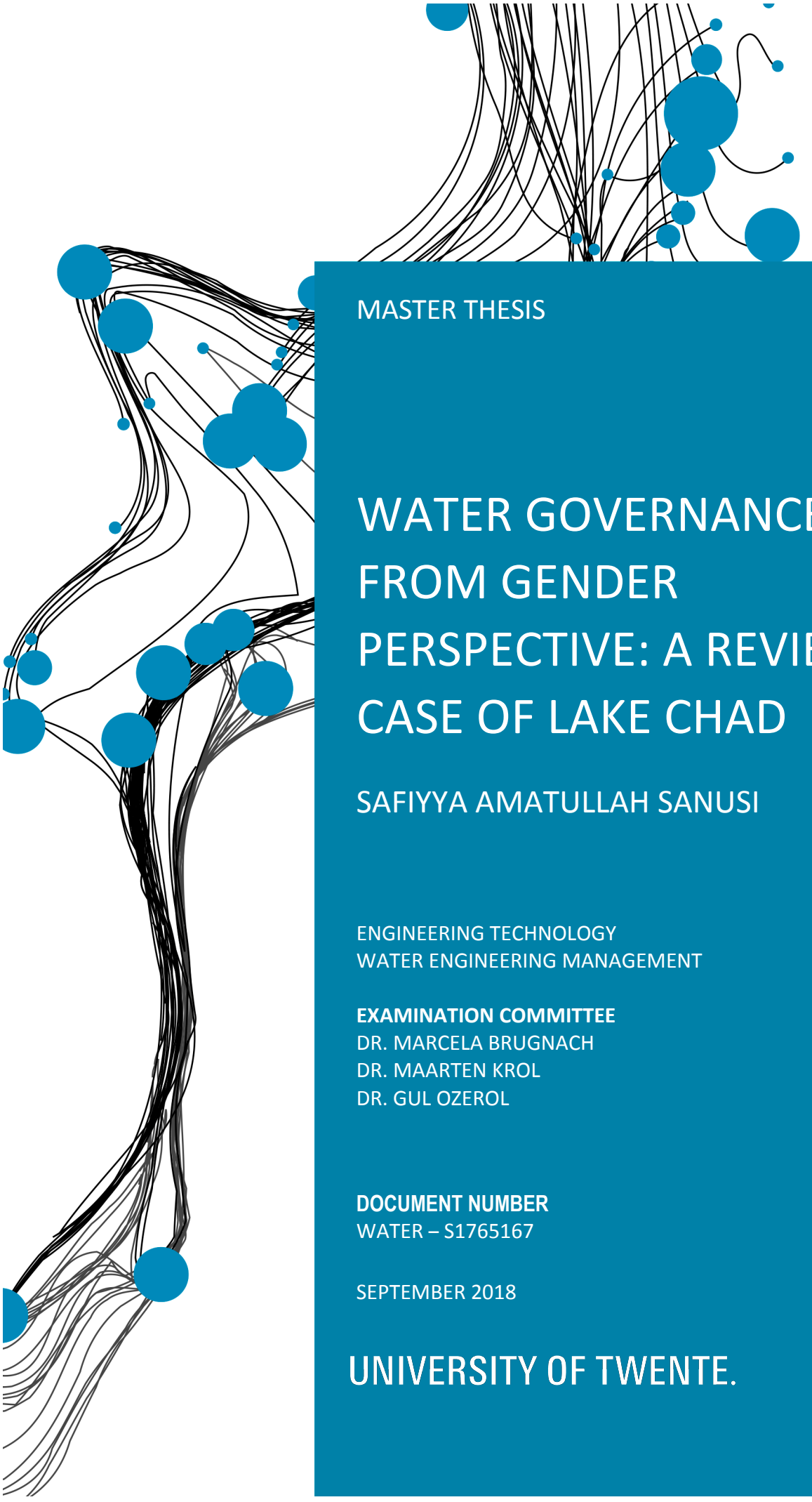

MASTER THESIS

WATER GOVERNANCE FROM GENDER PERSPECTIVE: A REVIEW CASE OF LAKE CHAD

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PREFACE

In mapping, the relationship between water— envisioned in all its breadth—and gender, this report provides a comprehensive theory, to the knowledge that points out that water and gender are intimately connected, and that water can be seen as a canvas for the play of social and gender relations. Gender is increasingly being recognised globally as an essential factor for water governance. Despite this recognition, women are nevertheless excluded from water governance decision-making in some parts of the globe (mostly in developing countries), which as a result has proved somewhat failed governance practices. The exclusion has resulted in consequences for water's capacity and efficiency. Gender exclusion often stems from traditional and profoundly rooted gender differences where women, compared to men, are not given the same rights and opportunities to participate. Notably, this study focuses on what gender means in water governance, who gets to participate and not and what are the reasons behind the hindrance of a particular gender. What were the possible approaches to rid of the obstacles and challenges that may hinder equitable gender participation? Also, the relationship between gender and knowledge co-production explained in the research and what it means in gender. Based on a review of vast, in-depth literature and provision of a case study, the paper presents a “perspective” of gender in the reviewed case of Lake Chad to envision water and Impute its relationship with gender more clearly. The Lake Chad serves as a source of livelihood to all its habitats and has suffered from environmental, social and political issues right from the 1970s till present times. The production, distribution and use of water are not efficient, sufficient, or sustainable as a result of the improper governance and several issues. The issues impede the region's socio-economic development. Most affected are women and children as they are often directly linked to the water source through their primary role as water collectors. Concerning this, the research investigated the importance of both men and women in participatory decision-making on water governance within the lake's region. Also, the importance of knowledge in the water charter, mainly, knowledge concerning gender was reviewed and investigated. From the interviews, literature review and policy paper (water charter), the study found these water issues are both environmental, political and social; however, researchers and governing bodies of the Lake are more concerned with the environmental and political issue (climate change) that makes social issues being frowned upon amongst the lake's problems. The social issues are mostly a result of cultural norms and insufficient knowledge/education in the region along with the on-going insurgency. The solutions as suggested by the interviewees would be to strengthen education and awareness, support the population by building capacity and creating and enforcing laws that allow genders to participate in the decision-making of water equitably. The gender knowledge in the Lake Chad Basin Commission's water charter should be more elaborate on the roles and relations of gender, as that seems to be lacking.

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1. INTRODUCTION

Water is intimately linked to all phases of life that cuts across livelihood, development, health, food, security and much more. As Hoekstra (2013) once said water just like oil is a geopolitical commodity, where people or nations would do anything to get full control and access of water in their region (Hoekstra, 2013). Water unifies life as the availability, control and access to water resources determine the social being, prosperity and stability of people (Hoekstra, 2013). Water is plentiful but not distributed equally to satisfy the human population, there is often too much or too little, or the water that exists is polluted or expensive or not distributed relatively (Pahl-Wostl, 2017). Certain pressure such as population growth is a contributing factor to inequitable distribution and accessibility (Kevany & Huisingh, 2013). France (2006) claims that by "2020" 70% of the human population is expected to be living within 50km of the sea (Frances, 2006). Water will be considered a problem concerning source and waste and different regions are bound to experience different issues on water accessibility (Kevany & Huisingh, 2013). Challenges in accessing water are complex and intertwined. The inability to obtain water affects a growing portion of the world's population, mainly women and children who are adversely affected (Kevany & Huisingh, 2013). Critical problems with water inaccessibility are distilled into the following issues: the obstructions to accessible, safe water supplies; local and global practices that undermine distribution and erode rights and access to water; dysfunctional, patriarchal and disjointed water management systems; and changes in climate and concentrated populations that over-tax water systems (Kevany & Huisingh, 2013). Disparities in water availability and access are major development concerns. How water is distributed, who has access and can make decisions on its use depends on various institutional, structural and social factors, among them gender (Speranza & Bikketi, 2018). Imbalanced, inefficient and ineffective approaches exacerbate gender inequality in water governance and distribution (Kevany & Huisingh, 2013).

The water sector is a rich source of myths about gender interests and roles - many of which overlap with tales that are not explicitly gender focussed, such as ideas about the desirability of 'community management', the inevitably empowering effects of participation and the secure link between paying for water and improved sustainability (Cleaver, 2003). Such broad-brush generalisations about the nature of the relationships between water and people are reproduced continuously at international conferences, which generate guiding principles for the water sector (Cleaver, 2003). The exclusion of gender in governance has made some water management systems less responsive to demands of water services. Moreover, it has squandered the skills and energy of half the world's population that could be used in developing countries to provide water services and manage natural resources thus contributing to sustainable social, economic, environmental and personal development (Hamdy & Quagliariello, 2006). Gender affects the distribution of resources and responsibilities and remains one of the broadest categories of social inequality, with enormous local and cultural variations (Wyrod, 2008). Ridgeway and Correll (2004) argue that "widely shared, hegemonic cultural beliefs about

gender and their effects in “social relational contexts” (situations in which individuals define themselves in relation to others in order to act) are among the core components” that make a gender system persist or open to change (Ridgeway & Correll, 2004, p. 511). Gender ideology and beliefs that are hegemonic are institutionalised in various spheres of society such as in the media, government policy, normative images of the family (Ridgeway & Correll, 2004) and markets. Gender is socially determined and performative and can change through both individual and social action (Butler, 1990). Quisumbing (1996) thus argues that since gender is culturally determined, it can be improved through conscious social action including public policy (Quisumbing, 1996, p. 1580). Policy formulation, decision-making, planning and implementation in the water sectors continue to exclude or misinterpret women's needs, interest and experiences and subsume them with those of men (Speranza & Bikketi, 2018).

Gender is often thought of as side-streamed rather than mainstreamed due to a lack of understanding and the will to change by individuals (Cleaver, 2003). The word “gender" is often associated with women only when it should be used to refer to both men and women. Gender is related to how people are perceived and expected to think and act, as women and men, because of the way society is organised, not because of biological differences (Cleaver, 2003). Genders do not necessarily have the same access to or control over resources and work, benefits and impacts may be different for both groups (Hamdy & Quagliariello, 2006). Resources and Institutional Support are few of the significant constraints on the progress of gender equality. The resources and institutional support are not comparable with the policy commitments on gender equality (Hamdy & Quagliariello, 2006). For such a narrative to change successfully, the gender approach requires good governance capable of leading and organising both men and women to work together in complete harmony (Hamdy & Quagliariello, 2006). Governance provides a way of conceptualising emerging network of relationships between different sectors and interests in society, enabling researchers to analyse how governments, the public and private sectors, civil society, citizens groups and individual citizens forge networks and linkages to provide new ways for organization to order itself and manage its affairs (Franks & Cleaver, 2007). In parallel with the increasing use of governance, the concept is widely applied in the water sectors, where water governance rests on two core values: inclusiveness of all stakeholders and accountability of government in charge (Bucknall, 2006). Inclusive governance in water development and distribution that is just, efficient and effective will garner more significant attention. Maganda and Petit (2011) predict that will arouse innovations that could more equitably, effectively and productively address the supply and, more importantly, the distribution of the world's water (Maganda & Petit, 2011). Solutions are considered that strengthen well being as framed through spiritual, social, and cultural perspectives as well as based upon the physical, economic and political requirements for human and planetary well-being. In this context, including the leadership of women is essential in addressing water (Anderson, Clow, & Haworth-Brockman, 2013).

1.1. RESEARCH RELEVANCE

The purpose of this study is to uncover the role of gender in water governance and co-production of knowledge using a case study to answer the research question and achieve the aims of this study. The research discusses water governance both as a supranational phenomenon as well as regarding how water governance is changing continually. In doing so, current trends are addressed in areas and the issues that arise from these patterns with regards to gender in water governance. In studying gender-water relations, it is essential to look at who does what with which type or source of water and why, where, and how these practices relate to gender identities and social relationships in general. Organisation for Economic Co-operation and Development (OECD) mentioned that Women play a central role in the provision, management and safeguarding of water for domestic purposes and agricultural use but are underrepresented across the world (OECD, 2008). Despite their significant number, women's representation at different political decision-making levels is too sparse to improve governance. Women often play a less influential role than men in the administration, problem analysis and decision making related to water across all levels of government (Bayeh, 2016). Gender water issues are often associated with a woman rather than a human problem; where all genders participate equally in any form of governance. Studies from researchers such as Margreet Z. Zwarteveen, Frances Cleaver have observed and highlighted the lack of gender inclusion in water governance, as well as specific gender for instance women being limited to particular roles in managing water. Gender inclusion in water management is still an issue where some genders benefit more than others. Lake Chad is the principal life source of the Sahel, a semiarid band that spans the width of Africa and separates the Sahara, in the north, from the savannah, in the south where about a hundred million people live and depend on its water resources. Lake Chad is used as a case study to study the limitations of gendered participation in water governance. These limiting issues and challenges develop an understanding of the complexity of, and obstacles to, equitable gender participation. Also, to figure out how the governance practices in the region and what are the different gender roles regarding involvement, decision-making and co-production of knowledge. To create an understanding of what policies currently guides the development agenda in Lake Chad and thus consequently governs the development plan for water and gender issues, the Lake Chad Basin Commission "Water charter" is selected for analysis as it is the essential legal document used to manage and protect the lake. However, Lake Chad systems are not based on realistic analysis of the organisational/ministries including decision-making structures and planning routines and its history concerning gender-related initiatives. These problems led to the formulation of the research questions and objections in the sections below.

1.2. RESEARCH QUESTIONS AND OBJECTIVES

QUESTIONS

I. What is the state of the art of men and women's role and relations in decision-making participation in water governance?

II. What factors constrain towards equitable gendered participation regarding decision-making in water governance?
III. What factors could enhance equitable gendered participation regarding decision-making in water governance?
IV. Is existing knowledge on gender taken into account when co-producing knowledge for policies?

OBJECTIVES

This research aims to uncover the identified state of the art roles and relations of both genders in the participatory decision-making of water. Also identifying factors that restrict towards more balanced gender participation in water governance regarding the decision and facilitating factors that would increase women's participation in water governance. Also investigating if knowledge about gender is taken into account when co-producing knowledge for policies.

1.3. STUDY GUIDE

The chapters for thesis study divide into five, in which the 1st chapter introduces the research along with the crafted research relevance, objectives and question for the study. The 2nd chapter is the literature review of water governance from a gender perspective, covering the importance of participatory decision-making and co-production of knowledge in water governance process. The 3rd chapter explains the methodology used to carry out the research. The method used is a case study where semi-structured interviews and documentary source (water charter) were used to collect relevant data for the study. The 4th chapter analyses and reviews the case study of Lake Chad using content analysis as an analysis method. The case study centres on the gender issues surrounding the region's water governance. The final segment provides the final verdict of the research and results, also, the suggestions on what should be done to improve the problem.

2. LITERATURE REVIEW

Literature review acts as a stepping-stone towards the achievement of the study objectives. The depth and breadth of the literature review emphasise the credibility of the study field. It also provides a solid background to the investigation. The report plays a critical role in analysing the existing literature and giving justification as to how gender fits into the current body of knowledge of water governance in gender. This implies that the literature review provides the general understanding, which gives meaning to the discussion of findings, conclusions, and recommendations. Literature review helps in identifying the gaps in water governance with the goal of filling them, by using research design and methodology used to investigate that particular problem and to interpret findings.

2.1. WATER GOVERNANCE AND GENDER

2.1.1. THE CONCEPTUALISATION OF WATER GOVERNANCE

There are several competing understandings of the term 'governance' and, consequently, of water governance (Schulz, Ortega, Glenk, & Ioris, 2017). Governance, in a broad sense, can be understood as "the art of governing" and embraces the full complexity of regulatory processes and their interaction (Baumgartner & Paul-Wostl, 2013). Governance is also prominent in the crosscutting objectives, especially strengthening water and environmental governance, including improving political and institutional arrangements and fostering coordination between different sectors such as water, environmental, government sectors (Mahon, Fanning, & McConney, 2017). Governance of water can also be defined as a "decision process in the development and management of water resources for the various uses, taking into account the needs and aspirations of the different users and stakeholders" (Hofwegen & Jaspers, 1999). Water governance is now consistently championed as one of the most promising paradigms of water resources management (Harrington, 2017). The Organisation for Economic Co-operation and Development (OECD) defines water governance as the authority acquired and exercised on behalf of the public in developing, utilising and protecting a nation's water resources. Pahl-Wostl (2017) also states water governance is highly contextual and influenced by physical factors, levels of economic and social development as well as political and cultural norms that have evolved over an extended period. The definition can operate at various levels, from national to local, and can also encompass informal governance based on local tradition, as with the authority of a village headman or a traditional water master (De Stefano, Svendsen, Giordano, Steel, Brown, & Wolf, 2014). Governance of water and other resources requires the joint action of multiple stakeholders. The concept of governance suggests looking beyond government, toward public-private-civil society partnerships, as a way of dealing with the shortcomings of a single agency, top-down management (Berkes, 2009). Woodhouse and Muller (2017) claim evidence suggests that the focus of water governance moves as contexts change as new sets of problems and preferences emerge (Woodhouse & Muller, 2017).

The growing water crisis around the world is increasingly considered a problem of governance rather than one of scarcity (Perreault, 2014). Fixing various water-related challenges, such as dwindling water resources, insufficient services, and pollution, are now increasingly seen regarding getting the 'right' governance system in place (Tropp, 2007). Water systems are continually changing due to environmental phenomenon and exposure from human activities. The incapacity to control pressures on water resources may uncover institutional inadequacies in the management of water systems and insufficient public participation in decision-making (Neto, 2016). Many water studies and approaches to solving water problems are narrowly systems- or intervention-oriented and supply-focused (Zwarteveen, Roth, Joy, & Kulkarni, 2015) prioritising questions of efficiency over equity. Technological or institutional panaceas such as centralised wastewater treatment plants or water privatisation are often applied to all kinds of water issues worldwide without critical reflection or monitoring (Pahl-Wostl, Holtz, Kastens, & Knieper, 2010). According to Susskind and Islam (2013), the world continues to treat water issues as a technical problem when it is, in fact, a social issue involving different stakeholders. Water issues are not just engineering problems because in such a winner take all environment; one political interest can triumph in water problems debate while ignoring the needs of others and wasting a vast amount of water in the process and creating segments of the population against each other (Susskind, 2013). However, many problems in water are more associated with governance failures than with the resource base (Pahl-Wostl, Holtz, Kastens, & Knieper, 2010) and require significant reforms in water governance taking into account contextual factors. A much water governance failure lies in the lack of inclusive and integrative institutional arrangements. The solutions to complex water problems will involve action across multiple, overlapping scales; however, integration across scales of governance and prioritisation of issues will be problematic if a shared understanding of the challenges that are most complex does not exist (Moore, 2013).

Good water governance is essential for peaceful co-existence in any water-related environments, and successful water governance is entirely reliant on proper management and social inclusion both nationally and internationally (Biggs, Ducan, Atkinson, & Dash, 2013). However, the concept of good water governance also has many definitions with no consensus about its meaning and use (Lautze, De Silva, Giordano, & Sanford, 2011). One of the fundamental assumptions is that good water governance brings about good outcomes, which reflects the normative element of good governance. What constitutes good water governance and functional issues, however, remains unclear (Vinke-de Kruijf & Özerol, 2013). Expectations concerning the application of sound governance principles to the water domain vary. These expectations include the establishment of a common understanding about the 'good outcomes' of governance processes and the collaboration of different sectors towards achieving those good outcomes (Rogers & Hall, 2003). As governance is about the exercise of authority and allocation of rights and resources, the issue of social power becomes difficult to avoid. However, water governance is also subject to criticism when it is considered only as an instrument for achieving IWRM, and the application of good water governance remains apolitical by neglecting

how the decisions are made by respecting – or disrespecting – the principles (Lautze, De Silva, Giordano, & Sanford, 2011). To solve current water problems transcends the decision-making power and resources of any stakeholder and requires coordinated action from diverse stakeholders from different organisational levels and sectors (Brugnach, 2017). The involvement of various stakeholders means handling disparities in power and resources (Brugnach & Ingram, 2012). Robust decision-making processes that are participatory and decentralised facilitate good water governance (Tortajada, 2010). Such procedures can place new ideas before critical decision-makers; promoting awareness of the opinions held by society (Matthews & Schmidt, 2014).

2.1.2. WHAT DOES GENDER MEAN IN WATER GOVERNANCE

"Water is gendered in every society" (Wallace & Coles, 2005). The meaning of gender is always contextual and constructed and contested (Zwarteveen M. Z., 2010). A gender approach is based on distinction between sexes, which implies paying attention to every gender type rather than paying attention to society biasing towards neglecting a particular gender and giving the other more attention (Allely, et al., 2002). Relations between genders are linked to social relationships between women and men, which in turn relate not to differences which are biological in origin, but to socio-cultural factors and which are therefore proper to a given, variable context (Allely, et al., 2002). Women or men, for that matter, cannot be identified as a pre-existing group or category before history or analysis, along with, for instance, other classes of disempowered persons such as ethnic minorities or socially excluded immigrants (Zwarteveen M. Z., 2010). Gender relations can be meaningfully addressed by engaging both men and women in the real representation mainly by reducing the perceived knowledge and skills gap by facilitating equity in decision-making capacity (Tagutanazvo, Dzingirai, Mapedza, & Van Koppen, 2017). Consequently, women and men have different needs, responsibilities, access to water resources and their control together with taking part in decision-making that also differs according to gender (Allely, et al., 2002). Their differential roles, needs, and concerns should be accommodated in the planning, implementation, and evaluation of strategies and projects (Peter, 2006). However, gender relations and identities mostly do not belong to what is considered to require elaboration in water, while women are notoriously underrepresented in sectors particularly that of water (Zwarteveen M. Z., 2010). Women and men's equal representation in water institutions are limited by roles, the patriarchal culture that forbids and excludes women from water meetings, as well as stereotypical characters that tend to privilege men's representation (Asaba, 2015). Women's views about water foster greater identification and appreciation of spiritual, social, and cultural meanings as well as the economic and political importance. These perspectives, in turn, are essential for the formulation of appropriate and sustainable water governance (Kevany, Siebel, Hyde, Nazer, & Huisingh, 2013). Gender differentiated rights and responsibilities bring impediments and opportunities for both men and women to cope with and to innovate around water resource uses (Kevany, Siebel, Hyde, Nazer, & Huisingh, 2013).

Gender in water has to do with how benefits and burdens of accessing and using water are divided between men and women based on how authority and expertise are defined and recognised and about the discourses and knowledge used to articulate water realities (Zwarteveen M. Z., 2010). Das and Hatzfeldt (2017) state, the relationship between water and gender play out in at least four critical ways (Das & Hatzfeldt, 2017). Firstly, the relationship between water and gender mirrors gender inequalities in various realms, such as, inter alia, the ownership and control over assets, employment, wages, household division of labour, exposure to and management of risk, access to services, and decision-making, which are often mirrored in water-related domains (Das & Hatzfeldt, 2017). Secondly, water has unique noneconomic and nonmonetary values, such as in the spiritual and social realms, with underlying norms and practices that are often profoundly gendered. These values are essential to policy and practice because such benefits have a bearing on the behaviour of individuals and groups, especially their responses to water-related reforms or interventions since belief systems often mediate human actions. For instance, people may actively boycott or passively reject a policy reform if it goes against their belief or cultural system (Das & Hatzfeldt, 2017). Thirdly, noneconomic, non-monetary values of water are essential not only because they may impede or enable behaviour change, but are often useful instruments to solidify hierarchies and the status quo, such as through taboos, rituals, and norms which, affect men and women differently. Lastly, the relationship between water and gender presents an opportunity; since water in many ways mirrors, and even reproduces, gender inequality. It follows that interventions that would equalise gender relations in water-related domains would also have a strong influence in enhancing gender equality overall. This makes the relationship between water and gender of interest not just to professionals working in water-related domains, but also to those interested in social inclusion and gender equality more generally. A corollary of this is that interventions toward greater gender equality in water transcend water-related "sectors" and spill over to agriculture, health, education, and information and communications technology and so forth (Das & Hatzfeldt, 2017).

Men and women as water users or managers are differential users in any water demand procedures. It is imperative to examine gendered dimensions in the access and use of water resources (Zwarteveen & Ahmed, 2012). Ideally, women use and require more water than men, water is needed for every purpose, but only a small percentage of women worldwide have full access and control over water (Sever, 2005). Surveys from 45 developing countries show that 76% of women and children bear the primary responsibility for water collection in most households (Jalal, 2014). Women and girls spend an estimated 152–200 million hours per day globally collecting water but are frequently uninvited for decisions relating to water (Jalal, 2014). A study of 24 sub-Saharan countries revealed that when the collection time is more than 30 minutes, an estimated 3.36 million children and 13.54 million adult females are responsible for water collection. In Malawi, the UN estimates that women who collected water spend 54 minutes on average, while men spent only 6 minutes. In Guinea and the United Republic of

Tanzania average collection times for women were 20 minutes, double that of men (UNICEF, 2016). There is often a conflict of interest on the water needs of both genders, for instance in the dry regions where there is water scarcity, the increased water requirement for livestock competes with domestic water needs. Although productive water needs (men's domain) and local water needs (women's field) are both in the common interest of the household, women carry the immediate burden of water provision (Masanyiwa, Niehof, & Termeer, 2014). Thus, the competing priorities over water use among men and are not resolved by the reforms to ensure that water services are 'gender-sensitive' (Masanyiwa, Niehof, & Termeer, 2014). Equitable access to water supply by women is necessary for them to meet their practical needs and contribute to their household's health and welfare. Thus, policy-makers and actors at different levels should create the necessary conditions for ensuring that women play a central role in setting priorities and in managing water facilities so as to enable them to have influence and control over the services, for the well-being of their households and that of the community (Masanyiwa, Niehof, & Termeer, 2014).

2.2. GENDERED WATER PARTICIPATION IN DECISION-MAKING

Participation has been conceptualised as representative of partnership and ownership with the involvement of people in decision-making processes, implementing programs, sharing the benefits of development programs and their participation in efforts to evaluate such programs (Singh, 2006). More narrowly, it is seen as a means to 'improve decision-making, by ensuring that decisions are based on shared knowledge, experiences, social issues and scientific evidence, that the choices are influenced by the views and experience of those affected by them (Singh, 2006). Participation is essential in the complex field of water-resources, where physical and biological systems are combined with the multiple perspectives, needs, values and concerns associated with human use (Antunes, Kallis, Videira, & Santos, 2009). This entails the need for the development of participatory tools capable of overcoming complexity and uncertainty (Pahl-Wostl, 2007). Participation in decision-making is a complex concept whereas the definitions of involvement differ, as do views on who is expected to involve and what it is expected to achieve and how it is to be brought about (Agarwal, 2010). Water governance is a series of interlinked decisions in which these decisions are of importance to the stakeholder involved. The nature of the decision-making process can be an essential determinant of choice achieved (De Stefano, Svendsen, Giordano, Steel, Brown, & Wolf, 2014). Successful participation of actors in natural-resources governance requires decision-making tools that are transparent and flexible (Henriksen & Barlebo, 2008). These tools are designed to elicit knowledge from different actor groups and operate as a platform to carry out the debate (Carmona, Varela-Ortega, & Bromley, 2013). The terms and forms of participation in programmes and other policy prescriptions are essential (Arora-Jonsson, 2011). If turnout is not seen as a mere management technique but as a practice based on philosophy, it becomes necessary to mention the social dynamics that lead to sharing responsibility: information exchange, shared construction of reality, empowerment and internalisation (Bouwen & Taillieu, 2004).

Women's participation in water governance decision-making has become a significant thrust for international development agencies, and the results have been mixed, fuelling much debate. Higher participation of women as decision-makers, however, is a challenge. Changing water cultures towards greater recognition of women's importance is a complex task in a world where "women are still being seen regarding their vulnerabilities, and cast in their traditional roles as mothers or victims rather than as actors in development (Jacques de Moraes & Rocha, 2013). In countries like Tanzania, as in many other countries, women function within a system of structural and gender-based inequality that influences their access to water and their involvement in water governance (Brown, 2010). Although there has been some progress in acknowledging the need for gender equality in water management in the international development discourse (UN Millennium Development Goals, Dublin Principles and so forth.), the practice of involving and empowering women lags far behind (Zwarteveen & Bennett, 2005). The recognition of the 'gender–water nexus' in national and international frameworks gender issues remain under-theorised and marginal in much water (Laurie, 2011). The former neglects the in-between process of the impact of women's numbers on their effective participation, such as participation at stakeholder meetings, and holding office and what impact would increase women's proportions have on participation (Agarwal, 2010). Parpart (2004) argues that gender participation concerns more than merely counting the number of women represented in institutions (Parpart, 2004) there is a need for a shift in the political, natural and social decision-making process that allows alternative approaches to the governance of water. Parpart (2009) also argues, 'a deeper analysis of the masculinist operations of power reveals the limits of the "body count" [approach] to gender transformation' (Parpart, 2009). The rule of the game and sanctioned discourses are not changed merely by allowing women (and marginalised men) into decision-making structures, as the newcomers face enormous pressure to adhere to the implicit rules. It is essential to look at the legal agreements establishing water governance organisations, as well as their various policies and strategies, in addition to looking at their representation of women (Earle & Bazilli, 2013).

The increased participation of women as stewards of water resources is crucial to any progress towards more responsible and innovative water management in impoverished rural regions of the developing world (Kevany, 2010). Zwarteveen and Ahmed (2012) claim decentralisation brought decision-making down to the local level carving out institutional space for participation by non-state actors. Institutions based on democratic rules were established to give women access to educational and legal resources to allow them to make decisions as equals (Zwarteveen & Ahmed, 2012). Harris (2009) claims recent studies have mostly focused on how to involve women in water institutions. The commitment to being gender-sensitive in water projects has been narrowly translated into women's participation in decentralised local institutions such as village water committees. Other dimensions of social differences that shape women's access to water are often overlooked (Harris, 2009). As little attention has been paid to the workings of higher-level institutions and their impact on improving gender-sensitive

access to water services (Cleaver & Kristin, Good' Water Governance and Gender Equity: A Troubled Relationship, 2010). A study of evaluations of 121 rural water supply projects in 49 developing countries revealed that only 17% achieved high levels of women's participation (Das P. , 2014). Most empirical studies on women's participation in water governance have focused on the programmatic outcomes of efficiency, effectiveness, and empowerment linking involvement with individual and household benefits. There is less evidence of how their participation attempts to force open spaces for change in discourses and practices through collective empowerment (Das P. , 2014). However, in Shonsey and Gierke's study, local women were active and informed contributors to the hydrogeological research to calculate and appreciate shallow groundwater resources. Women, aged 15-50, extracted well water mainly for domestic and small-scale agricultural activities, such as gardening and raising livestock. The precise role of village women in the scientific and engineering processes and decision-making, the interpretation of well logs and yield, engagement in the opportunities for learning and feedback from the village women were central areas of inquiry. As was true in many of the case studies in this collection, women played pivotal roles in gathering data and maintaining systems (Shonsey & Gierke).

While focusing mostly on the gendered roles women play concerning water in the context of poverty, proposed policies evade or ignore the analysis of their social and cultural functions (Singh, 2006), their subordination and barriers for participation at decision-making levels and their rights to water (Wallace & Coles, 2005). Many factors influence men and women's roles in water governance issues, including social factors such as cultural norms and illiteracy and gendered roles (Kevany, Siebel, Hyde, Nazer, & Huisingh, 2013). People's lack entitlement to water is deeply rooted due to social exclusion, some people have seen ad entitled by who they are or are taken to be socially in most societies (Mehta, 2014). In the context of water culture, various cultural norms and behaviour determine the utilisation of natural and socio-economic resources. These norms and behaviours further produce and reproduce social conduct for whoever is involved in the specific water culture (Minoia, 2007). The rules and social norms within water governance are not always clearly visible but appear when governments or international agencies implement new policies and projects (Minoia, 2007). Thus, without thoroughly studying the issues, these unwritten rules and norms may not be recognised and are consequently ignored. Minoia (2007) further argues, several projects and research indicate that central traditional and cultural norms are the source of impeding equitable participation and consequently preserving participation inequity. Still, cultural limitations to women's participation are commonly restricted to regard merely norms explicitly inhibiting equitable participation in decision-making and thus not embrace other influencing cultural norms (Minoia, 2007). Illiteracy remains a significant impediment to the development and well being of men and women (Simard, 1996). Too frequently women are involved in daily physical labour, yet their contribution to decision-making about water management or watershed development process are minimal (Kevany, Siebel, Hyde, Nazer, & Huisingh, 2013). Klaver (2012) mentioned that many African and Asian women and girls spend hours collecting water, which severely

reduces their participation in productive activities, like education and decision-making. The primary role of collecting water prevents young girls from being educated (Klaver, Placing water and culture, 2012) as a result reduces their chances of participating in water-related decision-making.

Representation of women in decision-making structures needs to be accompanied by policies, strategies and work plans of those organisations that reflect an understanding of gender issues (Parpart, 2009). For a fuller understanding of the gender equity issues in water policy, policy-makers need to go beyond the inclusion of women in their ascribed roles as domestic managers of water, to their extended participation, addressing not only practical needs (such as access to water) but also strategic interests (empowerment, agency) (Jacques de Moraes & Rocha, 2013). Education and involvement of women in formal decision-making processes can strengthen their adaptive capacity (Figueiredo & Perkins, 2013). This also furthers water justice, which involves the principles of fair water access and forward-looking responsibility, even putting the most vulnerable first and equitable participation of all (Paavola, Adger, & Huq, 2006). Forging cooperation and coordination among more women involved in informing researcher and governmental initiatives along with inputs from the private sector and civil society appeared hopeful for prudent and sustainable water management (Kevany, Siebel, Hyde, Nazer, & Huisingh, 2013). Community-based environmental education initiatives which are relevant and exciting for residents and increase their job opportunities, knowledge of watershed issues, understanding of fundamental political and ecological principles, and confidence to express and act on their views can serve as the basis of a water sustainability intervention approach which is progressive, constructive and democratic. This, in turn, increases the resilience and sustainability of watershed decision-making processes. It also lays the groundwork for community organising an extension of the environmental education activities to larger constituencies in local areas affected by water issues (Figueiredo & Perkins, 2013). Capacity building is also another improving factor towards equitable participation in decision-making. Capacity building is foremost a global concept and a strategic element in the sustainable development of the water sector (Hamdy, Abu-Zeid, & Lacirignola, 1998). This is a long-term continuing process that needs to permeate all activities in the water sector. In developing countries, experience shows that institutional weakness and malfunctions constitute a significant cause of ineffective and unsustainable water services (Hamdy, Abu-Zeid, & Lacirignola, 1998).

Box one provides a case good example of Brazilian case study of women participation in the Program ‘One Million Cisterns' in the Brazilian Semi-Arid region, to illustrate the promise and the challenges of bringing about women's involvement and empowering. (Jacques de Moraes & Rocha, 2013)

BOX 1: THE CASE OF BRAZILIAN WOMEN AS “CISTERN BUILDERS” (Jacques de Moraes & Rocha, 2013)

Brazil has 12% of the world's freshwaters but the water resources are not distributed unevenly in the country, and there are enormous regional discrepancies (Moraes & Perkins, 2007). Criticism of existing policies as inadequate to sustain the region's people and environment led to the declaration built that there was need conservation and sustainable use of the Semi-Arid region's natural resources, along with a reduction of the unequal access to land, water and other means of production. In 1999, NGOs and other civil society organisations working in the region came together as the Articulation of the Semi-Arid region, or ASA and formed network proposed to revolutionise the approach to development in the area by embracing the natural environment. Its founding document, the Declaration of the Semi-Arid region proposed the "coexistence" of humans and nature within the Semi-Arid region as a way to prevent desertification (Jacques de Moraes & Rocha, 2013). The document proposed six central strategic actions, among which the inclusion of women and youth in the development process took prominence. The report recognized that: women account for 40% of the labour force in rural areas; they work, on average, 18 hours per day; more than half of all girls start working at the age of 10; and that the majority of women are responsible for the water used in the household (Jacques de Moraes & Rocha, 2013).

ASA developed the 1st program under the principles in the policy called "Education and Mobilization Program for Coexistence in the Semi-Arid Region: One Million Cisterns" or simply "P1MC". The main goal of the program was to build plaque cisterns for one million families e half of the families without adequate access to clean drinking water in the Semi-Arid region of Brazil. Since 2003, the program has received support from the federal government as part of its Zero Hunger strategy. By the year 2012, over 300,000 litres of rainwater harvesting cisterns had been built, benefitting 1.5 million people. Women are the main beneficiaries of the "One Million Cisterns" Program, a program that was designed to improve water access, through the construction of rainwater cisterns, in the Northeast Semi-Arid region of Brazil (Jacques de Moraes & Rocha, 2013)

2.3. KNOWLEDGE CO-PRODUCTION AND GENDER

2.3.1. THE CONCEPTUALISATION OF KNOWLEDGE CO-PRODUCTION

"Co-production" refers to the active involvement and engagement of actors in the production of knowledge that takes place in processes either emerging or being facilitated and designed to accomplish such active participation (Voorberg, Bekkers, & Tummers, 2014). Co-production is becoming an increasingly popular term in policymaking, governance, and research (Filipe, Alicia, & Marston, 2017); wherein the processes, policy learning is a direct and an indirect outcome of the process that relates to building governance capacity for adaptation to context dynamics and opportunities (Frantzeskaki & Kabisch, 2016). A growing literature on 'knowledge-to-action' is exploring how to make knowledge systems or the institutions that harness science and technology for natural resource management more effective at supporting action in complex

and networked political landscapes (Munoz-Erickson, 2014). Knowledge is crucial for creating value - it forms the basis for both, innovation and development and is becoming ever more salient (e.g. OECD, 2013) (Wehn & Montalvo, 2016). Knowledge and scientific knowledge in are often seen as universal things that can be transferred between societies. However, knowledge is closely linked to the social groups who have produced and reproduce it. Therefore, the group receiving new instruction ought to have similar knowledge capacities as the group who create it, so that they will be able to obtain, understand, and further reproduce it (Puente-Rodrıguez, Van Slobbe, Al, & Lindenbergh, 2016). Exchanging information provides the cognitive basis for enhancing expert knowledge and experimental knowledge (Bouwen & Taillieu, 2004). Co-production of knowledge is efficient when multi-stakeholders are involved in the process and decision-making (Akpo, Crane, Vissoh, & Tossou, 2015). The method of decision-making has become a social issue, and the mobilisation of different sources of knowledge as input for the decision has increased tremendously (Pielke, 2007). Understanding of complex decision-making processes is often disputed (Van Buuren & Edelenbos, 2004). In complex decision-making, there are a variety of actors who produce and rely on knowledge that differs regarding both content and orientation (Eshuis & Stuiver, 2005), and that emerges within different institutional and social contexts (Hajer & Wagenaar, 2003). In general, three types of knowledge have been identified within the context of decision-making processes (Rinaudo & Garin, 2005); which are scientific (or expert) knowledge, bureaucratic knowledge and stakeholder (lay, practical, non-scientific or professional) experience. Table 1 below describes an overview of the differences between expert, bureaucratic and stakeholder education.

Table 1. Overview of the differences between expert, bureaucratic and stakeholder knowledge (Edelenbos, Van Buuren, & Van Schie, 2011)

	EXPERT KNOWLEDGE	BUREAUCRATIC KNOWLEDGE	STAKEHOLDER KNOWLEDGE
Definition	Experts mainly develop scientific knowledge, the validity of this type of knowledge is based on experimental models and methods and the rigorous quality checks of the peer review process. There	Bureaucratic knowledge is heavily intertwined with administrative and governmental practices. Within complex decision-making, the participating decision-makers and legislative representatives	Stakeholder knowledge is grounded in the experiences of stakeholders or is related to context or location (Eshuis & Stuiver, 2005). This type of expertise concerns local experiences and insights and is firmly entwined with the day-to-day activities of people. It is derived

	are differences between the natural and social sciences regarding their use of different premises, methodologies, norms and values.	bring in and mobilise this type of experience to underpin arguments.	from the practices in which people (inhabitants, entrepreneurs and so forth.) are involved
The norm for knowledge production	Scientific validity	Policy usefulness	Social validity
Warrant for useful knowledge	Positive peer review and prospects for publication	Appropriateness about standards and orders of bureaucracy, and political use	Level of fit with the business, local experiences and interests
Core business	Scientific research: systematic and objectified observations	Rule-following behaviour: bureaucratic practices	Daily life, private industry, defending specific societal benefits
Criteria for success	Validating scientific hypotheses; expanding the knowledge domain	Political-administrative support for proposals	Support for one's interests and agenda

Water knowledge is primarily concerned with 'the resource' water. The physical, biological and chemical characteristics of water, together with the engineering knowledge needed to convey water, constitute the heart of much water knowledge (Zwarteveen M. Z., 2010). Water institutions are still mostly technology and water supply-driven where traditional culture and capacity is commonly centred around disciplinary knowledge, based on technological know-how and natural science (Chambers, 1997). This type of conventional technocratic expertise and capability is essential and will remain necessary for water agencies and decision-makers. However, to improve the effectiveness of these institutions, the emphasis has to change from technological solutions to the management of processes and people, involving inclusive decision-making and bottom-up approaches (Tropp, 2007). The conventional separation between the social and technological sciences has led to the marginalisation of social issues in

the traditional management of resource (Redman, Grove, & Kuby, 2004). Resource managers and scientists, often dominate the resource management process and other professionals trained in the natural sciences (Endter-Wada, Blahna, Krannich, & Brunson, 1998). As a result, social science disciplines and non-scientific forms of knowledge have been virtually disregarded (Clark, 2002). For instance; hydraulic engineers have traditionally dominated the water field (Raadgever, Mostert, Kranz, Interwies, & Timmerman, 2008); thus offering limited space for social scientists. Complex systems perspective highlights the fact that knowledge varies according to the scale of observation and is dispersed among different stakeholders (Akamani, 2016). As before mentioned, no single analytical perspective or stakeholder group can yield sufficient knowledge for getting the sense of the complexity of the whole system (Armitage, Plummer, & De Loe, 2012) each perspective offers a legitimate but incomplete account of the whole (Akamani, 2016). Bringing perspectives, alternative knowledge, and implications into water governance where they were not previously considered counters potential lock-in to particular water policies and technologies that may be inequitable, unsustainable or unacceptable (Krueger, Maynard, Carr, Bruns, Mueller, & Lane, 2016). In addition to technical and physical science knowledge, relevant facts and values that help with interactions amongst persons need to be taken into account (Brugnach, 2017).

Pestoff (2006) understands co-production as an option for improving productivity. Warren et al. (1982; in Pestoff, 2006) maintain that co-production can reduce costs, improve the quality of services and expand citizens' participation in decision-making processes on public services (Pestoff, 2006). Elinor Ostrom (1996) analysed co-production in developing countries and implies that citizens can play an active role in producing public goods and services of consequence to them (Ostrom, 1996). Ostrom also points out that no market can survive without great public goods provided by governmental agencies likewise no government can be efficient and equitable without considerable input from citizens (Ostrom, 1996). The co-production of science and social order renders contingent the knowledge that is produced, acknowledging co-production also provides opportunities for certified and noncertified experts to come together and co-produced water knowledge explicitly (Krueger, Maynard, Carr, Bruns, Mueller, & Lane, 2016). **Box two** provides a case example of co-production in Venezuela's co-production of water services between communities and the state. By appropriating local and communal/collective spaces for participation, communities have become aware of their capacity to overcome difficulties by working as collectives and setting common objectives through the use of knowledge sharing and co-production (Llano-Arias, 2015).

Box 2. The case of Venezuela's Co-production with the Mesas Técnicas del Agua (MTA) (Technical Water Committees) (McMillan, Spronk, & Caswell, 2014)

BOX 2: THE CASE OF VENEZUELA'S CO-PRODUCTION WITH THE MESAS TÉCNICAS DEL AGUA (MTAS) (TECHNICAL WATER COMMITTEES) (McMillan, Spronk, & Caswell, 2014)
In Venezuela, the Mesas Técnicas del Agua MTAs were a government initiative to introduce

and promote water committees in populous neighbourhoods to tackle the severe water crises in the 1990s. The effort adopted participatory methodologies and was supported by the state-owned water company called Hidrocapital. Despite being created after a government's initiative, the MTAs are autonomous in their decisions and procedures. Through the community water councils called Consejo Comunitario de Agua, or CCA, the MTA's "influence government policy and planning" (McMillan, Spronk, & Caswell, 2014, p. 208). The idea to promote a people-centred water service became a national policy after succeeding at the local level.5 For (McMillan, Spronk, & Caswell, 2014, p. 207) the MTAs are:

"A co-production arrangement between the state and citizens that are part of a broader process of changing state-society relations. A key element of the model is its attempts to bridge the divide between 'development experts' and community members by mobilising knowledge for both technical and political ends. This approach to grass-roots co-production draws on local expertise, not just as a means for collecting technical information but also as a way to raise the political capacity of the poor to make claims on the state". (McMillan, Spronk, & Caswell, 2014)

2.3.2. WHAT DOES GENDER MEAN IN KNOWLEDGE CO-PRODUCTION

The lack of attention to water rights is also due to the disciplinary engineering and natural science tradition to which much water resources expertise belongs, and that is institutionally reproduced through educational institutions, policies, and engineering practices (Zwarteveen, Roth, Joy, & Kulkarni, 2015). The positivist epistemic culture that characterises this disciplinary tradition tends to hide the conscious decisions and responsibility of professionals behind veils of objectivity, nurturing the belief in the possibility of transcendental access to reality (Zwarteveen, Roth, Joy, & Kulkarni, 2015). With the surge of complex societal challenges, there is an increasing interest from researchers in, and demand from society for a re-thinking of research strategies and concepts for coping with these situations (Enengel, Muhar, Penker, Freyer, Drlik, & Ritter, 2012). There have also been persistent calls for greater inclusion of local and indigenous or traditional knowledge alongside conventional scientific wisdom in making decisions about natural resources. Such a request is established within three more full transdisciplinary movements that intersect knowledge use and decision-making for water governance (Mantyka-Pringle, et al., 2017). However, most water managers and engineers, in most water organisations and agencies in most countries of the world are men, and that is something that has been noted and lamented; it underlies calls for more women in water decision-making, engineering education and professions. The conditions, processes and consequences of men's historical and contemporary domination of the water profession have received little scrutiny (Zwarteveen M. , 2017). "How and why do water control, status and expertise become linked to men (and masculinity)? How do such links work to legitimise the exercise of power? (Zwarteveen M. , 2017, p. 80) These are questions that are seldom asked, a

silence that reflects that the association, or even conflation, of men with organisational power, authority, expertise and prestige in water is taken for granted and self-evident" (Zwarteveen M. , 2017). Mutually reinforcing processes of normalisation, naturalisation and neglect work to delegate gender to the domain of the undisputed, to perceive it as something that is far from the realm of influence of water professionals and that, therefore, does not belong to the domain of water. This partly happens because the traditional subject matter of much water knowledge and planning is non-social (Zwarteveen M. Z., 2010). Women have limited access to information and education related to water rights in their communities as they are more active in their homes and thus have less access to the neighbourhood. There is less number of literature and evidence on how women participate in knowledge co-production of water governance. Women were typically isolated from the scientific and technical aspects of watershed development (Kevany, Siebel, Hyde, Nazer, & Huisingh, 2013).

Although efforts are increasingly made to include social context in the analysis of water problems, preferred scientific methods continue to be derived from the natural and engineering sciences that are not always best suited for understanding the behaviour of human beings and their interactions (Zwarteveen M. Z., 2010). Co-production provides a space to facilitate knowledge exchange and sharing of insights from a range of perspectives and expertise while acknowledging that all those who contribute to the process have something to he (Howarth & Monasterolo, 2017). An extension to co-production is the inclusion of the cultural factors, gender sensitivity and the need for inclusivity in programmes, projects and policies, especially when diverse groups of stakeholders are involved (Djenontin & Meadow, 2018). Neglecting the influence of gender issues and norms is often tied to ineffective outcomes, particularly in water, where marginalised groups—especially women—are vulnerable to adverse impacts than men. Being attentive to the issues of gender, class, caste (if any), and cultural identity (ethnicities, religions and so forth.) among the participating groups in the knowledge co-production work is essential (Djenontin & Meadow, 2018). As such, successful co-production requires equity and acknowledgement of community partners and resource provision for their involvement as valued research team members. Research must strengthen indigenous knowledge, rather than merely utilise existing traditional knowledge (Maclean & Cullen, 2010). Promoting knowledge co-production in water resource management through adaptive governance may be enhanced using participatory action research methods, such as photovoice and photo-elicitation (Bugos, Frasso, FitzGerald, True, Adachi-Mejia, & Cannuscio, 2014), participatory GIS (Brown, Schebella, & Weber, 2014), and participatory social network analysis (Fuller, Hermeston, Passey, Fallon, & Muyambi, 2012). These participatory approaches contribute to trust building, knowledge integration and sharing, capacity building, empowerment, and the flexibility to deal with change in water resource systems (Madsen & O'Mullan, 2016). Community-based education and organising are fundamental to creating the conditions for local knowledge to be shared and utilised, through equitable, democratic participation (Figueiredo & Perkins, 2013). **Box three** provides the case of small-scale independent water providers (SSIPs) in the case of water provisioning in Maputo, Mozambique.

Box 3. The case of small-scale independent water providers (SSIPs) in the case of water provisioning in Maputo, Mozambique

Box 3: The Case of Maputo in Mozambique (Alda-Vidal, Rusca, Zwarteveen, Scwartz, & Pouw, 2017)

The case of water provisioning in Maputo Mozambique conducted by a group of researchers on the small-scale independent water providers (SSIPs) reveals that normative ideas about the gender of the profession importantly shape how men and women make sense of their water provisioning activities, each of them tactically emphasising and performing those aspects best fitting their gender. In the process, they re-enact gender identities as well as stereotypical definitions of what the profession entails. The dominant portrayal of the profession as something technical, entrepreneurial and therefore masculine, makes it more difficult for women to draw attention to and take pride in their water provisioning work, as it may make them appear less appropriately feminine. Therefore, they attempt accounting for this work in ways that make it seem compatible with their womanhood, by referring to it as an extension of their domestic and caring activities. By doing, so women risk undervaluing their importance as water providers, while also making it more difficult for others to recognise or support their contributions. This discursive framing of water provisioning feeds into an already strong policy imaginary of the male entrepreneur, an imaginary which both conceals the network behind (or sometimes in front) of the business and contributes to a misrepresentation of small-scale water provisioning (Alda-Vidal, Rusca, Zwarteveen, Scwartz, & Pouw, 2017).

3. METHODOLOGY

The research type is qualitative research, which is a type of social science research that works with non-numerical data and seeks to interpret the meaning from these data that helps through understanding social life through the study of targeted populations or places of interest. Qualitative research claims to describe life-worlds 'from the inside out', from the people who participate. By so doing it seeks to contribute to a better understanding of social realities and to draw attention to processes, meaning patterns and structural features (Flick, Von Kardorff, & Steinke, 2004).

3.1. CASE STUDY AS RESEARCH METHOD

This study was aimed at examining a single case study (Lake Chad case); a case study research approach was designed for this project. In explaining what a case is, Yin (1993) suggests that the term refers to an event, an entity, an individual or even a unit of analysis (Yin, 1993). It is an empirical inquiry that investigates a contemporary phenomenon within the real-life context using multiple sources of evidence (Noor, 2008). In the case studies, the focus is on one particular unit. These units can be of different kinds, and they can be defined by both space and time. A unit can be an individual, a group, an organisation or a local community. In the case studies, the focus is on one particular unit. These units can be of different kinds, and they can be defined by both space and time. A unit can be an individual, a group, an organisation or a local community (Yin, 2009). The case study is not focused on the entire Lake Chad but rather on a specific issue or unit of analysis relating to water governance and gender. A case study method was chosen to understand the processes of water governance and gender in Lake Chad. This method creates an understanding of complex real-life events in which multiple sources of evidence were used to probe on water governance, gender and issues affiliated with the lake. Yin (2009) however, stresses that case studies have both advantages and disadvantages as a research method and that it is important to understand and acknowledge that fact. Case study research, like all other research, complements the strengths and limitations of other types of research (Yin, 2009). The strengths of case study as a research method, it is valuable in analysing continuously the life of a social unit to dig out the facts. Case study method provides grounds for generalisation of data for illustrating statistical findings. The limitations of case study as a research method are; it may have the errors of memory and judgment. Also due to narrow study discrimination and bias can occurs in the investigation of a social unit (Yin, 2009). Figure one bellows describes the organisational strategy of performing a case study as adapted by the study of Robert K Yin (2009), the steps are planning, designing, preparing, collecting, analysing and sharing.

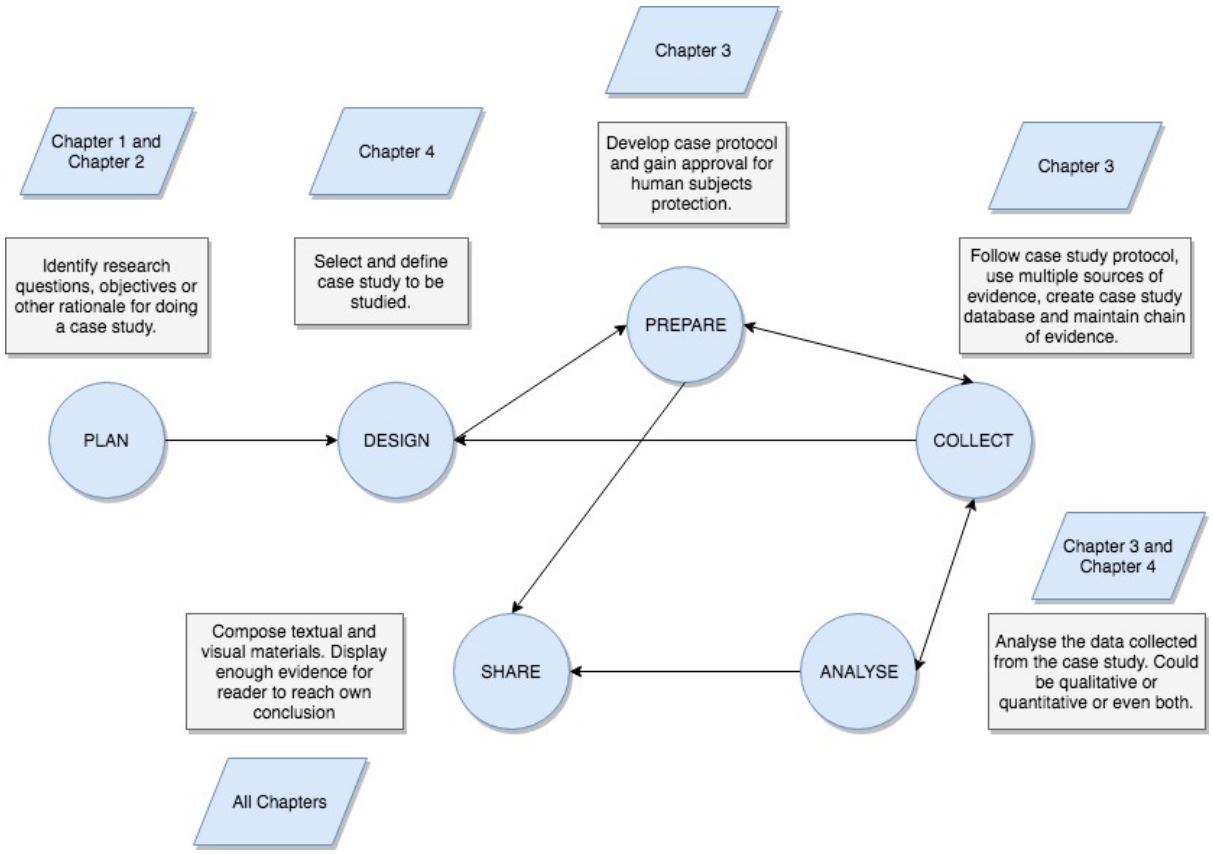


Figure 1. A linear but iterative process of doing a case study research adapted from Robert K Yin (2009) (Yin, 2009).

3.2. DATA COLLECTION

Data collection is an integral part of the research just as important as design. The data collecting method is qualitative, which allows flexibility of structure, data, and content. Semi-structured interviews and documentary source (water charter) are used as sources for extracting relevant data for the study. The corroboration of multiple methods of collecting data enhances the validity and reliability of findings.

3.2.1. DOCUMENTARY SOURCE: LAKE CHAD BASIN COMMISSION WATER CHARTER

The documentary source is essential to supplement as well as to compensate for the limitations of the other method of collection. Documentary source acts as an additional source for information gathered from the interviews given the different perspectives of interviewees. Additionally, the document provides guidelines for inquiries during interviews. For this research, the Lake Chad Basin Commission Water Charter was used to collect relevant data and analysed using content analysis. The Lake Chad Basin Commission Water Charter serves as the legal and regulatory instrument for the concerted and sustainable management of water resources of the lake. The Water Charter was adopted and signed in 2012 that constitutes a binding framework for the sustainable development of the Lake Chad Basin through integrated, equitable, coordinated management of the Basin's shared water resources and environment.

3.2.2. SEMI-STRUCTURED INTERVIEWS

For this research, a semi-structured interview has been chosen as a means of collecting data. A semi-structured interview is a qualitative method of inquiry that combines a pre-determined set of open questions with the opportunity for the interviewer to explore particular themes or responses further. A semi-structured interview does not limit respondents to a set of pre-determined answers (unlike a structured questionnaire). Semi-structured interviews are also used to understand how interventions work and how they could be improved. It also allows respondents to discuss and raise issues that may not have been considered.

Pros

- Freedom of expression
- Pre determined questions
- Reliable and comparable data
- Encourages two way communication
- Provides learning opportunity
- Allows room for sensitive issues to be discussed
- Flexibility

Cons

- Sufficient interviewees are required
- Preparation must be carefully planned
- Time consuming and resource intensive

PARTICIPANT SELECTION

Interviewees were selected based on research purpose and geographical location of the case study they represent (to ensure variety), as well as their roles as critical participants in the process as observed or explicitly mentioned by other interviewees. Importantly, while the interviewees represent a wide variety of perspectives on the process, they do not definitively express the same views of other members on their Roundtables or in their stakeholder groups. However, selecting a diverse sample of interviewees and ensuring anonymity will help reduce interviewee response bias associated with discussing the successes and challenges of the process. The key stakeholders are the Lake Chad Basin Commission and the internally displaced persons. These stakeholders are selected because LCBC creates the policies and laws that govern the lake while on the other hand the IDP are affected by these policies and laws implemented by the LCBC. Other stakeholder groups such as NGOs, researchers and riparian governments, however, due to limitations (time and type of research) the LCBC (Policy-makers) and IDP (persons affected by policies) were opted for this research as interviewees. For this research, twelve respondents were identified which consists of three male and three female personnel from LCBC and three male and three female residents for the IDP. As this was a gender study, it was critical to balance the genders for the research purposes. The LCBC interviewees were selected based on their professional affiliation and expertise with the topic of discussion (water and gender) and also based on their affiliation with the institute, as they are aware of how the policies and institution operate in the region. There are more than 300 camps in the Lake Chad region according to United Nations. The selection of the IDP respondents was quite difficult as the majority of the speakers speak a different language, so the language barrier was an issue. It was difficult finding persons that spoke either English or Hausa (the more

popular language in the region). In the end, it was possible to identify three men that spoke English and three women that spoke Hausa, who were also slightly knowledgeable about the lake.

Table 2. Interviewees

Identity	Organisation	Discipline	Gender
Interviewee 001	Lake Chad Basin Commission (LCBC)	Stakeholder advisor and technical officer	Male
Interviewee 002	Lake Chad Basin Commission (LCBC)	Policymaker	Male
Interviewee 003	Lake Chad Basin Commission (LCBC)	Environmental and socio-economic officer	Male
Interviewee 004	Lake Chad Basin Commission (LCBC)	Gender and Women affairs officer	Female
Interviewee 005	Lake Chad Basin Commission (LCBC)	Gender expert	Female
Interviewee 006	Lake Chad Basin Commission (LCBC)	Human Resources Officer	Female
Interviewee 007	Internally displaced persons community (IDP)	Resident	Male
Interviewee 008	Internally displaced persons community (IDP)	Resident and community leader	Male
Interviewee 009	Internally displaced persons community (IDP)	Resident	Male
Interviewee 010	Internally displaced persons community (IDP)	Resident	Female
Interviewee 011	Internally displaced persons community (IDP)	Resident	Female
Interviewee 012	Internally displaced persons community (IDP)	Resident	Female

3.3. DATA ANALYSIS

The raw interview data was transcribed from notes and audio- or video recordings to a text format along with the relevant texts from the documentary source (water charter). The data is analysed by drawing a connection between different ideas or processes that will be mentioned in the interactive interviews even if the informant did not explicitly note these relationships. The data is analysed using the content analysis methodology; this approach analysis the content of the conversation to identify the central themes that emerge from the responses given by the respondents.

3.3.1. CONTENT ANALYSIS

Content analysis is a general term for many different strategies used to analyse text (Powers & Knapp, 2006). It is a systematic coding and categorising approach used for exploring massive amounts of textual information unobtrusively to determine trends and patterns of words used, their frequency, their relationships, and the structures and discourses of communication (Gbrich, 2007). The purpose of the content analysis is to describe the characteristics of the document's content by examining who says what, to whom, and with what effect (Bloor & Wood, 2006). The basic idea of qualitative content analysis, then, consists of maintaining the systematic nature of content analysis for the various stages of the qualitative study, without undertaking over-hasty quantifications (Mayring, 2004).

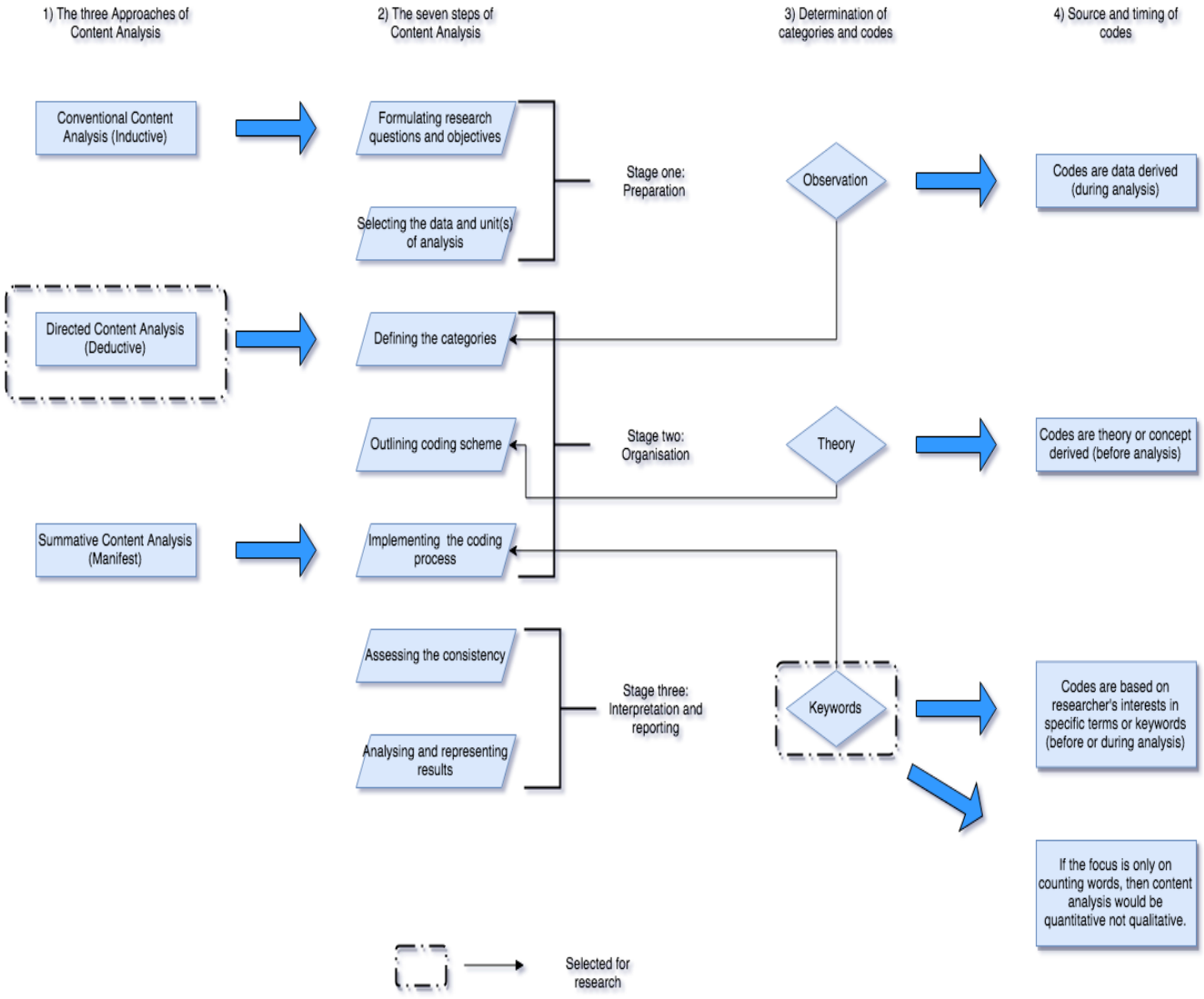


Figure 2. Content analysis in research adapted from Hsieh and Shannon (Hsieh & Shannon, 2005).

SEVEN STEPS OF CONTENT ANALYSIS

PREPARATION PHASE

Being immersed in the data obtained and selecting the unit of analysis (Vaismoradi, Turunen, & Bondas, 2013).

I. Formulating the research questions and objectives:

II. Selecting the sample and unit of analysis: there are several ways by which one can collect the data for qualitative content analysis. However, the data was transformed before the investigation was carried out. The data was obtained from the documentary source (water charter) and semi-structured interviews with relevant stakeholders.

ORGANISATION PHASE

Open coding and creating categories, grouping codes under higher order headings, formulating a general description of the research topic through generating categories and subcategories as abstracting (Vaismoradi, Turunen, & Bondas, 2013).

III. Defining categories: define the classes and group the coded segments, to reduce the number of different pieces of data for analysis. Identifying types means classifying the content of coded parts, which can be a word, phrase or a sentence. The categories are the basis for analysing the text of the interview and documentary source (water charter). Also, the wording of these categories will accurately represent the meaning of the responses coded under a category.

Identified categories

A. **Gender roles and relations:** this aspect indicates the roles and relation of gender regarding participation in decision-making and also the current gender role and relation in water governance, and how the different genders use water and for what purpose.

B. **Issues and challenges:** this aspect highlights the issues and factors hindering from equitable participation in water decision-making of genders.

C. **Approaches to increase equitable participation:** this aspect highlights the approaches and factors suggested and most likely to be used to increase female participation.

D. **Knowledge:** this aspect refers to the gender knowledge used in policies and or if it exist in the policies.

IV. Outlining the coding process: the coding scheme is derived from three sources, the primary data, theories on a similar topic and empirical studies. Since the qualitative content analysis can be based on both inductive and deductive approach, the categories

and codes need to be developed based on the method adopted. For this research, a deductive approach was selected. It is vital in a deductive approach to link the interpretations with the existing theories to draw inferences. The coding scheme was derived from the literature review, interviews and documentary source by writing the themes and assigning a code to each of them using numbers or keywords.

Codes

1. Capacity building
2. Cultural Norms
3. Gender knowledge for policies
4. Illiteracy
5. Improve education
6. Insurgency
7. Laws and regulation
8. Participation in decision-making
9. Resources use, access and control
10. Roles

V. Implementing the coding process: Classifying responses under the codes by using a computerised program (AtlasTi - https://atlasti.com/de/) to classify the reactions or contents under different themes. In this step, drawing inferences from codes and categories are generated from analysed data. It is essential to explore the properties, dimensions and identify the relationship and uncover patterns to present the analysis.

Coding scheme

A. Gender roles and relations
A1- Roles
A2- Participation in decision-making
A3- Resources use, access and control

B. Issues and challenges
B1- Cultural Norms
B2- Insurgency
B3- Illiteracy

C. Approaches to increase equitable participation
C1- Improve education
C2- Capacity building
C3- Laws and regulation

D. Knowledge

D1- Gender knowledge for policies

Table 3 shows the code, code group, research question(s) related to each code, the document used along with the references and lastly the section or chapters written in. This table was obtained from AtlasTi (AtlasTi - https://atlasti.com/de/) during the analysis procedure.

Table 3. Code manager

Code	Code group	Research question	Reference	Document	Section in report
Participation in decision-making	A: Gender roles and relations	R1	All interviewees and article 7G of the water charter	Water charter and interviews	4.3.2
Resource use, access and control	A: Gender roles and relations	R1	All interviewees and 72, 74 and 76 of the water charter	Water charter and interviews	4.3.1
Roles	A: Gender roles and relations	R1	All interviewees and 72, 74 and 76 of the water charter	Water charter and interviews	4.3.1
Culture norms	B: Issues and challenges	R2	Interviewees 002, 003, 004, 005, 006, 010, 011 and 012	Interviews	4.4.1
Illiteracy	B: Issues and challenges	R2	Interviewees 001, 002, 003, 004, 006, 008, 010 and 011	Interviews	4.4.2
Insurgency	B: Issues and challenges	R2	Interviewees 001, 004, 005, 008, 009, 010, 011 and 012	Interviews	4.4.3
Capacity building	C: Approaches to increase equitable participation	R3	Interviewees 003, 005, 006, and article 79 of the water charter.	Water charter and interviews	4.5.2
Laws and regulation	C: Approaches to increase equitable participation	R3	Interviewees 001, 002, 003, 004, 005, 006, 010, 011 and 012. Article	Water charter and interviews	4.5.3
Improve education and awareness	C: Approaches to increase equitable participation	R3	Interviewees 001, 002, 003, 004, 005, 006, 009 and 012. Article 81 of the water charter.	Water charter and interviews	4.5.1

Gender knowledge for policies	D: Use of R4 knowledge	Interviewees 001, 002, 005 and 010. Article 75 and 80 of the water charter	Water charter and interviews	4.6

INTERPRETATION AND REPORTING PHASE

Reporting the analysing process and the results through models, conceptual systems, conceptual map or categories, and a storyline (Vaismoradi, Turunen, & Bondas, 2013).

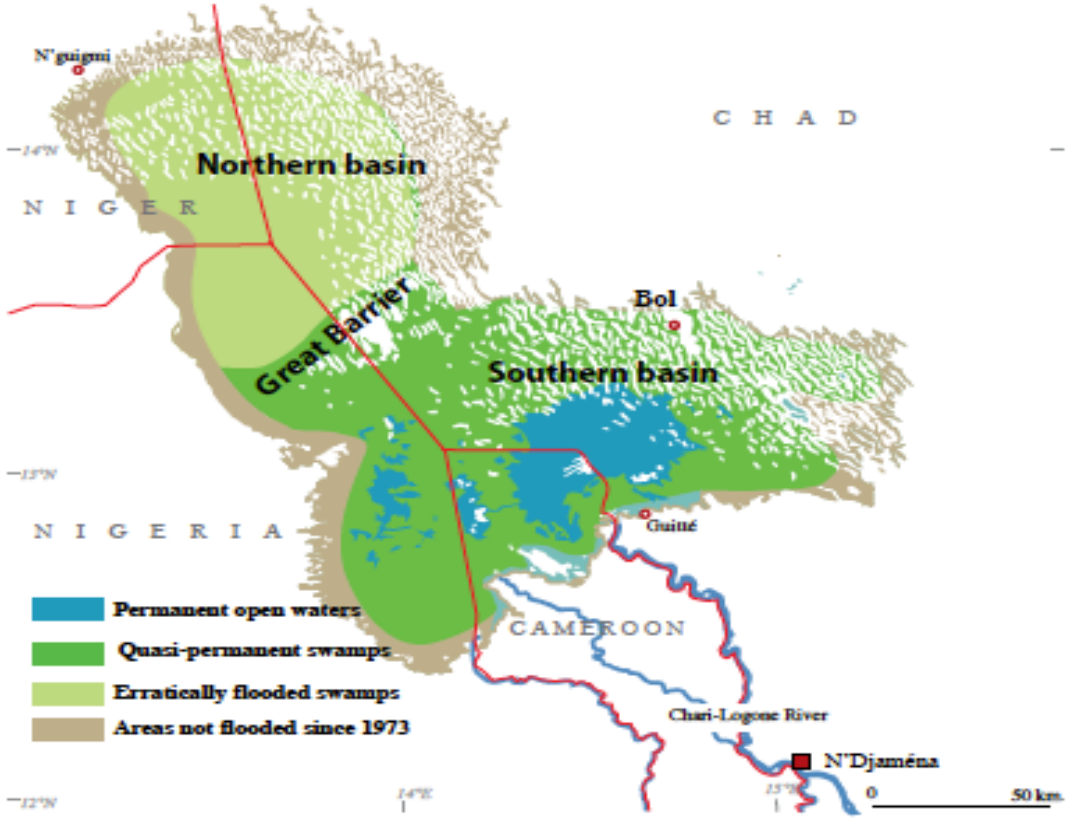
VI. Assessing consistency: Like quantitative data, pre-testing qualitative data is also essential. The information has to be evaluated to ensure compatibility; if the level of flexibility is low then re-coding has to be done again. After the coding consistency, it is essential to apply the coding process to the data. The whole data set validity and reliability should be checked.

Analysing and representing the results: the results are presented under each theme with conclusions supported by secondary data and quotes from the developed code.

4. CASE STUDY

4.1. INTRODUCING LAKE CHAD

Lake chad also is known, as Lac Tchad in French is historically significant, in Sub-Saharan Africa. The lake is on the edge of the Sahara Desert located in the far west of Chad bordering on the northeast of Nigeria, southeast of Niger and north of Cameroon (Salkida, 2012). Lake Chad is also the fourth largest lake in Africa, and the largest in Western and Central Africa. Cameroon, Algeria, Central African Republic (CAR), Chad, Niger, Nigeria, Sudan, and Libya share its basin (Asah, 2015). The Lake Chad drainage is located between latitude 6^{o} and 24^{o} North and longitude 7^{o} and 24^{o} East. The basin covers about 2,434,000 km^2, an estimated 8% of the total African land surface area encompassing almost all water resources that supply the lake, its floodplains, wetlands, and aquifers (UNEP, 2004). The Chari River through the lagoon tributary mainly feeds the Lake, which used to provide the about 90% of the water. Lake Chad commonly serves as a significant hub of productive economic activities for the border communities and contributes immensely to the national growth of all the countries that form its boundaries (Onamuti, Okogbue, & Orimoloye, 2017). The lake also supports a growing human population of approximately 35million persons along with their livelihoods of mostly fishing and irrigation; as well as millions of birds and mammals, reptiles and amphibians (Odada, Oyebande, & Oguntola, 2006). The lake was once Africa's largest reservoir in the Sahel region covering an area of about 26,000km^2 (Schaller, 2017) but now the lake is extremely shallow with rarely more than 7m deep. In the past decades, the lake has shrunk by 50-80% of its original size due to climate change and long-term overuse of water resources due to lack of cooperation amongst the co-riparian and other social issues (Hendrix, 2014). Environmental problems such as drought, desertification and soil depletion have caused the livelihood of the inhabitants of the region, whose economic means depends mostly on agriculture and fishing under threat as the lake shrinks (UNCCD, 2014). Incessant and multi-decadal drying via climate change poses more significant risks to this transnational water resource, and adverse effects on ecological sustainability and socio-economic status of the catchment area (Onamuti, Okogbue, & Orimoloye, 2017). Its potential evaporation rate is four times as large as the rainfall rate in the region (Odada, Oyebande, & Oguntola, 2006). The increasing concerns over climate change; land degradation and growing demand for fresh water have led to scarcity as a result of overexploitation of these resources (Asah, 2015). According to the United Nations, the rapid population growth limits access to the natural resources and other social issues such as education (Asah, 2015).



Source: Magrin, Lemoalle, Pourtier, 2015. *Atlas du lac Tchad.*

Figure 3. Lake Chad (Magrin, Pourtier, & Lemoalle, 2015)

4.2. WATER GOVERNANCE IN LAKE CHAD

4.2.1. BACKGROUND GOVERNANCE IN THE LAKE

In the early 1960s, the lake began to diminish, and the signs were visible. The riparian states created the Lake Chad Basin Commission to foster better water management and cooperation. The Lake Chad Basin Commission (LCBC) was established on 22nd May 1964, when Cameroon, Chad, Niger, and Nigeria signed the Convention of Fort-Lamy (now N'djamena). In 1994, CAR was admitted as a fifth member and the 'basin' expanded to include the upstream part of the Logone-Chari and Komadugu-Yobe subbasins. Due to aquifers underlying its western border shared with Chad, Sudan was added as a sixth member in 2000, and Libya became a member in 2007. The Fort-Lamy Convention recognises the sovereign rights of member states over the basin's water resources, but prohibits independent exploitation of the Lake's water, especially if exploitation negatively impacts the interests of other states. The convention also recognises the rights of basin states to plan projects if they consult the LCBC in advance. Member states are also expected to avoid actions that may alter the lake's water balance, its exploitation by other riparian nations, water quality, and flora and fauna of the basin. The Lake Chad Basin Commission (LCBC) was also established with the objective of addressing issues relating to the efficient and sustainable management of the Natural Resources of the Lake Chad Basin. It also has the responsibility of examining issues concerning the sub-region especially those relating to

Food Security, preservation and protection of the environment (LCBC, 1992). The LCBC's roles are to ensure the most efficient use of the basin's water resources, address issues of regional (as opposed to national) development, and help address potential conflicts within and among basin states. Despite the measures to tackle the issues, the LCBC's weak institutional rules and regulations were not able to prevent the member states from seeking unilateral projects in the lake region. As a result, the current social-ecological condition of the basin suggests that the LCBC has been an ineffective institution for preventing Water overuse and ineffective cooperation among riparian states (Asah, 2015). These unilateral initiatives led to tensions, which escalated to conflicts on several occasions. By constructing improperly designed dams and reservoirs and conducting uncoordinated operations – in pursuit of their narrow national interests – the riparian states have aggravated the consequences of increased droughts and decreasing rainfalls on lake depletion (Odada, Oyebande, & Oguntola, 2006). As a result of such constructions, the basin's natural resources have become increasingly scarce, with severe implications for local communities, who depend on them (Onuoha, 2010).

Water scarcity in the area led to the competition and tensions over land and water access and distribution, which intensified as a result of back-to-back droughts in the 1970s and 1980s (Hendrix, 2014). Conflicts over the scarce resources erupted amongst the population, and this became the most prominent source of disagreement in the Lake Chad area even though the clashes are underreported (Onuoha, 2008). Politically Lake Chad basin is unstable due to the intra-state disputes over competing for water-use interests, border disputes among states and wars within the riparian states (Asah, 2015). This political instability threatens water security and necessitates interstate cooperation. Judicious understanding of the forms of power at play in the allocation and use of scarce water resources is a necessary element for fruitful collaboration between riparian nations (Asah, 2015). The inability of the political institutions and structure to resolve competing claims over natural resources has been a central reason for conflict escalation (Onuoha, 2008). Since the beginning of the 2000s, growing awareness of the urgent need to protect and restore Lake Chad have led the co-riparian states and the LCBC to engage in a number of joint water management initiatives with the support of a number of international organisations (Odada, Oyebande, & Oguntola, 2006) (Onuoha, 2010). Foreign bodies such as the World Bank and DFID are supporting the LCBC in conducting some gender empowerment and support and poverty-reduction projects for the communities. However, this aspect does not appear in the priorities of the Lake Chad's frameworks and other policy papers (Odada, Oyebande, & Oguntola, 2006). As a natural phenomenon, due to changes in the hydrological cycle with current water use, it is critical to support the local communities in finding alternative livelihood sources in order to reduce their dependence on the natural resources and to help them adapt to the reduction in resource availability (Bila, Dougill, Stringer, & Okpara, 2014). The absence of international monitoring and sanctioning bodies, as well as ambiguities in the agreement between the co-riparian states, has deprived the Commission of any power to enforce the LCBC's mechanisms (Odada, Oyebande, & Oguntola, 2006). Moreover,

the member states never reached an agreement on water allocation nor did they harmonise their water policies (Metz, 2007).

Despite dramatic drops in lake levels, collaborative political action was prohibited by lack of comprehensive information in the region. Rather than addressing water usage, the issue of lake water recession and scarcity in the Basin, water problems are treated with engineering solutions such as the Ubangi basin project proposed in 1980 with the aim to control the hydrological systems by transferring water from the Ubangi River to "save" Lake Chad. The Lake Chad Basin Commission is actively conducting the Ubangi project to transfer the waters from the Congo basin (Ubangi) to Lake Chad to replenish the water basins (Asah, 2015). However, such initiatives alone cannot be enough to solve the conflict at the local level, as shown the resurgence of violence at the Lake's Southern Pool (Bila, Dougill, Stringer, & Okpara, 2014). The increasing threat of Boko Haram in the region is a significant obstacle to the technical implementation of projects, such as the Ubangi transfer project, as the presence of the group makes it impossible to send technicians and experts on the ground safely. Today, with greater data availability and understanding of the impacts affecting the lake, the regional challenge remains to mobilise stakeholder capacities for strategic action planning. Natural rainfall variability, unsustainable water use, and climate change and other social inequalities continue contributing to the drying of the lake, which catalyses the shrinking of water. Hence, people of the Lake Chad Basin are denied sustainable access to vital water and protein resources despite having almost no responsibility for the activities contributing to human-induced climate change (Pepper, Brunelin, & Renk, 2017). In an attempt to manage the Lake's waters, the Lake Chad Basin Commission created the "Water Charter" which was adopted at the 14th Summit of Heads of State, and Government of the Lake Chad Basin Commission held on 30 April 2012 in N'Djamena, Chad, with ratification foreseen for 2013. Four of the six signatories were the presidents of the Niger, Nigeria, Chad and the Central African Republic who personally ratified the document; the remaining two signatories for Cameroon and Libya were official representatives. The Charter is the first legally binding instrument concerning the Lake Chad basin to be collectively ratified by the highest political authorities since the Fort Lamy Convention of 1964 (LCBC, 2011). The Charter makes provisions for appropriate mechanisms to ensure the protection of the rights of lakeside populations to use water and other resources regarding their right to water and sanitation, to information, to gender protection, to customary laws and the support of NGOs. **Box four** provides the Lake Chad Water Charter objectives (LCBC, 2011).

Box 4. Lake Chad Water Charter objectives (LCBC, 2011)

BOX 4: LAKE CHAD WATER CHARTER OBJECTIVES (LCBC, 2011)
The Lake Chad Water Charter is a contractual framework that establishes rights, obligations, duties, restrictions and procedures for the effective management of Lake Chad' resources. The charter's primary objectives are:

- Quantitative and qualitative control of water resources and wetlands
- Management of groundwater, ecosystem and biodiversity
- National and regional responsibilities
- Procedures for approving new projects and installations of common interest
- Dissemination and exchange of data
- Prevention and resolution of conflicts
- Socio-economic development of lakeside populations

Furthermore, the Water Charter reinforces institutional frameworks aimed at ensuring sub-regional cooperation and integration. One of these, the Regional Parliamentary Commission for the Lake Chad Basin, was set up in 2004 with the primary aim of supporting the effective implementation of the scheme to transfer water from the Congo basin to Lake Chad. In addition to this Commission, the Charter has also recognised other subsidiary bodies, such as the Technical Committee of Experts, the Advisory Committee on Water Resources, the Advisory Committee on Planning, Sciences and the Environment and the national bodies of the LCBC. However, as with all legal documents, the Charter is merely a document that can only be effective when it is faithfully implemented and upheld. In other words, its usefulness and effectiveness depend entirely on the capacity and will of the parties to adopt the measures required for its implementation (GIZ, 2016).

4.2.2. STRUCTURE OF LAKE CHAD BASIN COMMISSION

The central government managing the affairs of the Lake is the Lake Chad Basin Commission (LCBC, 1992). The LCBC is a cooperative water agency that serves as a regional agency for communications between governments, NGOs and communities, and also for cross-ministerial/sectoral communications on climate change, security and water governance issues (Okpara, Stringer, & Dougill, 2018). The Commission collaborated with other international organisations and Non-governmental organisations to tackle the vanishing lake and the social issues lingering the basin. The LCBC has the following structure of representative in decision making; head of states (presidents of riparian countries), the council of ministers from each country (minister of water and minister of foreign affairs), a committee of experts and executive secretariat. The head of states have the highest power in the decision-making process; they are also responsible for appointing the council of ministers in their respective countries and the executive secretary (LCBC, 2011). The assembly of ministers approve the Budget and Work plan of the Commission, its Audited report and gives policy direction to the Commission amongst others. Committee of Experts of the LCBC deliberates on programmes, budgets and recommends for the consideration and possible adoption by the Council of Ministers (LCBC, 2011). Executive Secretary manages the day-to-day administration of the Organisation. The post of the Executive Secretary is allocated to Nigeria on mutual understanding (LCBC, 2011). The LCBC collaborates with other NGOs for the effective governance of the lake. The NGOs involved in the process of reviving the lake are United Nations Environmental Programme UNEP, World

Wildlife Fund WWF, World Bank, Department for International Development DFID and Food and Agriculture Organisation FAO. United Nations serves as a neutral facilitator when there is dispute amongst the riparian state. Another stakeholder is the Economic Community Of West African States (ECOWAS) and Economic Community Of Central African States (ECCAS); ECOWAS and ECCAS serve as the regional bodies for managing all of the Transboundary countries in West Africa. Based on findings, there is little or no literature in the LCBC policy documents involving the representation of the local community, the role of different gender and youth in decision-making. The figure 2 below explains the organogram of the Lake Chad Basin Commission.

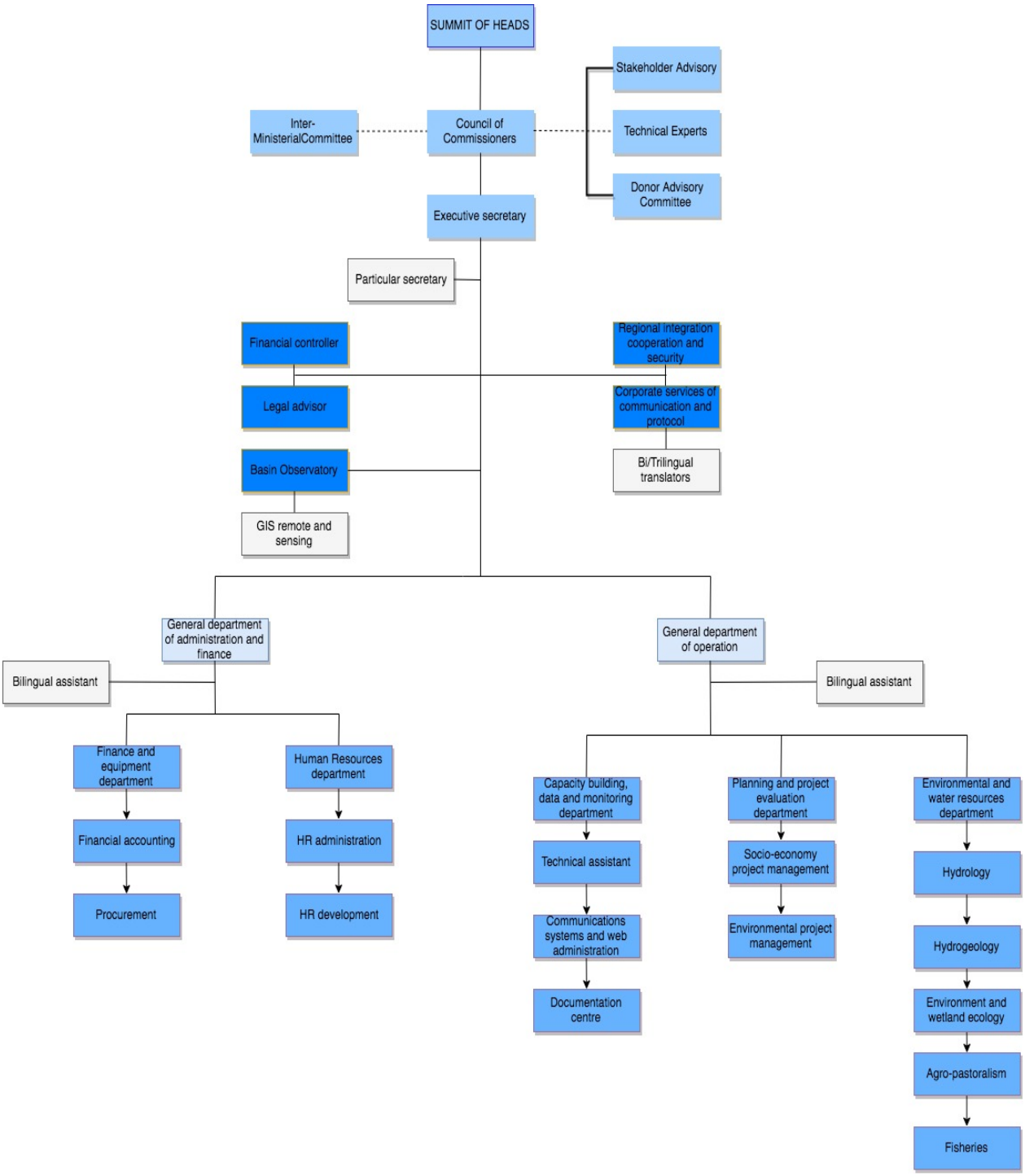


Figure 4. Lake Chad Basin Commission organisational structure (LCBC, 2011)

4.3. WHO HAS WHAT ROLE IN PARTICIPATORY DECISION-MAKING IN THE LAKE

4.3.1. ROLES AND RESOURCE USE CONTROL AND ACCESS

The lake is the primary source of existence of the people around it. Without the lake, millions of Africans will not be able to survive in the region (Interviewee001, 2018). However, over the years the lake has suffered from a series of environmental changes, weak governance and increased competition between users and demands (Onuoha, 2008). Water use is tied to traditions of the people of the lake which is why most of the water-based activities such as navigation, fishing, irrigation farming and so forth are activities that are exclusively practised by men which by extension plays a significant role in governing the water resources of the lake (Interviewee003, 2018). In rare cases, women are involved in agricultural activities (Interviewee005, 2018). Their roles and responsibilities differ as the tradition and culture have somewhat tailored a way on how the genders should use water and what they should use water for (Interviewee004, 2018). Men and women's role in water governance are complementary; they are both involved in the resources use hence they shall all contribute to the resources development (Interviewee003, 2018). The roles of men and women differ from water use, assess, control and overall management of water. Water is shared and used following its usage by both genders (Interviewee002, 2018). Part of the issue is the lack of social equity in roles of men and women in the region; the men are mainly considered the providers and predominantly occupy every government, military and other public positions while the women are mostly involved at domesticated or household duties (Interviewee012, 2018). Women are also predominantly mothers and housewives based on their gender (Interviewee004, 2018). Some of the clauses in Lake Chad's water charter emphasise equitable sharing and rights to water. Article 72 and 76 of the water charter acknowledges the fundamental right of water for all stakeholders, and all stakeholders shall take all normative, institutional and operational measures necessary to guarantee that the said right is effectively implemented into the system (LCBC, 2011, pp. 30-31). The state parties shall also maintain the rights of the local population to an equitable share of the benefit gained, among others, from the commercial and industrial use of the genetic resources in the Basin by relevant applicable international agreements (LCBC, 2011, pp. 30-31).

Men are more in charge of managing water; women tend to play the role of collecting and storing water for household use (Interviewee005, 2018). Women play a very vital role in tradition and culture of water, women and girls travel distances for about 30-40 minutes to collect water from the lake. Women are collectors and providers of water from the lake or any other source of water (Interviewee001, 2018). If available water is farther than their current location, woman and usually girl child does the fetching which could take all day with the everyday consequences of missing school and educational opportunity (Interviewee002, 2018). Women are primary collectors of water; they collect water and share it with their male

counterparts. According to interviewee LCBC004, *"traditionally the men use the water first, and the remaining amount of water left is for the women to use for domestic use and other uses"*. Equitable water distribution is not common in the region (Interviewee004, 2018). Although the women are responsible for water collection, boys do fetch water sometimes, mainly young boys from a younger age to teenage (Interviewee011, 2018). Occasionally the men also help in collecting water, as interviewee010 states, *"when the water source is very far, sometimes the men help with bicycles and containers"* (Interviewee010, 2018). Further stated by the interviewee010, in such situations the water is usually not collected for household purposes; *"The men carry the water to sell and earn an income but some of them, some of the times, depending on the critical situation would support the family to fetch water"* (Interviewee010, 2018). Since a lot of the women carry the responsibility of collecting water, they will be the first observers to see physical changes in the water, for instance, if the water source starts to decline, or to identify apparent water pollution as argued by interviewee 006 (Interviewee006, 2018). As stressed by interviewee 006 *"women are very key in the water service provision, water service management and the use of water"* (Interviewee006, 2018). Further supported by article 74, "The State Parties undertake to pay special attention to the needs of women, youths and vulnerable social groups regarding the management of water resources and the environment in the Basin" (LCBC, 2011, p. 30).

Figure 5. The difference between a girl fetching water and a boy carrying water

4.3.2. PATICIPATORY DECISION-MAKING

When there is not enough water for people to use and commercialise, it will be difficult for women especially to empower and develop themselves and also participate in the decision-making of water (Interviewee001, 2018). Decision-making is predominantly a "Man's show" (Interviewee004, 2018), to a certain extent both genders are involved in decisions, but men have more control over the decision-making of water (Interviewee007, 2018). Interviewee 004 also claims that to a certain extent the voices of the women are heard and taken into account when deciding on water due to the fact that the women are persistent in wanting to participate (Interviewee004, 2018) however, not every opinion or experience or perspective of a female is taken into account (Interviewee005, 2018). According to Interviewee 001, *"Women play an important role in development but are somewhat alienated from decision-making at higher levels. Women in the Lake Chad Basin Commission do not have the opportunity to develop themselves and learn other skills. However, that being said the institute is trying its best to include more women in its decision-making from every governance level possible"* (Interviewee001, 2018). However, in contrast with what other interviewee have said interviewee 003 believes there is a lack of interest from the women's side to participate and to communicate their specific needs of water. Moreover, some of the measures include the integration of gender in all planning documents taking into considerations the particular needs of each group (Interviewee003, 2018). As per as inclusive participation for water decision-making in the Lake Chad basin, both genders are given equal opportunities. The more stakeholders are involved, the more efficient it becomes, therefore increasing women's participation will lead to improving the efficiency of the water governance (Interviewee003, 2018). Inconsistency, article 7N states the principle of gender consideration, by which the benefit and contribution of men and women, youths and vulnerable social groups are taken into account in the formulation, execution and monitoring of projects and programmes on water resource management and environmental protection in the Basin (LCBC, 2011).

Gender issues are significant given the immense disparity between men and women regarding their participation in managing resources and development processes and, above all, their contribution to GDP (GIZ, 2016). However, the majority of the water decisions are made at a higher institute level, and the majority of these leaders are men (Interviewee008, 2018). The low representation of women in elective and nominative positions in Lake Chad region may explain the lack of gender-sensitive laws that could otherwise dramatically improve the situation of women in the country. National policies and initiatives for increased women's representation in decision-making platforms have been adopted, but their enforcement is not active yet (Pepper, Brunelin, & Renk, 2017). Also, decisions are pronounced by the heads, but in most cases, they are made collectively, but it appears the power of men sometimes override or tend to supersedes women voices because the women are not ready to fully participate in negotiations (Interviewee003, 2018). Interviewee 003 further argues that *"In most cases, the women show no sign of interest, all the concern with is its availability for their uses and in my opinion it is because they were not well informed that they also have equal opportunities like the*

men" (Interviewee003, 2018). Article 7G of the water charter stresses on the principle of information and participation, by which the public shall be given a right of access to the public authorities' information so that they can effectively take part in the national decision-making process (LCBC, 2011, p. 14). Decisions in the Lake Chad region also tends to be both political and carrier wise, the water Managing Directors are professionals, but politically appointed (Interviewee002, 2018). However, in other areas of the Basin Development professionals are selected based on the career process. Interviewee 002 argues that *"In earlier years, there were no women Managing Directors, but today that window is now opened. User-oriented projects are gender bias-free. Any opinion and experience that will enhance issues is taken and not jettisoned. There is a good perspective of fairness and efficiency. Women's integrity seems higher, and cannot be beaten, therefore should be integrated. Women are more patient and tend to want a diplomatic and lasting effective solution. The men tend to want a quick 'fix' (solution) to satisfy the present desire"* (Interviewee002, 2018).

4.4. CONSTRICTING FACTORS

4.4.1. CULTURAL NORMS

Water shapes culture and culture shapes water. Water is crucial for the flouring of culture, and vice-versa, water is also vital for health and other viability of the earth's water resources (Klaver, 2012, p. a). However, culture-as-constraint in water is narrowly limited to a concern with those norms, which inhibit women's full participation in public decision- making. While the potential for change is recognised, it is usually perceived in a unilinear fashion; it is asserted that with sensitivity and fully participatory techniques such obstructive and out-dated practices can be overcome. In particular, the participation of women is thought inevitably to lead to the challenging of discriminatory gender practices (Cleaver, 2003). When the law guarantees women and men the same rights to own, use and control water; customary, traditional and religious practices discriminate against women and undermine the full implementation of national legal codes. This is the case in the majority of countries of the Sahel region especially the Lake Chad Basin countries (Pepper, Brunelin, & Renk, 2017). Culture has played and still plays a significant role in the Lake Chad region, and also in hindering from more-balanced gender participation in decision-making of water (Interviewee006, 2018). The culture assigns a character based on biological gender, *" the traditional assigns and splits the roles that dictate the way we organise our lives"* (Interviewee012, 2018). Interviewee 011 further argues that these traditional roles have been around through generations that have become norms in the region and are rarely questioned or challenged (Interviewee011, 2018). These cultural norms assign both genders to certain roles, consequently restricting mostly women within the region. The norms are reproduced through generations and are assumed to be normal procedures of society. Thus, discrimination against gender disparities is often deeply inherent in these cultural norms and traditions (Interviewee002, 2018). Interviewee 003 states, *"the traditional perspectives that deprive women's role more or less dictates all issues of water governance to men. In general, the cultural believes that men only should govern water resources. Also, these*

barriers that are linked to spiritual believes and rites" (Interviewee003, 2018).

The socio-cultural background of the lake is a decisive factor for constructed gender roles and power relations impacting women's access to elements of empowerment (Pepper, Brunelin, & Renk, 2017). Women's lack of water governance inclusion is historically related to inadequate or discriminatory legal and policy frameworks and social as well as cultural norms. In the Lake Chad region, traditional roles and behaviour are slowly changing as women gradually are joining the public sphere because more and more women are becoming economically independent and it is becoming challenging to enforce old traditional roles (Interviewee002, 2018); however, the progress is slow. Interviewee 002 further stresses, "this part is due to deeply rooted behaviour deriving from religious beliefs, where women are believed to be below their spouses, and this has affected all levels and not just one" (Interviewee002, 2018). These customs have dictated that "the man" is in charge of all kind of decisions (Interviewee005, 2018). The female exclusion from water governance stems from the fact that *" a woman needs her spouse's or a male guardian's permission to participate and most of the time do not support the women partaking in such positions and activities"* (Interviewee004, 2018). The traditional and religious norms and practices reproduce and reinforce complex gender roles that strongly limit women to improve their situation and increase their participation in the region (Interviewee006, 2018). As women are frequently excluded from decision-making processes; besides, experience and different opportunities are restricted, women often have differing perspectives on various issues compared to men (Interviewee010, 2018). "*These issues have to lead to increasing conflicts between women and men regarding development processes and resource management. Furthermore, these conflicts increase disparities between women and men and threaten the balance of power in gender relations*" (Interviewee012, 2018). Interviewee 003 believes *"equal gender participation in water governance can be improved if those cultural barriers are removed and that women themselves accept to fully participate in all activities related to water us"* (Interviewee003, 2018).

4.4.2. THE ABSENCE OF AWARENESS AND PRESENCE OF ILLITERACY

A significant barrier to unequal participation in water governance can be the unequal opportunities to education and knowledge. The lack of education results in a high level of ignorance, which further impedes both genders' opportunities to become active participants in water governance. Illiteracy, in general, is a major problem in the Lake Chad region, *"education is a major constraint in the Lake Chad region where less than 2% of the population is educated; this is as a result of the cultural barrier where both genders do not believe in education"* (Interviewee004, 2018). Lack of education in the region is often linked to the domestic and agricultural workload of which constitutes of the women collecting water and the men going to farms. Female education is frowned upon in the Lake Chad region due to heavy domestic workloads, *"girls are meant to help their mothers with the house chores"* (Interviewee012, 2018). The girls first spend hours in the morning to collect water and then head off to school *"it*

is obligatory for the girls to acquire the amount of water needed for their households" (Interviewee008, 2018). Also, before the insurgency, the boys would have to go to the farm and then head off to school, but now with the insurgency, boys do not go farm but directly to the school in the morning (Interviewee010, 2018). The unequal division of workload has a significant impact on their school attendance and performance. Interviewee 002 further states, *"the tradition often prevents the girl child from developing self-worth; self-improvement like educating herself is a terrible consequence. This exclusion principle is highly debilitating, and the belief that it is only a girl child's job is demeaning in all respect"* (Interviewee002, 2018). Another issue is the people of the lake do not believe in education, *"for years they depended on the lake as a source of livelihood, the people were farmers, fishermen, herdsmen and so forth. Agriculture was blooming back in the days because in those days we would visit the villages in around the lake to get vegetables that were very cheap. As a result, the people never felt that they needed education because they had all they wanted"* (Interviewee004, 2018). The lack of education may perhaps have to do with the traditional belief that water resources are a natural gift and the other dimensions such as knowledge development are neglected (Interviewee003, 2018). For equity to increase education has to be enforced, "men and women's collective local knowledge is crucial for any successful access to water both in quantity and quality" (Interviewee006, 2018).

Figure 6. Lake Chadian women

Awareness activities at times fail to reach their target, as the objective of the awareness activities are not always clear and as a result lack the focus to reach the right audience with the

right message (Interviewee001, 2018). In general, it appears there is very little awareness in support of more effective water governance. This is a missed opportunity because legal information campaigns are potent instruments in making new laws and institutions more broad-based (Interviewee001, 2018). Lack of awareness creates a rift for more women to be involved in decision-making and policymaking (Interviewee003, 2018). Unawareness links back to lack of knowledge in the region, as less than 1-2% of the women population are unknowledgeable about water governance to make even decisions about policies and even participate (Interviewee003, 2018). Majority of the people, the men and women, are unfamiliar with the strategies developed and implemented by the Lake Chad Basin Commission (Interviewee004, 2018). The language barrier has also created a rift in awareness concerning policies, interviewee 011 mentions, *"the policies are written in English, while more than half of the population speaks Hausa or Kanuri. If these policies were to be translated many people might understand and be aware"* (Interviewee011, 2018).

4.4.3. INSURGENCY

Over the years the lake has faced a series of challenges and changes due to natural, political and social changes (Salkida, 2012). There have been several insecurity issues in this region with the emergence of a terrorist group called Boko Haram. The insurgency has caused the displacement of thousands confined to living in internally displaced peoples' camps. The growing threat of Boko Haram in the Lake Chad region since 2014 could increase the risk (Coghlan, 2015). The crisis puts extra pressure on limited resources in the face of severe scarcity and chaos from the onset of the regional conflict. Hence, environmental degradation appears both self-perpetuating and inevitable. Many reports link (Okpara, Stringer, Dougill, & Bila, 2015) environmental change, vulnerability and insecurity in the Lake Chad Basin, as competition and conflicts over the use of resources have increased by degradation within the Lake area. Gender-based vulnerabilities, such as gaps in access to resources and services, often define power relationships between men and women throughout the Lake Chad region. According to the 2015 High-Level Panel of Experts' report Water for Food Security and Nutrition problems of water scarcity tend to disproportionately affect poor and marginalised women, men and children, due to existing power imbalances, skewed access to resources, structural discrimination and gender inequalities. Furthermore, "gender and other markers of identities continue to mould water allocation and access among users" (HLPE, 2015). Hence, the Lake Chad Basin's development crises, related to mismanagement of the Lake and its resources, exacerbate inequalities and issues of access associated with pre-existing gender-based vulnerabilities (Pepper, Brunelin, & Renk, 2017). The insurgency has caused the displacement of thousands confined to living in internally displaced peoples' camps (Coghlan, 2015). The insurgency has also created a drawback in developing and restoring stability in the region (Interviewee012, 2018). As indicated by 10 out of 12 of the interviewees, the commission and the state parties have the sole responsibility of protecting and developing the region for the people to survive. As stated in article 7I (principle of solidarity), the state parties and

commission shall promote peace and development at sub-regional level and ensure political and social cohesion within the Basin by supporting underprivileged people and areas to gradually iron out inequalities (LCBC, 2011, p. 15). The Lake Chad Basin Commission established the Multinational Joint Task Force (MNJTF) to combat Boko Haram, but this force still struggles to demonstrate its effectiveness. Observers also continue to question to what extent it is operational. Despite the numerous political, logistical, technical and financial challenges it has been facing, the MNJTF is gradually gaining ground (Assanvo, Abatan, & Sawadogo, 2016). Interviewee 011 stated, *" for the issues to be resolved, the commission and state parties have to include everyone in their policies, programs (educational mostly) and decision-making"* (Interviewee011, 2018).

4.5. EMPOWERING FACTORS

4.5.1. IMPROVE EDUCATION AND RAISE AWARENESS

Improving education and literacy in the Lake Chad region; would mean increasing the number of women participants in the decision-making of water. The interviewees have stressed on the "education and awareness" as tools for increasing more gender-balanced decision-making of water. Furthermore, through improved education, women become not only more educated regarding educational knowledge, but they also become more aware of their role and rights in society (Interviewee005, 2018). To improve women's situation in water governance, interviewee 004 stresses that it is only through education and raising awareness (Interviewee004, 2018). These approaches will rid the predominate roles assigned to genders; *"It is by awareness of explaining and through education that you can have a reversal of the roles or at least some changing roles system"* (Interviewee004, 2018). With improved education, the women are more competent to participate and also to take on higher roles in the water governance. Also, by creating understanding and building sympathy for each other's roles, women and men would increasingly share an equal burden and take equal part in the water governance (Interviewee006, 2018). Interviewee 002 argues, "Implementation of certain [educational] principles makes provision for women to be part of [the water governance] because they are competent" (Interviewee002, 2018). To support this article 81 of the water charter stresses on environmental education and raising awareness in local communities. *"The State Parties, in cooperation with the Lake Chad Basin Commission, shall take the measures needed to encourage and facilitate awareness raising in local communities to increase accountability and awareness to better participation in the integrated, sustainable management of water and other natural resources in the Basin. They as a result of this acknowledge the fundamental role of the National Agencies of the Lake Chad Basin Commission in implementing activities to promote sustainable development in the Basin"* (LCBC, 2011, p. 32). The importance of improving education, especially for women; "That is the way to go, educating the girl child would eliminate 80% of the current problems of the lake" (Interviewee012, 2018). Furthermore, interviewee 004 shows; "statistically, when the mothers are educated their children are also

likely to be educated which increases more water knowledge in the region" (Interviewee004, 2018).

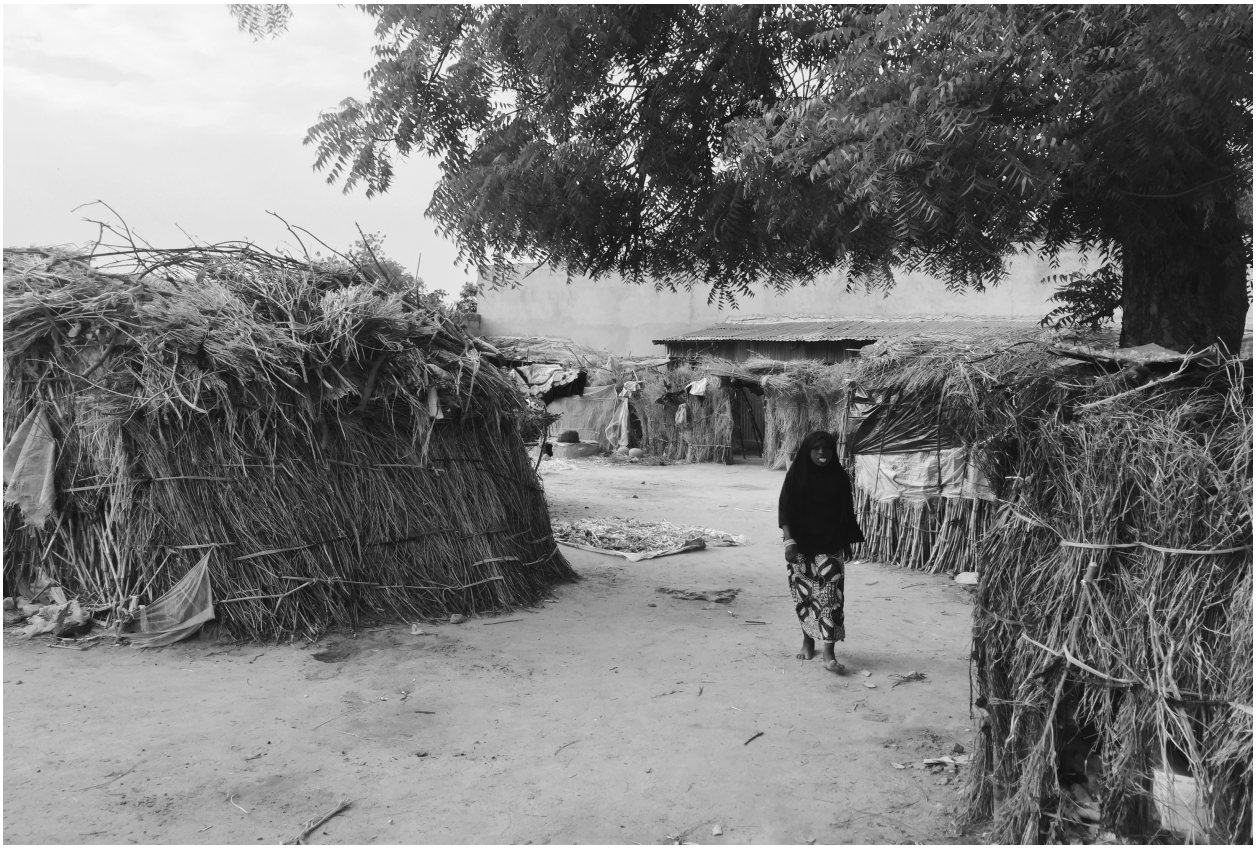


Figure 6. Internally displaced community

Awareness building helps to create a general and equal understanding of water issues, encourage good water behaviour and create 'social norms' as well as promote local championship in water resources management. Concerning water governance, awareness can prepare the ground for the introductions of new laws and regulations and make sure they are not seen as alien or imposed (Rogers & Hall, 2003). Interviewee 009 stresses that water governance activities must acknowledge the demands and needs of local and regional communities and national policies ought to be developed accordingly (Interviewee009, 2018). Additionally, this requires supportive measures of improved information sharing and transparency between all stakeholders. In this context, interviewee 004 states, "If gender and women's issues are to be addressed, the government must advocate awareness campaigns, communication and information between all levels and stakeholders" (Interviewee004, 2018). Awareness should be accomplished through an effective governance program for all stakeholders to be involved (Interviewee004, 2018). Education and outreach is a crucial factor where both genders would be taught how to use water sustainably and efficiently (Interviewee001, 2018). The commission is currently working on the revision of all significant planning documents which are the basis of every actions and decision in the Lake Chad basin, one of the reasons for the change is the need to include gender-specific needs in all the

documents and make these documents aware to the public for inclusion (Interviewee003, 2018). Networks, partnerships, and coalitions provide sustained support for awareness actions for change. Men are often the most potent allies in the road to gender equality. Women's groups have of course been written about extensively, but moving toward greater equality also needs champions from across the social spectrum, and not least from men. In many cases, men are the main allies of women seeking balance in water governance (Das & Hatzfeldt, 2017).

4.5.2. CAPACITY BUILDING

Capacity building is the process of gaining technical, managerial and institutional knowledge and insight about the socio-economic structure, cultural standards and values of the society concerned. It aims to increase the flexibility of institutions and society to adapt to changing circumstances (Hamdy, Abu-Zeid, & Lacirignola, 1998). Capacity building refers to not only increasing women's capacity but also to building capacity among water institutions and professionals, to improve facilitators and managers skills to handle issues related to equitable gender participation. Further supported by interviewee 006 stating that *"capacity building at all levels, including water sector professionals and experts, is crucial to improving women's participation"* (Interviewee006, 2018). Furthermore, interviewee 005 states that capacity building among planners and policy analysts is essential to improve their gender awareness and to develop their skills in collaboration with the relevant stakeholders to ensure comprehensive gender-responsive planning at all levels (Interviewee005, 2018). In all sectors of society especially the water sector, LCBC aims to build capacity as well as provide technical support to identify and implement gender-responsive program interventions (LCBC, 2011). Further cited in the water charter, article 79, "the State Parties shall develop and implement training programs to build on the capacities of all the stakeholders involved in the sustainable management of shared water resources and the environment in the Basin. In the frame of the said capacity-building activities, special attention shall be paid to women, youths, civil society organisations and grassroots community organisations" (LCBC, 2011, p. 31). The commission along with grassroots and international organisations are also focusing on capacity building at the all levels of water governance as a long-term project, *"we are beginning to plan towards a long-term project, capacity building across the government"* (Interviewee003, 2018). By this, the LCBC hopes collaborate with all relevant stakeholders in providing efficient policies and programs on Gender Equality that support water specific initiatives where capacity is built, mainly on resource-based management but also on women's leadership in Lake Chad (Interviewee003, 2018).

4.5.3. LAWS AND REGULATION

Efficient policy and enforceable legislation that supports inclusive participation in water governance is a significant factor in achieving sustainable water management (Interviewee006, 2018). Governments and institutions are often lagging to recognise and address the need to change their legislation to enable inclusive participation in water governance (Interviewee010,

2018). Without support and enforceable law, minorities (women, youth) specifically will be continuously excluded from water governance and have limited possibilities to participate (Interviewee012, 2018). There is no valid law regulating, empowering, allowing or prohibiting women's participation in the water governance; *"there is no law that prevents or encourages women to participate more. The commission and state parties protect the rights of women and youth, but the real challenge is these laws and policies are not being implemented at every level"* (Interviewee004, 2018). There is no law enabling or hindering equal participation, and this can be interpreted as an inactive law where the law is mute on the subject of equitable gender participation in water governance (Interviewee011, 2018). Consequently, if the law is silent, then equal participation can be legally excluded since the passivity makes the issue legal (Interviewee011, 2018). According to interviewee 001, LCBC is reforming the water charter to make it more gender inclusive, where both genders would be allowed to participate equitably (Interviewee001, 2018). Even though the legal framework to protect women and improve their role in society is being developed and strengthened, women are often not yet aware of their rights (Interviewee003, 2018). Apparently in the water sector "*the women themselves they do not know what their rights are in water governance due to lack of interest from them"* (Interviewee003, 2018). For the issue to be solved, a gender strategy should be developed where women and vulnerable groups are targeted where the strategy aims to implement education programs to inform women of their rights (Interviewee004, 2018). Interviewee 006 advocates mainstreaming gender-responsive legislation, "through legal reforms and enforcement in the existing legislation, gender imbalances and women's underprivileged status should be equalised. The legal framework should be developed to regulate the conduct of all and sundry in their dealings with women and children at institutional and individual levels" (Interviewee006, 2018). The LCBC should also adhere to strengthening the existing legal framework (water charter) to ensure that all policy development is gendered responsive (Interviewee002, 2018). However, the implementation seems to be the major problem in enforcing these laws and policies, *"if the LCBC can tackle the issue of implementation then a lot of these policies and laws would be adequate"* (Interviewee005, 2018).

Figure 7. Lake Chadian men

4.6. GENDER KNOWLEDGE IN POLICIES (CO-PRODUCTION FOR POLICIES)

The Lack of public evidential data, linguistic, gender and cultural barriers, and inadequate institutional on hydrological issues of the Lake has generated widespread confusion and obstacles to communication regarding impacts on the natural resource management. The resulting blurred images of the underlying crises situation were reflected by ineffective public policy for social and environmental regulation and regional development planning (Pepper, Brunelin, & Renk, 2017). The policies mention gender in the policies in the context that gender refers only to women, youth and vulnerable social groups. Further evidence is article 74 of the water charter which states *"The State Parties undertake to pay special attention to the needs of women, youths and vulnerable social groups regarding the management of water resources and the environment in the Basin"* (LCBC, 2011, p. 31). Therefore the policies do not explicitly mention the existing gender conditions or knowledge such as cultural norms about gender roles and relations. Article 75 acknowledges and protects local and traditional knowledge in the basin. It states, *"the state parties should acknowledge the importance of traditional methods and local know-how on environmental protection, which are compatible with the sustainable management of the Basin's natural resources and the role of the traditional and customary authorities in the protection of the environment and water resources. Among others, they undertake to encourage traditional water sharing systems in the Basin. They shall take the measures necessary to protect local know-how and encourage greater involvement of the customary and traditional authorities in the management of water and the environment."* (LCBC, 2011, p. 31). Also, article 80 acknowledges that traditional or local knowledge should be incorporated into scientific research. The clause states, "*The Commission and the State Parties*

shall encourage scientific research in the basin, considering its fundamental role in knowledge about and the protection of water resources and the environment and the settlement of environmental and social disputes in the Basin. They shall, therefore, encourage national and international research institutes and organisations to undertake joint research programs on the knowledge, utilisation and protection of water resources and ecosystems as a contribution to the sustainable development of the Basin. Scientific research in the basin shall take traditional knowledge and local know-how into account to build up synergy between research workers and the bearers of local expertise" (LCBC, 2011, p. 32). General assumption of these articles 75 and 80 would be that traditional or customary knowledge covers issues such as gender roles, culture and so forth. However, the knowledge in the water charter refers to how to solve the water issue in the context of sustainable local/traditional knowledge methods (such as ancient fishing techniques) to replenish the lake where social issues like gender roles are somewhat non-existent.

Interviewee 001 mentions *"knowledge regarding gender inclusiveness is not mentioned in the policies at this moment, maybe due to change in the future possibly with time. The knowledge contribution is very slim and enclosed to a certain set of stakeholders at the higher level. Unfortunately, that is not due to change anytime soon due to the mindset of the people in the region and institution"* (Interviewee001, 2018). Scientific knowledge is in abundant on ecological disasters in the Basin, such as drought and desertification dating from the 1970s. However, water exploitation has intensified due to greater demographic pressures and competition from increased water scarcity, as well as from local policy failures (Pepper, Brunelin, & Renk, 2017). Interviewee 002 argues, *"The institute is more focused on scientific knowledge rather than social knowledge about people of the lake. The culture and gender help us policymakers create the adaptive policies for the people"* (Interviewee002, 2018). Furthermore, *"gender relation, roles and norms are not taken for taking sake of knowledge for policymaking, but for what they contribute adds value, it is a sine qua non. The number and speed may be questionable, but a deliberate effort ensures that the balance is in place"* (Interviewee002, 2018). Interviewee 005 agrees that *"knowledge on gender issues should be elaborated more, as the current policies are not enough, more should be done to include and implement. These policies are inadequate because about 70-90% of the population especially women are uneducated and unaware of these policies"* (Interviewee005, 2018). Interviewee 010 suggests, *"Before the policies are created, thorough investigation of the region should be carried out to ensure right policies are made. Also, the people should be made aware of these policies and educated on how these policies work. Policymakers should research more on these gender and cultural knowledge and reflect them in their programmes, projects and policies."* (Interviewee010, 2018). However, interviewee 003 assured that *"Gender and cultural knowledge was not taken into account before, but the commission is beginning to include these factors, which are slowly being incorporated in policies. Moreover, the commission allows both men and women to be productive. However, the problem is rooted mainly in its implementation"* (Interviewee003, 2018).

5. DISCUSSION AND CONCLUSION

5.1. DISSCUSSION

The Lake Chad is the principal source of life in the Sahel region of Africa, where around a hundred million people depend on the lake and its resources. Lake Chad has also been identified as one of the complicated waters to govern due to its transboundary nature. A lot of the issues associated with lake are natural (i.e. environmental issues), social (e.g. discrimination) and political (transboundary wars). Frequently researchers and governments solely focus on the physical and political aspect of the lake where the social issues such as gender, cultural norms and traditions are somewhat neglected in researches, frameworks and policies used to manage the waters of the lake. The demand for equitable participation of genders especially women through equity and rights to access and control water resources is gradually increasing in the region. Twelve interviewees were selected for this for this research, and each interviewee had a different perspective on gender and water issues discussed.

Illiteracy is very high in the Lake Chad's region and as stated by one of the interviewees that less than 1-2% of the somewhat hundred million persons in the area are uneducated. The interviewees from the Lake Chad Basin Commission pointed out that before the insurgency, the people of the lake depended heavily on the lake's resources as most of them are in agricultural and navigation sectors. The Lake Chadian people's perception about education was negative as they felt they did not need knowledge because they were well off with their careers in agriculture and navigation. Education was never a factor for the people of the lake until the insurgency, which destroyed the region and millions lost their homes, farmlands and businesses. The internally displaced person interviewees confirmed this claim, as a lot of the older generation are illiterate (i.e. cannot read nor write). However, as one of the male respondents from IDP said the younger generation is now put in school to avoid past mistakes. Unequal access to education still lingers in society due to cultural norms and traditional roles assigned to every gender; most of the girls are bombarded with heavy domestic duty such as primary collectors of water. From an observational point of view and as confirmed by the interviewees, women collect most of the waters, the only time a man is sited collecting water it is usually to sell it also known as "water vendor". Culture is universal and shapes humans around the world. All humans have learned behaviour expressed in the patterns we call culture. However, cultural norms are the root of rural area water problems in most cases. The LCBC interviewees have voiced their concerns over cultural norms where one of the interviewees thinks culture norms should be erased; this is somewhat impossible as years of traditions cannot be wiped or banned, but the solutions could be implemented to match the cultures.

Some of the solutions proposed by the interviewees were strengthening education, building capacity and creating laws and regulations. Enhancing education and capacity development go hand-in-hand in this situation, as these factors will empower the Lake Chadian people especially the younger generation, where equal opportunities and rights should be given to the genders.

In theory, the laws and regulations are there and are stated in the policies including the water charter; however, the problem is usually the enforcement of these laws. The observation being these are written but not enforced or implemented at every level of governance. However, that being said, the rules and regulations are still lacking because the water charter was established in 2012 and has not been updated or changed to suit the current gender situation in the region. The water charter also acknowledges gender as “women, vulnerable groups and youth" rather than "all sexes". The interviews were more reliable than the water charter as the source of information regarding gender and water.

5.2. CONCLUSION

Gender disparities in the Lake Chad region pose a significant threat to the region's water governance. The demand for equitable gender involvement and empowerment through socio-economic and political equity and the rights to access and control vital resources has gradually increased. Water is vitally important for the livelihood of the people of the lake, where most of their daily lives and profession such as navigation, fishing, farming and so forth depends on it. Women play an essential role in Lake Chad's waters but are often frowned upon from participating and occupying positions at a higher governance level. Women and children have the primary purpose of collecting water that is associated with their domestic reproductive roles. Despite their essential character, women are sparsely represented in any water governance decision-making or participation. Cultural norms and practice, lack of education and awareness constitute the primary obstacle to women's equal participation. The culture prevents women from having a say in situations, as a man is seen as the sole 'head' of the house, society and community. Traditional roles and conduct are gradually changing, and women are slowly but surely entering the public sphere, but the process is slow due to inadequate policies and enforcement of these laws. The commission has emphasised on women's rights in its water charter and other policy instruments, but then it has failed to incorporated roles and relations regarding decision-making and participation. The practical implementation of these policies and measures are profoundly lacking. The inadequateness is mainly a result of restrictive cultural barriers, illiteracy along with inadequate policy formulations, lack of legal enforcement, insufficient financial and human resources and unawareness of these policies.

Within the Lake Chad constitution, there is no current law either hindering or encouraging female participation in water governance or the broader society. Although not enshrined in law, the constitution does prohibit any gender discrimination. However, traditional conduct is still the primary influence on gender situation, and since the society is male-dominated which significantly disfavours women, women's less participation is shared and by default, legally accepted. Furthermore, women are often not aware of their constitutional rights. The people are unaware of these policies as a result of illiteracy where less than 2% of the population is educated, and even the educated ones are unaware of the policies laid out by the Lake Chad Basin Commission. First, off the people do not believe in the power of education, as they have

depended on the lake for many years to survive and now that the lake has shrunk 80-90% of its original size, several issues have emerged as a result. Secondly, the lack of awareness is as a result of both illiteracy, and lack of educational support and also the women are shy of communicating their problems due to the cultural norms. What they fail to realise is education is the fastest way of eradicating poverty and empowering self. Without having an actual written law stating women's right to participate, enforcing such measures is complicated, and the implementation is complicated. Thus, there is an urgent need for improved regulations and legislation that actively implement women's rights to participate in water management and the broader society. There is a need for incentives developing both genders' willingness to participate in the water governance and decision-making. These incentives must strongly outweigh the additional work burden that participation brings as many find this unmanageable. Furthermore, effective incentives must establish a framework for continued involvement.

Illiteracy and low education levels further limit independence and awareness. The knowledge and awareness in the region have to be improved to include more women in decision-making. There is progress to enhance education, mainly by Non- Governmental Organisations. By this, everyone becomes better educated and more competent in participating and can thus take on more professional roles in water governance. Further improvements are required to improve education and reduce illiteracy levels. Therefore, there is a great need to encourage learning through awareness campaigns. This approach implies analysing and altering deeply rooted socio-economic and cultural barriers that obstruct girls and boys from attending school. Overall, to improve equal participation in the water governance, there is also a need for policy reform where gender roles, needs, demands, and invaluable knowledge in water governance is clearly emphasised. This strategy implies developing specific targets and measures within the policy formulation. Furthermore, when developing policies, local contexts (knowledge concerning gender relations) ought to be considered, as each situation is unique. Thus, policymakers must be well informed and carry out extensive data collection to develop policies accordingly. Without explicitly stating the required objectives and actions, changes are complex to enforce. Efforts made and projects implemented must also be supervised, with sufficient feedback mechanisms, to ensure that the plans progress sufficiently. Capacity and support should also be provided to empower both genders particularly the women. Build capacity and strengthen men and women's role and relation in water governance. As a capacity building, this does not only imply skills development but moreover improves awareness about their roles and rights within the society.

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APPENDIX

INTERVIEW QUESTIONS

Questions	Research question related
1. How do men and women use water, and for what purpose do they use regarding their day-to-day activities? What are their roles and responsibilities in managing water?	R1
2. How would you describe the current state men and women's roles in water participatory decision-making?	R1
3. Who makes what decisions? What is the influence and power of men and women in negotiation and decision-making of water?	R1
4. What factors do you think **hinders** a more-balanced gender participation in decision-making of water?	R2
5. What factors do you think could **promote** a more-balanced gender participation in decision-making of water?	R3
6. What do you think should be done to improve gender issues associated with participatory decision-making of water?	R1, R2, R3
7. Is everyone aware of these policies and understand how these policies work?	R2, R3, R4
8. Do you think the policies provide adequate information about gender norms, roles and relations?	R4
9. When creating policies, is local knowledge such as cultural practices, gender relations and roles in water taken into account?	R4
10. What would you suggest be done to improve the current state of the policies to make it more gender inclusive?	R4

INTERVIEW CONSENT FORM

CONSENT FORM

I declare to be informed about the nature, method and purpose of the investigation. I voluntarily agree to take part in this study. I also keep the right to terminate my participation in this research without giving any reason at any time.

The responses may be used for this study and in its publication, they may (please tick one of the options):

- Be cited with my name or function revealed
- Be cited anonymously, thus without identifying the context
- Only be used as an informative source

During the interview, I keep the right to restrict the use of (some of) my answers further than

indicated above.

Name of participant:

……

Date: **Signature:**

…… **……**

I declare to fully adhere to the above.

Name of researcher:

……

Date: **Signature:**

…… **……**

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