any action must be sanctioned by the said actor. The community members felt that their responsibility for water governance is diminished.

From the discussions above, this study has established the fact that attitudes on effectiveness of laws and norms is linked to livelihoods/earnings, knowledge of the law/norms, involvement in decision making and compliance/enforcement. It is notable here that community members tie responsibility to protect water resources to benefits to themselves and the community. This resonates with Ostrom's (1968) theory on the common pool resources where shared natural resources suffer from governance challenges and individuals may act in accordance with self-interest and not for the common good of entire community, especially where governance structures are not participatory and inclusive.

However, the general consensus from the study sites here was that the governance of water is a collective responsibility. In the WLCA and the LBCA, responses were similar. A majority indicated that they see a joint community responsibility for water governance as the way to go. This means that local level engagement in governance is a necessary input. The harnessing and privileging of local knowledge, input and action is crucial in the water

governance process. The national level scientific knowledge and expert plans for governance requires a remodelling to include local level inputs (Atkins, 2019) riding on perceptions of personal and community level responsibility.

#### **6.3.4 Resolution of water governance issues**

The final part of the assessment of attitudes looked at how community members elect the actor they negotiate, accept and engage with for resolution of water governance issues. The focus of these questions was on possibilities of forum shopping when faced with conflicting decisions on water governance. This is a common feature of legal pluralism studies and is explored here as well. In essence, the presence of multiple actors provides an opportunity for community members to negotiate how they deal with multiple actors. To ascertain which actors community members saw as influential in the water governance space, a range of multiple actors were provided for respondents. The available responses for state actors were the WRC, EPA, Police and DAs. For non-state actors, traditional authorities and NGOs were the available options.

In the WLCA community members largely preferred non-state actors with as many as over 80% selecting that option (GAS -70%, GAS - 82%). In the LBCA, non-state actors score equally highly (BoD - 75%, BFD - 57%). In both study sites state actors were selected by about 15% of community members. Only in the BFD did about 32% of respondents indicate that they would resort to state actors (see Table 6.6). Further probes pointed that this choice was for the police. In about 8% of the cases, the choice of 'Other' was explained to mean that a forum was selected depending on the issues at hand. The popularity of non-state actors as a forum of choice for action shows a resounding preference for non-state actors in all study sites. Explanations were that these non-state actors were present and available and were traditionally the first point of call for many disputes. The legitimacy of non-state actors

as the actor with power and control on issues at the local level including water governance seems undisputed.

**Table 6.5: Forum Selection for Conflict Resolution**

Forum Options	State		Non-state		Other		Total	
	Freq	%	Freq	%	Freq	%	Freq	%
GaS	16	21.9	51	69.9	6	8.2	73	100
GaW	13	13.4	80	82.47	4	4.12	97	100
BoD	16	16.33	73	74.49	9	9.18	98	100
BFD	32	31.68	57	56.44	12	11.88	101	100
Total	77	20.87	261	70.73	31	8.4	369	100

**Source: Household survey, 2017**

Qualitative interviews showed that for resolution of water governance issues no community member selected the state (WRC, EPA or the GWCL). State actors selected were the district assemblies and the police. Further probes showed that the first set of state actors were not present or available in communities and therefore not a preferred choice. Some community members preferred community or family level resolution because water conflicts in their communities have not escalated to levels to seek external help.

State actor that were only to be resorted to because they had expert knowledge, experience and power to settle disputes and mete out punishments to offenders, where necessary. Also, the ability to issue sanctions and punishments play a role in forum selection.

The residential status of traditional authorities made them more attractive than the police, district assembly or other state actors. Some factors, however, undermined the legitimacy of traditional authorities as law enforcers. Some reasons were that some traditional authorities and some members of the ruling class sometimes tend to be law breakers themselves and seem not to be committed to resolving the issues. Yet, other community

members pointed to a lack of respect for traditional authorities, which leads to willingness to adhere to their judgement.

Generally, reasons for selecting actors were for convenience, availability, satisfaction and legitimacy. Community members assign a hierarchy to actors for conflict resolution. Some community members said that, to them, the degree of importance or grievousness of the conflict determines which actor to resort to (Box 6.13). Minor breaches or issues could be reported to the local committees or the water-related NGOs operating in the area, while the major ones were reported to the traditional authorities or state actors.

**Box 6.13: Forum Selection (LBCA)**

**Resort to Traditional**

*They (the chiefs) are the leaders, so they need to know when something is going on (Community member, Ankaase, April, 2017)*

*When you take it to the traditional authorities its better than going to the police station (Community member, Abono, April, 2017)*

*People are scared of authorities especially government authority (Community member, Domba, April, 2017)*

**Resort to State Actors**

*Some of the traditional authorities do not obey the laws themselves so they cannot solve the issues (Community member, Abono, April, 2017)*

*The traditional authorities will not address the issue to your satisfaction (Community member, Abono, April, 2017)*

*It is except that people do not respect anyone in this community the traditional authority will not even punish the person and will only let the reporter be an enemy of the culprit (Community member, Abono, April, 2017)*

**Degree of offence/hierarchy**

*If a community member violates a law, we need a community to first call the person to find out why the person did that before it is handed over to the Assembly (Community member, Abono, April, 2017)*

*Not all matters need to be sent to the authorities. However, when needed, the chiefs will resolve the issue (Community member, Abono, April, 2017)*

*Depending on the issue and who you go to, a major issue should be sent to the "Adamankese" and minor issues can be handled by community representatives on water management (Community member, Abono, April, 2017)*

**Source: Author's field work 2017-2018**

In the WLCA, community members resorted, more readily, to the traditional authorities (Box 6.14). This was because this group of actors were seen as more knowledgeable and experienced to resolve such issues. Further, they indicated that as a sign of respect, issues were reported to the traditional authorities before resolutions are sought elsewhere. This seems to challenge initial assumption of this study of that traditional norms were more valued in the LBCA rather than the WLCA. This is an interesting finding because in a more urbanized setting, community members indicated respect for traditional rulers while in a more rural area community members indicate that the traditional rulers are sometimes the law breakers. It seemed that the control over land is what gives traditional authorities in the LBCA their more powerful authority and control.

The in-depth assessment showed that non-state actors have a role to play in governance which is strengthened by their presence and proximity to community members. Their legitimacy is weakened by an inability to enforce the laws. Community members see actors as a hierarchy and will resort to the coercive power of the state i.e. the police as the last resort. Therefore, the state is not solely engaged as having power to solve problems readily in a cooperative manner but to coerce behaviour. This did not happen often though.

Traditional authority legitimacy is still in operation even in the face of state control of water resources.

**Box 6. 14: Forum Selection (WLCA)**

**Resort to Traditional**

*The authorities are in charge of the Doblo community and they can resolve water related issues (Community member, Ayikai Doblo, April, 2017)*

*The chiefs know more of what happens in the community (Community member, Afuaman, April, 2017)*

**Resort to State Actors**

*Government Authorities have the knowledge to solve issues (Community member, Tomefa, April, 2017)*

*The government authorities are in charge and as such can resolve water related issues (Community member, Weija, April, 2017)*

**Degree of offence/hierarchy**

*It is necessary because authorities are supposed to adjudicate justice except that it is even difficult getting a reliable authority who will act on people report (Community member, Ayikai Doblo, April, 2017).*

**Source: Author's field work 2017-2018**

However, legitimacy and ability to get satisfaction from an actor who is deemed to have more power guides action of community members. Community members resort to traditional authorities because of proximity and respect. State actors are contacted because of power to exact punishment and ensure compliance/enforcement. It is, therefore, obvious that the roles of traditional authorities are fully recognized for water governance in the plural legal system under study. The patterns for forum selection in this study reflects studies in Ghana (Boamah & Walker, 2016), Uganda (Tchatchoua-Djomo, 2018), and Jamaica (Zips, 1996) where convenience and accessibility have been the key consideration for forum selection. Community members' attitudes depend on what benefits they obtain from the water, knowledge level, and involvement in decision making influences people attitudes towards water resources governance.

## **6.4 Practices**

Assessment of the practices of community members were carried out in two ways. This section discusses the day to day water use practices of community members and their

activities (practices) relating to water management and conservation activities. The latter kind of practices are actions and initiatives taken alone or in collaboration with others in the community.

In the LBCA, primary livelihood activities is farming with over 15 % of the community members being farmers. About 34 % are fisher folk and over 48 % are engaged in a myriad of non-water resources related jobs, especially trading. Although the Lake Bosomtwe is a known tourist area, only 1.51% of community members were involved in the tourism industry. In the WLCA 9.41% are farmers primarily, over 17% were fisher folk, and the majority of over 70% (see Tables 6.1 and Table 6.7.) are engaged in none of the water related livelihood activities.

**Table 6.6: Main water related livelihood activity**

Location	Activities				Total
	Farming	Fishing	Tourism	Other	
<b>LBCA</b>	31	68	3	97	199
<b>%</b>	<b>15.58</b>	<b>34.17</b>	<b>1.51</b>	<b>48.74</b>	<b>100.00</b>
<b>WLCA</b>	16	30	0	124	170
<b>%</b>	<b>9.41</b>	<b>17.65</b>	<b>0.00</b>	<b>72.94</b>	<b>100.00</b>
<b>Total</b>	47	98	3	221	369
	<b>12.74</b>	<b>26.56</b>	<b>0.81</b>	<b>59.89</b>	<b>100.00</b>

Pearson  $\chi^2(3) = 23.6877$  Pr = 0.000

Source: Household survey, 2017

#### 6.4.1 Actions and Initiatives of Community Members

The above shows that community members were not keen to take actions when it comes to water governance. Apart from the fact that a majority of these community members did not earn a living from the water, varied reasons were given. Many cited the lack of cooperation from other community members, their inability to act due to their age, the fact that they do

not have the legal authority to act, their lack of ownership of the resources and lack of incentives. These views were expressed in both catchment areas.

**Box 6.15: Reasons for non-action LBCA**

**Lack of cooperation from others**

*People will not listen or help, I will not take initiatives because I will not get support from others (Community member, Abono, April, 2017)*

**Inability due to age**

*I am too old to that, I am old now. I will tell my children to do what I want to do concerning the water body (Community member, Abono, April, 2017)*

**Not the Owner**

*I cannot do that because the water body does not belong to me alone (Community member, Ankaase, April, 2017)*

*The water is not mine. The chief has to take an initiative (Community member, Domba, April, 2017)*

**Do not have authority**

*I am not the chief, I cannot decide on the lake protection (Community member, Abono, April, 2017)*

*I have to seek permission from the committee in charge of managing the water body, There is a committee to protect the water (Community member, Abono, April, 2017)*

*I am a stranger and I do not want people to insult me so I will not do anything to protect the water (Community member, Abono, April, 2017)*

*The government will need to authorize us to do what is needed to be done (Community member, Abono, April, 2017)*

**Incentives**

*If I am been paid by the government then will do it, if not then I won't do it (Community member, Abono, April, 2017)*

*I do not see anything I can do, but if the government wants to employ people to clean up the banks of the lake every day, then I will join. (Community member, Abono, April, 2017)*

*I do not have the time (Community member, Abono, April, 2017)*

**Source: Author's field work 2017-2018**

Commonly community members in the LBCA required incentives to act which was not a common case in the WLCA. In the WLCA, a majority of community members indicated an inability to undertake any water governance initiative on their own accord. To them, this is mainly because they do not have the right to do so as the state is fully in control. Migration and being an indigene was seen as an issue and a factor for taking action and initiatives.

Some community members indicated that they are either migrants and lacked the authority to act or that they lacked the necessary resources and authority to do so. Most significantly the fact that there is a strong state actor present in the form of the military was a disincentive to act in the WLCA (see Box 6.15 and Box 6.16).

**Box 6.16: Reasons for non-action WLCA**

**Lack of cooperation from others**

*I would not do anything because most of the people who violate water laws in the community are armed and I do not want to risk my life (Community member, Weija, April, 2017)*

**Not the Owner**

*I don't have the right since I am a migrant (Community member, Tomefa, April, 2017)*

*I am not an indigenous and the community will not follow and allow me. (Community member, Tomefa, April, 2017)*

**Do not have authority**

*Unless I get approval from the traditional leaders, I don't have the authority (Community member, Afuaman, April, 2017)*

*I am scared to do anything without authority's permission, I am powerless to take any initiative to protect water (Community member, Afuaman, April, 2017)*

*The water works (GWCL) is able to protect it so it does not need any further protection. All I can do is to report culprits to the Water Works (Community member, Weija, April, 2017)*

**Source: Author's field work 2017-2018**

Overall, while having knowledge of actors and being educated is an incentive to undertake water governance practices, believing in the effectiveness of the state law and earning a living from the water body influences community members practices.

There seems to be a disconnect between community members and the water resources their community hosts. Having a multiple governance framework with varied centres for decision making, decision making that seems to be top down, little involvement of non-state actors and community members creates a governance platform which produces contested outcomes both at the institutional and local levels.

The KAP has shown that the water governance systems in the LBCA and the WLCA are underlined with the common pool resources theory and political ecology theory. The exercise of power over resources is in a manner that does not benefit local people had led to apathy. Rules do not seem to be known or clear, especially state laws, and does not consider local governance structure and conditions. The rule making processes do not strongly involve local people who see these rules as from external sources must with little or no of local participation. Also, when conflicts arise, where the local cost effective means of resolution is not seen as empowered to act governance is problematic as Ostrom (1968) had established in her eight principles for natural resources governance.

In addition to the above, there have been attempts by the state and supra-state actors to transform local knowledge in the case of the LBCA. The creation of the CREMA and the introduction of ‘new customary laws’ is an attempt to transform local knowledge to suit the governance aspiration of external actors. This knowledge transformation has not been fully successful and references to ineffectiveness of law and customary norms refers to CREMA laws as well. To gain legitimacy state and supra-state actors had brought these laws into the community through the traditional authorities.

### **6.5. Knowledge Production and Transformations Customary Law - The Case of Lake Bosomtwe Catchment Area**

In the assessment of community members’ involvement in water governance it was discovered that in the LBCA, the engagement between decision making actors and community members had resulted in a programme aimed at introducing laws and norms into the community. This programme by the supra state actor UNESCO in collaboration with state actors (EPA as the lead institution, and the WRC and traditional authorities) had attempted to transform the local norms and laws with the aim to attain better governance.

This had resulted in the introduction of laws which community members referred to as ‘UNESCO laws’ (Table 6.8). These new laws mimic the old customary laws with ‘amendments’ to reflect the problems perceived by its framers. The formation of customary laws, however, gives it the traditional legitimacy as it is seen as having evolved over time, being passed down from generation to generation and best serves the needs of the community. The UNESCO laws were drafted by actors external to the community and introduced into the community through already existing traditional community structures.

**Table 6.7: Old and New Customary laws**

<b>Old Customary Laws</b>	<b>UNESCO Customary Laws</b>
No women should bath in the lake and women in their menstrual period should not step into the lake	No one should bath with soap in the lake
No washing of blackened pots in the lake	No washing of any food in the lake
Fishing and boating should be with planks	No vessel control
Farming of vegetables along banks allowed	Farming along banks prohibited. Only replanted coconut trees along banks
No disposal of waste in the lake	No disposal of waste in the lake
Fish sizes prescribed	No rules on fish sizes/Net sizes are prescribed

**Source: Author’s fieldwork, 2017.**

In spite of these laws having been introduced into the communities by traditional authorities, community members in the LBCA did not seem to readily accept these new laws. Commonly, many saw it as an imposition and indicated that many of the restrictions were not based on the needs of the community. In some instances, the laws were seen as watered down, especially with the removal of gender restrictions. Certain restrictions like the use of soap and washing of food residue in the lake were seen as superficial as they said “*these things our elders had done it from history*”(community member, Ankaase (LBCA) May, 2017) and that the fish fed on the food. To them these restrictions reduced fish feed and, therefore, led to poorer fish catch.

The process of introduction of these laws were a ‘handing over’ process as contrasted against an evolution process. The process was described as:

*UNESCO officials were finally handing over the laws to us and inaugurating the committees at Abono, the chiefs of Kokofu, Kuntense and a representative of the Asamang chief were present. The Asamang chief was represented because he was said to have travelled on that day. So all these paramount chiefs gave their approval and support for the UNESCO laws and that anyone who violates them would be taken to the chiefs for the necessary punishments (Male FGD, Ankaase, LBCA, April, 2017).*

On the other hand, traditional laws were seen as an integral part of the knowledge systems of community members making it more acceptable. Its place and role in society was clear and gave it a high level of acceptance as was discussed in the male FGD in the LBCA. It was explained that:

*“The traditional laws were more like a part of the people because they were taught right from infancy so they grow with it. Therefore, if we hear that the chief is about to perform the rituals, no one dare goes into the lake but because the UNESCO laws are new, the receptiveness to it becomes a bit of problem to even us the elders. (Male FGD, Ankaase, LBCA, April, 2017)*

It seemed that the attempted norms and knowledge transformation has not met with a high level of acceptance. The manner of its creation had put it in the similar frame to state laws. The knowledge of norms and laws and how these laws and norms were introduced into communities play a role and influences attitudes and practices. It would seem prudent that in the process of law making for water governance careful consideration of all range of actors and community knowledge systems becomes relevant. Introducing new laws through state and supra-state actors with legitimacies not seen as influential in communities does assign automatic legitimacies to these new laws and norms.

## 6.6. Conclusions

Community level knowledge is a factor to consider in the governance framework where various actors are operating with varied legitimacies. At the local level, traditionally accepted knowledge patterns influence action and practices. The perception of control by an actor, proximity and benefits from the resource drives community action. In state-controlled water governance framework (LBCA), level of knowledge of state laws seems to be quite low as compared to that of the knowledge of customary. Community members believed that when it comes to influence in water governance decision, customary law actors were seen as more influential. Assessment of the attitudes of community members, showed that willingness to be part of water governance is influenced by knowledge and earnings from water resources. Significantly, making an earning from the water positively influences the likelihood of having a better attitude. In assessing attitudes on how effective water governance frameworks were, community members strongly linked effectiveness of governance frameworks to compliance and enforcement. In addition, community members viewed personal responsibility as strongly linked to benefits from the water body. In forum election, community members tended to defer to traditional authorities to address water governance issues. This was attributed to the fact that traditional rulers were visible and present in their communities and were the first point of call. Also, respect for traditional rulers tended to influence election of that forum. Moreover, actor's power and authority was also key. Where community members felt that actors had no authority, they were less likely to resort to them. Where authority figures were seen as law breakers themselves, it created a disincentive for forum selection. For practices, community involvement in water governance either at the community level or catchment level is driven by the levels of involvement of community members in the governance process and benefits or incentives. Even where community members are involved, the governance process, where external actors such as supra-state actors or the state attempt to transform local knowledge and laws

based on expert scientific knowledge, such a process is met with limited levels of success. This is exemplified in the case of the old customary law vrs. the UNESCO “laws” in the LBCA.

In sum, for knowledge, location, (for the LBCA) seems to be a determinant of knowledge of state laws. Apart from being formally educated (WLCA), generally, socio-economic characteristics were not positive determinants of knowledge, especially of customary law. More significantly, activities such as attending programmes generally increased knowledge of customary laws in the WLCA. For attitudes, while location (LBCA) and formal education did not positively determine willingness, earnings did. When community members were consulted and involved in decision making (WLCA) by multiple actors it tends to have positive impact on their attitudes. This seems to resonate with Ostrom’s recommendations on the management of common pool resources. For practices, in the study site with collaborative/coordinated actors and more knowledgeable and positive community members who were more involved in water use activities for their livelihoods (LBCA), there seemed to be better practices. Also, local level engagement in governance activities reflects better knowledge and attitudes.

Having established how local level engagement in water governance in a plural legal system through the KAP framework, this study assesses the implications of macro level and micro level governance frameworks for water governance.

## CHAPTER SEVEN

### OUTCOMES OF WATER GOVERNANCE

#### 7.1. Introduction

This chapter assesses the outcomes of water governance in the plural legal system in Ghana. Implications and outcomes of water governance in the plural legal system in Ghana arise from the decision-making processes of actors in the context of their power, authority and legitimacy. Community level engagement with the governance process also has implications for governance outcomes. The type of actors, their legitimacy and space in which they operate, and the varying practices of community members, has implications for governance outcomes which may be positive or negative.

Outcomes are categorized into material (tangible) and immaterial (intangible) outcomes (Franks & Cleaver, 2007). Material outcomes include livelihood issues such as health, markets ecology, among others, while immaterial outcomes are reflective of political issues such as implementation and enforcement of rules and norms, rights of access and allocation of water resources. Other immaterial outcomes are the cultural and political voices defined here as the involvement in decision making (Cleaver & Hamada, 2010). Factors such as community characteristics, institutional diversity, and operational concerns impact outcomes as well.

Political outcomes reflect inclusive or exclusive governance structures while economic outcomes have livelihood related elements. On the other hand, social outcomes relate to the achievement of personal improvement goals such as health and educational benefits, and can be linked to ecological or environmental outcomes as well. Environmental conservation goals, such as pollution control and the physical state of the water body may also fall under social outcomes as it concerns physical social settings.

This chapter evaluates the outcomes for water governance relating it to the role of actors and societal/situational contexts and how that shapes the overall water governance regime and not just issues of water allocation and supply (Cleaver & Hamada, 2010).

## 7.2. Key findings on Outcomes

These key economic, political and social outcomes were assessed in a mixed methods approach and the quantitative findings were shown in Table 7.1.

**Table 7.1: Economic, Political and Social Outcomes**

	Overall	GAS	GAW	BoD	BFD
<b>Economic</b>					
Earnings	30.6	37.0	20.6	39.8	26.7
<b>Political</b>					
Presence of community programs	27.1	11.0	10.3	37.8	.44.6
Attending community Meetings	28.2	15.1	05.2	27.6	60.4
Involvement in decision making	06.2	05.5	07.2	06.1	05.9
<b>Social</b>					
Involvement in water activity	25.7	26.0	36.1	24.5	16.8
Water diseases	23.3	31.5	61.9	02.0	01.0

**Source: Household survey, 2017**

### 7.2.1 Political Outcomes

Political outcomes were assessed with three variables. Involvement or consultation in decision making included calling for and attendance of meetings, the presence of community programmes for decision making and actor involvement in conflict resolution.

In the LBCA, over 60% of community members attended meetings called by the state actors compared to just about 5% of the community members in the WLCA. While in the LBCA, as many as 44% indicated the presence of community programmes, in the WLCA only 11% of community members admitted that such programmes existed. Involvement in decision making responses were low in all the study sites. It was about 6% for the WLCA and same as in the LBCA (see Table 7.1). Although higher numbers admitted being consulted (see Table 7.2) existing community level structures for decision-making showed that community leaders represent the community members in the state structures for decision making and therefore there is little direct involvement of community members as reflected in Table 7.1.

**Table 7.2: Consultation of community members**

LOCATION	Yes	No	Total
LBCA	89	110	199
%	44.72	55.28	100.00
WLCA	54	116	170
%	31.76	68.24	100.00
Total	143	226	369
%	38.75	61.25	100.00

Pearson chi2(1) = 6.4867 Pr = 0.011

**Source: Household survey, 2017**

### 7.2.1.1 Community Involvement and Engagement

Community members in the LBCA had strong views on the involvement of all the ranges of actors in decision making and their engagement with the community and how that made them effective or otherwise. People in Nkowi and Dompa expressed the view that traditional authorities were strongly involved in the decision-making and represented the community in the law-making process with other actors when necessary. Views were split on the issue that non-state actors carry the views of community members in the state governance decision making systems. A common view was that

*“[T]he traditional leaders represent us at the district level and decisions are disseminated to us for approval...[T]he leaders from the community makes the decisions with inputs from the community...”* (Community member, Dompa, LBCA, April, 2017).

Other community members said that “[O]ur representatives take inputs from us and so it helps because we are part of the decision-making process. But now no one obeys the law” (Community member, Dompaa, LBCA, April, 2017).

Again, another respondent said, “we were consulted before the laws were made and we have been able to protect the little benefits we have from the lake” Community member, Ankaase, LBCA, April, 2017).

Others were of the view that decision making is not consultative. Some community members felt that they were not adequately consulted. The fact that some traditional authorities were not habitually resident in the community and ceded their roles to caretaker chiefs was seen as a lapse in decision making process. This led some of the community members to accuse the community leaders of being oblivious to the plight and needs of the communities and, therefore, make or agree to regulations that do not tackle the real governance challenges of their communities. This is evidenced by the fact that for the LBCA, only Nkowi in the BoD has a resident traditional authority. The others had Odikro representing the chiefs who lived in Kumasi, the Ashanti regional capital. To buttress these points, some sentiments were summed up by a community member that “the leaders who take the decisions do not know what goes on in the lake and so their decisions do not work to benefit the community” (Community member, Dompaa, LBCA, April, 2017). Another person also said that:

*“[W]e are not consulted before any decision is made and the decision were imposed on us [in relation to the UNESCO laws], and the process of decision making and decisions taken is done without the community people and so do not work”* (Community member, Aborodwum, LBCA, May, 2017).

This means that legitimacy and powers of non-state actors are based on engagement of community members. However, where the state actor engages the traditional authorities the

process does not reach the local people. This makes the community members not so receptive of the new laws.

The process of consultation and engagement of communities is at the community level and there is uncoordinated action by all communities. Post-CREMA, some community members believe that there is a seeming lack of consensus on how to proceed with governance initiatives. While some communities adhered to and worked together to conserve the lake, other communities flouted laws. It was common to hear that:

*“[T]he towns around the lake do not agree on issues and this does not auger well for the lake because people do different things... the lake is polluted from other communities because they don't obey the laws...that is why I was saying we are obeying the laws but other communities are not so it makes it useless...they said they wanted to protect the water with the law but the things they are preventing us from doing is being done in other communities”* (Community member, Dompaa, LBCA, April, 2017)

The lack of a converging point for uniform adherence militates against comprehensive political systems for governance around the whole lake. The convergence was introduced by the state and supra state-actors. Its workings are left for the communities who at the time of the study doubted the legitimacy of CREMA as a coordinating body.

In the WLCA, community members indicated a lack of involvement in the decision-making processes. Majority of community members reported that they do not know the processes through which decisions regarding the water resources are made by state actors and for what purpose. Even though the community members conceded that the laws are very important and meant to protect the water resource and the communities, they attributed certain factors such as lack of consultation and the absence of the ‘state’ in their communities as issues that militate against the success of water governance. Lack of coordinated action by state and

non-state actors and the poorer knowledge and attitudes of community members lead to poorer governance outcomes – lack of consultation, a lack of political voice.

In the LBCA as many as 55.3% of respondents indicated that they were not consulted. The number was higher in the WLCA (68%). Overall, over 60% of community members are not consulted in decision making and lack political voice.

### **7.2.1.2 Legitimacy and Conflict and its Impacts**

Another issue raised repeatedly in the WLCA was that the power, authority and legitimacy of traditional authorities were negatively impacted by chieftaincy disputes (in three out of four of the study communities, Ayikai Doblo, Tomefa and Weija). This affects how and when meetings are called to create a platform for community involvement.

No chieftaincy dispute was discovered in the study communities in the LBCA. However, the land and water ownership structures create a separation of control over land and water albeit. The land was also not under the control of one authority but several. The Asamanhene, who is the overlord of the lake, had the responsibility to coordinate issues on the lake. However, Asaman is not a community along the lake and action from the Asaman chieftaincy relied on information from communities near the lake. Community engagement was carried out periodically and on a need basis. From the traditional authority FGD in Nkowi this was one of the main points reiterated:

*“That is what I am saying, no one can solve any issue, unless Asamanhene the owner of the lake, he would take it up on himself, that he has seen this change on the lake so the chiefs should come so that they can make plans on it. Besides that, because every chief has their own paramount chief, no one can call a meeting except for Asamanhene (Traditional Authority FGD, Nkowi, LBCA, May, 2017)*

In spite of this, for community engagement, the LBCA has better and more workable structure. There was a system for dealing with issues in a coherent manner. Community

engagement was further enhanced with the creation of CREMA. No such structures exist in the WLCA. Periodic meetings are called by the state actor which engages the community members through their traditional authorities. However, that system itself is questioned for its efficacy. A common sentiment expressed in the Weija community traditional authority FGD summed this up when they said:

*“[O]h, we attend some meetings with the WRC, they tell us things, give us an envelope and that is that. We are not consulted to make decisions or to carry out activities...we are not well engaged, we do not have the power, all our lands are taken, we cannot do much”* (Traditional authorities FGD, Weija Community, WLCA, April, 2017).

For the political outcome of decision making, there are better structures and processes for involvement in decision making in the LBCA than the WLCA. The power and control of the state that translates into taking decisions solely although the decision-making structures examined in Chapter Five seemed to present a different picture.

State laws are seen as too rigid, because *“the government restrictions are too many and they do not consult us before setting the rules”* (Community member, Weija community, WLCA, April, 2017). Others also said that *“they take decisions without consultation. They have even closed the bridge to pedestrians right now and we have no access [on the water] to the other side of the community”* (Community member, Weija community, WLCA, April, 2017).

Apart from concerns expressed on involvement in decision making, weaknesses in the linkages between the actors is pointed out by community members in the WLCA as a factor that affects state actor controls. Some community members opined that *“there should have been [a] collaboration between the chiefs and the Water Works (state) but there is none so the community does not benefit”* (Community member, Weija community, WLCA, April, 2017). Another community member concluded with this common sentiment that *“...both*

*the government and the chiefs have failed the community*” (Community member, Afuaman community, WLCA, April, 2017) because they fail to work together in the governance framework. This is a profound statement of the role of state and non-state actors in the WLCA. The strength of the state in Weija seems hegemonic and does not give room for collaboration with other actors. The traditional authorities have no power to engage in and involve the community in decision making and this is as a result of being weakened, firstly, by lack of control over land and chieftaincy disputes. Decision-making reflects a top-down approach and there is ‘no voice’ from the community members. As a result, decisions, rules and norms are easily ignored.

Some supra state actors supported the community view on poor state governance structures. Representatives of the NGOs, A-Rocha Ghana and Friends of Rivers and Water Bodies, both made the point that there was a lack of political will to act and enforce laws leading to poor political outcomes. The way forward to solidifying CREMA’s role was captured in the statement below on coordinated action at community level and actor level:

*“[I]t is also important that especially the CREMA in terms of the governance structure and the bye-laws, [and] in terms of its enforcement the human face should be taken off because one of the things we are seeing is that for some of the communities you go and they are complaining that for their place (law enforcement) it is being done but in other places it is not being done. This is something I think is not so much interesting. Because I think that with the local activism we are able to make things work...because when we started, there was a sort cage fishing operating on the lake and ....the person who was operating it had a political backing and so it was very difficult. We as an NGO had advocated that it was not safe for the lake because over the period research showed that the endemic species were being lost as a result and rather the tilapia and other species were taking over because they were hardy. So we went several times to both the Water Resources Commission and the District Assembly but because of the political backing, they could not help”* (Programmes Officer A-Rocha, Ghana, June, 2017).

Ceding of power to community members to allow them fully engage in water resources governance was recommended. A programmes officer for an NGO was of the opinion that:

*“...we opted ... to empower the communities. So, we were able to actually get that thing off by making the communities themselves stand up and say that, “No this would destroy our lake” ... You see that when you bring in the larger masses where they all have an understanding of a process and a program, they commit themselves to it. You make them understand that if it (the water body) dies, you will all lose your livelihoods and all that. So, I think one of the core areas to look at” (Programmes Officer A-Rocha, Ghana, June, 2017).*

This kind of focus and direction by supra-state actors is missing in the WLCA. There is, therefore, a weakened non-state actor, and a weakened community resulting in lack of coordination and involvement in decision making. The water governance structure in the LBCA, however, fares better with stronger non-state actors who have power and control over land giving them better legitimacy. Also, the interest of non-state actors in this area provides governance direction some of which although going through some challenges seems to provide better prospects and platform for engagement leading to better political outcomes.

### 7.2.2 Economic outcomes

Economic outcomes are assessed on two variables. Livelihood activities for earning in a living and expenditure or costs in the form of fees or charges paid by community members. A minority of community members earn their livelihoods from water resources (30%). The highest number of people make a living from water resources is in the LBCA (39.8%) compared to the lowest number of such community found in the WLCA (20% (see Table 7.1, Table 7.2.).

**Table 7.3 Earnings from water resources**

Location	Yes	No	Total
LBCA	66	133	199
%	33.17	66.83	100.00
WLCA	47	123	170
%	27.65	72.35	100.00
Total	113	256	369
%	30.62	69.38	100.00

Pearson chi2(1) = 1.3143 Pr = 0.252

**Source: Household survey, 2017**

### **7.2.2.1 Livelihoods and Expenditures**

For those who make earnings from water, they are mainly 27 % are fisher folks (27% of sampled population). Farmers make up 12.74% of the sampled population, and almost 60% engaged in other trades. More people in the LBCA (15.58% and 34.17 %) are engaged in fishing and farming, respectively, as compared to those in the WLCA (9.41% and 17.65%) (Table 6.9). This means that people with a vested interest in the water are the minority of the population.

In relation to expenditure and costs by community members, a number of payments and expenditure were discovered. The first kind were payments in the form of royalties, fees charges, and ‘sacrifice’ levy paid to non-state actors. The other kind was fees paid to state actors towards the maintenance of water supply services.

Firstly, payments are made to the traditional authorities for the performance of traditional/spiritual duties. These duties are in the form of grant of access to a community member to ‘open the way’ ‘access fees’ for them to use the water resources. Through this, people paid allegiance to non-state actors. Community members indicated that they were obliged and committed to pay fees for the roles carried out by the non-state actors on their behalf. These duties encompass praying to the gods or praying to grant access to fisherman to commence fishing in the lakes. Among the range of payments made by community members in the WLCA is payments to the traditional authorities of Ngleshie Amanfrom. This is premised on the fact that stool is the paramount owner of the larger Weija lands outside the GWCL concession area and the power and control does not seem truncated in the eyes of the traditional authorities and the community members or anyone else seeking to use the water body for commerce. These traditional authorities still possessed the power to grant or restrict access to the water. They grant fishing and abstraction rights and receive

cash payments for such rights. This control was not complained about by the community members. It would seem, therefore, that in the economic sense the traditional authorities maintain some legitimacy and control.

Secondly, 'sacrifice levies' are paid. This is paid by fisher folk for performance of sacrifices to increase fish stock. It is also for making rituals at the end of a 'closed season' preceding the annual festivals. This sacrifice levy can be in kind, the form of a portion of fish harvested or in cash. In the WLCA, sacrifice levies are collected in cash. In the LBCA, however, they are in kind. However, in the latter case, the last time such a spiritual duty was carried out was in 1999. The reason attributed to this lapse was a protracted chieftaincy dispute at Asaman. Community members believed that this has resulted in low fish catches. In this sense the failure of the traditional authorities to perform the spiritual roles, has resulted in poor economic outcomes in communities where there is loss of revenue due to low fish catch. This means that a weakness in carrying out water duties and a lack of control did not fully diminish legitimacy. Although in the WLCA lack of control over land did not trump economic/spiritual powers over water, the traditional authorities are still seen as weakened with lesser legitimacy than the state.

In the WLCA community members referred to 'sacrifice or ritual charges' paid to the traditional rulers and the spiritual leaders like the 'Wulomo' to perform rituals on the water to increase harvest of fish. Another payment in this category are 'user fees' and other social/spiritual contributions towards annual traditional festivals events such as the Homowo festival and periodic sacrifices to the gods (usually asking for better fish yields).

A fourth kind of payment is the ritual purification rites fee or what was referred to as 'cleansing fees'. This is collected from community members and happened when there was

the need to perform rituals when a person drowns in the water body. In both study sites, when a dead body is discovered in the waterbody, ritual purification rites are carried out. In all the study sites, community members strongly linked purification and spiritual issues with the general 'well-being' of the water bodies. Community members attributed the presence and duties of traditional authorities as important triggers to solve issues of 'spiritual pollution'. Water is made pure and clean when prayers are said to the gods. Water has to be purified and this is linked to getting physical and economic results such as increase in fish yields. To them when water is 'spiritually unclean' the fish stock decreased. This makes it crucial that the roles of 'spiritual leaders' are not underestimated in the decision making and planning as well as the implementation process.

In essence, power and control are recognized as strong if they are linked to power over land. Land seems to be the basis of power, authority, control and legitimacy. This makes the separation of power over land and water problematic taken in the face of the fact that definition of water resources and a catchment or basin refers to land area as well (African Convention, 1968, UN Watercourses Convention, 1997 section 35, WRC Act, 1996).

Some payments were also made to state actors. These were paid to the district assemblies and were meant to solve a number of problems in the community. In the LBCA area, a community with an improved water supply system, such as a mechanized borehole, daily fetching attracts no charges. However, a system of communal contributions is triggered periodically and sporadically to support on a need basis. In the LBCA, community members indicated that they paid GH¢1.00 as borehole maintenance fee whenever the borehole breaks down. No such payment systems were discovered in the WLCA. These user fees were not strongly linked to power and authority, but to the fact that the system must run.

A second payment to state actors discovered in the LBCA was a product of the tourism industry found there. The payments went to the state actor (DA) and the traditional authorities although the payments are not coordinated. This, however, happens on three communities of Abono, Aborudwum and Nkowi. This is a 'toll collection' system for visitors to the water body. This tolling practice is carried out at a gate post erected by the Bosomtwe DA at the top of the hill prior to the descent into the valley in which Abono, Aborudwom and Nkowi are located. Tolls range from GHC2.00 to GHC5.00 depending on the persons entering the community and the occasion. Ordinarily, tolls are two cedis for 'strangers' and non-residents in the communities. Vehicles that carry passengers are stopped and passengers counted. Tolls are then collected from those deemed eligible to make payments. On festive occasions, "when the gate is sold to event' organizers", the toll is increased to five Ghana cedis. This process of "gate sale" is a commercial arrangement between the DA and event organizers who organise entertainment programmes on the lake.

This payment, however, has a dual face. Apart from the district assembly tolls, the traditional authorities run an information centre at Abono and also collect tolls from the tourists. The tolls are GHC5.00 cedis per tourist. The tourists are required to enter the information center and make the payment. In other communities, community members indicated that the traditional authorities tolling should be extended to their villages. These two payments are not coordinated. There was general resentment in the other study communities which questioned why only the village of Abono is benefiting from this system. However, even in Abono, where the traditional authority tolling has been going on for about 10 years, this toll collection system was said to sometimes degenerate into scuffles and created problems. In the women and men FGDs, some community members disagreed greatly with the double tolling, especially since they felt that the community does not benefit from the money. To them, the DAs money was not shared with the community. However,

interviews with the DA and the DCE indicated that that money was used to undertake community duties such as cleaning services. The community members also indicated that traditional authorities' tolls were also not accounted for to the community members. The community members expressed their concerns and said that:

*“[T]he tolls are too much ... if it is [collected at] the top up the hill [ it is] for the Assembly... they will take the toll, they should take it that one time...not take again in the community... Whoever comes here, someone collects money from you [them]... it's too much”* (Female FGD, Abono Community, LBCA, May, 2017)

Community members indicated that these concerns had received political attention and that during the election campaign in 2016, the communities were promised that tolling will stop. The politician promised that he will “...close down the barrier at the top so that anyone could come into this place freely...” (Female FGD Female FGD, Abono Community, LBCA, May, 2017)

The tolling has, however, not stopped and the incidence of double tolling has, in some instances, created conflict as told in the women's FGD as follows:

*“About a year ago, a white man came here, they hustled 1 million (GHS 100) out of the man and the white man run to the police... I am talking about the Information Centre...He came with a car, they said he should enter the building [the information Centre] and the white man said he won't enter the building and now [he] called police that the people ... took 1 million from him and then the madam [District Chief Executive] at the top sent the report and they [the police] came to take back the white man's money and gave it back to him...So if it is those at the top, they will take the toll, they should take it that one time...”* (Female FGD, Abono Community, LBCA, May, 2017)

This means that the collection of tolls from two different entities in a disjointed manner creates conflicts and disagreements in the community. The presence of plural actors collecting tolls for the use of the water body creates conflicts and discontent in the communities. Both state and non-state actors exercise the power and control to take tolls. The uncoordinated nature of this decision and action undermines the legitimacy of both

actors leading to contestations and conflicts. It is worthy to note that it is not the WRC (which has the primary legal mandate over water resources) that is in charge of the tolling but the district assembly.

No costs are incurred for domestic uses of the water bodies when fetched from the water body directly making it a common resource use. This is a traditional system which seems to have been given confirmation in the state law, the Water Use Regulations L.I. 2001, which grants exemptions from water charges for domestic water use and subsistence agriculture.

In sum, the findings show that only a minority of community members in both the WLCA and the LBCA made a living from water resources. For those who make such living, they gain access and rights to the water body from non-state actors. Payment in the form of fees, charges and royalties are paid in cash or in kind to non-state actors for the performance of spiritual duties. These non-state actors maintain a legitimacy to perform these roles. However, where charges were collected by both state and non-state actors, the lack of a coordinated decision-making process and action brings about contested outcomes.

Findings on economic outcomes of water governance community reflects perceptions on legitimacy, ownership, power and control. Although in the WLCA land and water are under state control, community members defer to and make payments to non-state actors because they see them as the legitimate owners of the land and water with the spiritual power to make the water 'whole'. Land and water are seen as a unitary whole. Community members pay charges and fees before they go to fish. For permissions and access to use the water body and the payment of fees and levies, the power of traditional authorities is recognized and respected. In both study sites, the role of the traditional authorities is recognized. This

basis of legitimacy of these non-state actors is grounded in economic benefits and outcomes. The bigger and better economic benefits are found in LBCA from tourism. More community members earn a living from the water resource as well. In the WLCA, fewer community members depend on the water and there is no resistance of the power and control of the non-state actors such that payments are made to them without question. The water supply services give economic benefits to state actors and due to perceived lack of benefits from the water supply system, latent conflicts exist with community members' refusal to pay for water charges. For economic outcomes, there was a clash of legitimacy brought about by the lack of coordinated action.

### **7.2.3 Environmental Outcomes**

For environmental outcomes, two main measures were applied: the physical environment of the communities and the state of the lands around the water body. This is determined through the presence of litter and waste control/rubbish disposal and the recession of the water bodies.

#### **7.2.3.1 Physical Environment - Pollution**

Observation studies were carried out by looking around the community, asking questions and recording observations during the course of the study. For solid waste, focus was to discover waste collection sites, bins in households, the physical state of shorelines, and presence of litter in the water. For liquid waste, observation was made of gutters, and where the drains ultimately ended. Questions were asked on how waste is collected and disposed of. Questions were asked on the state of the shorelines and whether or not it had increased or decreased over the years. This information was gathered from in-depth interviews and community level observation over the study period of two years of visits to the communities.

In the WLCA, in Afuaman and Ayikai Doblo, there were some households that had waste bins (mostly full), with periodic collection by the D.A's mandated contractor. In both communities, there were central waste disposal sites used by those who did not have household waste collection selection. There were no rubbish collection services in the other two communities of Tomefa and Weija. The community of Tomefa has its shoreline littered with plastic and household waste. The Weija community had a central waste collection site in a valley south of the dam. Community members explained that rains and spillage from the dam washed the waste into the sea. The shorelines accessible to the community members were littered.

For liquid waste, apart from the Weija community that had some partially functional gutters, household liquid waste sat in 'soakaways' in front of and behind households. All communities had public toilets. In Tomefa, however, these toilets were abandoned because the facilities' septic tanks were full. The assembly man explained that due to the nature of the soil (high water table) the faecal waste does not soak the soil and mostly overflowed its tank. Community members, therefore, resorted to open defecation.

In the LBCA, waste disposal was considered an organized system only in Abono where a skip was provided. For all the other communities, a central waste collection point was seen in close-by valleys. Dompaa and Nkowi shorelines had plastic waste. The other communities appeared cleaner as community members deposited waste at allocated points within these communities. Liquid waste was collected into household 'soakaways'. The researcher observed no gutters. Each community had a public toilet and that of Abono was at the entrance of the community and was not in a clean state. Most of the litter observed were

plastic waste. In all study communities, the district assemblies were seen to be the actors responsible for waste control.

Overall, observations showed that, Tomefa (WLCA) seemed to have the most littered environment while the cleanest community was Abono (LBCA). Abono is a tourist community and this may be attributed to efforts at cleanliness. The district assembly confirmed that they had a waste collection programme for Abono and periodically lifted the bins out of the community. The communities where the 'Meet Me There' (periodic fanfare and water-related entertainment programme) took place had neater shorelines. In the communities of Dompaa and Nkowi, there were some littered shorelines with a lot of plastic waste.

#### **7.2.3.2 Land Use Patterns and Lake Recession**

Apart from the waste control situation in the study communities, another key environmental issue that was repeatedly brought up by community members was their perception that the water bodies were drying up. The shorelines of the Lake Bosomtwe is reportedly receding and the streams and rivers that drain into the Densu River and Weija Lake are drying up. In the WLCA, community members reported that River Doblo and River Ayikai, previously constantly ever flowing streams throughout the year, now tended to dry up completely for most of the year. In all communities in the LBCA, every interviewee pointed to a recession of the size of the lake by over a kilometre over a period of the last 15 to 20 years.

The recession of the water bodies was attributed to land use practices. Rapid estate development had taken place in the WLCA, where farmlands had been converted to residential plots. Landowners and land developers in the WLCA saw it as a welcome development as the value of land was very high. A community leader said that:

*“Like I mentioned earlier, during the dry season, the water kind of dries up, which affects the families who have farms closer and are dependent on the water. During the time of our forefathers, there wasn’t much development and construction as we see today. These have affected the water body as well. People who build houses closer to the water body create new routes for the water and that, in the long run, affects the water. We see all these things and try to address them. At times, we send people to go to these areas and warn culprits to desist from such acts. The unlawful selling of lands and sand-winning have really affected the water. Trees along the river banks have all been cut down. The benefits we used to get from the water body have reduced drastically these days”.* (Community leader, Ayikai Doblo, WLCA, April, 2017)

Similarly, in the LBCA, some community members who own and lease land to tourist operators indicated that a recession of the Lake is to their benefit as they will get more land to sell. To them, a recession was not a loss but a gain. The land-owning systems and structures, which has separated land ownership and control from water resources ownership and control means that loss of water, which is a gain of land, is a benefit. The structures for land ownership, control and decision making do not seem to merge.

The land ownership and water resources ownership structure in the LBCA, as seen by the community, is captured succinctly this way:

*“...Aborsuhene has a land there, you would go and find Kuntanasehene has a land there, you will find Wakasihene has a land there but the lake belongs to the Asamanhene”* (Traditional Authority, Abon, LBCA, May, 2017).

So even in the setting where land is owned by traditional authorities, there is separation in ownership and control that may militate against proper land use practices as promoted by state actors. The issue of land control and ownership and benefits from the water tended to orient some community members to value land over water. Decisions on water and on land are geared towards benefits for owners.

Governance structures are not structured in such a way that community members see the water as beneficial to them, especially as they have no controls. Focus on land and its benefits drives community action and to some members, structures in place do not privilege water over land. In relation to new governance structures and what they can achieve, a respondent said that:

*“CREMA has allowed us to make the law that whoever weeds along the lakeshore, when brought in, you will be fined. And if someone weeds along the lake and you fine the person GhC100, GhC100? GhC100 is just something small; he will pay and do his work. If it was rather GhC4000, GhC3000, or in default, confiscation of his farm, because we have a law that this part does not belong to him so we will cut everything he has done away or we will not allow him to get on it. But this place, if you say you are going to punish someone for GhC3000, GhC2000, will the person get? He won't get and because of that, he won't do it ...*

*...the person can breach the law ... I could! If you would charge me GhC100, I would cultivate my plantain, if I harvest 10 and sell it for Ghc10 each, is that not Ghc100? I could pay it and the rest would be my profit ... (Community member, Abono, LBCA, May, 2017)*

Weighting benefits of ignoring controls over obey laws draws community members to carry out acts that may cause the shorelines to dry up. Therefore, for the landowning class, a recession of the water means a benefit to them. For community members who make a living from the water (such as fishing) who are a minority of the community, a recession of the water is harmful to their way of life. Some of these community members attributed poor state actors' controls of community activities and failure of non-state actors to perform spiritual roles. Another group of community members, however, attribute poor sanitation to the recession of the lake. In Nkowi, a community member indicated that:

*“Another thing that is drying up the lake is, over here, we are living under hills, the rubbish we throwaway, the rubbers we used nowadays has become many in the rubbish, so where we go to dump it, if a heavy rain falls, it is all washed down into the lake. That is also a main factor” (Community member, Nkowi, LBCA, May, 2017)*

In spite of the evidence of poor pollution control and land use activities, from observation and community views, links can be drawn between sanitation and recession, and improper

land use and recession in both the LBCA and the WLCA. The separation of land and water control has resulted in monocentric decisions that result in poor outcomes deemed to be detrimental to the overall development of the water body. Both water catchment areas in this study have observable negative environmental outcomes with WLCA being worse off than the LBCA.

### **7.2.3. Social outcomes**

In this study, social outcomes of water governance were analysed in three ways: water and sanitation, disease occurrence and education. The decisions and actions of actors at the macro level impacts access to water and sanitation, the state of water, which results in water borne diseases, and the education of children in the study communities.

#### **7.2.4.1 Water Supply and Sanitation**

The water use activities in both LBCA and the WLCA range from domestic to economic. In the WLCA, water from the lake is used for domestic activities such as washing, cleaning, cooking and bathing. The main economic activities of the community members range from trading, some seasonal farming to formal work like teaching and nursing that take community members outside the communities. A minority of community members are engaged in fishing. Water supply in the Weija community is through piped water sources in homes and through public standpipes through the GWCL supply systems. However, the community members expressed concern about paying bills for use of the water. To them, since they had given up lands to the state for the creation of a dam/lake they should accrue social benefits and not pay for water supply services. The non-payment of bills was confirmed in an interview with the GWCL who asserted that community members refused to pay for water bills presented. The community members see themselves as the ‘landlords’ of the state actor and, therefore, possessing some power and authority to use the water

without obligation. The community believed that they should not be subject to rules and regulations. This situation presents an interesting dynamic. Here, the state, through law, has created its legitimacy to use the land and control the water. This source of legitimacy is, however, not recognized or accepted by the community, which refuses to assume any obligations imposed by the state. This is a latent social conflict that seems to undermine the legitimacy of the state actor. The economic obligations of the duty to pay charges and fees for the traditional authorities' spiritual roles is recognized and accepted by community members (section 7.2.1)

The other three communities in the WLCA, Afuaman, Ayikai Doble and Tomefa, do not have piped water and community members use either water from the lake or sachet water for drinking. During the traditional authority FGD in Tomefa, the group asserted that, for water supply, there is 'thirst among plenty'. There was no direct benefit from treated water supply by the GWCL although the community was located close to the water body. The traditional authorities indicated that they have no incentive to protect the water. In Afuaman, water supply services are provided by a non-state actor, Water Health, an NGO. Community members pay 50p to fetch water. Decisions on water supply are made and carried out by non-state actors.

Following observations made on pollution control in section 7.2.3., it was discovered, in the WLCA, that out of 173 households enumerated, 57 had household toilets with only 8 being water closets. Nine (9) households had no toilets at all (Table 7.2). Pit latrines and Kumasi Ventilated Improved Pits (KVIPs) were reportedly used by 42 households. Open defecation was rampant in the community as reported by community members. These community members indicated that the district assemblies, who are in charge of waste control as mandated by the Local Government Act, apparently, do not have any proper community

structures in place to control waste effectively. The community members and traditional authorities indicated that although the traditional authorities do not have legislated control over the land, they have the informal legitimacy and control of the land and demarcate and make sales of lands to developers but claimed no responsibility for waste management.

**Table 7.4: Provision of sanitary facilities**

Location	Pan Toilet	Kind of Facility				Total
		WC	Pit latrine	Public toilet	Others	
WLCA	57	8	42	57	9	173
LBCA	31	1	55	109	4	200
<b>Total</b>	<b>88</b>	<b>9</b>	<b>97</b>	<b>166</b>	<b>13</b>	<b>373</b>

**Source: Household survey, 2017**

In the LBCA, water use is mainly for domestic water use and fishing. None of the communities had treated piped water from the national water provider, GWCL. Community members indicated a heavy reliance on rainwater harvesting. A majority of community members also indicated that Lake Bosomtwe was the only choice of drinking water source, especially in the dry season. Some of the community members added that the water of the Lake Bosomtwe is free and also abundant in supply. In some of the communities (Abono and Dompaa), boreholes had been dug by the community leaders and NGOs. However, the residents still preferred the water from the lake for domestic uses as many claimed the water source was clean. The claim of cleanness was justified by the assertion that there has not been the outbreak of any water-related diseases in the communities.

Sanitation in the LBCA shows a different picture from that of the WLCA. Sanitation services are to be provided by the state actor, the district assembly, as mandated under the Local Government Act. In the 200 households enumerated, 31 households had pan toilets, only 1 household had a Water Closet facility. A total of 55 households had pit latrines and 109 of the community members reported that they visited the public toilets (see Table 7.4).

In spite of the confidence that some of the community members reposed in the cleanliness of their water source, others had doubts and, therefore, delimited its use in their homes. The water was used for water-related domestic activities such as washing and cleaning, but not for drinking. For such purposes, people relied on sachet water. This was more recent as the community members reported that sachet water was introduced into the LBCA in about 2012. In general, non-state actors can be found providing social services for study communities in both the WLCA and the LBCA, with water services being provided for by the state only in the Weija community. In sum, water provision, which is the mandate of the state, has been taken over by non-state actors and community members providing for their own water through self-service as they fetch from the lakes or buy sachet water for household use. This results in high levels of plastic waste in the communities. The provision of waste collection is also not properly controlled and this has led to poor sanitation outcomes.

However, water provision and sanitation services are better in the LBCA than the WLCA where there are higher incidents of pollution and poor sanitation services provision. People in the LBCA have better access to clean water than those in the WLCA. This seems to be because there is more provision of these services by non-state actors, who have taken over the roles and mandates of state actors. This gives them more recognition in the study communities and they are seen as having more power over resources.

#### **7.2.4.2 Health**

The researcher also investigated the impact of water use on the health of community members. Community members in both catchment areas were asked if any water-related diseases had occurred in their communities over the last 10 years. This information was from community members solely. The WLCA reported the highest such occurrence with

61.9% of the sampled population in the GaS reporting diseases such as stomach upset, skin rashes and bilharzia. Skin rashes as well as bloated stomach of young children, especially in Tomefa, which community members have attributed to use of the lake water and the lack of proper toilet facilities. This is said to have arisen because of the absence of community structures in charge of provision of water services and the prevention of water pollution. In general, poorer health outcomes were reported in the WLCA than the LBCA (see Table 7.1, Table 7.2). In the LBCA, only about 1.5-2% the sampled population reported water related disease. Some community members attributed these occurrences to a one-off incident of the presence of an unauthorized fish farm in the lake, which lasted about two years.

**Table 7.5: Occurrence of water related diseases**

Location	Yes	No	Total
LBCA	3	196	199
%	1.51	98.49	100.00
WLCA	83	87	170
%	48.82	51.18	100.00
Total	86	283	369
%	23.31	76.69	100.00

Pearson  $\chi^2(1) = 114.8311$  Pr = 0.000

**Source: Household survey, 2017**

The health situation is linked to the incidence of poor water and sanitation in the community. Although the WLCA is in an area of stronger state actor controls over water and land, there were poorer controls of waste and sanitation by the mandated state actors in charge of waste disposal. Higher levels of use of public toilets (LBCA-109, WLCA 57), and less open defecation relates to higher pollution and poorer health outcomes. In the LBCA, where there was heavier reliance on the raw water of the lake, but better community waste control, there was low disease occurrences. An attempt was made to presume that the geographical location of the water bodies leads to higher levels of pollution and poorer health outcomes. The Weija Lake is a part of a water body that takes its source from the Atiwa ranges and traverses heavily inhabited areas of the Eastern and Greater Accra Regions. The inflows into

the lake were influenced by many other land and water use activities. On the other hand, the LBCA was enclosed and had no inflows. Most of the pollution to the water body was from the communities or visitors to the communities around the lake. Therefore, pollution was better controlled. In addition, the controls and capacity of non-state actors were more prominently felt in the LBCA than the WLCA. The social outcomes showed that where non-state actors were more in control, better social outcome could be found.

#### **7.2.4.3 Education**

Education was assessed on two variables. These were school attendance and whether parents' water use activities affected children's school attendance. Community members were asked if their children were involved in their water-related activities such as fishing, fish mongering, making and repair of boats and nets, and irrigation farming.

About 25.7% of children in the communities were engaged in water use activities. This was not a surprising finding as just about 30% of community members from both study sites earned their living from water use. Assessing trends in the WLCA and the LBCA showed some differences. In the WLCA, as much as 36.1% (GAW) of children were found to be engaged in water-related activities. This was commonly in Tomefa, where children helped their parents in fishing. The lowest incidence of children engagement in water related activities was in the LBCA, which was 16.8% (Table 7.1). Therefore, more children in the WLCA were involved in water related activities. Through a qualitative analysis, this study established the level of involvement, type of activity and how much time children spent on the activity. Fetching water for domestic use was indicated as a preserve of children. This was not surprising, considering the Ghanaian social structure and relationships. Responses indicated that once the water-related activity was a household activity, the children, old enough to assist, in the household, were automatically involved. For the time spent, children

were said to assist early in the morning before school, when they were back from school and during school breaks or holidays. This finding was the same for both study sites. Male children were involved in checks on the parents' fish traps and also assisted to bring the traps home at dawn (before school - common in Tomefa). Female children commonly assisted in fish mongering. While some community members indicated that the involvement in water related activities such as fishing affected the children, others said it did not do so. Some community members said that “[W]e come back for fishing very early so [the fishing] does not affect them, we come very early so they [can] go to school” (Community member, Tomefa community, WLCA, April, 2017). Other community members, however, said that “[S]ome (children) go to fishing at dawn and they will be sleeping in class, they sleep in class because they become tired” (Community member, Tomefa community, WLCA, April, 2017). The children's involvement in the fishing activities seemed to negatively affect the children's school attendance.

In the LBCA, there was a general and unanimous response that children were not involved in rigorous water related activities and that it did not affect their school attendance. Respondents indicated that their children only fetched water as children in most Ghanaian households often do. Responses on activities indicated that for farming, “[They] went to the farm on weekends and holidays” (Community member, Nkowi community, LBCA, May, 2017). In relation to fishing, some community members said that; “[M]y child don't go fishing on weekdays” (Community member, Abono community, LBCA, May, 2017). Others also indicated that, “[W]hatever is done, they (the children) do it early in the morning, they wake up very early to go for fishing and after that go to school” (Community member, Ankaase community, LBCA, May, 2017). Another community member said that the children helped and that “the fish is sold in front of the house and the children only help after school, although some poor kids go to fish before going to school” (Community

member, Abono community, LBCA, May, 2017). Clearly, children are engaged by parents to help in their trade and learn from it as a life skill. Overall, more children in the WLCA are involved in water-related activities than those in the LBCA.

An assessment of the impact of these activities on children's education, found community members expressing different views. Many parents do not think that this negatively impacts the education of their children. In relation to fetching of water, parents said that "they fetch from the pipe on Sundays, they fetch water after school, they go and fetch for use in the house that's all" (Community member, Abono community, LBCA, May, 2017). The view on negative impacts was reported in the WLCA where children were seen as tired and sleeping in class due to water use related activities they are involved in.

Residents in the Lake Bosomtwe catchment area believe that their children are benefitting fully from educational opportunities and that water related activities do not hamper children's education. Efforts by some non-state actors pointed to initiatives to get children into school. Some community members pointed to the role of the church in this regard. He said that:

*"[F]or this community (Abono), they really do well in going to school; in the past, they did not go and so this pastor (catholic priest) that came, he tried, he went into every house - The Roman Father! ...he said we shouldn't allow any child to stay in the house, all the kids should go to school, even if you don't have a school attire, go to school...he went to tell the teachers and the teachers also made announcement that every child staying in the house, should all go to school. So for this time around all the children go to school"* (Community member, Abono community, LBCA, May, 2017).

Another parent was of the view that children's water-related activities do not negatively impact on children's education. He said that "*[T]he child only takes (a) bath in the lake once a while, it does not affect his school going at all"* (Community member, Abono community, LBCA, May, 2017).

In the process of water governance, decisions made by actors and responses by community members impact livelihoods at the micro level. In taking decisions on water resources and activities related to it, educational outcomes are not the focus of state actors. However, community level decisions impact school attendance. In the LBCA, where a non-state actor has taken decisions and actions to ensure that education is not impacted by parents' decisions including water use activities, this study found that all children of the sampled population were in school. In the WLCA, where no such initiatives were found, negative impact was reported.

Although the decisions on water governance do not make direct plans and policies for education, actor decisions can indirectly influence the decisions of community members, which in turn, will impact how and when children attend school. Children who go for fishing before going to school are tired and this affects their studies. More of these kinds of impacts were found in the WLCA, especially the village of Tomefa. For the LBCA, non-state actors such as the Catholic Church had made positive impacts in actively encouraging education. Since this study did not delve into school performance, any links to poor educational outcomes are perfunctory. Focus is more on how the decisions of parents directs children's activities and affects their school attendance.

The tourism industry is the dominant overarching activity in the LBCA, especially in the community of Abono. In this community, it was discovered that there is direct involvement of children in the community in the tourism industry. These children, ranging from 6 to 17 years, approached tourists offering to give a historical brief on the Lake Bosomtwe in return for tips. The amount of the tip was left at the discretion of the tourist. Refusal to give money results in begging for money to buy books for school. Some of the older teenage children also washed the cars of tourists, be they private vehicles or buses, for a fee. The washing

was carried out without permission sometimes but payment was always demanded. The runoff from the vehicle washing, a mixture of soap lather and oil, drains into the lake. The direct participation of these tourism-related activities and their impact on the education of these children may need further investigation.

Social outcomes such as issues of water and sanitation, health and education are impacted by macro and micro level water governance decisions. Where there are lapses of actors in their decision making and actions in terms of sanitation and pollution control, it impacts the health of community members. Where non-state actors take positive decisions for education, better outcomes are seen as is the case of the LBCA. It can, therefore, be concluded that when water resource-related actors take bold decisions and act more diligently in the carrying out of their roles, better social outcomes are realized.

### **7.3. Conclusion**

This chapter shows that the outcomes of water governance are reflective of decisions and actions of state, non-state, supra-state actors, on the one hand, and community members on the other hand. For political outcomes, lack of coordinated decision-making by actors, failure to recognize the community level power dynamics leads to non-involvement of community members in decision making. In this study, better political outcomes are reported in the LBCA than the WLCA. In the latter, the state decision-making structures have adopted a top-down approach, which has led to a lack of involvement of community members. There are latent political and political conflicts resulting from the taking over of lands. This has reflected in the apathy shown by community leaders in implementation and enforcement. These leaders although having traditional legitimacy, do not partake in decision making process. In the LBCA, the combination of the traditional authority's power over land and the socio-cultural importance of Lake Bosomtwe has galvanized the creation

of community level governance structures (CREMA). This has provided a platform for community level involvement in decision-making which is in its early years.

Economic outcomes are reflective of the recognized legitimacy of non-state actors, especially the traditional authorities. Community members see permission to undertake commercial activities on the water and pay charges for the performance of spiritual duties. This power and control are not questioned, especially in the WLCA. Economic outcomes in the LBCA are seen in the form of expenditures in the nature of tolls and charges or payments made to the state for tourism purposes. However, traditional authorities also claim the right to and collect similar charges, a situation that results in some conflicts. The very strong link between livelihoods and water governance is rehashed repeatedly. In the LBCA, the economic importance of the lake and the aesthetic value of the water has led to supra-state actor interest in the water body reflecting in positive political and economic outcomes.

Social outcomes are seen in health and education. For health outcomes, sanitation plays a role in the sense that communities with poorer sanitation issues tend to have poorer health outcomes. Education decisions tends to rest with community members and where links were sought between the involvement of children in water-related activities and its effect on their school attendance the WLCA showed more negative links than the LBCA. In the LBCA, the involvement of a supra-state actor (the Catholic Church) produced better outcome of getting more children to attend school. Social outcomes, are driven by the critical moment at which decisions are made. Focus on creating better livelihood lent towards more incidents of children's engagement in water-related activities which sometimes made them late for school or tired. Social outcomes, such as water and sanitation, seem to show more negative outcomes in the WLCA than in the LBCA due to poorer waste management. The power and

legitimacy to act on social issues was attributed to the actor with financial muscle, which is the district assembly.

For environmental outcomes, pollution control and drying up of the water bodies can be attributed to poor governance practices and the lack of coordination between actors. The control of pollution and land use activities is reflective of how actors carry out their roles. The separation of ownership and control over land and water and the focus on benefits that actors accrue, combined with lack of coordinated action drives actors to take decisions and behave in certain defined ways that seems to yield negative outcomes. Some are recession of the lakes and presence of water-borne diseases.

## CHAPTER EIGHT

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 8.1 Introduction

This chapter synthesizes the issues this study sought to unravel, the path that was trod to answer the questions raised and the answers that have arisen from this probe. Ghana's water governance systems engage plural legal systems, institutions and actors who have complementary and contradicting roles and mandates. These range of actors have varying degrees of power and influence which drive how they take decisions and seek to implement and enforce them. In the pre-independent state, control of water and land in communities was often considered holistically. However, with post-independent state natural resources governance, the path of nationalization has led to the state control of water resources which has not gone hand in hand with control of land. Land remains largely under the control of non-state actors. Attempts by macro water governance actors to manage water resources and the activities of water users at the micro level is often confronted with this land and water divide and the plural institutions and the actions it fosters. Nationalization seems to be premised on the national good and often the local level engagement and involvement in water governance is not given much attention.

The fact that there are non-state actors who play various roles in this water governance framework has escaped the attention of academic study. It was, therefore, important to identify and understand the basis of power and legitimacy of all kinds of actors in the water sector. It was equally important to understand the practices of community members and know whether or not that it was reflective of their knowledge and attitudes. An indication of whether the foregoing were determinants of the outcomes of governance in a plural legal system was what this study sought to unravel.

## **8.2 Summary of Key Findings**

### **8.2.1 Actors' legitimacy and decision-making roles**

Actors identified in this study were categorised into state, non-state and supra-state actors. State actors were those who obtained their power to act under regulation by laws; non-state actors were those found at the community level and outside state control and supra-state actors were non-governmental actors from the international or local sphere. These three had legal, rational, traditional and charismatic legitimacy in that order. For the supra-state, due to their activities, they were further classed as having pseudo-legal rational legitimacy. Mandates and roles were discovered to range from authority and power over land and over water. However, it was discovered that control and authority to take decisions over land and water were not linked strongly for any one actor. Moreover, no strong coordinating actor existed at any level. Actors took decisions at two identifiable levels, jointly (polycentric) and separately (monocentric). Joint decision making was done at the level of state coordination; however, at the community levels all actors took decisions separately without consulting other actors. This is especially at the critical points of decisions that yield benefits to actors. The legitimacy, power and influence that allowed actors to take decisions was analysed through a network mapping approach which provided a clearer picture of how actors were positioned to carry out their roles and mandates. In the LBCA, non-state actors i.e. traditional authorities wielded a strong power and authority on land issues but had little power or influence to effectively implement customary norms on water. For the WLCA, state actors had formal power and authority and a strong presence. Traditional authorities, on the other hand, although with no formal control over land, seemed to be the recognized authority figures for land governance. Although state actors' roles anchored on formal legitimacy, the lack of a forcible presence in some of the study communities (those further from the water supply point of GWCL) negatively impacted the state's authority. Physical control and power to enforce rules created legitimacy which is foundational to the creation

of a workable governance system (Blount-Hill, 2017). Where an actor has power but cannot control action at the community level, its power is seen as weakened. While state actors take decisions and make laws and policies for water use, at the community level, non-state actors also take decisions that directly impact day to day action relating to the water body. Power and authority, therefore, is linked to action. Additionally, roles and mandates that are recognized are not only those found in law, but others such as spiritual roles and benefits creation are a form of legitimacy. These latter types of legitimacy and control are more routinized at the community level and have implication for water governance.

### **8.2.2 Community Knowledge, Attitudes and Practices**

While nationalization of water resources and its state-controlled governance framework is hinged on state law, community level engagement with water governance presents a different dynamic. Although state law is deemed to be the driver of action in the nationalized water governance framework, in the study communities, there was a high level of knowledge of customary law and much lower levels of knowledge of state law. Earning a living from water resources tended to influence attitudes but not knowledge of actors and laws. Traditional authorities were believed to be influential in spite of their lack of legal rational authority and readily because of their physical availability they were the first forum of choice for resolution of conflicts.

In the LBCA, the engagement of community members through the community-based CREMA seemed to have created a more knowledgeable community in terms of state actors and laws. However, attempts by the supra-state actor UNESCO and state actors to transform knowledge and create new customary laws had been met with some ambivalence. Many community members contested the basis of knowledge for the introduction of the ‘UNESCO laws’ indicating that it sought to change traditional practices that had served community

members well over decades. It seemed that that process had not duly considered local level beliefs and knowledge systems and the resultant new UNESCO laws were not readily accepted. Since traditional authority legitimacy was accepted as rules evolved, these new rules were seen as having supplant old norms. This had been done in a non-participatory way and not well received and their legitimacy was called into doubt.

Findings on attitudes showed that willingness to participate in water governance initiatives was strongly influenced by knowledge, earning and involvements in decision making. Since this study had discovered that about a third of community members make a living from the water resources, implications for poorer attitudes may arise. Also, at the community level, community members strongly linked effectiveness of governance frameworks to compliance and enforcement. Decision making actors who were present in the community and were able to enforce laws were seen as more legitimate and effective and so community members would resort to them in cases of conflict. This then showed that to select a forum to resolve water conflicts, the presence, proximity and availability of an actor is of key importance (Manuh, 1988; Zips, 1996). Another key driver of attitude, in the sense of willingness of community members to participate, were community members sense of ownership and control of the water resources. Therefore, where community members are not involved in decision making or obtain no benefits from the water resources, their practices do not lead them towards involvement in water governance.

### **8.2.3 Implications and outcomes of water governance in legal pluralism**

The lack of realization that for water governance in a plural legal system there are various centres of decision making negatively impacts water governance. Decisions were made by many actors across scale and space, jointly or separately. Water resource decision making differed from that of land resources (uses) decision making yet there two environmental

media are interlinked. Local level decisions differed from state macro level and happened at different times while being driven by different factors; however, all these decisions impacted the same water bodies. State, non-state and supra-state actors are all taking decisions either jointly or disjointedly. This study points to the fact that IWRM seemed to be happening only at the board room level and project level but not at the community level. A recognition that the land/water interface harbours myriad contestations should direct the creation of structures for water governance decision making which this study had found was absent in the water governance framework in Ghana.

At the community level, the legitimacy, power and control of actors other than the state, is recognised. Other actors, non-state and supra state, are involved in water governance and what they do at the community level in isolation from the state actors leads to conflictual outcomes.

Politically, the lack of full engagement of state actors with community level governance dynamics and their limited presence diminished their legitimacy. In both study catchment areas, certain areas of governance are over regulated. For instance, in the economic space issues such as water supply (WLCA) and tourism (LBCA) receive a lot attention and emphasis while issues such as pollution control do not receive the needed attention and this leads to poorer outcomes social and environmental outcomes. Lack of attention to uncoordinated land and water uses has led to poor environmental outcomes such as recession of the water body. In the exercise of power and authority, actor presence was important, but it was not the sole assurance of legitimacy as is the case of WLCA. While the state actors had control and legitimacy, non-state actors were also recognized for their spiritual roles, giving them some legitimacy as well. Control over land created a strong

legitimate base of action and drove community level practices to a large extent. Non-state actors whose power and control over land translated into their control over the water seemed to exert economic controls in the community level. Evidence of the traditional authority's controls was the economic powers translated into the payment of fees and charges paid without question. In contrast, the state actor had not been able to collect legally mandated charges such as water bill (GWCL) and water use charges (WRC).

It was clear that where economic benefits did not accrue to community members, there was a disincentive to engage in community water governance activities. Lack of involvement in decision-making processes and the inability to enforce laws and norms weakened actor legitimacy.

### **8.3. Conclusions**

In general, the water governance system in Ghana has a dominant formal state-actor-controlled framework made up of state institutions and a single non-state actor (the Water Resources Commission governance structure with one representation for traditional authorities). The very diverse nature of traditional authorities (in the LBCA, for example, four traditional rulers existed around the water body) made this representation at the national and basin levels a problematic situation. The state water governance framework did not assign particular roles to each of the actors but assumed the patterns of governance and controls will emerge with time with an attendant role evolution. This system described above is at the macro level in nature. However, at the micro level actors are fully engaged in water governance, a fact that has escaped full recognition by the state actors.

In the process of decision making, law making and implementation, micro level actors in the communities were not engaged. This seems to be a super or mega structure of governance and state actors were not active or seen as present in the community. However, from this study, ‘presence’ has been identified as an important driver for legitimacy in a water governance framework. Under the state governance structure, non-state actors’ roles seem to be couched as a ‘partnering effort’ to assist in the implementation of the mandates of state actors. These non-state actors are not engaged through the creation of specific mandates or roles to be carried out at the community level. Supra–state actors were driven by their mandates that were often for community level livelihood improvements. They readily gained acceptance, especially for livelihood support. However, their efforts to create laws were not readily accepted.

In essence, due to poor coordination of actors and the failure to take into consideration the interests of community members in order to fully engage them, the governance disconnect was not only among decision making actors but also between them and community members. This study has established that earnings/livelihood concerns influenced community members’ engagement in water governance. It was evident that a minority of community members (about 30% overall) relied on water for their livelihood, and since benefits and livelihoods influence attitudes and practices, a majority of community members may be deemed ambivalent. The plural legal system for water governance in Ghana which has not fully integrated multiple actors, multiple layers and scales (national and local/community), where governance occurs, has created a governance framework that produces conflicted and contested implications and outcomes. The call for hybridization that integrates customary and state laws should be given full consideration in decision making and implementation (van Koppen & Schreiner, 2019).

In sum this study has found that multiple actors and/or power brokers exist with different types of power, legitimacy and authority. Land and water are separated for the purpose of governance, different actors hold power and control over different resources. Plurality means separation and yet the water and land power nexus is clearly established. Knowledge, attitudes and practices at the micro level are significantly influenced by either earnings, consultation and involvement in governance and decision making activities. The critical point at which attitudes are influenced or turned is the existence of benefits/gains and engagement/consultation. Realization of positive water governance outcomes depend on one, the existence of a systems that recognizes and is clear on who holds power and control, and two, the presence of micro level structures for the integration of community members into decision making structures. However, there is a separation of mandates and roles; thus, there is also a separation of power and authority over land and water, yet water resources is best governed as a unitary whole. This separation weakened the water resources governance framework.

Overall, water governance in legal pluralism coupled with resources segmentation, underlined by systemic divergence with a disengaged ‘local’ results in poor outcomes.

## **8.4 Recommendations**

Based on the above, this study recommends the following:

### **8.4.1 Roles, Mandates and Decision Making**

In assigning roles and mandates for actors in water governance in Ghana, the types of actors, their levels and types of power and legitimacy should be identified. Further to that, the level and scale of involvement of non-state and supra-state actors need to be fully and clearly defined at the macro and micro levels. This means that the roles of these actors should be

clearly spelt out taking into consideration the areas where their legitimacies are dominant. Engagement and involvement should be at both the level of decision-making, implementation and enforcement roles, unlike the present situation where involvement is only at the decision-making level. Implementation and enforcement levels, and patterns of networking should be documented in a water governance manual and not left at the mercy of chance evolution. The fact that community members readily engage non-state actors and willingly pay charges and fees to traditional authorities for spiritual duties needs to be appreciated and harnessed. This means that their power and authority is important and should be recognized as such. Additionally, all actors, state, non-state and supra-state, should have presence at the community level to present a united front and coordinated decision-making implementation and enforcement. Ideally, where one actor has lapses in its legitimacy, another can supplement in a joint effort. The land and water disconnection is problematic and should be a key consideration on governance of water resources.

To achieve a practical governance framework, actor coordination is key. Coordination should consider space (land and water); scale (macro and micro); and actor types (state, non-state and supra-state). Full engagement with communities on socio-economic issues is also key. Consideration of perceived overlaps of mandates and roles should consider the power, influence and legitimacies of all actors.

There should be a clear identification of the varied water governance actors and a recognition of the kinds of power and legitimacy they possess. An understanding of the existing and operational power structures is key for the establishment of a workable national water governance framework

#### **8.4.2 Community Involvement**

Knowledge of customary norms seems universal in the face of very little knowledge of state actors and state laws. Non-state actors should be engaged as conduits for knowledge creation. Local knowledge should be harnessed and valued as any attempts to impose law will work only if community members appreciate such law makers' legitimacy. Here legitimacy is recognized and driven by presence and the ability to order behaviours.

Attitudes are better or worse depending on the benefits available. Therefore, prior to the introduction of water governance initiatives at the community level, community members must be involved to ascertain their needs in order to build incentives into initiatives. State actors must invest additional enforcement powers in traditional authorities, who have spiritual and moral authority. Presently, this is not the case. Practices of community members like their attitudes are influenced by their knowledge and benefits obtained. Actors must, therefore, aim to provide acceptable benefits to enable them order community behaviour and practices. Also, since those who make earning from the water tend to have better attitudes and practices, sustainable water related livelihoods should be encouraged. The state in engaging community members in decision making water needs to factor in community members' knowledge and the attitudes that drives their interests. Through engagement, individuals' interest in water governance needs to be harnessed as the continued existence of the water body can improve livelihoods.

#### **8.4.3 Governance Implications and Outcomes**

Political decision-making must have a clearly documented roadmap taking into consideration the power and authority of actors and how these can complement each other. Economic duties must be clarified and overlaps minimized to reduce contestations and conflict. The power of non-state actors to command economic allegiance should be

recognized and harnessed. Environmental outcomes are linked to social outcomes such as health. Therefore, pollution control is crucial and actor roles on this must be carried out with collaboration of all actors, especially those present in communities.

Overall, this study surmises that Ghana's nationalization of water governance, twinned with separation of water and land governance, weakens the state's ability to govern water resources. The attempts to remove non-state authorities control over water resources has not fully succeeded. Water and land are seen as a unitary whole and where non-state actors control land, the state is not very effective in its water governance initiatives. The recommendations of the Ghana Water Policy, (2006) and the Buffer Zone Policy, (2012) that local communities participate in water governance and community level land ownership needs to be given fuller attention and focus in Ghana's water governance structures. The researcher, therefore, recommends a re-evaluation of the water governance framework, with all these factors duly considered.

### **8.5. Contribution to Knowledge**

This study has applied Weber's power and legitimacy framework to assess the power, influence and legitimacy of water governance actors. The classification of supra-state actors as having pseudo legal rational legitimacy is an expansion of the discourse in this area of knowledge. This study has also assessed how power and authority drives actors' roles and decision making focusing on their areas of jurisdiction over water or over land.

Focus has also been shown on community level power dynamics and how it influences actions in the water governance framework. This study has established a scientific basis that knowledge and earnings influence attitudes. Also, the implications and outcomes for water

governance in a plural legal system has been evaluated at the community level environmentally, economically, socially and politically.

In addition, the use of mixed methods approach to analyse plural legal water governance in Ghana has broadened knowledge in this area.

### **8.6 Areas for Further Studies**

1. The involvement of 'emerging' actors and their roles and impacts in water governance in Ghana.
2. The economics and benefits of water and how it drives community level action with a fuller look into earnings and income from water resources and how it influences community actions.

## REFERENCES

- Adams, W.M., Brockington, D., Dyson, J., & Vira, B. (2003). Managing tragedies: Understanding conflict over common pool resources. *Science*, 302, 1915-1916.
- AfDB. (2008). *Water Sector Governance in Ghana*. Abidjan: Finzi Usines Graphiques.
- Agyenim, J.B. (2011). *Investigating Institutional Arrangements for Integrated Water Resources Management in Developing countries*. The Case of White Volta Basin, Ghana. University of Amsterdam.
- Agyenim-Boateng, J., & Gupta, J. (2012). IWRM and Developing Countries: Implementation Challenges in Ghana. *Physics and Chemistry of The Earth*. 47-48. 46-57. 10.1016/j.pce.2011.06.007.
- Ahiadeke, C. (2008) *Research Methodology Theory And Practice in the Social Sciences*. Sundel Service, Ghana
- Aligica, P. D., & Tarko, V. (2012). Polycentricity: From Polanyi to Ostrom, and Beyond. *Governance: An International Journal of Policy, Administration, and Institutions*, 25(2), 237–262.
- Allman, J., & Rathbone, R. (2001). Nkrumah and the Chiefs: The Politics of Chieftaincy in Ghana, 1951-1960. *African Studies Review*, 44(3), 116.
- Aloa, A. (2007). *Natural Resources and Conflict In Africa: The Tragedy of Endowment*. University of Rochester Press.
- Ampomah, B. Y. (1999). *Traditional Knowledge, Local Initiatives and Water Resources Management: The Weija Dam and Its Lake Environment*, Centre for Development Studies, University of Cape Coast.
- Ampomah, B.Y., Adjei, B.A., & Youkhana, E. (2008). The transboundary water resources management regime of the Volta Basin. ZEF Working Paper Series, No. 28.
- Andreucci, D., García-Lamarca, M., Wedekind, J., & Swyngedouw, E. (2017). “Value Grabbing”: A Political Ecology of Rent, Capitalism Nature Socialism.
- Aryeetey, E., Ayee, J.R.A., Ninsin, K.A., & Tsikata, D. (2007). The Politics of Land Tenure Reform in Ghana: From the Crown Land Bills to the Land Administration Project Technical Publication. *Social & Economic Research (ISSER)*, 71, 83.
- Asante, K.A.T., Quarcoopome, T. Amevenku, & F.Y.K. (2008). Water quality of the Weija Reservoir after 28 years of impoundment. *West African Journal of Applied Ecology*, 13, 1-8.
- Atkins, A. (2019). Black Lives Matter or All Lives Matter? Color-blindness and Epistemic Injustice. *Social Epistemology. A Journal of Knowledge, Culture and Policy*, 33(1).

- Atupare, A.P. (2014). Sarbah on Legal Pluralism and Sense of Legality in the Gold Coast: Some Insights for Ghana's Current legal System. *27 U. Ghana L.J.*, 100.
- Baldassare, M., & Katz, C. (1992). The personal threat of environmental problems as predictor of environmental practices. *Environment and Behavior*, *24*, 602– 616.
- Ballabh, V. (Ed.) (2008). *Governance of water. Institutional alternatives and political economy*. New Delhi: Sage.
- Banda, K., Sarkar, R., Gopal, S., Govindarajan, J., Harijan, B.B., Jeyakumar, M.B., ... & Balraj, V. (2007). Water handling, sanitation and defecation practices in rural southern India: a knowledge, attitudes and practices study, *Transactions of The Royal Society of Tropical Medicine and Hygiene*, *101*(11), 1124–1130, <https://doi.org/10.1016/j.trstmh.2007.05.004>.
- Berle, A. A., & Means, G. C. (1932). *The Modern Corporation and Private Property*, New York: The Macmillan Company. [Reprint, 1991, Transaction Publishers, New Brunswick, N. J.
- Biswas, A.K. (2008) Integrated Water Resources Management: Is It Working?, *International Journal of Water Resources Development*, *24:1*, 5-22, DOI: [10.1080/07900620701871718](https://doi.org/10.1080/07900620701871718)
- Blount-Hill, K.L. (2017). *Legitimacy in Decision Making: Increasing Voter Approval of Municipal Bonds*.
- Boamah, E.F., & Walker, M. (2016). Legal Pluralism, Land Tenure and the Production of “Nomotropic Urban Specs” in Post-colonial Accra, Ghana. *Geography Research Forum*, *36*, 86-109.
- Boelens, R. (2014). Cultural politics and the hydrosocial cycle: Water, power and identity in the Andean highlands. *Geoforum*, *57*, 234-247.
- Boelens, R., Shah, E., & Bruins, B. (2019). Contested Knowledges: Large Dams and Mega-Hydraulic Development. *Water*, *11*, 416.
- Boelens, R., Hoogesteger, J., Swyngedouw, E., Vos, J., & Wester, P. (2016). Hydrosocial territories: a political ecology perspective. *Water International*, *41*(1).
- Boelens, R., Perreault, T., & Vos, J. (2018). *Water Justice*. Cambridge: Cambridge University Press.
- Bond, E.J. (2008). Pluralism in Ghana: The perils and promise of parallel law. *10 Or. R. Int'l L.*, 391.
- Bruns, B.R., & Meinzen-Dick, R.S. (2001). Water rights and legal pluralism: four contexts for negotiation. *Natural Resources Forum* *25* (2001) 1-10

- Bryman, A. (2008). *Social research methods. (3<sup>rd</sup> ed.)*. Oxford university press.
- Bryman, A. (2009). *Social Research Methods.*, Social sciences - 370 pages. Oxford University Press.
- Caponera, D. A. (1992). *Principles of water law and administration: National and international*. Rotterdam: A. A. Balkema Publishers.
- Carlisle, K., & Gruby, R.L. (2017). Polycentric systems of governance: A theoretical model for the commons. *Policy Studies Journal*.
- Cashore, B. (2002). Legitimacy and the Privatization of Environmental Governance: How Non-State Market-Driven (NSMD) Governance Systems Gain Rule-Making Authority. *Governance*, 15(4), 503-529. doi: 10.1111/1468-0491.00199
- Cherryholmes, I.A. (1992). Notes on pragmatism and scientific realism. *Educational Researcher*, 21, 13-17.
- Chirayath, L., Sage, C., & Woolcock, M. (2005). Customary Law and Policy Reform: Engaging with the Plurality of Justice Systems," Background paper for the World Development Report 2006, *Equity and Development*.
- Claassen, M. (2013). Integrated Water Resource Management in South Africa. *International Journal of Water Governance*, 1, 323–338. DOI: 10.7564/13-IJWG12.
- Cleaver, F., & Hamada, K. (2010). ‘Good’ water governance and gender equity: a troubled relationship. *Gender & Development*, 18(1), 27-41.
- Clement, F. (2010). Analysing decentralised natural resource governance: Proposition for a “politicised” institutional analysis and development framework. *Policy Sciences*, 43, 129–156. 10.1007/s11077-009-9100-8.
- Creswell, J. (2013a). *Qualitative Inquiry and Research Design; Choosing among the five approaches*. Los Angeles: Sage Publications.
- Creswell, J.W. (2013b). *Research Design Qualitative, Quantitative, And Mixed Method. Approaches*. SAGE Publications.
- Creswell, J.W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*.
- Cuskelly, K. (2011). *Customs and Constitutions: State recognition of customary law around the world*, IUCN: Bangkok.
- Doannio, J.M., Konan, Y.L., Amalaman, K., & Attiah, J. (2004). Knowledge, attitude and practices of population towards mosquitoes in urban and rural area (Cote d'Ivoire—West Africa). *Bull. Soc. Path. Exot.*, 97(4), 295-301.
- D'Souza, R. (2009). *Sandwich theory and operation green hunt*, Monthly Review.

- Duarte-Abadía, B., Boelens, R., & du Pré, L. (2019). Mobilizing Water Actors and Bodies of Knowledge. The Multi-Scalar Movement against the Río Grande Dam in Málaga, Spain. *Water*, 11(3), 410; <https://doi.org/10.3390/w11030410>.
- Duarte-Abadia, B., Boelens, R.A., & Roa-Avedaño, T. (2015). Hydropower, Encroachment and the Re-patterning of Hydrosocial Territory: The Case of Hidrosogamoso in Colombia. *Human Organization*, 74(3).
- Ekern, S. (2018). Between relations and rights: writing constitutions in Mayan Guatemala. *The Journal of Legal Pluralism and Unofficial Law*, 50(2), 167-187.
- Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. *Afr. J. Emerg. Med.*, 7(3), 93-99.
- Ewhrudjakpor, C. (2010). Psychiatric Institutions and the Emerging Institutional scene in Nigeria. *African Research review*, 4(1), 132-147. Available on [www.afrrvjo.net](http://www.afrrvjo.net). Accessed on 29/8/12.
- Ezzamel, M., & Reed, M. (2008). Governance: A code of multiple colours. *Human Relations*, 61(5), 597–615.
- Fama, E.F., & Jensen, M.C. (1983). Separation of ownership and control. *Journal of law and economics*, xxvi.
- Fisher, E., Bavinck, M., & Amsalu, A. (2018). Transforming asymmetrical conflicts over natural resources in the Global South. *Ecology and Society*, 23(4).
- Franks, T., & Cleaver, F. (2007). Water governance and poverty. *Progress in Development Studies*, 7(4), 291-306.
- Friedman, K. B., & VanNijnatten, D. L. (2016). Assessing Adaptive Transboundary Governance Capacity in the Great Lakes Basin, *International Journal of Water Governance*, (4:1), 3-4.
- Funke, N., Oelofse, S.H.H., Hattingh, J., Ashton, P.J., & Turton, A.R. (2007). IWRM in developing countries: Lessons from the Mhlatuze Catchment in South Africa. *Physics and Chemistry of the Earth, Parts A/B/C*, 32(15–18), 1237-1245.
- Gangaas, K.E., Kaltenborn, B.P., & Andreassen, H.P. (2015). Environmental attitudes associated with large-scale cultural differences, not local environmental conflicts. *Environmental Conservation*, 42(1), 41-50.
- Ghana. (1992). *1992 Republican Constitution*. Accra: GoG.
- Ghana. (1996). *Water Resources Commission Act*. Accra: GoG.
- Gibbs, L.M (2009) Just Add Water; Colonialization Water Governance and the Australian Inland. *Environment and Planning A 2009* (41) 2964-2983

- Griffiths, J. (1986). What is Legal Pluralism?. *The Journal of Legal Pluralism and Unofficial Law*, 18(24), 1-55. doi: 10.1080/07329113.1986.10756387.
- Griffiths, M. (1988). Strong feelings about computers. *Women's Studies International Forum*, 11(2), 145-154.
- Grigg, N. (1996). *Water Resources Management: Principles, Regulations and Cases*. New York: McGraw Hill.
- Guha-Khasnobis, B., Kanbur, R., & Ostrom, E. (2006). *Beyond formality and informality. Linking the Formal and Informal Economy: Concepts and Policies*, published by Oxford University Press.
- Guillet, D. (1998). Rethinking legal pluralism: Local law and state law in the evolution of water property rights in Northwestern Spain. *Comparative Studies in Society and History*, 40 (1), 42-70.
- Guillet, D. (1998). Water Resource Management: A Comparative Perspective. Edited by Dharendra I. Vajpeyi. Westport, CT: Praeger Press, 1998. Reviewed by David Guillet. *Journal of Political Ecology*, 5(1), 57. doi: 10.2458/v5i1.21416
- Gustafsson, J. (2017). *Single case studies vs. multiple case studies: A comparative study*. <http://www.diva-portal.org>.
- Habermas, J. (2002). On the pragmatics of social interaction: Preliminary studies in the theory of communicative action- books.google.com.
- Hailu, R., Tolossa, D., & Alemu, G. (2018). RLC Alumni Reta Hailu on water security in Ethiopia. *Multistakeholder Platforms: An Institutional Option to Achieve Water Security in the Awash Basin, Ethiopia*.
- Harris, D., Kooy, M., & Jones, L. (2011). *Analysing the governance and political economy of water and sanitation service delivery. Results of ODI research presented in preliminary form for discussion and critical comment*, Working Paper 334.
- Heale, R., & Twycross, A. (2017). What is a case study? *Evid Based Nurs*. 21(1)7-8.
- Heberlein, T.A. (2012). Navigating Environmental Attitudes. *Conservation Biology*, 26(4), 583-585.
- Hileman, J., Hicks, P., & Jones, R. (2016) An alternative framework for analysing and managing conflicts in integrated water resources management (IWRM): linking theory and practice, *International Journal of Water Resources Development*, 32:5, 675-691, DOI: [10.1080/07900627.2015.1076719](https://doi.org/10.1080/07900627.2015.1076719)
- Hodgson, G. (2006). What Are Institutions?. *Journal Of Economic Issues*, 40(1), 1-25. doi: 10.1080/00213624.2006.11506879.

- Hommes, L., & Boelens, R. (2017). Urbanizing rural waters: Rural-urban water transfers and the reconfiguration of hydrosocial territories in Lima. *Political Geography*, 57, 71-80.
- Hommes, L., Boelens, R., & Maat, H. (2016). Contested hydrosocial territories and disputed water governance: Struggles and competing claims over the Ilisu Dam development in southeastern Turkey. *Geoforum*, 71, 9-20.
- Hoogesteger, J., Boelens, R., & Baud, M. (2016). Territorial pluralism: Water users' multi-scalar struggles against state ordering in Ecuador's highlands. *Water International*, 41(1), 91-106.
- Huber, M. (2019). Resource geography II: What makes resources political? *Progress in Human Geography*, 43(3), 553-564.
- Jacobson S.K., & Marynowski, S.B. (1997). Public attitudes and knowledge about ecosystem management on Department of Defense land in Florida. *Conservation Biology* 11(3), 770-781.
- Khan, M.T. (2013). Theoretical frameworks in political ecology and participatory nature/forest conservation: the necessity for a heterodox approach and the critical moment. *Journal of Political Ecology*, 20.
- Kobusingye, D., van Leeuwen, M., & van Dijk, H. (2016). Where do I report my land dispute? The impact of institutional proliferation on land governance in post-conflict Northern Uganda. *The Journal of Legal Pluralism and Unofficial Law*, 48(2), 238-255. doi: 10.1080/07329113.2016.1195673.
- Krejcie, R.V., & Morgan, D.W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30, 607-610
- Kukla, A. (2000). *Social constructivism and the philosophy of science*. Psychology press.
- Larson, A.M., & Soto, F. (2008). Decentralization of Natural Resource Governance Regimes. *Annual Review of Environment and Resources*, 33, 213-239.
- Laube, W. (2006). *Actors, structuers and institutional change: external interventions and (de) instituionalization of local natural resources regimes in Northern Ghana*. Munster: ZEF.
- Laube, W. (2007). The promise and perils of water reforms: Perspectives from Northern Ghana. *Africa Spectrum*.
- Launiala, A. (2009). *Anthropology Matters*. *Anthropology Matters Journal*, 11(1).
- Lautze, J. (2011). Putting the cart before the horse: Water governance and IWRM. *Natural Resources Forum*, 35(1), 1-8.

- Lautze, J., Barry, B., & Youkhana, E. (2008). Changing paradigms in volta basin water management: customary, national and transboundary. *Water Policy*, 10(6), 577-594.
- Lautze, J., de Silva, S., Giordano, M., & Sanford, L. (2011). Putting the cart before the horse: water governance and IWRM. *Natural Resources Forum*, 35(1), 1-8.
- Lenton, R., & M. Muller, M (Eds.) (nd). *Integrated Water Resources Management in Practice-Better Water Management for Development* (pp. 169-185). London, Sterling, V.A: Earthscan.
- Lenton, R., & Muller, M. (2012). *Integrated water resources management in practice: Better water management for development*. Routledge.
- Lenton, R., & Muller, M. (2009).. *Integrated water resources management in practice: Better water management for development*, Routledge, London, 248 pages..
- Little, P.E. (2007). *Political ecology as ethnography: a theoretical and methodological guide* Horizontes Antropológicos, - SciELO Social Sciences.
- Macura, B., Secco, L., & Pullin, A.S. (2015). What evidence exists on the impact of governance type on the conservation effectiveness of forest protected areas? Knowledge base and evidence gaps. *Environmental Evidence*, 4, 24.
- Manuh, T. (1988). The Asantewaa's court and it's jurisdiction over women: A study in legal pluralism. *Research review MS*, 4(2).
- McGinnis, M.D. (1999). *Polycentric governance and development: readings from the workshop in political theory and policy analysis*
- Meinzen-Dick, R., & Pradhan, R. (2001). Implications of Legal Pluralism for Natural Resource Management. *IDS Bulletin*, 32(4), 10-17. doi: 10.1111/j.1759-5436.
- Meinzen-Dick, R.S., & Nkonya, L.K. (2007). *Understanding legal pluralism in water and land rights: lessons from Africa and Asia*.
- Merry, S.E. (1988). Legal Pluralism. *Law & Society Review*, 22(5), 869-896. doi:10.2307/3053638.
- Merry, S.E. (1991). Law and Colonialism. *Law & Soc'y Rev.* 25, 889.
- Meynen, W., & Doornbos, M. (2004). Decentralising natural resource management: A recipe for sustainability and equity? *The European Journal of Development Research*, 16(1), 235-254.
- Miescher, S.F. (1997). Documents and Litigants: Disputes on Inheritance in Abetifi–A Town of Colonial Ghana - *The Journal of Legal Pluralism and Unofficial Law*, 29(39), 81-119.
- Mitchell, O.S. (1988). *Public Pension Governance and Performance: Lessons for Developing Countries*.

- Mohamed-Katerere, J. (2001). *Review of the Legal and Policy Framework for Transboundary Natural Resource Management in Southern Africa*.
- Moore, S.F. (2001). "Certainties undone fifty turbulent years of legal anthropology, 1949-1999". *The journal of the Royal Anthropological Institute*, 7, 95-116.
- Moran, E.F., & Ostrom, E. (2005). *Seeing the forest and the trees: human-environment interactions in forest ecosystems*. MIT Press, Cambridge.
- Morse, J.M., & Niehaus, L. (2009). *Mixed method design principles*.
- MWRWH. (2006). *National Water Policy*. Accra: GoG.
- Nkonya, L.K. (2006). Customary Laws for Access to and Management of Drinking Water in Tanzania. *Law Env't & Dev. J.* 50.
- Norman, E. S., Bakker, K., & Cook, C. (2012). Introduction to the themed section: water governance and the politics of scale. *Water Alternatives*, 5(1), 52-61.
- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*, Cambridge, Cambridge University Press.
- Nursoo, I. (2018). Indigenous law, colonial injustice and the jurisprudence of hybridity. *The Journal of Legal Pluralism and Unofficial Law*, 50(1), 56-70. doi: 10.1080/07329113.2018.1433118.
- Ollenu, N.A. (1962). *Principles of Customary Land Tenure in Ghana*. London: Sweet and Maxwell.
- Opoku-Agyemang, M. (2005). *The role of the district assemblies in the management of trans-district water basins in Ghana*. *African Water Laws: Plural Legislative Frameworks for Rural Water Management in Africa*, 1-7.
- Ostrom, E. (1990). *Governing the commons. The evolution of institutions for collective action*. Cambridge University Press, Cambridge, UK.
- Ostrom, E., Gardner, R., & Walker, J. (1994). *Common-pool resources*. G Rules - Ann Arbor: University of Michigan Press,
- Ostrom, V. (1961). Knowledge, Science, and Policy. *American Behavioral Scientist*, 4(5), 30-32. doi: 10.1177/000276426100400508.
- Ostrom, V. (1972). "Polycentricity." Workshop Working Paper Series, Workshop in Political Theory and Policy Analysis, Presented at the Annual Meeting of the American Political Science Association, September 5-9.
- Ostrom, V. (1968). Water resource development: Some problems in economic and political analysis of public policy. *Political Science and Public Policy*. Chicago: Markham.

- Patton, M.Q. (2002). *Qualitative Research & Evaluation Methods*, (3<sup>rd</sup> ed.). Sage Publications, Inc.
- Peirce, C.S. (1905/1998). "What Pragmatism Is." In *The Essential Peirce*, Vol.2., ed. The Peirce Edition Project. (Bloomington IN: Indiana University Press), pp. 331-345.
- Polanyi, M. (1951). *The Logic of Liberty*. Chicago, IL: University of Chicago Press.
- Rathbone, R. (2000). Nkrumah & the chiefs: the politics of chieftaincy in Ghana, 1951-60, books.google.com.
- Ray, D., Adriaan, E., & van Nieuwaal, v R. B. (eds) (1996). *Journal of Legal Pluralism and Unofficial Law*, 37-38.
- Rogers, P., & Hall, A.W. (2003). Effective Water Governance, *Global Water Partnership Technical Committee* Elanders, Sweden.
- Romano, S.T. (2016). Democratizing discourses: conceptions of ownership, autonomy and 'the state' in Nicaragua's rural water governance. Hydrosocial territories: A political ecology perspective, *Water International*, 41(1), 74-90.
- Roth, D., Boelens, R., & Zwartveen. M. (2015). Property, legal pluralism, and water rights: the critical analysis of water governance and the politics of recognizing "local" rights, 456-475.
- Sarpong, G. (2005). *Customary Water Laws and Practices: GHANA*. New York: FAO. 1-12.
- Sarpong, G.A. (2018). *Ghanaian environmental law: international and national perspectives*. Wildy, Simmonds and Hill publishing, London, England.
- Sarwar, M.S., Niazi, M.B., Kahan, Z.J., Ahmad, T., & Hussain, A. (2018). Preparation and characterization of PVA/nanocellulose/Ag nanocomposite films for antimicrobial food packaging. *Carbohydrate polymers*, 184,453-464.
- Schiffer, E., & Hauck, J. (2010). Net-Map: Collecting Social Network Data and Facilitating Network Learning through Participatory Influence Network Mapping. *Field Methods*, 22(3), 231-249. doi: 10.1177/1525822x10374798
- Schiffer, E., & Waale, D. (2008). Tracing power and influence in networks: Net-Map as a tool for research and strategic network planning. *International Food Policy Research Institute*.
- Shachar, A. (1998). Group Identity and Women's Rights in Family Law: The Perils of Multicultural Accommodation. *The Journal of Political Philosophy*, 6(3), 285±305.
- Shachar, A. (2001). *Multicultural Jurisdictions: Cultural Differences and Women's Rights*. Cambridge: Cambridge University Press.

- Shah, T., & van Koppen, B. (2006). Is India ripe for Integrated Water Resources Management? - fitting water policy to national development. *Economic and Political Weekly*, 3413-3421.
- Sibiya, J.E., & Gumbo, J.R. (2013). Knowledge, Attitude and Practices (KAP) Survey on Water, Sanitation and Hygiene in Selected Schools in Vhembe District, Limpopo, South Africa. *Int. J. Environ. Res. Public Health*, 10, 2282-2295.
- Smith, T.S.J. (2019). Policy, polycentrism, and practice: Governance imaginaries in sustainable transitions. *Area*, 1-9.
- Spiertz, H.L.J. (2000). *Water rights and legal pluralism: some basics of a legal anthropological approach*.
- Stevenson, L. (2007). Anthropology in the Margins of the State. *PoLAR: Political and Legal Anthropology Review*, 30(1), 140-144.
- Stoutenborough, J.W., & Vedlitz, A. (2013). *Public attitudes toward water management and drought in Texas*. Texas Water Resources Institute.
- Swatuk, L.A. (2010). The state and water resources development through the lens of history: A South African case study *Water Alternatives* 3(3), 521-536.
- Swyngedouw, E., & Boelens, R. (2018). And Not a Single Injustice Remains: Hydro-Territorial Colonization and Techno-Political Transformations in Spain. In R. Boelens, T. Perreault, & J. Vos (Eds.), *Water Justice* (pp. 115-133). Cambridge: Cambridge University Press. doi:10.1017/9781316831847.008.
- Tamanaha, B.Z. (2008). Understanding Legal Realism. *SSRN Electronic Journal*. doi: 10.2139/ssrn.1127178.
- Tamanaha, B.Z. (2001). Socio-legal positivism and a general jurisprudence, *Oxford Journal of Legal Studies*, 21(1), 1-32.
- Tchatchoua-Djomo, R. (2018). Improving local land governance? Exploring the linkages between land governance reforms, institutional pluralism and tenure security in Burundi. *The Journal of Legal Pluralism and Unofficial Law*, 50(1), 31-55. doi: 10.1080/07329113.2017.1419403.
- Teye, J. (2013). Analysing Forest Governance in Africa: Proposition for an integrated policy network model. *Forest Policy and Economics*, 26, 63-70.
- Tornimbene, B., Chhim, V., Sorn, S., Drew, T.D., & Guitian, J. (2013). Understanding Knowledge, Attitude and Practices (KAPs) of Cambodian swine producers on PRRS

- and related control options, during disease absence and outbreak events. *Society for Veterinary Epidemiology and Preventive Medicine*, p. 238-247.
- UNDP. (2019) The Sustainable Development Goals, 1-60
- UNESCO. (2014 November). Lake Bosomtwe Community Research Management Area (CREMA). Accra:
- van Koppen, B. (2010). *CPWF Project Report, Water rights in informal economies in the Limpopo and Volta Basins*, Project Number 66
- van Koppen, B. (2010). *Water rights in informal economies in the Limpopo and Volta Basins*. Colombo, Sri Lanka: CGIAR Challenge Program on Water and Food.
- van Koppen, B., & Schreiner, B. (2019). A hybrid approach to statutory water law to support smallholder farmer-led irrigation development (FLID) in Sub-Saharan Africa. *Water Alternatives* 12(1): 146-155
- van Koppen, B., Giordano, M., Butterworth, J., & Mapedza, E. (2007). Community-based water law and water resource management reform in developing countries: rationale, contents and key messages. *Management reform in developing countries*.
- Vatuk, S. (2013). The “Women's Court” in India: An Alternative Dispute Resolution Body for Women in Distress. *The Journal of Legal Pluralism and Unofficial Law*. 45(1), 76-103.
- von Benda-Beckmann, F. (1994). Good governance, law and social reality: Problematic relationships. *Knowledge and Policy*, 7(3), 55-67. doi: 10.1007/bf02692772
- von Benda-Beckmann, F. (2001). Legal Pluralism and Social Justice in Economic and Political Development. *IDS Bulletin*, 32(1), 46-56.
- von Benda-Beckmann, F. (1995). Anthropological approaches to property law and economics. *European Journal of Law and Economics*. Springer
- Wasserman, C.E. (1990). An overview of compliance and enforcement in the United States: Philosophy, strategies, and management tools for Environmental Compliance and Enforcement. *International Enforcement Networks*, 7-47.
- Weber, M. (1978). *Economy and society: an outline of interpretive sociology*, University of California press, 1, 1469.
- Wong, S. (2016) *A post-critical perspective to community participation in trans-boundary water governance – A case study of the Volta River Basin in West Africa*
- Woodhouse P. A., & Muller, M. (2017). *Water Governance—An Historical Perspective on Current Debates World Development*, 92, 225–241.
- World Bank (1994). Ghana Water Resources Management study.

WRC Annual Report, 2010-2014.

WRC Densu River IWRM Plan, 2008.

WRC Pra River IWRM Plan, 2012.

WRC, Ghana N-IWRM Plan, 2012.

Yin, R.K. (2003). *Case Study Research: Design and Methods*. (3<sup>rd</sup> ed.). SAGE - Social Science – 181.

Yin, R.K. (2006). Case study methods. *Handbook of complementary methods in education*.

Zips, W. (1996). Laws in Competition. *The Journal of Legal Pluralism and Unofficial Law*, 28(37-38), 279-305.

## APPENDICES

### Appendix A: State Interview Guide

PhD Development Studies  
Institute of Statistical Social and Economic Research  
University of Ghana  
Interview Guide  
State actors

#### **Title: Legal Pluralism and Water Resources Governance in Ghana; Outcomes of Formal and Customary Management Frameworks**

This research is being undertaken as part of the requirements for a degree in PhD in the University of Ghana. The research is aimed at exploring the relationships between governmental and customary regimes for water resources governance in Ghana to ascertain how they operate together to impact outcomes for regulatory enforcement.

The output of this research will be the development of a tool, to be used by for state institutions and other actors involved in water resources governance, to tailor their relationships and interactions with stakeholders and provide them with mechanisms for effective implementation of water governance laws and regulations.

#### **Note to Respondents:**

My name is Bernadette Araba Adjei, a PhD student of the Institute of Statistical Social and Economic Research, conducting research on water resources governance. I am conducting interviews of key actors in water governance in the Weija Lake and Lake Bosomtwe catchment areas, my study sites. My questions will, as we progress, take the form of discussions, for which I would appreciate your time and responses. You are not obliged to give answers to all the questions posed and if at any time in the course of the interview you want the process to cease, you have the right to indicate so, which will imply an end to the interview. This interview will be recorded and used for academic purposes. I will like your consent to record this interview. I will also like your consent to undertake the whole interview (if possible). Rest assured that your responses will remain anonymous and confidential. This interview guide has been approved by the **Ethics Committee** of the University of Ghana, hence, I promise any information given will be held as confidential. I want to know from you if you will consent to the conducting of this interview? Tick **Yes** [  ] or **No** [  ], If **Yes** (sign or thumb print)

\_\_\_\_\_

The Central Research Question is as follows:

***How are the plural legal frameworks for water resources governance in Ghana impacting governance outcomes?***

To ascertain responses to these questions, specific research questions will be articulated below. In order to get to know you, I will first have to ask a few general questions: Please tick one of the following:

**A. PART ONE**

**BACKGROUND INFORMATION**

1. Respondent's name (optional) \_\_\_\_\_
2. Sex: (please tick one: Male  Female
3. Age: \_\_\_\_\_
4. Location: \_\_\_\_\_
5. What is your ethnic group? \_\_\_\_\_
6. What is your Religion (Please tick one) Christianity  Islam  Traditional  Other
7. Level of education: None  Primary  JHS/ Middle School  Secondary/ Technical/Vocational  Tertiary  Non – Formal  Others (Specify) \_\_\_\_\_
8. Marital Status: Single  Married  Divorced  Widowed  Separated
9. Work/Organization \_\_\_\_\_
10. Position held (formal sector) \_\_\_\_\_
11. How long have you held the position? \_\_\_\_\_
12. Address/contacts:

Email:

Phone:

Facebook address:

Any other:

13. Any other relevant information:

## B. PART TWO

### Specific Research Questions

(I) *The roles of key actors and institutions in the formal and customary legal framework for regulatory water resources governance?*

- 1) What is your specific position in this organization?
- 2) What specific duties do you carry out when it comes to water resources protection and management?
- 3) What do you do and how is it associated with water resources governance?
- 4) When it comes to water management with respect to the Weija Lake/Lake Bosomtwe what does your institution do?
- 5) What are the core duties and role of your organization in managing the water?

a. *Legal*

b. *Financial*

c. *Social*

- 6) What are the differences or similarities between you and the traditional authorities as regards your specific assigned roles for water resources governance?
- 7) Who is in charge of the water resources?
- 8) How is land management related to water?

(II) *How effective are the mechanisms that underlie the operations of formal and customary systems for water resources governance?*

*How do actors interact, communicate and operate with each other for effective water governance?*

- 1) What are the means and the kinds of interaction between you and traditional authorities?

- 2) What are some of the means of communication between your organization and the traditional authorities in this basin?
- 3) How often do you communicate?
- 4) What are the positive and negative aspects of your interactions?
- 5) How have the relationship between the government and traditional authorities been over the years? Any history?
- 6) Are there any new actors or people or players in water management?
- 7) Slogans – do you have any slogans or popular saying to encourage people when it comes to water resources management? Mention a few.
- 8) What do you know about Ghana’s Water Policy?
- 9) What does the Water Policy seek to achieve?
- 10) What are some of the Water use laws and regulations that you know of?
- 11) Do you think these policies and laws work? Yes [ ] No [ ]
- 12) If yes, how? If no, how so?
13. Any other comments?

---

*(III) How are the operations of the formal and customary regimes for water resources governance affecting (effective) outcomes of regulatory enforcement?*

---

- 1) What are your expectations when it comes to how the government and traditional authorities manage water resources in this area?
- 2) How do you think water resources should be effectively managed?
- 3) Are there any emerging issues in the water management and governance framework you would like to share with me?
- 4) Any other comments?

THANK YOU

---

## Appendix B: Traditional Authorities Interview Guide

PhD Development Studies

Institute of Statistical Social and Economic Research

University of Ghana

Interview Guide

Traditional Authorities

### **Title: Legal Pluralism and Water Resources Governance in Ghana; Outcomes of Formal and Customary Management Frameworks**

This research is being undertaken as part of the requirements for a degree in PhD in the University of Ghana. The research is aimed at exploring the relationships between governmental and customary regimes for water resources governance in Ghana to ascertain how they operate together to impact outcomes for regulatory enforcement.

The output of this research will be the development of a tool, to be used by for state institutions and other actors involved in water resources governance, to tailor their relationships and interactions with stakeholders and provide them with mechanisms for effective implementation of water governance laws and regulations.

#### **Note to Respondents:**

My name is Bernadette Araba Adjei, a PhD student of the Institute of Statistical Social and Economic Research, conducting research on water resources governance. I am conducting interviews of key actors in water governance in the Weija Lake and Lake Bosomtwe catchment areas, my study sites. My questions will, as we progress, take the form of discussions for which I will appreciate your time and responses. You are not obliged to give answers to all the questions posed and if, at any time in the course of the interview you want the process to cease, you have the right to indicate so, and we will end the interview. This interview will be recorded and used for academic purposes. I will like your consent to record this interview. I will also like your consent to undertake the whole interview (if possible). Rest assured that your responses will remain anonymous and confidential. This interview guide has been approved by the **Ethics Committee** of the University of Ghana, hence, I promise any information given will be held as confidential. I want to know from you if you consent to the conducting of this interview? Tick **Yes** [  ] or **No** [  ], If **Yes** (sign or thumb print)\_\_\_\_\_

The Central Research Question is as follows:

***How are the plural legal frameworks for water resources governance in Ghana impacting governance outcomes?***

To ascertain responses to these questions, specific research questions will be articulated below. In order to get to know you, I will first have to ask a few general questions: Please tick one of the following:

### **C. PART ONE**

#### **BACKGROUND INFORMATION**

14. Respondent's name (optional)
15. Sex: (please tick one: Male  Female
16. Age: \_\_\_\_\_
17. Location: \_\_\_\_\_
18. What is your ethnic group? \_\_\_\_\_
19. What is your Religion (Please tick one) Christianity  Islam  Traditional  Other
20. Level of education: None  Primary  JHS/ Middle School  Secondary/ Technical/Vocational  Tertiary  Non – Formal  Others(Specify) \_\_\_\_\_
21. Marital Status: Single  Married  Divorced  Widowed  Separated
22. Education level (Please tick one) None  Primary/Middle School  Secondary  Tertiary  None
23. Occupation: 1. Primary occupation:  2. Public Sector  3. Private Sector (Formal)  Private Sector (Informal)  Others(Specify) \_\_\_\_\_
24. Position held \_\_\_\_\_
25. How long have you held position 11? \_\_\_\_\_
26. Address/contacts:  
  
Email:  
  
Phone:  
  
Facebook Name/Account:  
  
Any other relevant contact details:
27. Any other relevant information:

## D. PART TWO

### Specific Research Questions

(I) *What are the roles of key actors and institutions in the formal and customary legal framework for regulatory water resources governance?*

- 1) What is your position/designation in the community?
- 2) What is your role?
- 3) What do you do on a regular basis in your role with respect to the management and protection of the Weija Lake/Lake Bosomtwe?
- 4) Who has the role and mandate to manage land resources?
- 5) What do those who manage land do?
- 6) Who has the mandate to manage water resources?
- 7) How do they manage the water resources?
- 8) How do the different management actors/institutions of land and water interact?
- 9) How have water resources been managed over the years since you were born/came in/to this community?
- 10) Has water resources management changed over the years? How?
- 11) Do you know of the Ghana Water Policy? Yes [ ] No [ ]
- 12) What does the Ghana Water Policy seek to do?
- 13) Do you know of any laws and regulations to manage water resources?
- 14) What is the government's role in the management of water resources?
- 15) What in particular does the government do (in relation to water resource management?) ?
- 16) What are some traditional norms for the management of water?
- 17) Any slogans for the management of water in this community?
- 18) What kinds of people or institutions are involved in water resources management?
- 19) Which original inhabitants were here originally who engaged in water resources management?
- 20) Are there any new actors or people who are impacting water management?
- 21) Any other comment?

(II) *How effective are the mechanisms that underlie the operations of formal and customary systems for water resources governance?*

*How are the actors for water resources management in this basin interacting, communicating and operating with one another for effective water governance?*

- 1) How do you interact with some of the actors you mentioned above?
- 2) How do you interact with;
  - i. Government institutions
  - ii. NGOs
  - iii. Investors
  - iv. Business people
  - v. Local water users
- 3) What are the **means** and methods of communication between you and the traditional authorities in this basin? Mention some.
- 4) How often do you meet with these actors?
- 5) What do you discuss when you meet?
- 6) Who is responsible for ensuring that what is discussed is carried out? That decisions are implemented?
- 7) Who usually calls for these meetings?
- 8) How will you assess communication and interactions at this level? Are they successful? Are they useful?

(III) *How are the operations of the formal and customary regimes for water resources governance affecting (effective) outcomes of regulatory enforcement?*

- 1) What are your expectations when it comes to how the government and traditional authorities are managing water resources in this area?
- 2) What do you think should be done?
- 3) Are there any emerging issues in the water management and governance framework you would like to share with me?
- 4) Any other comments?

**THANK YOU**

**Appendix C: Interview Guide NGO's**

PhD Development Studies  
Institute of Statistical Social and Economic Research  
University of Ghana  
Interview Guide  
NGOs

**Title: Legal Pluralism and Water Resources Governance in Ghana; Outcomes of Formal and Customary Management Frameworks**

This research is being undertaken as part of the requirements for a degree in PhD in the University of Ghana. The research is aimed at exploring the relationships between governmental and customary regimes for water resources governance in Ghana to ascertain how they operate together to impact outcomes for regulatory enforcement.

The output of this research will be the development of a tool, to be used by for state institutions and other actors involved in water resources governance, to tailor their relationships and interactions with stakeholders and provide them with mechanisms for effective implementation of water governance laws and regulations

**Note to Respondents:**

My name is Bernadette Araba Adjei, a PhD student of the Institute of Statistical Social and Economic Research, conducting research on water resources governance. I am conducting interviews of key actors in water governance in the Weija Lake and Lake Bosomtwe catchment areas, my study sites. My questions will, as we progress, take the form of discussions, for which I would appreciate your time and responses. You are not obliged to give answers to all the questions posed and if at any time in the course of the interview you want the process to cease, you have the right to indicate so, which will imply an end to the interview. This interview will be recorded and used for academic purposes. I will like your consent to record this interview. I will also like your consent to undertake the whole interview (if possible). Rest assured that your responses will remain anonymous and confidential. This interview guide has been approved by the **Ethics Committee** of the University of Ghana, hence, I promise any information given will be held as confidential. I want to know from you if you will consent to the conducting of this interview? Tick **Yes** [  ] or **No** [  ], If **Yes** (sign or thumb print)

\_\_\_\_\_

Central Research Question

***How are the plural legal frameworks for water resources governance in Ghana impacting governance outcomes?***

To ascertain responses to these questions, specific research questions will be articulated below. In order to get to know you, I will first have to ask a few general questions: Please tick one of the following:

**E. PART ONE**

**BACKGROUND INFORMATION**

28. Respondent's name (optional)
29. Sex: (please tick one: Male  Female
30. Age: \_\_\_\_\_
31. Location: \_\_\_\_\_
32. What is your ethnic group? \_\_\_\_\_
33. What is your Religion (Please tick one) Christianity  Islam  Traditional  Other
34. Level of education: None  Primary  JHS/ Middle School  Secondary/ Technical/Vocational  Tertiary  Non – Formal  Others(Specify) \_\_\_\_\_
35. Marital Status: Single  Married  Divorced  Widowed  Separated
36. Education level (Please tick one) None  Primary/Middle School  Secondary  Tertiary  None
37. Occupation: 1. Public Sector  3. Private Sector (Formal)  Private Sector (Informal)  Others(Specify) \_\_\_\_\_
38. Name of Work/Organization \_\_\_\_\_
39. Position held \_\_\_\_\_
40. How long have you held position 12? \_\_\_\_\_
41. Address/contacts:

Email:

Phone:

Facebook:

42. Any other relevant information: \_\_\_\_\_

## F. PART TWO

### Specific Research Questions

(I) *What are the roles of key actors and institutions in the formal and customary legal framework for regulatory water resources governance?*

- a. What are the main things your organization does?
- b. What is your position in this organization? / Take me through your role and day to day duties.
- c. In that regard, what is your role in respect of the protection and management of the Weija Lake/Lake Bosomtwe?
- d. Talk me through your understanding then of what the Ghana Water Policy seeks to achieve.
- e. What are some of the water use laws and regulations that you know of?
- f. What do the laws and regulations seek to achieve?
- g. What do you think of these policies and laws? Thinking along the lines of they being - ;

Adequate [ ]

Unsure [ ]

Inadequate [ ]

(II) *How effective are the mechanisms that underlie the operations of formal and customary systems for water resources governance?*

*How do the key actors interact, communicate and operate with each other for effective water governance?*

(a) How often do you interact with traditional authorities to manage water resources?

Daily [ ]

Monthly [ ]

Yearly [ ]

Occasionally [ ]

(b) How often do you interact with government authorities to manage water resources?

Daily [ ]

Monthly [ ]

Yearly [ ]

Occasionally [ ]

(c) What are the means of communication between you and [or say how do you communicate with] the traditional authorities in this basin?

(d) What are the means of communication between you and [or say how do you communicate with] the government authorities in this basin?

(e) How will you assess the communication and interactions? Or what is your opinion regarding the effectiveness of the communication you have with traditional authorities?

Very effective [ ]

Quite effective [ ]

Effective [ ]

Not very effective [ ]

Not effective [ ]

(f) How will you assess the communication and interactions? Or what is your opinion regarding the effectiveness of the communication you have with government authorities?

Very effective [ ]

Quite effective [ ]

Effective [ ]

Not very effective [ ]

Not effective [ ]

(g) Do you take part in decision making in water management in the basin?

(h) What are the methods that are used in this basin to enforce state laws and traditional norms?

(i) Do you participate in law enforcement?

(III) *How are the operations of the formal and customary regimes for water resources governance affecting outcomes of regulatory enforcement?*

(a) What are your expectations when it comes to how the government and traditional authorities are managing water resources in this area?

(b) Do you think these laws and norms are effective?

Yes [ ] No [ ]

If Yes, why do you say so?

If No, why do you say so?

c) Are there any emerging issues in the water management and governance framework you would like to share with me?

**THANK YOU**

Appendix D: Questionnaire

This research is being undertaken as part of the requirements for a degree in PhD in the University of Ghana. The research is aimed at exploring the relationships between governmental and customary regimes for water resources governance in Ghana to ascertain how the implications and outcomes.

The output of this research will be the development of a tool, to be used by for state institutions and other actors involved in water resources governance, to tailor their relationships and interactions with stakeholders and provide them with mechanisms for effective implementation of water governance laws and regulations

**Note to Respondents:**

My name is Bernadette Araba Adjei, a PhD student of the Institute of Statistical Social and Economic Research, conducting research on water resources governance. I am conducting interviews of key actors in water governance in the Weija Lake and Lake Bosomtwe catchment areas, my study sites. My questions will, as we progress, take the form of discussions, for which I would appreciate your time and responses. You are not obliged to give answers to all the questions posed and if at any time in the course of the interview you want the process to cease, you have the right to indicate so, which will imply an end to the interview. This interview will be recorded and used for academic purposes. I will like your consent to record this interview. I will also like your consent to undertake the whole interview (if possible). Rest assured that your responses will remain anonymous and confidential. This interview guide has been approved by the **Ethics Committee** of the University of Ghana, hence, I promise any information given will be held as confidential. I want to know from you if you will consent to the conducting of this interview? Tick **Yes** [  ] or **No** [  ], If **Yes** (sign or thumb print)

\_\_\_\_\_

PhD Development Studies

Institute of Statistical Social and Economic Research

University of Ghana

Title: Legal Pluralism and Water Resources Governance in Ghana; Outcomes of Formal and Customary Management Frameworks  
 HHID \_\_\_\_\_

**Q1. DEMOGRAPHIC CHARACTERISTICS OF HOUSEHOLD MEMBERS**

Reference Period: 2017

Member ID	Name of household members	1.1 How old is this person? (in Years: under 1=0)	1.2 What is the gender of this person?  1= Male 2=Female	1.3 What is the relationship to the current head of household?  See code A below	1.4 Marital Status (For members 15 yrs. and above) See code B below	1.5 What is your highest educational level?  See code c below	1.6 Is person currently attending school?  1= Yes 2= No	1.7 If No, to 1.6, why?  See code C below	1.8 How many months in the last 12 months has this person been living in this household?	1.9 What is the religion of this person?  See code E below	2.0 What is the ethnicity of this person?  See code F below
MEM	NAME	AGE	SEX	RHEAD	MSTAT	HEDU	SCHOOL	NSCH	MONTH	RELIG	ETNC
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

**Code A: Relation to head**

- 1=head
- 2=spouse
- 3=son/daughter
- 4=parent
- 5=other relative
- 6=unrelated

**Code B: Marital Status**

- 1= never married
- 2= monogamously married
- 3= polygamous married
- 4=co-habiting
- 5=divorce
- 6=Refused to continue
- 7=other, specify

**Code C: Reason for the absence from school**

- 1= Too young
- 2= cannot afford expenses
- 3= Working
- 4=Pregnancy
- 5=Sickness/disability
- 6=Refused to continue
- 7=Completed schooling
- 8=other (specify)

**Code D: Highest Educational Level**

- 1=none
- 2=Kindergarten
- 3=Primary
- 4=Middle
- 5=JSS
- 6=SSS
- 7=Voc/Com/Tec
- 8=O' level
- 9=A' level
- 10=Training College
- 11=P/Sec/T/T
- 12=Polytechnic
- 13=University
- 14=Non-formal
- 15=Koranic
- 16=other (specify)

**Code E: Religion**

- 1=No religion
- 2=Atheism
- 3=Traditional
- 4=Islam
- 5=Christianity
- 6=others, (specify)

**Code F: Ethnicity**

- 1= Akan
- 2= Mole Dagbani
- 3= Ewe
- 4=Ga Dangme
- 5=Mandi
- 6=other (specify)

**2. DWELLING CHARACTERISTICS**

**ASK TO THE MAIN RESPONDENT FOR THE HOUSEHOLD**

(1)	(2)		(3)	(4)	(5)	(6)	(7)
Who owns the household dwelling?  01= Respondent or other HH member <input type="checkbox"/> Q3 02= Relative not residing in the HH 03= Employer 04= Landlord 05= Other non-HH member (specify) <input type="checkbox"/> Q2 06= Shared/Joint	If family/relatives, employer or other, how much did you pay as rent for the last month?  [Estimate value of rent paid in kind]		Do you own any other houses?  IF YES, WRITE HOW MANY  IF NO, WRITE 99	What is the main source of your drinking water?  01= Piped into dwelling 02= Piped outside dwelling 03= Public tap/standpipe 04= Bore hole/Pump/Tube well 05= Protected well 06= Rain water 07= Protected spring 08= Bottled/sachet water 09= Unprotected well 10= Unprotected spring 11= River/stream 12= Pond/lake/dam/canal/dugout 13= Other, specify	Did your household boil, filter or chemically treat the drinking water last month?  01= YES, BOILED 02= YES, FILTERED 03= YES. CHEMICAL 04= YES, BOILED, FILTERED AND/OR USE CHEMICAL 05= NO	What toilet facility does your household have?  01= No facility (open land) 02= WC 03= Pit latrine 04= Bucket/Pan 05= Public toilet 06= Other, specify	What is the main source of lighting for your household?  01 = electricity 02 = lamp 03 = solar
CODE	IN CASH	IN KIND	NUMBER	CODE	CODE	CODE	

(8)		(9)	
What are the main construction materials of the outer wall of your household dwelling?		What are the main construction materials of the roof of your household dwelling?	
01= Mud bricks/earth 02= Wood 03= Metal sheet/slate/asbestos 04= Stone 05= Burnt bricks 06= Cement blocks/concrete 07= Bamboo, thatch, tree leaf, tree bark 08= Other (Specify) 09= Zinc sheet		01= Mud bricks/earth 02= Wood 03= Metal sheet 04= Slate/asbestos 05= Cement blocks/concrete 06= Bamboo, thatch, tree leaf 07= Roof tiles 08= Other (Specify) 09= Zinc sheet	
A- PRIMARY	B- SECONDARY	A- PRIMARY	B- SECONDARY

**3. Name of community?**

\_\_\_\_\_

**4. Name of District?**

\_\_\_\_\_

**5. How many years have you lived in this community?** \_\_\_\_\_

**6. Do you know of any water body in this community? If yes, go to No. 7. If No, end interview**

**7. What is the name of the waterbody in this community?**

\_\_\_\_\_

**8. How many meters or kilometres away is your house from the water body?**

**9. Walking time?** \_\_\_\_\_

## **PART ONE – KNOWLDEGE, ATTITUDE AND PRACTICES**

### **OBJECTIVE 2**

To ascertain the knowledge, attitude and practices of the peoples in the study area

#### **Preamble**

This section is aimed at ascertaining the knowledge of the respondent on water governance issues.

**SECTION A**

No	Knowledge	
A.1	Do you know of any institutions/actors that manage water resources?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
A.2.	If yes, which type?	1. Government <input type="checkbox"/> 2. Traditional <input type="checkbox"/> 3. Both <input type="checkbox"/>
3	Who owns the water resources in your community?	1. Government <input type="checkbox"/> 2. Traditional Authorities <input type="checkbox"/> 3. Individual land owners <input type="checkbox"/> 4. Other <input type="checkbox"/> Specify
4	Are there customary laws to manage the water?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> skip
5	If yes, what are they?	
	Are there government laws to manage water resources?	Yes <input type="checkbox"/> No <input type="checkbox"/>
6	Which do you know?	Water Resources Act <input type="checkbox"/> National Water Policy <input type="checkbox"/> Buffer Zone Policy <input type="checkbox"/> Both <input type="checkbox"/> None <input type="checkbox"/>
7	Who are the main actors when it comes to water governance?	Government <input type="checkbox"/> NGOs <input type="checkbox"/> Traditional Authorities <input type="checkbox"/> Commercial <input type="checkbox"/> Other individuals <input type="checkbox"/> Community members <input type="checkbox"/> Other (Specify) <input type="checkbox"/>
8	How well do you know the government-passed laws that are used to manage the water?	1. Very well <input type="checkbox"/> 2. Well <input type="checkbox"/> 4. Not well <input type="checkbox"/> 5. Not very well <input type="checkbox"/> 6. Not at all <input type="checkbox"/>
9	If you do, where did you hear of them?	FM Radio <input type="checkbox"/> TV <input type="checkbox"/> Community durbar <input type="checkbox"/> Community Information System <input type="checkbox"/> Other (Specify) <input type="checkbox"/>
10	Who is more influential when it comes to water in this community?	1. Government <input type="checkbox"/> 2. Traditional Authorities <input type="checkbox"/> 3. Individual land owners <input type="checkbox"/>

		4. Other <input type="checkbox"/> Specify
11	Government institutions for managing water are doing their work well	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
12	It is the Government that takes important decisions for the management of water.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
13	It is the chiefs that take the important decisions for the management of water.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
14	The people in the community are directly involved in taking decisions for water management.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	

## SECTION B:

### Preamble

This section is to collect data on the views and opinions of people on water governance. No answer is right or wrong. A respondent may agree or disagree with statements posed.

No.	Attitudes	
1	Do you take part in any programmes at all?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. Other <input type="checkbox"/> Specify:
2	If yes/no, why?	
3	Which Authority will you go to first to solve issues?	1. Traditional (Chief, Queen Mother, Abusua Payin) <input type="checkbox"/> 2. Government (Police, Assembly man, Unit Committee etc) <input type="checkbox"/> Other (specify)
4	If unresolved who will you go to next? Why?	

5	Government law is effective to manage water.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
	Give reasons	
6	Government laws are relevant.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
	Give reasons	
7	Government laws are important.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
	Give reasons	
8	Customary norms are effective to manage water.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
	Give reasons	
9	People rely on customary norms.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
	Give reasons	
10	People rely on government laws.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
11	It is good to take part in a programme to protect the water body if asked.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
	Give reasons	
13	It is necessary to go to any authority to solve an issue on water.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ] 5. Strongly Disagree [ ]
	Give reasons	
14	It is a personal responsibility to manage water resources.	1. Strongly Agree [ ] 2. Agree [ ] 3. Undecided [ ] 4. Disagree [ ]

		5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
15	It is important that a person should be concerned about protecting water resources.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
16	People should be paid or given personal benefits or incentives before they take part in managing water resources.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
17	People should be punished if they breach government water laws.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
18	The punishment for breaching water laws should be carried out by government.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
19	People should be punished for breaching customary norms	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
20	The punishment for breaching water laws or norms should be carried out by traditional authorities.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
21	Any other comments by respondent.	

**SECTION C:**

**Preamble**

This section is to ascertain the water use practices of the respondent and the community.

No.	Practices	
C.1	What main water activity do you undertake in relation to the water body?	1. Farming <input type="checkbox"/> 2. Fishing <input type="checkbox"/> 3. Tourism <input type="checkbox"/> 4. Other <input type="checkbox"/> 5. Specify:
2	How many times do you undertake that activity?	1. Daily <input type="checkbox"/> 2. Weekly <input type="checkbox"/> 3. Monthly <input type="checkbox"/>
3	Will you take initiatives to protect the water body?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
	Give reasons	
4	If yes, what type of initiatives?	1. Tree planting <input type="checkbox"/> 2. Clean up <input type="checkbox"/> 3. Others <input type="checkbox"/> Specify:
5	With whom do you or will you do these activities?	1. Relatives <input type="checkbox"/> 2. Friends <input type="checkbox"/> 3. Community <input type="checkbox"/> 4. Associations <input type="checkbox"/> 5. Other <input type="checkbox"/> Specify:
6	How often?	1. Daily <input type="checkbox"/> 2. Weekly <input type="checkbox"/> 3. Monthly <input type="checkbox"/> 4. Other <input type="checkbox"/> Specify:
8	Are there any joint community programmes to protect water?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
9	If yes, what are they?	
10	If no, what other programmes are available?	

**PART 2 – OUTCOMES FOR WATER GOVERNANCE –OBJECTIVE THREE**

**Preamble**

In this part, Sections A, B and C are to ascertain the outcomes obtained by or that impacts respondents because of water governance.

**SECTION A**

No	Social	
A.1	Are there any community gatherings to take decisions for water governance (decision making)?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
A.2	How often?	

A.3	Does the government call for any meetings of the community to discuss water management and its effects on you?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
A.4	How often?	
A.5	Do the customary authorities call for any meetings to discuss the management of water in your area?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
A.6	How far are you from the nearest school?	
A.7	Do your water use activities impact on your dependents' school attendance?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
	Give reasons	
A.8	Do your water use activities impact on your school attendance?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
	Give reasons	
A.9	Has there been any occurrence of any water related diseases?	1. Yes <input type="checkbox"/> Move 2. No <input type="checkbox"/> Skip to 12
A.10	If yes, how long ago was that?	
A.11	If yes, what kinds of diseases were they?	
A.12	Is the water in its current state clean?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. Not sure <input type="checkbox"/>
A.13	What activities can the water be used for?	1. Domestic <input type="checkbox"/> 2. Farming <input type="checkbox"/> 3. Fishing <input type="checkbox"/> 4. Tourism <input type="checkbox"/> 5. Other <input type="checkbox"/> Specify:
A.14	Do you think that the water is fit for any livelihood use?	1. Yes <input type="checkbox"/> Move to A.15 2. No <input type="checkbox"/> Skip to Section B
	Give reasons	
A.15	Mention some of these uses.	
A.16	Any other comments	

## SECTION B

No	Economic	
B.1	Do you engage in any water use activity for your livelihood?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> skip
B.2	If yes, what water use activity are you involved in?	1. Fishing <input type="checkbox"/> 2. Farming <input type="checkbox"/> 3. Tourism <input type="checkbox"/> 4. Other <input type="checkbox"/> 5. Specify:
B.3	Do you make any earnings in the use of the water?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> skip

B.4	If yes, what is the range of your earnings from a water use activity?	1. Daily: 2. Weekly: 3. Sales made: 4. Profit made:
B.5	Do you spend any money on the use of water?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> skip
B.6	If yes, how much do you spend on water?	1. Daily: or 2. Weekly:
B.7	Are you paying royalties, fees, dues or contributions to any authority or individual in order to get access or rights to use the water?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> skip
B.8	If yes, to whom are you making such payments?	1. Government <input type="checkbox"/> 2. Traditional <input type="checkbox"/> 3. Other <input type="checkbox"/> 4. Specify <input type="checkbox"/>
B.9	If yes, how often do you pay royalties?	1. Weekly <input type="checkbox"/> 2. Monthly <input type="checkbox"/> 3. Annual <input type="checkbox"/> 4. None <input type="checkbox"/> 5. Other <input type="checkbox"/> Specify:
B.10	Have you started any secondary business or job as an outcome of your main water use activity?	1. Yes <input type="checkbox"/> Move to B.11 2. No <input type="checkbox"/> Skip to Section C
B.11	If yes, what kind of business is it?	
B.12	Any other comments	

### SECTION C

No	Political	
C.1	Are you a member of any group that takes decisions on the water?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> Skip to C.3
C.2	If yes, is your opinion sought when it comes to water management?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/>
C.3	Who should be responsible for managing water bodies?	1. Government <input type="checkbox"/> 2. Traditional <input type="checkbox"/> Both Other (specify)
C.4	For now, who takes decisions for the management of the water body?	1. Government <input type="checkbox"/> 2. Traditional <input type="checkbox"/> Other (specify)
C.5	Do you have free access to the water body and can use it for your activities?	1. Yes <input type="checkbox"/> Move to C.6 2. No <input type="checkbox"/> Move to C.7
C.6	Give reasons	

C.7	What or who prevents you from having access?	
C.8	Can you make your opinion known at any time for the management of the water body?	1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> skip
C.9	If yes, how	
C.10	If no, what or who prevents you from making your opinion known?	
C.11	Do you know of anyone who takes part in decision making for water management? Who?	1. Yes <input type="checkbox"/> Move to C.12 2. No <input type="checkbox"/> Skip to C.13
C.12	If yes, who?	1. Assembly man <input type="checkbox"/> 2. Abusua Payin <input type="checkbox"/> 3. Elder <input type="checkbox"/> 4. Other <input type="checkbox"/> Specify:
C.13	Is there any project or programme for management of water in this area that you know of?	1. Yes <input type="checkbox"/> Move to C.14 2. No <input type="checkbox"/> skip
C.14	What kind of projects?	1. Social <input type="checkbox"/> 2. Economic <input type="checkbox"/> 3. Political <input type="checkbox"/> 4. Other <input type="checkbox"/> Specify:
C.15	Who is in charge or undertaking it?	1. Government <input type="checkbox"/> 2. Private <input type="checkbox"/> 3. Community <input type="checkbox"/> 4. Other <input type="checkbox"/> Specify:
C.16	Members of the community are consulted for water management issues.	1. Yes <input type="checkbox"/> Move to 17 2. No <input type="checkbox"/> Skip to 18
C.17	If yes, by whom?	1. Government <input type="checkbox"/> 2. Private <input type="checkbox"/> 3. Traditional <input type="checkbox"/> 4. Other <input type="checkbox"/> 5. Specify <input type="checkbox"/>
C.18	Decision making on water is done effectively to benefit your community.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
C.19	Decision making on water is done effectively to protect the water body.	1. Strongly Agree <input type="checkbox"/> 2. Agree <input type="checkbox"/> 3. Undecided <input type="checkbox"/> 4. Disagree <input type="checkbox"/> 5. Strongly Disagree <input type="checkbox"/>
	Give reasons	
C.20	Any other comments from respondent	

**Appendix E: Network Maps Conference Agenda**

PhD Development Studies  
Institute of Statistical Social and Economic Research  
University of Ghana

**Network Mapping Meeting Agenda**

**Topic:** Legal Pluralism and Water Resources Governance in Ghana -  
Outcomes of Formal and Customary Management Frameworks

**Venue:**

**Date:**

**Time:**

---

<b>Item</b>	<b>Time Duration</b>
	<b>(1 hour 45 minutes)</b>
Arrival of Participants	10 minutes
Self- Introduction of Participants	10 minutes
Discussions on Roles and Mandates	20 minutes
Activity – Mapping of Roles/Mandates and Power Relations	45minutes - 1
hour	
Wrap-up Session	10 minutes
Departure	10 minutes

**Appendix F: Community Profiles Weija**

**COMMUNITY PROFILES - WEIJA LAKE CATCHMENT AREA**

Community name	<b>Tomefa</b>
When community was established	Ewes have been at the present location since the 1970s while some Dangbes settled in the community in 1983.
Name of major river	Densu
Major water use activity	Fishing, farming, domestic use.
Changes in water use over the years	Farming has reduced because lands have been lost to housing. The community currently has more fishermen than it previously had. Nonetheless, the fish catch has reduced.
Distance to nearest major road	8 miles to Kasoa to join the Cape Coast highway.
Distance to nearest school	200 meters to private primary and JHS in the community. Nearest SHS is in Kasoa (8 miles).
Distance to nearest hospital/ CHPS compound	100 meters to private clinic in the community. Nearest hospital in Kasoa (8 miles).
More commercial activities on water?	Yes, commercial water tanker services/ more fishermen from the Winneba areas.
Impact of such activities on the community	The Winneba fishermen violate water resources laws and go ahead to fish throughout the day and night continuously.
Community consulted when decisions are taken	More of information meetings than consultative meetings.
Government undertaking project to manage water	No government project in the community.
Community organization to manage water	No community organisation to manage water. The old one formed by some community members has collapsed as a result of chiefs not punishing culprits that were caught violating community water laws.
Traditional methods to manage water	No fishing on Sundays/ no fishing for two weeks in June.
Local education and communication methods	Community durbars
Are they effective?	Not really
Is the water managed effectively	No, quality of water keeps decreasing as people bath, urinate and defecate in the river/lake.
Disease(s) from water use	Buruli ulcer, bilharzia, skin rashes
Any comments	No

Community name	<b>Ayikai Doblo</b>
When community was established	The community was established in the 1660s by a man called Ayikai. It was originally called Doblonaa (the mouth of the Doblo) and later changed to Ayikai Doblo, in honour of the chief and the major river in the community.
Name of major river	Doblo and Densu (the Doblo is a tributary of the Densu. Doblo joins the Densu in the community).
Major water use activity	Vegetable cultivation along the river banks, minor fishing in the rainy season in both the Densu and the Doblo, domestic use.
Changes in water use over the years	Sand winning and housing construction has prevented vegetable cultivation along the Doblo. The remaining land for vegetable cultivation is a narrow strip of land along the Densu, portions of which also floods in the rainy season.
Distance to nearest major road	4 miles to Amasaman to join the Kumasi road.
Distance to nearest school	10 meters to the community basic and JHS school. Nearest SHS is in Amasaman (4 miles).
Distance to nearest hospital CHPS compound	CHPS compound at Akraman 1 <sup>1</sup> / <sub>4</sub> miles away. Hospital at Oduman (2 <sup>1</sup> / <sub>2</sub> miles), but no direct transportation to the place thus, nearest hospital in terms of accessibility is at Amasaman (4 miles).
More commercial activities on water	Commercial activities rather reducing, because of loss of agricultural land along the river.
Impacts of such activities on the community	People are poorer
Community consulted when decisions are taken	No major decisions taken on the water except to reiterate the observation of customary laws and rituals of the rivers.
Government undertaking project to manage water	No government project. World Vision is scoping the area for the building of a water treatment plant.
Community organization to manage water	No community organization to manage water.
Traditional methods to manage water	Women not allowed to fetch water from the Doblo on Sundays; menstruating women do not go near the river ; no washing of black and smoke stained cooking utensils in the river; no activity in the Densu on Friday.
Local education and communication methods	Community durbars. Sending information through gong-gong.
Are they effective?	They have been effective so far.
Is the water managed effectively	Water management has failed since people are no longer scared of violating customary laws. This has led to a pollution of the Doblo river.
Disease from water use	Bilharzia, Buruli ulcer.
Any comments	None

Community name	<b>Afuaman</b>
When community was established	15 <sup>th</sup> to 16 <sup>th</sup> Century
Name of major river	Okugya (name given to the Densu in the community)
Major water use activity	Fishing, building construction, small scale irrigation for farming purposes along the river, domestic use.
Changes in water use over the years	Same water use activities although a reduction in domestic use.
Distance to nearest major road	Awoshie-Pokuase highway (7 miles).
Distance to nearest school	600 meters from town centre to Primary and JHS in the community. SHS is Odorgonno SHS at Awoshie (unable to tell exact miles).
Distance to nearest hospital CHPS compound	Oduman hospital (2.5 miles).
More commercial activities on water	A water packaging company that sources its water from the Densu (community members feel this is illegal).
Impacts of such activities on the community	No immediate impacts recorded.
Community consulted when decisions are taken	Yes, regular consultation processes when needed.
Government undertaking project to manage water	Unsure, but ADRA tree planting project along the Densu some years ago.
Community organization to manage water	Formed, but yet to be registered to assist the community with water protection, as one of their duties
Traditional methods to manage water	Off-fishing and off-farming days. No bathing in the river with soap. No dumping of refuse in or near the river nor along the flood channel that leads to the river
Local education and communication methods	Community durbars, gong-gong beating, announcement through community information centre. Informing society and tribe heads in the community to further inform their people.
Are they effective?	Have been effective so far.
Is the water managed effectively	Relatively better and effective compared to the other communities
Disease from water use	Schistosomiasis in 1992, and Bilharzia recently
Any comments	No

Community name	<b>Weija</b>
When community was established	1762 AD (257 years ago)
Name of major river	Densu/ Weija Lake
Major water use activity	Fishing
Changes in water use over the years	Water treatment and supply to communities in Western and Central Accra and some communities in the Central Region.
Distance to nearest major road	About 2.4 km from the Accra-Kasoa Highway.
Distance to nearest school	10 schools exist in Weija (public and private).
Distance to nearest hospital or CHPS compound	4.2 km – Weija Leprosarium, Ga south Municipal hospital.
More commercial activities on water?	Farming including the rearing of cattle and sheep, quarrying and sand winning along the riverbanks as well as fuelwood harvesting within the acquisition area of GWCL.
Impacts of such activities on the community	No real economic gains so community is still poor and sanitation is one of the community's major issues. Oblogo landfill site created drains where the leachate going through the community so creates a problem for us sometimes
Community consulted when decisions are taken	Not all the time.
Government undertaking project to manage water	Yes.
Community organization to manage water	Weija Lake Protection Association
Traditional methods to manage water	Ban on fishing activities during Homowo Festival from Mid-June to the First Week in July
Local education and communication methods	Use of megaphone/ gong-gong/ community durbars/ forum/ seminar/ radio.
Are they effective?	Yes
Is the water managed effectively?	Not quite
Disease from water use	Bilharzias, Cholera/Diarrhoea, Buruli Ulcer
Any comments	Low engagement and involvement in programmes, but over time, community could be committed to water resources management through sustained and intensified awareness creation, education and training.

**Appendix G: Community Profile Bosomtwe**

<b>Community name</b>	<b>Abono</b>
When community was established	17 <sup>th</sup> Century thereabout
Name of major river	Bosomtwe, Ebo
Major water use activity	Fishing, tourism, domestic use, farming
Distance to nearest major road	2.5 miles to Kuntunase Kumasi road
Distance to nearest school	Primary and JHS in community, 300 meters from town centre; SHS at Kuntunase (5 miles).
Distance to nearest hospital, CHPS compound	Community clinic 300 meters from town centre and hospital at Kuntunase (5 miles).
Distance to the nearest government office	Kuntunase District Assembly (5 miles).
Changes in water use over the years	Fishing has reduced while tourism has gained grounds with the influx of hotels.
More commercial activities on water	Influx of hotels.
Impacts of such activities on the community	Locals believe tourists who have sex in the lake are the reason why fish catch has reduced because the spirit of the lake has been hurt/violated.
Community consulted when decisions are taken	No. Leaders hardly take any decisions with consultation of community members.
Government undertaking project to manage water	Maybe. There were tree planting activities with the help of Friends of the Earth. There is also CREMA for the management of the lake.
Community organization to manage water	CREMA
Traditional methods to manage water	No washing of cooking utensils in the lake; women who are menstruating are not allowed to bath in the river. No bathing or washing with soap is allowed in the water body.
Local education and communication methods	Community information centre Community durbars
Are they effective?	Not effective as some people complained they do not hear audibly when information is sent via the information centre
Is the water managed effectively	No, everything that is prohibited is being done
Disease from water use	None, except during the time of cage culture on the lake that locals complained of some small worms which bit them anytime they were in the water and caused some fishermen to develop eye-related problems.
Waste disposal method	Waste is disposed of at an open dump at the outskirts of the town in a dried river valley that links surface runoff to the lake. Thus, heavy rains can easily carry rubbish into the lake. At the mouth of that valley, which is about 20 meters to the lake, some community members also dump waste there.
Any comments	None

<b>Community name</b>	<b>Nkowi</b>
When community was established	17 <sup>th</sup> Century thereabout
Name of major river	Bosomtwe
Major water use activity	Fishing, domestic use, farming
Distance to nearest major road	5 miles
Distance to nearest school	Primary and JHS in community, 300 meters from town centre; SHS at Kuntunase (7.5 miles).
Distance to nearest hospital, CHPS compound	Clinic at Abono (2.5 miles) and hospital at Kuntunase (7.5 miles).
Distance to the nearest government office	Kuntunase District Assembly (7.5 miles).
Changes in water use over the years	Fishing has reduced because fish catch has reduced significantly.
More commercial activities on water	Declining fishing activities, which is the main commercial activity.
Impacts of such activities on the community	Locals believe tourists who have sex in the lake and some whites who came to mine in the lake some years ago are the reason why fish catch has reduced
Community consulted when decisions are taken	Yes, community discussions on certain decisions where the chiefs and elders seek the consent of the community members on laws that have been decided on by the chief's council.
Government undertaking project to manage water	Maybe. There was tree planting activities with the help of friends of the earth. There is also CREMA for the management of the lake.
Community organization to manage water	CREMA, local committee who is in charge of punishing culprits who violate customary laws
Traditional methods to manage water	No washing of cooking utensils in the lake; women are not allowed to bath in the river.
Local education and communication methods	Community durbars Beating of gong-gong
Are they effective?	Effective since all the community members seem to know and obey customary laws
Is the water managed effectively	Although activities such as bathing and washing with soap are not good for the water, they are not prohibited in this community. However, the activities that are prohibited are not done in the community. Customary laws are very effective in the community.
Disease from water use	None, except during the time of cage culture on the lake that locals complained of some small worms which bit them anytime they were in the water and caused some fishermen to develop eye-related problems.
Waste disposal method	Waste is disposed of at an open dump at the outskirts of the town however, heavy rains easily carry rubbish into the lake.
Any comments	None

<b>Community name</b>	<b>Dompa</b>
When community was established	17 <sup>th</sup> Century thereabout
Name of major river	Bosomtwe,
Major water use activity	Fishing, domestic use, farming
Distance to nearest major road	6 miles to Beposo to the Beposo Kuntase Road.
Distance to nearest school	Primary and JHS in community, 300 meters from town centre; SHS at Beposo (6 miles). Recently constructed SHS at Ankaase (2.5 miles).
Distance to nearest hospital, CHPS compound	Clinic at Amakom (3.5 miles) and hospital at Kuntunase (18 miles).
Distance to the nearest government office	Asiwa District Assembly (5 miles by foot but 18 miles by road).
Changes in water use over the years	Fishing has reduced because fish catch has also reduced.
More commercial activities on water	Declining fishing activities, which is the main commercial activity.
Impacts of activities on the community	Locals believe the refusal to perform sacrifices for the lake and some whites who came to mine in the lake some years ago are the reasons why fish catch has reduced.
Community consulted when decisions are taken	Yes, community discussion on certain decisions where the chiefs and elders seek the consent of the community members on laws that have been decided on by the chief's council.
Government undertaking project to manage water	Maybe. There was tree planting activities with the help of friends of the earth. There is also CREMA for the management of the lake.
Community organization to manage water	CREMA
Traditional methods to manage water	No washing of cooking utensils in the lake; women are not allowed to bath in the river, no fishing on Sundays.
Local education and communication methods	Community durbars. Use of community information centre.
Are they effective?	Effective since all the community members seem to know laws, but many do not obey the laws because there are no strict sanctions of the law.
Is the water managed effectively	The water is not managed effectively. Although activities such as bathing and washing with soap are prohibited in this community, many of the community members do not obey it.
Disease from water use	None, except during the time of cage culture on the lake that locals complained of some small worms which bit them anytime they were in the water and caused some fishermen to develop eye-related problems.
Waste disposal method	Waste is disposed of at an open dump at the outskirts of the town however, heavy rains easily can carry rubbish into the lake because the entire community lies on a slope
Any comments	None

<b>Community name</b>	<b>Ankaase</b>
When community was established	17 <sup>th</sup> Century thereabout
Name of major river	Bosomtwe,
Major water use activity	Fishing, domestic use, and tourism in recent times.
Distance to nearest major road	3.5 miles to the Beposo Kuntase Road.
Distance to nearest school	Primary and JHS in community, 200 meters from town centre; SHS at Beposo (3.5 miles). Recently constructed SHS in the community about 300 meters from the town centre.
Distance to nearest hospital, CHPS compound	Clinic at Amakom (1 mile) and hospital at Kuntunase (15 miles).
Distance to the nearest government office	Asiwa District Assembly (6 miles by foot but 15 miles by road).
Changes in water use over the years	Fishing has reduced because fish catch has also reduced. Onion farming along the lake has also been stopped because of tree planting exercises.
More commercial activities on water	Declining fishing activities, which is the main commercial activity.
Impacts of activities on the community	Locals believe the refusal to perform sacrifices for the lake and some whites who came to mine in the lake some years ago are the reasons why fish catch has reduced.
Community consulted when decisions are taken	Yes, community discussions on certain decisions where the chiefs and elders seek the consent of the community members on laws that have been decided on by the assembly woman and unit committee members.
Government undertaking project to manage water	Maybe. There was tree planting activities with the help of friends of the earth. There is also CREMA for the management of the lake.
Community organization to manage water	CREMA and local committee who are in charge of punishing culprits who violate customary laws.
Traditional methods to manage water	No washing of cooking utensils in the lake; women are not allowed to bath in the river, no fishing on Sundays.
Local education and communication methods	Community durbars. Use of community information centre.
Are they effective?	Effective since all the community members seem to know laws but many do not obey them because there are no strict sanctions of the law.
Is the water managed effectively	The water is not managed effectively. Although activities such as bathing and washing with soap are prohibited in this community, many of the community members do not obey it.
Disease from water use	None, except during the time of cage culture on the lake that locals complained of some small worms which bit them anytime they were in the water and

	caused some fishermen to develop eye-related problems.
Waste disposal method	Waste is disposed of at an open dump at the outskirts of the town however, heavy rains easily carry rubbish into the lake. Also, one of the dried river valleys is where some members dump their refuse and surface runoff can carry it into the lake
Any comments	None

---