The Political arenas of water management in the Limpopo basin, Mozambique

Stakeholder Participation at different policy levels

MSc Thesis by Elke Praagman

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Water Resources Management Group

WAGENINGEN UNIVERSITY
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Photo Frontpage: *Construction of irrigation infrastructure by Wanbao, RBL, Mozambique*

The changing nature of water management in the Limpopo basin, Mozambique

Stakeholder Participation in water management at different policy levels

Master thesis Water Resources Management submitted in partial fulfillment of the degree of Master of Science in International Land and Water Management at Wageningen University, the Netherlands

Elke Praagman

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Supervisor(s):

Dr.ir. Alex Bolding
Water Resources Management group
Wageningen University
The Netherlands
www.iwe.wur.nl/uk

Raphaëlla Ducrot
IWEGA, UEM
Mozambique

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ABSTRACT

Over the last three decades, Mozambican water resource policy shifted from state-managed to a decentralized stakeholder based approach. Water governance aimed at making a cost-effective, democratic and sustainable management strategy that allowed the water resources to be accessible for all. The former is a result of three mayor shifts in water governance in Southern Africa, as well as in Mozambique, viz (1) from administrative boundaries to resource-based boundaries, (2) from centralized state-managed towards decentralized stakeholder-based governance, and (3) from public management structures towards privatization of water management. The simultaneous steps towards a more neo-liberal type of macro-economic governance has attracted an increasing amount of foreign investors and FDI at national level. In the Limpopo basin, large agricultural investments are being made, and important decisions concerning water allocation emerge. Two case studies on large foreign agricultural investments in the Limpopo Basin show that land and water allocation are not guided by decentralized stakeholder based governance. Whereas the 1997 Land Law prescribes community consultation for land allocation, water allocation does not require such a process. Stakeholders in water related issues are consulted through an official stakeholder platform, but this platform has a purely advisory status and smallholder farmers are hardly represented in the platform. Decisions on water allocation are eventually made in arenas at a higher policy level without further consultation of stakeholders, reducing the legitimacy of the stakeholder platform. The introduction of water tariffs has complicated the process of participatory governance since smallholder farmers are being registered and charged for their water use but not consulted on water related issues, impeding effective participation from smallholder farmers in water governance.

ABBREVIATIONS

Abbrev	*English*	*Portuguese*
ARA	Regional Water Administration	Administracaõ Regional de Agua
ARPONE	Association of emerging commercial farmers	Associação dos Agricultores e Regantes do bloco de Ponela
CBL	Limpopo Basin Committee	Comité de Bacía do Limpopo
DNA	National Directorate of Water	Direcaõ Nacional de Agua
DPA	Provincial Directorate of Agriculture	Direcção Provincial da Agricultúra
DPOPH	Provincial Directorate of Public Works and Housing	Direcção Provincial da Obras Publicas e Habitação
DUAT	Land use license	Direito de Uso e Aproveitamento de Terras
FIPAG	Water Supply Investment and Assets Fund	Fundo de Investimento e Património de Abastecimento de Água
FONGA	Gaza NGO Forum	Forum de ONG's de Gaza
FRISAM	Fri prosjektstøtte for samfunnsvitenskap / Independent Projects for the Social Sciences	
GWP	Global Water Partnership	
HICEP	Chokwe Irrigation Scheme	Hidráulica de Chokwe - Empresa Pública
IWRM	Integrated Water Resource Management	
MAI		Massingir AgroIndustrial
MDSARP	Massingir Dam and Smallholder Agricultural Rehabilitation Project	
MICOA	Ministry of Coordination of Environmental Affairs	Ministério para Coordenação da Acção Ambiental
MINAG	Ministry of Agriculture	Ministério da Agricultúra
MOPH	Ministry of Public Works and Housing	Minestério da Obras Publicas e Habitação
PNL	Limpopo National Park	Parque Nacional do Limpopo
RBL	Lower Limpopo irrigation scheme	Regadio Baixo Limpopo

RBL-EP		Regadio Baixo Limpopo - Empresa Publica
SDAE	District office of economic activities	Serviços Distritais das Actividades Económicas
SPER	Provincial Services of Rural Extension	Serviços Provinciais de Extensão Rural
TSB	Transvaal Suiker Beperk	
UGB	Basin Management Unit	Unidade de Gestaõ de Bacía
UGBL	Limpopo Basin Management Unit	Unidade de Gestaõ de Bacía Limpopo

1. INTRODUCTION

Over the last three decades, Mozambican water resource policy shifted from state-managed to a decentralized stakeholder based approach (Earle et al. 2006). After attaining independence from the Portuguese in 1975, the Mozambican Liberation Party FRELIMO set course towards a Marxist based form of state governance. Both regimes, of the Portuguese and FRELIMO, were characterized by classical top-down, centralized and state-managed governance. After years of civil war during the seventies and eighties, Mozambique was drained of its financial and natural resources, and needed a new strategy to recuperate from this crisis. Since 1983 the government changed its strategy to a more neo-liberal approach, promoting commercial production and private sector development (Roesch 1988).

The first post-independence Water Law was introduced in 1991, claiming water as a public good, owned and governed by the state through centralized state agencies. With this Law, water governance aimed at making a cost-effective, democratic and sustainable management strategy that allowed the water resources to be accessible for all. Since then, three mayor globally endorsed shifts in water governance have been introduced in Southern Africa, as well as in Mozambique, (1) from administrative boundaries to resource-based boundaries (2) from centralized state-managed towards decentralized stakeholder-based governance, and (3) from public management structures towards privatization of water management (Bolding 2004; website NWO). These shifts were in line with the international discourse on Integrated Water Resource Management (IWRM), that was based on the Dublin principles of 1992 and was endorsed as the dominant water policy discourse at the Second World Water Forum of 2000 in the Hague. The definition of IWRM as formulated by the Global Water Partnership (website GWP) is most commonly used (Rahaman and Varis 2005). According to the GWP, the second Dublin principle suggests a participatory approach in water resource management that ensures participation of all stakeholders, in particular, vulnerable groups of the population. The aim is to achieve consensus on water managing practices in an equitable way, but the GWP does not incorporate specifically what should be the outcomes of this participatory approach. In Mozambique, stakeholder participation is promoted as a way of decentralized governance. For example, the 2007 Water Policy (*Política de Águas*) argues that in order to achieve a more effective use of resources and reconcile divergent interests in water use, a greater role for stakeholders in water management at basin level is needed (see also Box 3). But the Policy does not specify how stakeholder participation will contribute to a more effective use, and in what form. It seems that when this Policy was being produced, the aims of decentralized governance in water management were not acknowledged by the policy makers.

The steps towards a more neo-liberal type of macro-economic governance has also attracted an increasing amount of foreign investors. The economic boost that Mozambique is currently experiencing brings along shifts in the political arena. Foreign Direct Investment is highly promoted at national level, and great investments are being made in the exploration of natural resources. Large concessions of land are being awarded to foreign investors for irrigated agriculture. An international discussion has risen in the last decade on this 'scramble for land'. The international debate on 'land grab or development opportunity' is also of interest when it comes to water resource management. Large-scale irrigated agriculture brings along changes in water allocation and water management. Water is a finite resource, and access to water will become more and more challenging with the increasing demands on it by various stakeholders. When looking at stakeholder participation in water management, large-scale projects will also influence the political arena in which decision-making in water management takes place. In this setting where different interests in water allocation are conflicting, the question arises how the principle of stakeholder participation in water resource management is being effectuated, who benefits from it and who doesn't?

The definition of stakeholder participation focusses not only on decentralized governance, but also states that decision making should be incorporated down to the lowest level. I regard this concept as the basis for my research on the implementation of stakeholder participation. I believe that if stakeholder participation is to contribute to a more equitable use of the water resources, enhanced mechanisms are indeed necessary. Especially in a country as Mozambique, where the most vulnerable groups of the population are also the most isolated from government reach, the effectuation of including all stakeholders is a very complex measure. With this research I do not only aim to fill the knowledge gaps between water policy on paper and implementation in practise, I also illustrate how these gaps might even result in decreasing levels of equitable use of the water resource, if the most vulnerable population is still being left out in these decision-making mechanisms. The following three main research questions have guided this research:

1. How has the principle of stakeholder participation underpinning Integrated Water Resource Management (IWRM) been articulated in the discourse and policy of water resource management at different governance levels and how has this affected water allocation practices in the Limpopo Basin, Mozambique?
2. How do stakeholders at local level participate in water use management and how do they gain access to water?
3. How are the arenas in which water management is practiced being shaped and what is the outcome of stakeholder participation in the arenas at different levels (ARA-Sul, UGBL and local level)?

Through these questions I have investigated the current policy implementation and outcomes of stakeholder participation in water resource management in Mozambique by means of four case studies in the Limpopo Basin. Two cases focus on large investments in agriculture that are taking place in the Limpopo Basin. The first case study is conducted near Massingir dam, upstream in the Limpopo Basin, where the company Massingir Agroindustrial (MAI) is investing in an area of 37,000 ha for irrigated sugarcane cultivation. The second case study focusses on the ancient irrigation scheme of Baixo Limpopo, that has undergone institutional changes over time. The scheme is expanding rapidly through land and water allocations to large foreign agricultural investors. The scheme is currently managed by the state-owned company *Regadio de Baixo Limpopo – Empresa Publica* (RBL-EP). Both cases provide insights in the changes in water management at field level as a result of these new investments in irrigated agriculture. These two cases also illustrate how arenas in water politics are shaped at different levels. The third case study focusses on the newly introduced water tariffs. The fourth Dublin principle of IWRM suggests water should be considered as an economic good and should therefore be charged accordingly. The introduction of water payments in the Limpopo Basin brings along complications, especially for smallholder farmers. The inclusion of these smallholder water users is mainly aiming at registering and licensing all water users, whereas participation in decision-making of this vulnerable group of the population is not prioritized. The stakeholder platform of the Limpopo River Basin, the *Comité de Bacía do Limpopo* (CBL) is the formal arena where stakeholders in water resource management are gathered. From the first three cases it becomes clear how the different stakeholders in the Limpopo Basin are organized and represented in this stakeholder platform. With this fourth case study I describe the functioning of a formal structure in water governance, the CBL, and scrutinize the other (informal) arenas that exist in water politics.

The following chapter describes the theoretical background for this research. Chapter 3 gives an overview of the historical background of Mozambique, mainly focusing on politics over natural resources in the Limpopo Basin. The Limpopo basin is further elaborated on in chapter 4, describing the water management structure and water use practices at basin level. Chapter 5 describes the case study on the decision-making process surrounding the water concession issued to MAI in Massingir, chapter 6

elaborates on the allocation of water to investors operating in the irrigation scheme of Baixo Limpopo. The process of registration of water users and the introduction of water tariffs to smallholder users in the Limpopo Basin is described in chapter 7. The last case study chapter, chapter 8 describes the functioning of the stakeholder platform in the basin, the *Comité de Bacía de Limpopo*. Conclusions from the four case studies are summarized in chapter 9, chapter 10 forms the discussion and recommendations for further research.

2. CONCEPTUAL DESIGN

In this chapter I describe the theoretical background for the report, starting with a problem statement and the objectives of this research. Through the framework of Integrated Water Resource Management (IWRM) and 'Water and Politics' (Mollinga 2001) I have studied the current policy implementation and outcomes of stakeholder participation in water management. I will elaborate on my three research questions and sub-questions, followed by the methodology of the research.

2.1 Problem statement

The international discourse on Integrated Water Resource Management (IWRM) that originated from the four Dublin principles in 1992 has set the stage for water governance around the world. Mozambique has adopted the principles of IWRM in its water policies, but the 1991 Water Act (the first water law in Mozambique) already included some principles that are in contrast with the four Dublin principles. The Water Act states a primary use of water, referred to as *uso comum*, i.e. water use for domestic, personal and family need, including water for cattle and small scale irrigation to an extent of one hectare. This common use of water is free of charge and always has priority over other uses. The definition of primary water use however, does not further elaborate on what is regarded domestic use or use or family need. As a result, there is no measure to indicate when water use can be regarded as common use or not. The Dublin IWRM principles state water has an economic value, and should therefore be charged for. This is to a certain extent in contrast with the policy on common uses as described in the Water Act. Since common uses are vaguely defined, it is not clear how the principle on charging for water is implemented in Mozambique. Another contrasting feature is that the Water Act puts a strong emphasis on state presence in water governance, whereas the Dublin principles promote a decentralized participatory approach.

The investments in irrigated agriculture in Mozambique have taken the shape of projects that require large concessions of the water resource. At high policy levels favourable agreements on water tariffs are being made to attract foreign investors. In the meantime payments for water are introduced at lower levels as well. IWRM suggests that important decisions in water management, such as the allocation of large water concessions to irrigated agriculture, should be made consulting all stakeholders. It is not clear to what extent small-scale water users are included in the decision-making process in water management and how different stakeholders are represented in stakeholder platforms. Although formal platforms are being set-up to enhance stakeholder participation, it is not clear what these platforms are aiming to achieve. The arenas in which decisions are being made concerning water governance are probably not the same as the formal institutional arenas where the decisions should be taken according to the IWRM principles.

In the Limpopo basin, large agricultural investments are being made, and important decisions concerning water allocation emerge. It is not clear who is benefiting from those investments and how the local stakeholders are consulted in this political game.

2.2 Objectives

With this research I investigate how the principle of a participatory approach in water resource management, which constitutes a key element in IWRM, is being effectuated in Mozambique. The different policies in water management that have been created over time each serve their own purpose. Common uses as stated above is a tool to secure access to water to the most vulnerable part of the population, while IWRM is aiming at consensus on water managing practices in an equitable way. This research will address the knowledge gap between water resource policy on paper, and how these policies function in practice, by investigating how water resource policies have emerged and how they are being effectuated in the Limpopo River Basin in Mozambique.

This research is carried out in partial fulfilment of my MSc in International Land and Water Management at Wageningen University, the Netherlands. This research is also a contribution to the research project *Flows and Practices: The Politics of Integrated Water Resources Management (IWRM) in Africa*, funded by the Research Council of Norway. The research project aims at linking ideas of IWRM as constructed at the global and European level to their translation into narratives and practices in eastern and southern Africa (website IDS). The project has the objective to critically examine the interpretations and challenges of IWRM policy and practice at multiple political and geographical scales (from macro political forums to localised river basins). The four main objectives of the project are to identify:

1) How intersections between experts, science and politics provided the impetus for IWRM creation and dissemination
2) How global and European policy ideas on water management influenced the contents and policy articulation of water reform and policy processes in Africa
3) How these were accepted, modified, translated and implemented in African contexts
4) How IWRM interacts with local water practices and institutional arrangements in Mozambique, South Africa, Tanzania and Zimbabwe

This research contributes to the fourth objective of the project, investigating the aims of incorporating stakeholder participation in water management in the Limpopo Basin, Mozambique and how these aims are being effectuated. By focussing on cases where important decisions are being made regarding water resource management, the different political arenas will come to light, illustrating the role of different stakeholders in this complex game that is called water governance.

Personally I aim to contribute to stakeholder participation in water governance within the Limpopo Basin. I have chosen to do my research in Mozambique, because it is a third world country where large investments have contributed to an economic boom. This quick growth makes Mozambique an interesting case to study the effects of investments on water management practices, in particular who benefits from these investments and who does not. Megaprojects that acquire large water allocations will affect local populations and downstream water users. Such megaprojects are beneficial for national economic growth of which a small elite receives the returns. But at the local level there is hardly any trickle-down effect of this economic growth to the local population or to other downstream water users. These changes in water allocation also call for policies in water resource management that include all stakeholders in the decision-making process to ensure a sustainable and equitable result. With this research I aim to fill the knowledge gap surrounding the difference between policies on paper and policies in practice. I have a technical background and I have deliberately chosen to dedicate my MSc thesis to a more socio-political research, for I find the ability to make the link between technical developments and social impacts very relevant for my future career.

2.3 Theoretical Framework and concepts

2.3.1 Integrated Water Resource Management (IWRM)

Mozambique has a history of a classical top-down policy structure. After the first post-independence law on water, the 1991 Water Act, the 1995 the National Water Policy has been implemented which incorporated elements derived from the international discourse of Integrated Water Resource Management (IWRM). One of the pillars of the latter policy is decentralized stakeholder based governance. Although stakeholder participation calls for grass-root development, hence a bottom-up approach, the idea and policy itself is still being implemented from the top down. Stakeholder participation in water resource management is a broad term, which can be interpreted in several ways. This research focusses on the implementation of stakeholder participation as defined by the international discourse on IWRM. The following section describes how IWRM originated and which goals it aims to achieve.

The International Conference on Water and Environment (ICWE), held in 1992 in Dublin and the following Rio United Nations Conference on Environment and Development (UNCED) later that year set the basis for the 'four Dublin principles' in water resource management (Rahaman and Varis 2005; website GWP):

- Principle one recognized fresh water as a finite, vulnerable, and essential resource, and suggested that water should be managed in an integrated manner. This principle assigns a river basin or a catchment area to be a water management unit, which is the so-called hydrographical approach to water management.
- Principle two suggested a participatory approach, involving users, planners, and policymakers, at all levels of water development and management. Water is a resource that affects all. A participatory approach involving all stakeholders is the best strategy to achieve long-term accord and consensus.
- Principle three recognized women's central role in the provision, management, and safeguarding of water. In order to ensure full and effective participation of women at all levels of decision making, account should be taken of approaches that public agencies use to assign social, economic and cultural functions to men and women.
- Principle four suggested that water should be considered as an economic good. Managing water as an economic good is regarded as an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources.

These conferences were mainly attended by experts, but there was a lack of active participation from the developing world, especially by governmental officials. The fourth principle, ascribing an economic value to water, was criticised by professionals from the developing world, because it did not focus on equity and poverty. The principles were also criticised because there was no clear strategy on how the theoretical meaning of these principles could be implemented in practice, especially in complex water management scenarios (Rahaman and Varis 2005).

The Dublin principles set the stage for the emergence of the international discourse on IWRM. The Second World Water Forum in the Hague in 2000 followed-up on these principles, and addressed the limitations from the 1992 conference outcomes. This time, not only experts, but also intergovernmental participants and stakeholders related to water management were gathered. This proved to be the success of the Conference. The four Dublin principles were being discussed in terms of implementation and were put on the political agenda, which led to action programs for participating countries. The Global Water Partnership (GWP) was initiated as result of the Hague Forum, when the visions of the previous forums

were converted into action plans. the GWP rose as a key player in the coordination of the *Framework for Action* (Rahaman and Varis 2005). The Dublin principles, as described by the GWP is most commonly used. However, the underlying principles of IWRM are not mentioned by the GWP.

The 1995 Mozambican National Water Policy adopted the four Dublin Principles from the international discourse on integrated water resource management. Especially when the principles were formulated in action programs after the Water Forum in 2000, water resource management in Mozambique shifted towards a more decentralized governance following the principles of IWRM.

The GWP underlines some complementary issues concerning the second Dublin principle, to use a participatory approach. It states that "*governments should work to ensure participation of all stakeholders, in particular, vulnerable groups of the population. Poor groups of the population will benefit least from a mere participatory environment without enhanced participation mechanisms. Decentralizing decision making to the lowest level is the only strategy to enhance participation*" (website GWP, consulted on 2/1/2013).

Taking this definition and description on a participatory approach as the basis for the second principle of IWRM, the definition of stakeholder participation focusses not only on decentralized governance, but clearly states that decision making should be incorporated down to the lowest level. I regard this concept as the basis for my research on the implementation of stakeholder participation. In Mozambique, the principle of a participatory approach in water management has been regarded as measure to increase the effectives of water governance, resulting in a more sustainable use of the water resource. I believe that if stakeholder participation is to contribute to a more equitable use of the water resources, enhanced mechanisms are indeed necessary. Especially in a country as Mozambique, where the most vulnerable groups of the population are also the most isolated from government reach, the effectuation of including all stakeholders is a very complex measure. Most water users are smallholder farmers that often live in remote areas. Half measures in enhancing participation to the lowest level will therefore not be enough. On the contrary, approaches that do not fully incorporate all stakeholders are likely to exclude these vulnerable groups even more. This concept forms the foundation of my research objectives. With this research I want not only to fill the gaps between water policy on paper and implementation in practise. I also wish to illustrate how these gaps might even result in decreasing levels of equitable use of the water resource, if the most vulnerable population is still being left out in these decision-making mechanisms.

2.3.2 Water and Politics

The way policies are being formed and implemented impacts those involved. Policies shape society, and society shapes policies. This interaction causes a dynamic arena of politics and social relations. Politics is most often seen as governance at national and international level, while politics occur at other levels as well. Mollinga (2001) underlined this broader definition of politics, in his article on water and politics. He attributes two meanings to the word politics; (1) the activities in a particular segment of society, such as state governance, and (2) a particular quality of social relationships in society at large. The process through which those social relations of power are constituted, negotiated, mediated, reproduced, transformed of otherwise shaped on any power level is also an analysis of politics according to Mollinga.

Taking this definition as a starting point, politics in water resource management is not only confined to state governance of the water resource. There are different levels at which water governance is being practiced. Mollinga distinguishes three levels in which 'water and politics' can be studied (quoted from Mollinga 2001):

1. Official state and inter-state politics regarding water (or hydropolitics).
   At this level decisions are being made, and policies are being developed.
2. The politics of water resources policy (policy formulation and implementation as politically contested terrain)
   At this level, policies are being implemented and formulated. Different interest groups exist, and try to influence the formulation and implementation of policies.
3. The everyday politics of water use (the day-to-day contestation of water resource use)
   The third level is the actual water resource use practise, and the interaction of it with local social relations of power.

In this research I also distinguish different levels of water politics, applied to the governance structures in water management as designed in Mozambique, and at regional level in the Limpopo Basin. Thereby I state that I will not focus on international policies within the Limpopo Basin. The different levels of politics that I distinguish are the following levels of governance:

1. National level: water policies that are developed by the government of Mozambique (DNA)
2. Regional level: water policies are being adopted from national level, then shaped and implemented by the regional water authority, ARA-Sul
3. Basin level: water policies are being adopted from regional level and implemented and shaped by basin management units, Unidade de gestaõ de bacía de Limpopo (UGBL)
4. Local level: local institutions, committees and a basin committee (comité da bacía do Limpopo, CBL) ensure local representation of stakeholders within UGBL

At national level the governance structure relates to Mollinga's concept of Hydropolitics. At regional and basin level (ARA-Sul and UGBL) I will focus on the implementation and formulation of policies; the politics of water resources policy. At the level of everyday politics of water I will focus on social relations between stakeholders (water users) and administrative institutions such as local basin committees.

According to Mollinga (2001, p.734), "*Understanding the political dimensions of reform, or adopting a political perspective on reform, can help to develop better strategies for designing and implementing interventions. It also helps to understand better the role that different interest groups, including those who intervene, (can) play in the reform process. It may give substance to the often extremely vague notion of "stakeholder participation" in water resources planning and use*."

The description of Mollinga on the political dimension of reform can be complemented by his lecture on the study of irrigation (Mollinga, 1993). In this lecture, the author emphasises how social interactions define the arena in which decisions are made. These arenas are constructed by a group of stakeholders that are involved in the decision-making or reform process. The power position and social relations of these stakeholders define their role in the reform. Stakeholders in this setting are individuals or groups of people that have a certain interest concerning the water resource. Stakeholder participation then refers to the inclusion of stakeholders in the decision-making process. Mollinga claims that stakeholder participation in water resource management is often an extremely vague notion. This vagueness is caused because there are several arenas in which water management is being shaped. Some of these arenas are official government institutions, while others are constituted in a more informal environment. In order to enhance stakeholder participation in water resource management, one must first be aware of these different arenas and their functioning.

2.4 Research Questions

Based on my theoretical framework I have defined three main research questions, to investigate how the principle of a participatory approach in water resource management, which constitutes a key element in IWRM is being effectuated in Mozambique. With these questions I make a distinction between the different levels of water politics. A part of the sub-questions is derived from lecture notes from Mollinga (1993) in order to illustrate the arenas in which water governance is being practiced.

1. How has the principle of stakeholder participation underpinning Integrated Water Resource Management (IWRM) been articulated in the discourse and policy of water resource management at different governance levels and how has this affected water allocation practices in the Limpopo Basin, Mozambique?

    a. What have been the discourses and policies in water resource management in the past and how has this affected stakeholder participation and water allocation?
    b. What is the current principle in Water Resource Management at national level, regional level (ARA-Sul), river basin level (UGBL) and local level (based on case studies) to effectuate stakeholder participation and water allocation?

2. How do stakeholders at local level participate in water use management and how do they gain access to water?

    a. What are the actual water use practices of stakeholders at local level?
    b. How do stakeholders have access to water?
    c. How is water distribution managed at local level?
    d. How are stakeholders organised in water management at local level?

3. How are the arenas in which water management is practiced being shaped and what is the outcome of stakeholder participation in the arenas at different levels (ARA-Sul, UGBL and local level)?

    a. Who are the different stakeholders (per level) in water resource management?
    b. Which stakeholders are currently in- and excluded in decision-making?
    c. In what way are stakeholders represented?
    d. What is at stake at the different levels?
    e. Which strategies do the different stakeholders employ to safeguard their interests?
    f. When and where does interaction take place?
    g. What is the outcome of the interaction?

2.5 Methodology

This research consisted of two parts: (1) a literature review and (2) an empirical case study research. The literature review explored the governance history and water (related) policies and laws in Mozambique. The empirical part was based on four case studies related to participatory governance in the Limpopo basin in Mozambique to illustrate the implementation and outcomes of stakeholder participation in water management in the arenas at different levels. Two cases were selected based on large foreign investments that are being made in irrigated agriculture. In these situations, different actors are at play; governmental institutions, large-scale investors (megaprojects), commercial farmers, small scale farmers and non-governmental institutions. Since colonial rule, the Limpopo basin and in particular the Baixo Limpopo, has been one of the most important areas in the country for agriculture. Both cases focus on a situation where a megaproject requires a large portion of the water resource, affecting other water users in the Basin. The first case study focusses on the decision-making process concerning the water license to the company of Massingir Agroindustrial (MAI). MAI is investing in an area of 37,000 ha for irrigated sugarcane cultivation. The area is situated in the District of Massingir, Gaza province, near Massingir Dam on the Rio Elefantes upstream of the confluence with the Limpopo river. The water concession to MAI will affect the downstream users. The second case study investigates water allocation to investors operating in the irrigation scheme of RBL-EP in the Baixo Limpopo area, downstream along the Limpopo river, just before it debouches into the Indian ocean. In the scheme, the Chinese company of Wanbao is planning on cultivating an area of 20,000 ha with irrigated rice. Especially the water allocation to MAI upstream in the basin will have its impacts on the downstream users. The impact of the water concession to Wanbao, in combination with the water concession to MAI upstream is not clear, and the success of both projects depends on these concessions. The decision-making process of these cases provides insight in the participation in water management of other stakeholders in the basin.

The third case study is concerned with the licensing and registration of water users according to the fourth principle of IWRM, stating water should be considered as an economic good and should therefore be charged accordingly. Inclusion of smallholder farmers in water governance is mainly aiming at registering and licensing water users, whereas participation in decision-making of this vulnerable group of the population is not prioritized. The stakeholder platform of the Limpopo River Basin, the *Comité de Bacía do Limpopo* (CBL) is the formal arena where stakeholders in water resource management are gathered. The fourth scenario that is being studied in this research focusses on the functioning of a formal structure in water governance, the CBL, and scrutinizes the other (informal) arenas that exist in water politics.

For data collection I made use of in-depth (semi-structured) interviews. Unstructured interviews were also used, which were mainly unplanned informal talks. Over a time period of 3 months from September - December 2012, a total number of 44 people were interviewed, of which 41 were men and 3 were women. The timeline of the fieldwork is represented in Appendix I. The respondents were selected based on their water use practices and/or official function. To achieve an adequate representation of the different stakeholders at play in water management, I have constructed 5 groups. Per case study area for every group at least one respondent was approached. The division of groups and number of respondents is represented in Table 1. Group A represents respondents that work or have worked as governmental officials. Most respondents in this group work for the Limpopo management unit of ARA-Sul (UGBL) or RBL-EP. The rest of the respondents from group A work for the District office of economic activities (SDAE), the Limpopo National Park (PNL), the provincial department of agriculture (DPA) and the former Massingir Dam and Smallholder Agricultural Rehabilitation Project (MDSARP). The Administrators of Massingir and Xai Xai Districts are also in this group. Group B represents a number of respondents that are not direct water users and are not related to any governmental institution.

Respondents in this group worked for the NGO's *LUPA*, *iniciativa para Terras Communitarias* (iTC) and *associacao de desenvolvimento de communidades rurais* (ADCR), as well as the Gaza NGO Forum *FONGA*. Group C consists of a small number of employees for the mega-projects of MAI in Massingir and Wanbao in Xai Xai. Group D is defined as 'commercial farmer', in which water users in agriculture are grouped that produce with a commercial objective and are organised legally. Smallholder water user organisations, which I define as organisations where people own plots smaller than 5 ha, are not part of this group. Sometimes plot sizes are difficult to assess in water user associations, for many people don't know the exact size of their plots. Whenever this was the case, I grouped these respondents in group E. Group E represents smallholder farmers that produce for subsistence, but possibly also for a local market, smallholder water user associations included.

The number of respondents per group varies among the two case studies, mainly because the distribution and size of the groups differs per case study area. The total amount of respondents per group also varies, with the most respondents in groups A and E. The reason for this variation, is that there are not as many mega-projects or commercial farmers as smallholder farmers. Government officials were mainly contacted to retrieve information on policy implementation and their perception on stakeholder participation. Through these officials I have also often gained access to people from other groups. Therefore the number of respondents in group A is high compared to other groups (50% of total).

	Group	General	Massingir	Baixo Limpopo	TOTAL
A	Government officials	7	7	8	22
B	Non- Governmental organisation	3	-	1	4
C	Staff members mega-projects	-	3 (1 woman)	1	4
D	Commercial farmers	-	1	3	4
E	Smallholder farmers	-	7 (1 woman)	3 (1 woman)	10
	TOTAL	10	18	16	**44**

Table 1 - division of respondents in groups per case study area

Interviews made up the major part of the empirical data. In addition, observations during interviews, meetings and field trips were included as part of data collection. Especially observations during important meetings, such as a meeting of the Limpopo Basin Committee, and the group discussions after two presentations of my research have been used to provide a better interpretation of the dynamics during such events. With observations I refer to people's posture, attitude, reaction to other people but also, in this case, the setting of the meeting of the Limpopo Basin Committee. Observations during one-on-one interviews included the setting, focus and interest of the respondent, body language and facial expression of the respondent.

I chose to perform in-depth interviews for there are several advantages to it. By not structuring the interviews in pre-defined questions, the respondent is able to provide much more detailed information on topics that are being discussed. When data collection for a research is based on interviews, one must be aware that respondents communicate their experiences through narratives. A narrative can be interpreted as storytelling. By restructuring things that we experience into a concise story, we create order in the complex world around us. Through the narratives that we construct ourselves, we influence others in how they experience the world around them (Moen 2006). Narratives are often used as a way of reflection on a research or research process, whereas some researches use the narrative approach as a method and

representation of a research study. I believe the narrative approach does not only contribute to the reflection on a research, but forms an essential part of data collection. Since interviews are carried out by a specific person as well, in this case by the author, the interviewer also makes use of his or her own narrative on the subject, influencing the responses of the person that is being interviewed. In acknowledging the subjectivity of data collection from interviews, reliability of data can be better interpreted. Another important aspect of the narrative approach, is that it provides the researcher with insight on what is considered important and what is not according to the respondent. This 'relevance fixation' tells a lot about the perspective of the respondent on the topic (Bauer 1996).

Especially in order to determine narratives of different stakeholders, relevance fixation through in-depth interviews is an important factor. The narratives of the different actors are used to illustrate the perceptions on stakeholder participation at different levels. It illustrates in which arenas water politics are being practiced and how these arenas are shaped.

2.6 Research Limitations

This research has been carried out as partial fulfilment of the degree of Master of Science in International Land and Water Management. This has been the first time I have engaged in a research in the social sciences, making use of qualitative data. It was a challenge for me to interpret data gathered from interviews rather than based on experiments, since before I did not analyze data that was provided by people. I had difficulty to formulate my own interpretation on the cases. I had the feeling I was not being objective as an academic researcher ought to be. It took me some time to learn to be 'subjective' and also comment on my own subjectivity. But this has restricted me during field work to sometimes critically analyze the data provided by respondents, resulting that I did not 'dig deeper' into interesting issues that were being brought up. The limited time in the field in combination with my own inexperience in social research has caused that sometimes issues could not be further discussed with respondents. Most of the respondents could only be interviewed once, leaving some questions unanswered.

I have deliberately chosen not to make use of a translator for interviews in Portuguese. Although I could already manage quite well in Portuguese, and this has only improved during my stay in Mozambique, I cannot say I am fluent in the language. But using an interpreter would restrict me in having a direct conversation with my respondent and would also increase the ambiguity of interpretation. However, I noticed that sometimes I had difficulty interpreting responses to questions. For the more official interviews I have used a dictaphone, so I could transcribe the interviews afterwards. Often I learned that respondents would say very interesting things, on which I could have followed up during the interview. Unfortunately, I did not realize this at the time of the interview. Some of the interviews were done in Shangane, the native language in the research area. For these interviews I used an interpreter, which in Baixo Limpopo was a student with no personal interest in my research. In Massingir my interpreter was one on the focal points (see chapter 5) of UGBL. He was also one of my respondents and clearly had his own opinion on processes within UGBL and in the District of Massingir concerning water related issues. He knew the respondents I was interviewing personally, and therefore I don't consider his interpretations as neutral. I have tried to overcome possible coloured interpretations by asking the same question in different ways, by using examples and testing responses. This has increased the validity of the interviews I believe.

By dividing my respondents in 5 different groups I aimed to establish a database that provides a reliable representation of the different actors at play in water management. The largest limitation that the most vulnerable group of these actors, smallholder farmers, are also the most isolated group. Not only are they isolated from the rest of society by poor infrastructure and poor transportation, they are also often invisible for government planning. It was impossible for me to reach the most isolated communities in my research area. Therefore the representatives of this group (E) mainly consist of smallholders that are more informed about developments in the region and policy implementation than the ones in isolated communities. Also, respondents in communities would always be appointed by the community leader, causing that most respondents could not be regarded as representative for the entire community. Most respondents had a specific public function and therefore may have enjoyed more privileges than others.

Another difficulty in accessibility was to get in contact with the Chinese staff of the megaproject Wanbao in Xai Xai. First there was a language barrier, because only the manager speaks English beside Chinese. None of the Chinese staff members speak Portuguese. In the end I have only been able to talk to a Mozambican staff member of the project, whose function was translator (English to Portuguese). This language barrier later turned out not only to be problematic for my research. At District level, communication between the local government and Wanbao was minimal as well. I will further elaborate on that in Chapter 6.

3. GOVERNANCE HISTORY OF MOZAMBIQUE

In this chapter I will describe the historical background of Mozambique, mainly focusing on policies on natural resources in the Limpopo Basin. I will go further into the history of land and water laws and the current institutional framework in land and water management. The following section gives an overview of the different policy strategies that have been executed over the last 100 years in Mozambique regarding natural resources. Especially activities in the Lower Limpopo basin are mentioned, which has been an area of economic importance since colonial times. The political regimes of Mozambique over time can be roughly divided into three different eras: colonial rule, the Marxist approach and liberalisation. I describe the different historical eras so that they can serve as a framework in understanding current governance structures. Responses of water users during my fieldwork can often be related back to their historical background.

3.1 Three eras

3.1.1 Colonial Rule (1498 – 1975)

During the colonial era, Portugal dominated the Mozambican territory. Mozambique was a valuable asset for Portugal for its agricultural production. Natural resource policies during colonial rule were initiated by the Reforma Administrativa Ultramarina (RAU), dividing Mozambique into kingdoms –*regulados*- with traditional leaders. These traditional leaders (*líderes tradicional*) became responsible for the administrative functions within the *regulados* (Earle et al, 2006). This type of governance is also referred to as indirect rule, decentralized governance through the native system (Mamdani 1996). This way native institutions were recognized in the legal system, but the decentralized *regulados* in Mozambique still had to conform to Portuguese laws. This way the colonial regime gained access to the natural resources of Mozambique and control over the rural population. In his book Citizen and Subject, Mamdani (1996) argues that indirect rule in southern Africa was mainly adopted to rule the peasantry. The rural population was not regarded as part of the civilized world, and citizenship became a privilege to the ones that were 'civilized'. Civil society in this sense was translated to civilized society, in which the 'uncivilized' - the peasantry - were not included. The segregation was not necessarily based on race, but rather on social standards. This way, Mozambicans of a higher social class who conformed to the Portuguese lifestyle could also become part of the civil society. The clear distinction between 'citizen' (the civilized) and 'subject' (the peasantry) became the mode in colonial Mozambique, where the peasantry was still ruled through their native institutions, traditional leadership, but by Portuguese rule. The shift in function for the traditional leaders from serving the communities to serving the state caused a decline in support from their communities and an even greater gap between 'civil society' and the peasantry.

Located in the south of Mozambique, the Lower Limpopo basin, 'Baixo Limpopo' (Figure 5) was one of the most important agricultural areas in the country. Through its location near the capital of Lorenço Marques (Maputo), the Lower Limpopo Basin was strategically important for Portugal. In the 1930's irrigated agriculture was introduced by the Portuguese colonialists in the municipalities of Xai Xai and Chokwe in Baixo Limpopo, allowing the cultivation of rice and other cash crops. The main source of income in the Lower Limpopo basin however, was labour migration to South Africa (Roesch 1988). Labour migration was preferred over agriculture by the rural population because wages were much higher in South Africa and the rainfall was very uncertain for farmers to assure them of a successful harvest. Because of this labour drain, capitalist farming in Mozambique was constrained by labour shortage. But

whereas this labour drain caused a constraint to capitalist farming, part of the wages of the labourers in South Africa was paid in gold to Portugal, making up for the decline in agriculture[1].

3.1.2 Post-colonial rule: a Marxist approach (1975 – 1983)

After independence from Portugal in 1975, the Marxist based party Frelimo (*Frente de Libertação de Moçambique*) became the ruling party over Mozambique, with Samora Machel as president. The administrative functions of the *regulados* were abolished by Frelimo, because they were seen as a representation of feudal governance structures (Earle et al. 2006). Frelimo wanted to centralize and socialize the agricultural sector of Mozambique, by establishing communal villages, state farms and cooperatives (Roesch 1988). These initiatives of collective, large-scale state farm agriculture did not prove successful, because the labour force lacked technical and administrative skills. Frelimo also failed in establishing local markets in consumer goods, so that the labourers on the state farms were forced to return to family plots to support their own livelihoods. As a result, agricultural development stagnated. Frelimo tried to cope with these problems in the agricultural sector by collectivization of the countryside, by reorganising agriculture in state farms and cooperatives. Therefore, cooperative sectors received more state support than private or family sectors. However, this cooperative form of production failed due to inadequate levels of technical and organizational state support. Members of these cooperatives returned to subsistence farming on their individual plots and large parts of formerly cultivated areas were left uncultivated (Roesch 1988; Finn 1984).

Another important factor in the failure of socialization of the countryside can be sought in the established segregation of civil society (Mamdani 1996). After almost 400 years of Portuguese occupation, the system of social segregation between the civilized world and the peasantry had increased the gap between government and the rural population. Reorganisation of the countryside once more resulted in segregation, of the family sector and the public sector. The family sector, livelihoods based on subsistence farming, was not regarded as part of the collective farm initiative and was not included in decision-making or other governance tasks.

Two years after independence, a civil war between Frelimo and the resistance party Renamo (*Recistência Nacional Moçambicana*) started. Though this war is marked as a civil war, the funds for Renamo came from neighbouring countries, mainly southern Rhodesia (now republic of Zimbabwe) and the apartheid regime from South Africa. In fact, Renamo was created in 1977 by the Rhodesian Central Intelligence Organization (CIO) to counteract the government of Mozambique under the suspicion that the Marxist regime of Frelimo would cross Rhodesian borders (Shtofman and Knappage 2012). Funds from other governments opposing communism were not rare during the Cold War (Collier and Hoeffler 2004). Southern Rodhesia and the apartheid regime in South Africa sought alliance with the anti-communist movement of Renamo to clear out the Marxist regime in Mozambique and thereby securing their own regimes. The Cold War was the proxy for the Renamo rebellion, but as the war dragged on, the failure of the social reform of mainly the countryside instigated Renamo's rebellion. The war grew out to a serious civil war, which lasted until 1992. The war deteriorated the national economic situation and consumed a large part of Mozambique's economic resources, leaving the country in a state of financial crisis.

In the Baixo Limpopo, this financial crisis also caused a sharp drop in levels of marketed agricultural production in the family and private sectors. The colonial settlers, who had occupied all key sectors of the national economy, were expelled after Independence, leaving the Baixo Limpopo without coordination and supervision. Beside the exodus of the Portuguese settlers, the levels of migrant wage labour to South Africa dropped significantly, resulting in much lower incomes for the rural population (through

[1] Personal comment A. Bolding, 23/8/2013

remittances). Commercial production stagnated and left large part of the once intensively cultivated areas in the valley abandoned (Roesch 1988).

3.1.3 Since 1983, steps towards liberalization

Frelimo recognized that in order to escape from the financial crisis, they had to change their policies. Meanwhile, the civil war between Frelimo and Renamo was intensifying. Since the Frelimo Party fourth congress, in April 1983 (Tarp 1984), some important reforms in national policy were made from a communist based approach towards a more market led approach under the Programme of Economic Reform (Roesch 1988):

- The strategic importance of the family and private sector were recognized.
- The focus for economic development would lie on priority regions, with the best economic, military and climatic conditions.
- The objective of investment in rural areas shifted from socialization of the countryside to increasing the marketed agricultural production. Foreign investment was also actively encouraged.
- There was a general liberalization of commercial activity, to promote the private and family sectors.

The primary concern of the Mozambican government shifted from socialization of production towards increasing food production and preventing sectors to fail economically. The family sector was recognized as an important sector for food security, since the family sector was to a large extent self-sufficient. Through liberalization of commercial activity, the government aimed at increasing production in the family sector as well as the private sector. The Frelimo Party fourth congress was mainly subsidized by the private sector. With these reforms, the private sector gained most of the shares of land that was formerly owned by the cooperative and state farm sectors (Roesch 1988). The family sector was left with little coordination from the government in this new strategy, resulting in little commercial activity. The majority of the family sector remained at subsistence farming. Within communities, the traditional leader was often still recognized as natural leader of the community. With the steps towards a more neo-liberal governance, communities were given autonomy in electing their own community leader. Often the traditional leader then also became the community leader.

In 1992, the civil war ceased resulting from an agreement between the ruling party Frelimo and Renamo. A peace treaty was signed, which entailed an agreement on the constitution of a multi-party democracy, allowing Renamo to become a political party that could be elected. Another important agreement was the establishment of a national army, integrating Frelimo and Renamo armed forces (Collier and Hoeffler 2004). Resulting from the Peace Treaty was that Mozambique became an interesting party for receiving donor money. This caused a further development in increasing the marketed agricultural production and encouragement of FDI.

One of the priority regions for economic development was the Baixo Limpopo. To manage this economic important region, *Unidades de Direcção Agricola* (UDA's) were set up, regional units responsible for the planning of agricultural production and marketing. These entities were supposed to be self-financing, paying their expenses through commercial activities.

3.2 Land and Water Governance

This section gives an overview of the relevant land and water laws that have been introduced in Mozambique. An official water law was not introduced until 1991, while laws on land tenure were already part of the politics since colonial times.

3.2.1 Land Laws

After independence in 1975, Frelimo nationalised the land. Land formerly owned by colonists was appropriated by the state. In 1979 a new land law was introduced which stated that access to land is a basic right for any Mozambican citizen. This land can however not be rented out or sold. The 1995 National Land Policy and subsequent 1997 Land Law incorporated the principles that all land belongs to the state. The 1997 Land Law includes some innovative approaches to protect existing rights while also promoting private investments. The law establishes a single form of land tenure right, the DUAT (*Direito de Uso e Aproveitamento de Terras*). The law states that a DUAT can be obtained through three mechanisms (FAO 2007; Ducrot 2011):

1. Customary (traditional) occupation: in accordance with customary norms and practices.
2. Good faith occupation: after a minimum of 10 years of land use by the same person
3. Award: new rights to land, awarded with the authorization of an application (renewable 50-year state leasehold).

A DUAT can be awarded to an individual or a corporate entity. Communities can be granted a DUAT with long term land use, including the use of resources connected to the land. In this case the community has to formalize the land right by means of delimitation and demarcation of the land. The process of delimitation means the community discusses which land can be appointed for the designated use. The next step is demarcation of the land which is the official establishment of the boundaries of the area, using a GPS (Ducrot 2011) [1].

When private investors want to get a DUAT for land, they have to consult the communities that are using that land. This *consulta communitaria* is a three phase process between investor, government and community. First there is an introduction phase where the investor announces its intentions and the community can discuss the delimitation of land. The community will point out which areas can and cannot be used by the investor. The second phase is the '*acta de consulta communitaria*', where an official document is signed including the demarcation of the land, which then will be the official indicator of the boundaries. The last phase is a traditional ceremony to celebrate the agreement (Ducrot 2011)[2].

In the past there have been problems regarding community consultation and land tenure of rural populations (communities). The reason for this is that a DUAT can only be awarded if the land is being used. If rural populations officially occupy a portion of land, but are not using it, the DUAT loses its legitimacy. Since most of the rural population does not have access to mechanized agriculture, the portion of land that can be cultivated is restricted to human labour force. Land cannot be sublet to another user. This way, rural populations cannot secure large portions of land, giving way to the government to allocate these lands to commercial (foreign) investors. Also, land can be awarded at different policy levels, from the Provincial government for areas up to 1,000 ha, until decisions by the council of Ministers for mega-projects if the area is larger than 10,000 ha. However, the DUAT for land occupation by communities is a local matter, which often results in miscommunication or misunderstandings on which land is occupied by

[1] Interview with LUPA staff member, LUPA-02, 31/10/2012
[2] Interview with MAI staff member, MAI-02, 09/10/2012

whom (Hanlon 2011). Concluding, whereas a DUAT initially serves as protection for the rural population to gain access to land, the restrictions of the DUAT make land tenure a challenge. Large commercial enterprises are able to cultivate large portions of land, increasing their position in the scramble for land. Land delimitations for communities are often revised if the land is not being used, weakening the position of this rural population.

3.2.2 Water Act (1991)

The first water law of independent Mozambique was introduced more than a decade after the first land law. Water resource policies before that time were made by the Ministry of Public Works and Housing (MOPH). In 1987 the department of water (DNA) was established, under the direction of the MOPH. The DNA was responsible for water management and water supply (Matsinhe 2011) .

The Water Act (*Lei de Agua*; Lei no 16/91) was introduced in 1991. The law already incorporates some of the principles of Integrated water Management, as would be established in the following year at the International Conference on Water and Environment in Dublin (Earle et al. 2006). This will further be elaborated in the next section.

The Water Act regards water as a public good, owned by the state. The state governs all the water resources for the benefit of the population. Some of the main principles in the law are decentralized water governance and participation of 'populations' in decision-making in water resource management. The law does not define the term populations, but this principle is incorporated in the following policy, the 1995 National Water Policy in the next section.

The Water Act distinguishes private and common use, where private uses need to request licenses or concessions and pay a certain tariff, while common uses do not need to be registered and are free of charge. Common uses are the uses for domestic, personal and family need, including water for cattle and small scale irrigation to an extent of one hectare without the use of siphons or mechanic devices (Ducrot 2011). An important factor in this law is that common uses always have priority over other types of use, to ensure access to water for the most vulnerable part of the population (Veldwisch et al. 2013). But because of this regulation, common uses are not registered and become invisible, making this group of water users even more vulnerable. Especially when large water concessions are given out to private uses, common uses are not taken into account because of this invisibility. Thus, the objective of the Law to protect the most vulnerable water users does not result in prioritization of common uses, but makes common uses even more vulnerable because they are not in sight.

3.2.3 National Water Policy (1995)

With the National Water Policy (*Política Nacional de Águas)* the decentralized institutions for water governance were created, the ARAs (*Administração Regional das Aguas*), or regional water authorities. The ARAs were based on river basin boundaries instead of administrative boundaries though each of the five ARAs covers more than one river basin. The need for decentralization of the institutions was already mentioned in the Water Act, but the creation of the ARAs has been a very slow process ever since. The first ARA to be created was ARA-Sul in1994, covering the four southernmost basins in Mozambique. By 2000, four other ARAs were created (Figure 1), but only ARA-Sul was fully functioning (website ARA-Sul; website FAO, both consulted on 26/8/2013).

The National Water Policy was implemented in 1995 to incorporate the concept of Integrated Water Resource Management (IWRM) at basin level (Ducrot 2011). The four principles of IWRM as stated by the website of the Global Water Partnership are (website GWP, consulted on 20/01/2013):

1. Water is a finite resource, water management therefore should be integrated and take account of both demand for and threat to this resource. Management units should be a catchment area or river basin.
2. Water development and management should be based on a participatory approach, involving users, planners and policy-makers at all levels. Governments should work to ensure participation of all stakeholders, in particular, vulnerable groups of the population.
3. Women play a central part in the provision, management and safeguarding of water.
4. Water is a public good and has a social and economic value in all its competing uses.

The National Water Policy inherited these four principles, resulting that some features as described in the Water Act (1991) conflicted with the new rules. Especially the part on water pricing was different in the policy. Where common uses of water clearly had priority in the Water Act, this was not reflected in the policy of 1995. The policy regards water as a good with social and economic value and the price of water should reflect its economic value so that it covers the costs of its supply (Box 1, c), but common uses are not mentioned.

The objectives of the National Water policy included that the use of natural resources is facilitated by the participation of *beneficiários* during planning, implementation and management of operation and maintenance. The policy states the participation of these 'beneficiaries' will facilitate the effective use of resources and infrastructures and the availability of appropriate service levels (Box 1, b). This approach was argued to be a step towards the recognition of traditional water governance structures that have been practiced by indigenous communities throughout time (Earle et al. 2006). However, the exact definition of the term *beneficiários* is not stated in the Policy, same as the term populations in the Water Law. It is an interesting choice of words however, because it can be related back to the typical Mozambican hierarchy that has emerged from its colonial past en following Marxist rule. Beneficiaries does not imply it concerns stakeholders that play an active role in water resource management, it rather suggests it concerns people receiving support from the government. As mentioned earlier in this chapter, Mamdani (1996) already described the African society as a clear division between the 'citizen' and the 'subject'. The National Water Policy has incorporated this principle somehow, by specifically not using the term 'stakeholder', but 'beneficiary'.

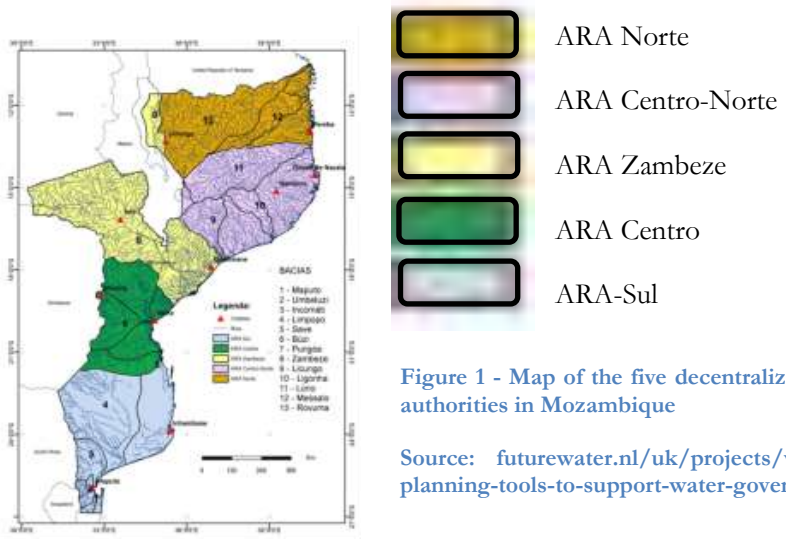

Figure 1 - Map of the five decentralized water authorities in Mozambique

Source: futurewater.nl/uk/projects/water-planning-tools-to-support-water-governance

Portuguese:	**English translation by the author:**
Política Nacional de Aguas *23 / 08 / 1995*	**National Water Policy**
2. Políticas principais	*2. Main policies*
b) Participação dos beneficiários	*b) Participation of beneficiaries*
A participação dos beneficiários durante as fases de planificação, implementação e gestão da operação e manuntenção, facilita a utilizaçao efectiva dis recursos e infra-estructuras, e a disponibilização de níveis de serviço adequados. O objectivo consiste em providenciar serviços de acordo com os desejos e capacidade económica dos próprios beneficiários e, assim, melhorar a sustentabilidade dos sistemas. O grau en forma dessa participação, dependerão das condições locais e do tipo de serviço.	*The participation of beneficiaries during phases of planning, implementation and management of operation and maintenance will facilitate the effective use of resources and infra-structures, and the availability of appropriate service levels. The objective consists of providing services according to the wishes and economic capacity of the beneficiaries and thereby improve the sustainability of the systems. The extent of this participation will depend on local conditions and on the type of service.*
c) O valor da água	*c) The value of water*
A água é considerada como um bem com valor económico e social. É importante para o desenvolvimento económico e para melhoramento das condições sanitárias. De forma a assegurar servicos financeiramente viáveis, o preço da água deverá reflectir o seu valor económico, procurando cobrir o custo do abastecimento.	*Water is considered a good with economic and social value. It is important for the economic development and for the improvement of sanitation. To ensure services that are financially viable, the price of water should reflect its economic value, in order to cover the costs of its supply.*
f) Gestão integrada de recursos hídricos	*f) Integrated management of water resources*
A disponibilização de água bruta, atravéz de uma gestão integrada de recursos hídricos, optimizará os benefícios da comunidade, tendo em conta os interesses, quer dos actuais, quer dos futuros beneficiários.	*The availability of raw water through an integrated management of water resources will optimize the benefits of the community, taking into account the interests of either current or future beneficiaries.*

Box 1 - Selection of relevant sections from the 1995 National Water Policy

3.2.4 Current policy and implementation

Since the implementation of the *Lei de Aguas* in 1991 and the National Water Policy in 1995, the law has been complemented with new legislation. In 2007, the National Water Directorate (DNA) presented three documents:

- Water Policy (*Política de Águas,* replaces the 1995 version)
- National Water Management Strategy (*Estratégia Nacional de Gestão de Recursos Hídricos)*
- Regulation on water licences and concessions (*Regulamento de Licenças e Concessões de Águas)*

The 1995 Water Policy has been revised in 2007, mainly to incorporate the Millennium Goals defined at the United Nations conference in Johannesburg in 2002. In a broad sense, the policy incorporates the same principles as the 1995 policy, but some subtle changes can be observed (Box 3). In the 2007 Policy, stakeholders are being mentioned as well as beneficiaries. The distinction that is being made between these two can be observed in the scale in which both terms are used. Stakeholders are mentioned in water management at basin level, while beneficiaries are described as communities and water users. Especially since this policy makes a distinction between stakeholders and beneficiaries, it becomes clear that for the Mozambican government, these are not equal. The 2007 policy also mentions as main policy to give high priority to meeting the basic needs of the poorest. This is a shift from prioritization of common uses to only high prioritization of the poor.

The National Water Management Strategy has as the principal objective to effectively implement the National Water Policy. The strategy emphasizes the economic and social value of water as important factors for economic development and poverty reduction, by means of decentralized and participatory management (Box 2). In this Strategy, the term *beneficiários* is not mentioned, only stakeholder participation.

The aims of the revised Water Policy is also elaborated in the *Regulamento de Licenças e Concessões de Águas* (DNA 2007c). The regulation states that the regional water authority (ARA) is responsible for strategic management of water resources, but local governments can decide on prioritization of strategic projects and allocation of use (under the *Lei de Órgãos Locais*). It further states that common uses have absolute preference over other uses and utilizations of water. This complies with the 1991 Water Act, but is not mentioned as such in the 2007 Water Policy and Strategy.

At time of the research, the country had five regional water administrative bodies (ARAs). ARAs respond to the national Directorate of Water (DNA), which in turn responds to the Ministry of Public Works and Housing (MOPH). Within every ARA, one or more river basins are being managed by a basin management unit, an *Unidade de Gestão* (UGB)The ARAs are responsible for the implementation of the water policies, and are supposed to be financially self-sufficient., through the collection of water taxes from their users. Currently, over 80% of the income of the ARAs is still funded by the state due to lack of capacity within the ARAs (Matsinhe, 2011).

Stakeholder participation in water management is enhanced through a basin committee (*Comité de bacía*), a platform in a river basin where government and water users come together to discuss weather forecasts and issues related to water management. Currently, these committees are in the phase of being set up, where some are already functioning for over a decade, while others have not had their first encounter yet. All committees are presided by the director of the basin management unit (UGB) of the ARA. Members of a committee are selected by the UGB, according to their representation as stakeholder in the basin. The *Comité de bacía* has purely an advisory status for the UGB.

Concluding, land and water governance has shifted from state-ruled to a more decentralized approach. Land allocation requires community consultation, and decentralization of water management has resulted in the creation of regional water authorities (ARAs), governing multiple basins through basin management units (UGBs). Currently, basin committees are in the phase of being set-up, which function as an advisory body for the UGBs. However, this decentralization process has not necessarily resulted in increasing participation of all stakeholders. Recommendations of members from the *Comités de Bacía* can be ignored by the UGB, and representation of stakeholders is controlled by the UGB. User participation in this sense still has a centralized character.

Portuguese:	**English translation by the author:**
Estratégia Nacional de Gestão de Recursos Hídricos *21/08/2007*	**National Water Management Strategy**
5. Aspectos Económicos e Financeiros *5.1 Declaração*	*5. Economic and Financial Aspects* *5.1 Declaration*
A água tem um valor económico como também valores ambiental, social e cultural. Por isso é importante para o desenvolvimento económico e redução da pobreza. Para permitir que os serviços sejam financeiramente viáveis, o preço da águadeveria reflectir os custos de operação e manutenção dos sistemas de abastecimento de água.	*Water has an economic value as well as environmental, social and cultural values. Therefore it is important for economic development and reduction of poverty. To allow that services are financially viable, the price of water should reflect the costs of operation and maintenance of water supply systems.*
Tomando em conta o valor social da água e em linha com o conceito da água como um bem económico, a Política Tarifária da Água é guiada pelo princípio de utilizadore poluidor - pagador, - equidade, conservação ambiental, uso eficiente da água, descentralização e gestão participativa. A promoção da sustentabilidade económica e financeira dos sistemas de abastecimento de água e das instituições de gestão, manutenção e gestão a curto prazo.	*Taking into account the social value of water in line with the concept of water as an economic good, the Water Tariff Policy is guided by the principle that the user and polluter pays, by the principles of equity, environmental conservation, water use efficiency, decentralization and participatory management and of the promotion of economic and financial sustainability of water supply systems and institutions for management, maintenance and management on the short term.*

Box 2 - Section on Water Tariff policy from the 2007 National water Management Strategy

Portuguese:	**English translation by the author:**
Política de Aguas *Agosto 2007*	**Water Policy** *August 2007*
1.3 Políticas principais	*1.3 Main policies*
b) Satisfação das necessidades básicas da população mais pobre	*b) Meeting the basic needs of the poorest*
O Governo confere alta prioridade à satisfação das necessidades básicas da população rural e urbana mais pobre, em termos de um adequado abastecimento de água e saneamento, procurando sempre uma situação de sustentabilidade, com a participação efectiva dos beneficiários na definição das soluções a serem adoptadas.	*The Government gives high priority to meeting the basic needs of the poorest rural and urban population, in terms of adequate water supply and sanitation, always looking for a sustainable situation, with the effective participation of beneficiaries in defining the solutions to be adopted.*
c) O valor económico da água	*c) The economic value of water*
Para além do seu valor social e ambiental, a água tem um valor económico. A água é importante para o desenvolvimento económico e redução da pobreza. Para permitir que os serviços se tornem financeiramente viáveis, o preço da água deverá aproximar-se do seu valor económico.	*Next to its social and environmental value, water has an economic value. Water is important for economic development and poverty reduction. To allow services to become financially viable, the price of water should approach its economic value.*
e) Maior papel das partes interessadas na gestão de água a nível das bacias hidrográficas,	*e) Greater role of stakeholders in water management at basin level*
Para se conseguir um uso mais efectivo dos recursos e reconciliar interesses divergentes na utilização da água. O aumento da participação das partes interessadas será favorecido pelo processo de descentralização dos mecanismos de tomada de decisão e por uma disseminação alargada e pro-activa da informação sobre recursos hídricos e usos da água. A decisão de alocação de uso, bem como a definição de prioridades dos projectos, será da responsabilidade dos governos locais ao abrigo da Lei dos Órgãos Locais, cabendo ao Ministério das Obras Públicas e Habitação, através da Direcção Nacional de Águas, garantir a gestão dos recursos hídricos para o alcance dos objectivos estratégicos do Governo.	*To achieve a more effective use of resources and reconcile divergent interests in water use. Increased stakeholder involvement will be encouraged through the process of decentralization of the decision-making mechanisms and through a wide and pro-active dissemination of information on water resources and water uses. The decision of water allocation and prioritization of projects will be the responsibility of local governments under the Local Government Act, and the Ministry of Public Works and Housing, through the National Water Directorate, to ensure the management of water resources to achieve the strategic objectives of the Government.*
f) Participação dos beneficiários	*f) participation of beneficiaries*
Para garantir sustentabilidade e o uso racional dos recursos, será promovida a participação das comunidades e utentes da água, com ênfase no papel da mulher no planeamento, implementação, gestão, utilização e manutenção das infraestruturas de abastecimento de água e saneamento, de forma a que as soluções adoptadas correspondam aos desejos e capacidade económica das comunidades. O grau e formas de participação serão adaptadas às condições locais e ao nível de serviço prestado.	*To ensure sustainability and rational use of resources, participation of communities and water users will be promoted, with emphasis on the role of women in planning, implementation, management, use and maintenance of infrastructure of water supply and sanitation, so that the solutions adopted meet the desires and economic capacity of communities. The degree and forms of participation will be adapted to local conditions and the level of service provided.*

Box 3 - Selection of relevant sections from the 2007 Water Policy

4. THE LIMPOPO BASIN

The Limpopo basin is an international river basin in Southern Africa, comprising South Africa, Zimbabwe, Botswana and Mozambique (Figure 3). In Mozambique the Limpopo river debouches into the Indian Ocean. The two largest contributories in the Limpopo basin in Mozambique are the Limpopo river and the Elefantes (Olifants) river (van der Zaag et al. 2010). Some 25 km from the border with South Africa, the Elefantes river has been dammed (Massingir dam). Downstream of the Massingir dam the Elefantes and Limpopo rivers merge. Complete discharge data from the Limpopo and Elefantes river is not available, but an estimation has been made by van der Zaag et al. (2010) (Table 2). As can be derived from the table, the Limpopo river downstream of the confluence of the Limpopo and Elefantes rivers, has a high standard deviation in its discharge. This high standard deviation shows that discharges can vary a lot over time, resulting in floods or droughts. Therefore the base flow of the Elephantes river, controlled by Massingir dam, is of great importance to downstream users. Irrigators downstream depend on this base flow, whereas the Limpopo River is actually hardly a perennial river.

The Limpopo basin in Mozambique has suffered several serious floods and droughts (Roesch 1988). In times of water scarcity, access to the water resources has been contested by the different users. The majority of the population in the basin in Mozambique depends on agriculture for their livelihoods (Sullivan and Sibanda 2010). Agricultural practices consist mainly of rain-fed farming and cattle ranching, though irrigated agriculture is being executed as well. Currently large water concessions are given out in the Limpopo basin, based on discharge data that is not complete. It is not clear how much water is available and how much water is used by different groups. Critics worry about these megaprojects consuming large amounts of water in the Limpopo basin. The question arises how water concessions can be given out if the total amount of water available is only an estimation. Common uses that should have priority over other uses cannot be assured access to water if they remain invisible during the planning and execution of these megaprojects. In this chapter I will describe the current governance structure for water and its users in the Limpopo basin and give an overview of the physical-natural, demographic and economic situation of the two case study areas, Massingir and Baixo Limpopo.

Table 2 - Discharge data based on a series of monthly means, October 1951–September 1983 (DNA 1984) Source: Van der Zaag et al. 2010

	Unit	Limpopo Upstream of Confluence	Elefantes flowing into Massingir
Average	10^6 m^3/a	3512	1840
Stand. Dev.	10^6 m^3/a	3749	1120
Coeff. Of var.		1.07	0.61

4.1 Water Management Structure

In the Limpopo basin, the overarching administrative body of water governance is ARA-Sul. ARA-Sul is the regional water administrative body of Southern Mozambique and governs four river basins in total, the Umbeluzi, Incomati, Limpopo and Save river basins. ARA-Sul reports to the national Directorate of Water (DNA), which in turn reports to the Ministry of Public Works and Housing (MOPH). Within the Limpopo basin, UGBL, Unidade de Gestaõ de Bacía de Limpopo (management unit of the Limpopo basin), executes all activities and policies implemented by ARA-Sul. UGBL in turn is in charge of the local basin committee, the *comité da bacía do Limpopo* (CBL) (Figure 2). The CBL is a coordination body between users, institutions in charge of irrigation management and land and water use (Ducrot 2011). The incentive of this committee is to include beneficiaries into water governance. The CBL was initiated resulting from the Water Act of 1991. In Box 4 the objectives of the committee are stated. According to the statutes of the CBL, the objectives of the committee are to "…conjugate forces for the sustainable use of available water resources. The Basin Committee is also an advisory organ for the director of the management unit (of the basin), competing his opinion about questions raised to his appreciation…" (CBL 2006). This actually does not attribute any legal rights to the Basin Committee, other that the advisory function. The final decision in water management still lays with the director of UGBL, who can decide whether to or not to take the advice of the CBL.

The implementation of the current water law is as such that water concessions are sold according to the principle of IWRM, stating that water has a social and economic value. Common uses are not charged, according to the 1991Water Law. UGBL is currently setting up a cadastre to register all water users that extract water from the rivers using mechanic devices (pumps) . The amount of water used is not being registered, since most water users do not have the equipment to measure how much water they consume.

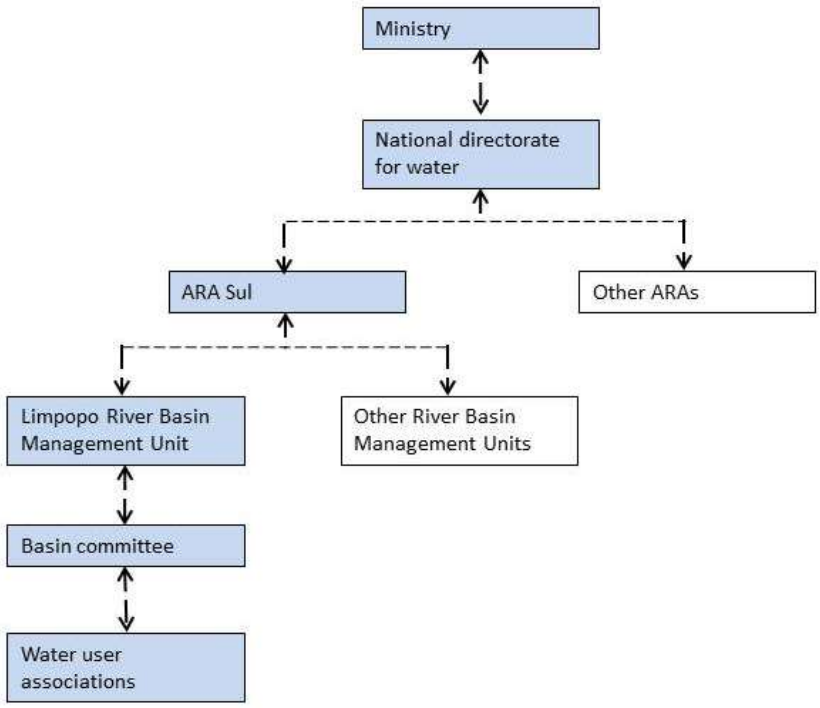

Figure 2 - Governmental agencies and stakeholders in the Limpopo basin, Mozambique

Source: Ducrot 2011

Portuguese:	*Translation by the author:*
Um dos princípios preconizados na Lei 16/91, de 3 de Agosto (Lei de águas) é o da participação das populações nas principais decisões relativas a política de gestão das águas.	*One of the advocated principles of the Water Act 16/91, August 3rd, is the participation of populations in the main decisions related to water management policies.*
A participação dos beneficiários durante as fases de planificação, implementação e gestão da operação e manutenção facilita a utilização efectiva dos recursos e infra-estruturas, e a disponibilização de níveis de serviços adequados.	*The participation of beneficiaries during the phases of planning, implementation and management of operation and maintenance facilitates the effective use of resources and infrastructures, and the availability of adequate service levels.*
Uma das formas de participação é feita através de comités de bacia constituído pelos utentes de água bruta. O objectivo consiste em providenciar serviços de acordo com os desejos e capacidade económica dos próprios beneficiários e, assim, melhorar a sustentabilidade dos sistemas.	*One of the forms of participation is done through basin committees constituted by gross water users. The objective consists of arranging services according to the wishes and economic capacity of the beneficiaries themselves, and thereby improve the sustainability of the systems.*

Box 4 - part of the foreword of statutes of the CBL, composed by the MOPH, "diploma ministerial No 134/93, November 17, 1993."

4.2 Water users

Since colonial times, large amounts of land have been cultivated. The irrigation schemes of Chokwe and Baixo Limpopo date from these times and are still being used by medium and smallholder farmers. Smaller irrigation systems can be found along the Limpopo river, where a pump is owned by an individual or by several people, mostly organised in a farmer- or water user association. The population in the Limpopo basin is mainly rural, of which the majority are small-scale farmers that depend on the rains (van der Zaag et al. 2010).

The Limpopo basin is one of the most suited areas in Mozambique for intensive agriculture. Foreign investors are therefore interested in the possibilities of large-scale agriculture in the catchment. In the irrigation schemes of Chokwe and Baixo Limpopo, large scale agriculture is being practiced by several foreign investors. In Baixo Limpopo, the original irrigation scheme has expanded by a Chinese company Wanbao, planning to cultivate 20,000 ha of irrigated rice. Upstream in the Rio Elefantes catchment, near Massingir Dam, the sugar cane company MAI is planning to cultivate 35,000 ha of irrigated sugarcane. In Chokwe, several foreign investors are cultivating in the perimeters of the Chokwe irrigation scheme. The 'invasion' of the schemes by large agricultural investors resulted from the chaotic state the schemes were in. When the Mozambican government was drained from its resources during and after the Civil War, lots of the state farms, as well as Chokwe, went bankrupt. Where the former population was expelled from their land to make room for the state farms, their bankruptcy led to a new occupation of the fertile lands.

The best lands however were rewarded to the private sector, while less fertile lands were left for the family sector. Land rights were often not assigned to the family sector, and smallholder farmers did not receive a water contract. This left the field open for the private sector, and in particular large agricultural enterprises to acquire large plots of fertile land in the scheme (West and Myers 1996).

Beside water for agriculture, water from the Massingir dam will be used for the generation of hydropower. Reconstruction of a damaged outlet is planned to start in 2014 including the construction of a power plant (website Macauhub, consulted on 5/6/2013). In the towns of Chokwe and Xai Xai, FIPAG, the Water Supply Investment and Asset Fund extracts surface and groundwater for urban supply. Another important water use in the Limpopo basin is mitigation of saltwater intrusion at the estuary of the Limpopo river near Xai Xai. Massingir dam is required to release enough water to prevent seawater from entering the irrigation scheme of Baixo Limpopo.

Figure 3 - The Limpopo Basin

(Source: website LimpopoRAK)

Figure 4 - the Lower Olifants valley (also in South Africa)

(Source: website LimpopoRAK)

Figure 5 - the Lower Limpopo Basin (Baixo Limpopo)

(Source: website LimpopoRAK)

4.3 Massingir

The town and lake of Massingir are located in the west of Gaza province, in the District of Massingir. The case study area is located around Massingir lake and covers the area of the downstream users of Massingir lake along the Elefantes river down to the conjunction with the Limpopo river (60 km upstream of Chokwe). Especially from a historical viewpoint, areas inland in Mozambique such as Massingir District, were not being explored as intensively by the Portuguese as the coastal regions and were not regarded as economical priority regions (Roesch 1988).

The area of Massingir is characterized by river plains of the rivers Elefantes and Shingwedze with clayey soils which are good for cultivation. More elevated areas consist of sandy and rocky plateaus. The alluvial plains of the rivers are mainly used for agriculture, while the uplands prevails vegetation of trees and shrubs. This area is used for livestock ranching and charcoal production. The climate is semi-arid with a mean annual precipitation between 400 - 600 mm and a mean temperature of circa 30^0C.

In the early 1970s Massingir dam was constructed in the Rio Elefantes (Figure 6). The dam was partially completed in 1977 and fully completed only in 2006 when the sluice gates were installed. The dam was initially designed for different purposes: irrigation, flood protection and hydropower. The capacity of the dam, 2,800 million cubic meters, would be able to supply water for ca. 90,000 ha of irrigated agriculture (PEDD Massingir 2010). The hydro-power component was not installed eventually due to lack of funds. In 2008 there was a massive bursting failure in the outlet of the dam, because the water level in the reservoir lake had been elevated some 7 meter above the originally designed level (SAICE 2010). The failure was actually caused by a rehabilitation project, the Massingir Dam Small Holder Agriculture Rehabilitation Project (MDSARP). MDSARP was set up as a response to the 2000 floods in the Limpopo Basin, and had as main objectives to improve operational efficiency of Massingir Dam to a sustainable level to facilitate the productive capacity of smallholders and to rehabilitate and reconstruct the Xai Xai irrigation scheme (ADF 2007). The rehabilitation was focussed on increasing water levels in the reservoir, but due to construction failures the outlet pipes could not endure the increased pressure. Since then, the outlet pipes cannot be used and water is being released through the spillways, increasing the inactive storage of the reservoir to spillway level. This results in a lower active storage and thus a lower irrigation capacity.

North of Massingir lake an area of approximately 1,000,000 ha was declared the Limpopo National Park (PNL) following the Peace Accord of 1992, as part of the Great Limpopo Transfrontier Park, including the Kruger and Gonarezhou National Parks in South Africa and Zimbabwe respectively.

The population density of Massingir District in 2010 was 4,8 inhabitants per km^2, with an expected increase in density to 17,3 inhabitants per km^2, due to relocation of populations from the Limpopo National Park to areas outside of the park. The main source of income is livestock farming and the collection of wood and charcoal (PEDD Massingir 2010).

The reservoir lake of Massingir attracted agricultural investors to the area. In 2007, the London based Central African mining and Exploration Company (CAMEC) set up the company ProCana. ProCana intended to occupy around 30,000 ha in the highlands of Massingir District to produce ethanol from sugar cane. The project received a provisional land use license (DUAT provisório), but this license got cancelled in 2008. There are different stories behind the reason for the cancellation of the license, but officially it was proclaimed that the promised investments from ProCana did not turn up in time (website AllAfrica and Checkbiotech, both consulted on 20/01/2013). An important issue that came along with the land allocation to ProCana, was that their water demand would require almost 94% of the renewable water

from Massingir dam (inflows from South Africa) (van der Zaag 2010). This would result in a deficit of water for downstream users such as Chokwe and Baixo Limpopo irrigation schemes in times of water scarcity. At the time ProCana was active, the outlet pipes only contributed to the problem of water deficits for downstream users, since the active storage of Massingir dam was reduced significantly.

Currently another investor, Massingir Agro-Industrial (MAI) is planning on producing sugar cane for ethanol, covering 37,000 ha at approximately the same location formerly occupied by ProCana. MAI is for 51% owned by the South African company Transvaal Suiker Beperk (TSB), one of the biggest sugar companies in South Africa. The remaining 49% is owned by the Mozambican company SIAL, Sociedade de Investimentos Agroindustrias de Limpopo (website AllAfrica; presentation MAI[1]).

The District of Massingir seems a vast area of barren land, with little activity in land exploration. There are no large industries, and most land is not cultivated. In reality there is little land available for the people to use. The Limpopo National Park is covering a large area which cannot be used for habitation or farming. Another large area is occupied by the Xonghile game reserve. The area that is available for communities to settle is along the bank of the Rio Elefantes. Several communities currently living in the Park will be resettled near the Rio Elefantes. The main source of income for people in Massingir District is livestock farming and the collection of charcoal. The elevated area further away from the river, of which 37,000 ha's are reserved for sugarcane production by MAI, is being used by local population for these activities. Agriculture for subsistence farming is being practised on the fertile floodplains of the Rio Elefantes. In chapter 5 I further elaborate on the dynamics of access to land and water in Massingir and how the politic arena is shaped regarding important decisions in water management.

Photo © author 2012 (01-10-2012)

Figure 6 - Massingir dam and reservoir lake

[1] Presentation MAI at CBL, 2/11/2012

4.4 Baixo Limpopo

The valley of Baixo Limpopo (Lower Limpopo) extents from Xai Xai and Chibuto Districts up to the Districts of Chokwe and Guija, just below the conjunction of Elefantes and Limpopo Rivers in Gaza Province. Baixo Limpopo has been an important economical region since colonial times. At the time of liberalization it was established as a priority region in terms of economic development. The core activities were the irrigation schemes of Chokwe upstream and Baixo Limpopo near the town of Xai Xai at the downstream end. The second case study focusses on agricultural investments in the Baixo Limpopo irrigation scheme and access to land and water in the scheme. Therefore the features of this scheme are summarized below as well as demographic data of Xai Xai District.

The lower part of the valley of Baixo Limpopo is located near the embouchement of the Limpopo river into the Indian Ocean, and is surrounded by hills and sandy dunes. The soils in this alluvial plain are clayey and very suitable for agriculture. North of the town of Xai Xai the Limpopo valley is characterized by marshy peat soils covering the clay deposits. Since colonial times agriculture is being practiced in the plains, making use of water emerging from natural springs in the dunes. This water is used for irrigation on the marshy soils (*machongos*) and then drained through the lower plains into the Limpopo river. Vegetation in the valley and the surrounding hills consists of shrubs, artificial mixed forest and natural forest. The climate is tropical humid with a mean annual precipitation of 825-1145 mm and a mean temperature of circa 23 ^{0}C (PEDD Xai Xai 2010)

The population density of Xai Xai District in 2010 was 99 inhabitants per km^2, making Xai Xai District the second most populated District in Gaza Province. The main source of income is agriculture and small scale fishery, in the urban areas the main source of income is service provision (PEDD Xai Xai 2010).

The irrigation system of Baixo Limpopo was set up by Portuguese colonists in 1952 as a dual agricultural production system; cooperative as well as state-owned and family sector as well as commercial production (flyer RBL-EP, 2012). After independence, the state reorganized the abandoned colonial plantations into state-owned producer cooperatives (Roesch 1988). After FRELIMO's fourth congress the state loosened its grip on the agricultural sector and made room for private investors under the Programme of Economic Reform. From 1978 until 2000 the irrigation scheme was managed by the parastatal *Sistema de Regadío de Baixo Limpopo* (Lower Limpopo Irrigation System), SRBL. The civil war caused stagnation of production in the irrigation scheme and a rehabilitation that was planned for the Baixo Limpopo irrigation scheme after the war did not materialize due to lack of funds (Ganho 2013). After the floods in 2000 the entire irrigation infrastructure of Baixo Limpopo was destroyed. The system was finally rehabilitated between 2003 and 2008 as part of the Massingir Dam Small Holder Agriculture Rehabilitation Project (MDSARP), the project to restore the dam in Massingir and the smallholder irrigation system in Baixo Limpopo (ADF 2007). This project was funded by loans from the African Development Bank. The rehabilitation of Baixo Limpopo brought 2278 ha under production, as well as seven farmer associations and training facilities known as *Casas Agrarias* (agrarian houses). The objectives of the MDSARP project were to increase the dependable water flow to cultivate approximately 40,000 ha downstream by improving the efficiency of the Massingir dam and the productivity of smallholder farmers in Baixo Limpopo to increase incomes, reduce rural poverty and improve food security. During the rehabilitation, MDSARP was the managing authority of the Baixo Limpopo irrigation scheme (RBL). Officially, the project was supposed to be concluded in 2008, but due to lack of funds and because of the vast devastation of the system by the 2000 floods, only a part of the rehabilitation in Baixo Limpopo has been achieved. Since 2010, the irrigation scheme is being managed by the newly established parastatal R*egadio Baixo Limpopo - Empresa Pública* (RBL-EP). When RBL-EP was created, the boundaries of jurisdiction were imprecise, covering more or less the 12,000 ha of the original irrigation scheme. With new developments of 20,000 ha that is being explored by

the Chinese agricultural enterprise Wanbao Africa Agricultural Development, Ltd. in the valley, RBL-EP simultaneously increased its jurisdiction to a perimeter of 70,000 ha. Land demarcation for the territory of RBL-EP was undertaken at the same time as that for the planned future developments (mainly Wanbao). That way, demarcation of land to Wanbao was strategically covered by a state enterprise that would have jurisdiction over the land, so that community consultation was not needed as prescribed for foreign investors. RBL-EP expanded its domain under the guise that the land was part of a 'public hydrological domain', granting enormous authority to the central government (Ganho 2013). The blurred line between public domain and private ownership through RBL-EP in the irrigation scheme of Baixo Limpopo sets the stage for the second case study, presented in chapter 6.

5. MASSINGIR AGROINDUSTRIAL (MAI)

"This is virgin land."

Personal comment
Administrator Massingir District

The introduction of IWRM in Mozambique has changed the institutional set-up of the water managing bodies. In the Limpopo basin, the decentralized Limpopo basin management unit (UGBL) as part of ARA-Sul is responsible for the implementation of the water law and policies. The IWRM principle of stakeholder participation is mainly being expressed at basin level by the constitution of a stakeholder platform in water management, the *Comité de Bacía do Limpopo* (CBL). But on a more local scale such as in Massingir, UGBL does not have an official platform for stakeholders. So how does UGBL inform and consult the different water users on this local scale when important decisions have to be made?

In this chapter I discuss the first case study of the research. In Massingir the megaproject MAI is investing in cultivating 37,000 ha of irrigated sugarcane. These developments set the stage for the case study, as the water concession for MAI will consume a large amount of the available water resource. The megaproject is internationally discussed (websites AllAfrica; CNN), although the huge water concession is not the issue of debate, but rather the land rights. Beside the local population that is depending on the leased land, resettlement of communities from the nearby Limpopo National Park on the river banks of the Rio Elefantes will increase stress on the available land even further. Land and water rights however are closely interlinked, yet the change in water allocation has not received a lot of media attention in this case. It is not clear what will change at local level as result of the water allocation to MAI. The process of introducing MAI in the area and the upcoming decisions concerning water allocation requires a participatory approach according to the IWRM principles. With this case I illustrate how the water users in and around Massingir are represented in the different arenas of water management and how stakeholder participation as part of the current water management strategy is interpreted by the different water user groups as well as government officials. Ultimately I engage with the question how stakeholder participation in water management has (not) affected the award of a large water concession to MAI, and what strategies the latter employed to secure this water concession.

The first section of this chapter gives an introduction to the megaproject in Massingir, from the time that the predecessor ProCana first started up to the current developments of its successor MAI. This is followed by an overview of the water use practices in the case study area. Section 5.3 describes how the water users at local level are organised and participate in water use management concerning the water allocation to MAI. This arena at local level in which water management is being practiced is further elaborated on in section 5.4, to illustrate how the different stakeholders are participating in the decision-making process concerning water allocation to MAI.

5.1 Emergence of the megaproject

When the company of ProCana first came to Massingir, they saw a large piece of barren land with almost no agricultural infrastructure. Hence it seemed the area offered a great opportunity to use the nearby water resource from Massingir Dam for a massive project to produce ethanol out of sugarcane. ProCana planned on using advanced technologies such as sub-surface drip irrigation and mechanisation of the harvest process (Bolding 2009). ProCana applied for a provisional land use license (DUAT provisório) on an elevated area along the national road from Chokwe to Massingir. Two years after ProCana received its DUAT, the company did not come up with the promised investments, and still no commercial agriculture was being practiced[1]. At this time, the global financial crisis had struck, and hedge funds supporting the ProCana projects dried up. Beside economic reasons, it is argued that the consultation of the communities was not done properly and the local population was not well informed about the plans and intentions of ProCana[2]. Though the exact reason for the cancellation of the ProCana project has never really come to surface, the project of ProCana was cancelled in 2009 and the DUAT was withdrawn (website AllAfrica consulted on 26/8/2013).

At this time, ProCana was at the stage of receiving a license for their water allocation, and already obtained a guarantee from the Mozambican government that they could use up to 750 million m^3 of water per year (van der Zaag et al. 2010)[3]. In 2008 the total annual flow into Massingir lake was estimated at 1,137 million m^3. The water concession that was promised to ProCana entailed approximately 65% of the total annual flow, causing a significant decrease in total annual flow downstream of Massingir dam. Van der Zaag et al (2010) estimated that according to the existing uses in the Limpopo Basin in Mozambique (9400 ha), a maximum growth of 44,000 ha of irrigated agriculture could be realized in the Limpopo basin downstream of Massingir, be it that the capacity of Massingir lake would be at design level. The water allocation to ProCana for 30,000 ha of irrigated sugar cane would then evidently cause water shortages downstream, leaving only 7,000 ha of the estimated 44,000 ha for new downstream uses. At the time of the research the Chokwe irrigation scheme was expanding rapidly, as well as the irrigation scheme of Baixo Limpopo, where the Chinese were constructing irrigation infrastructure for an additional 6,225 ha for irrigated rice cultivation. At the time of the ProCana project in 2008, the outlet of Massingir dam was destroyed due to a construction failure, which could not sustain the pressure of the maximum capacity of the reservoir (SAICE 2010). Therefore the water level in Massingir lake could not drop under the level of the spillway rim, reducing retention capacity of Massingir lake. ProCana suggested a direct intake from Massingir lake for water supply, to overcome the problems with the broken outlet pipe. A major advantage of this intake would be that ProCana gained continuous access to the water resource, placing them in a favourable position in comparison to downstream users, in particular the Chokwe irrigation scheme. Especially since the water retention capacity of Massingir lake was reduced to almost half of its (newly created) full capacity by the destruction of the outlet, the maximum growth of irrigated agriculture in the Basin was estimated even lower, 38,000 ha. But rehabilitation works on the outlet have started in 2013, increasing the lake's retention capacity to its envisaged volume of $2.6 \cdot 10^9$ m^3. The limitations of the data on water availability in the Limpopo Basin and the uncertainty of the repercussions of the water allocation to ProCana on downstream users has most likely contributed to the cancellation of the project.

Since 2011 the company Massingir Agro-Industrial (MAI) has started a campaign of producing sugarcane on the former ProCana site. The project is planning on expanding the site to explore 37,000 ha, an area even larger than the ProCana project. As mentioned in the previous chapter, the company is owned for

[1] Interview with ARA-Sul staff member, AS-01, 10/9/2012
[2] Interview with staff member of the NGO platform FONGA, NGO-01, 18/10/2012
[3] Unpublished memo of visit to ProCana by A. Bolding 22/09/2008

51% by South African sugar cane company TSB, and for 49% by the Mozambican company SIAL. Shareholders of SIAL are Delta Zambézia Lda, SOGEP Lda, AGRITANA Lda and SERENA Lda. MAI expects to create approximately 7,000 direct jobs[1]. The company proclaimed to take into account a social responsibility towards communities that are affected by the project, and reserve 1,000 ha for food security and 2,500 ha for smallholder farming. The 2,500 ha were allocated in the band between the Rio Elefantes and the elevated area of the megaproject. This is currently communal land. Thus, the land for smallholder farming is the land that the communities currently use for agriculture. According to a spokesman of MAI, these lands will remain in community hands, but this 'small grower element' of the project is expected to grow sugarcane for the project. The 1,000 ha for food security will be managed and operated by the project, and this land will be incorporated in the project. I assume this will be sugarcane as well, since the drip system will be designed for sugarcane. So the smallholder outgrowers will have no choice than to grow sugarcane[2].

In 2012, MAI was at the stage of licensing and establishing facilities for communities[3]. Production is planned to start in 2016 (website AllAfrica, consulted on 20/01/2013). During field work in 2012, the stage of water licensing was that the regional water authority, ARA-Sul, had to decide on the location of the water intake for irrigation[4]. There were three different options for the water intake, (1) directly from the Massingir reservoir lake, (2) directly from the outlet of the Massingir dam or (3) downstream of the dam from the Rio Elefantes. The three options are represented in Figure 7 & Figure 8. The irrigation design and water intake options have been identified by a feasibility study by Booker Tate, a service provider in the sugar cane sector that is part of TSB. At the time of the field work, MAI was in the phase of negotiating about the intake options. The preferred option by MAI would be option 1, a direct intake from the reservoir lake. The advantages of this option for the company are that there is a guaranteed access to water, the access point is nearest to the project's area, and the company has to overcome a minimal loss of head. In this scenario water is pumped directly from the lake 7 meters up into the main irrigation canal. Option 2 would be located at the outlet from the dam, but because it is still directly linked to the water in the reservoir lake through a direct connection to the dam outlet, there will be no loss in elevation of the water. But the distance to the irrigated land will be larger (needs 50% more energy than option 1) and the outlet is not functioning due to the accident in 2008. For this option, MAI would be dependent on repairs on the outlet by the government that are planned for 2013. Option 3, an intake from the river downstream of the dam, would be the least favourable for MAI, because it will increase the pumping costs by 200% in comparison with option 1[5].

During the field work an extra spillway was being constructed in Massingir dam, which will also incorporate a hydropower station. The elevation of the water in the reservoir is needed for the generation of hydropower. If MAI would be granted a water intake according to option 1 or 2, this conflicts with the interests of the government to use the water for hydropower. In 2013 a water license has been given out to MAI, which represents a 50-50 deal between options 1 and 3. 50% of the required water will be pumped directly from the lake, the other 50% will be extracted downstream of the dam (website Desafio, consulted on 15/08/2013)[6].

At national level, the project of MAI is promoted as means of development for the country of Mozambique as well for the local population. Mozambique is seeking to increase its national export product by exploration of the natural resources. The megaproject of MAI has a high priority at national

[1] Presentation MAI at CBL, 2/11/2012
[2] Interview with staff member Booker Tate, MAI-01, 8/10/2012
[3] Interview with ARA-Sul staff member, AS-01, 10/9/2012
[4] Interview with staff member Booker Tate, MAI-01, 8/10/2012
[5] Interview with staff member Booker Tate, MAI-01, 8/10/2012; Presentation MAI at CBL, 2/11/2012
[6] Personal comment R. Alba, April 2013

level, and several high officials in Mozambique are shareholders in the project. For example, the chairperson of SIAL is the former minister of industry, Octavio Muthemba (website AllAfrica). Aside from the conflicting interests in the water from the reservoir lake and the involvement of high officials that have a share in the project, the decision on water allocation will have an enormous impact on water users downstream along the Rio Elefantes.

The stakes for the District government in the project of MAI are also high, for it will bring an enormous investment to the region. Until this moment, there is hardly any industry in Massingir District, and the economic prospects are very favourable with the planned developments. The District government clearly states its position in favour of the project observing that Massingir is still "virgin land", but at the same time acknowledging its responsibility to safeguard the interests of the population. According to the Administrator of Massingir District, land rights of the local population were violated during the ProCana project and therefore this time the District government makes sure they are well informed on the agreements made between the company and the local population[1].

[1] Interview District Administrator and director of SDAE of Massingir, DGM-01, 7/11/2012

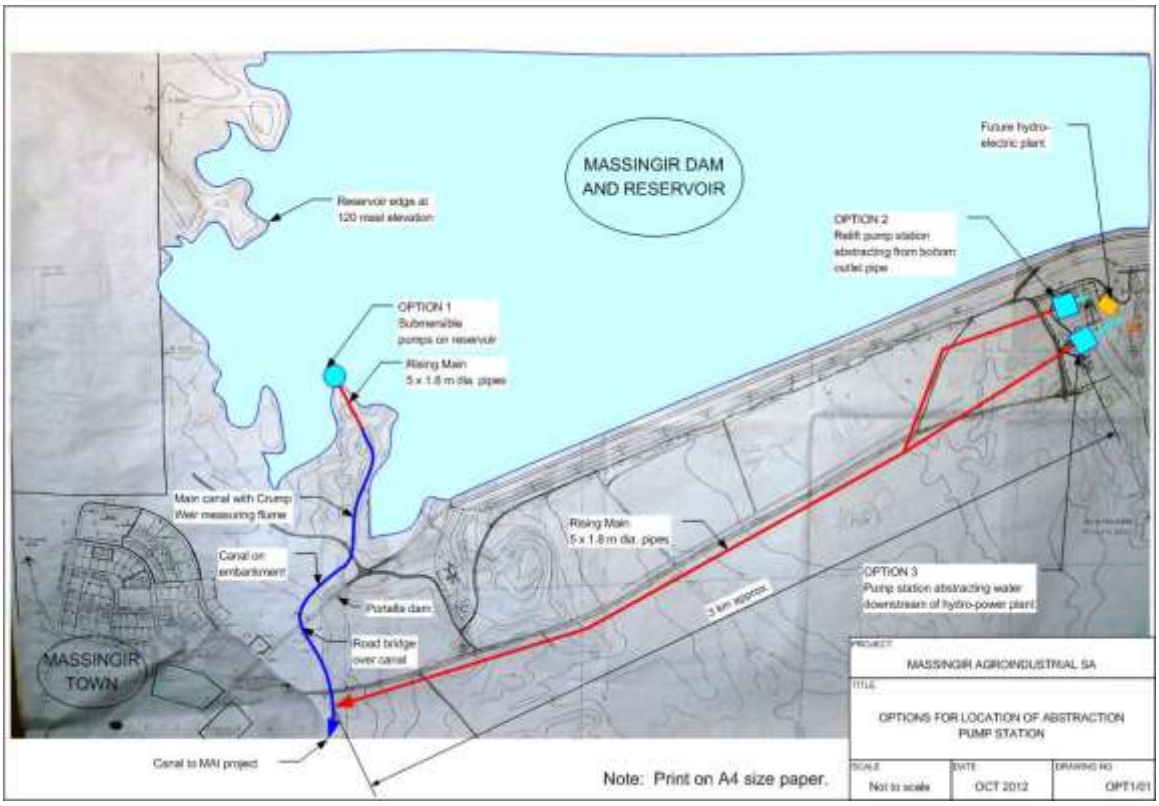

Figure 7 - Different water intake options MAI

source: Massingir AgroIndustrial, received November 2012

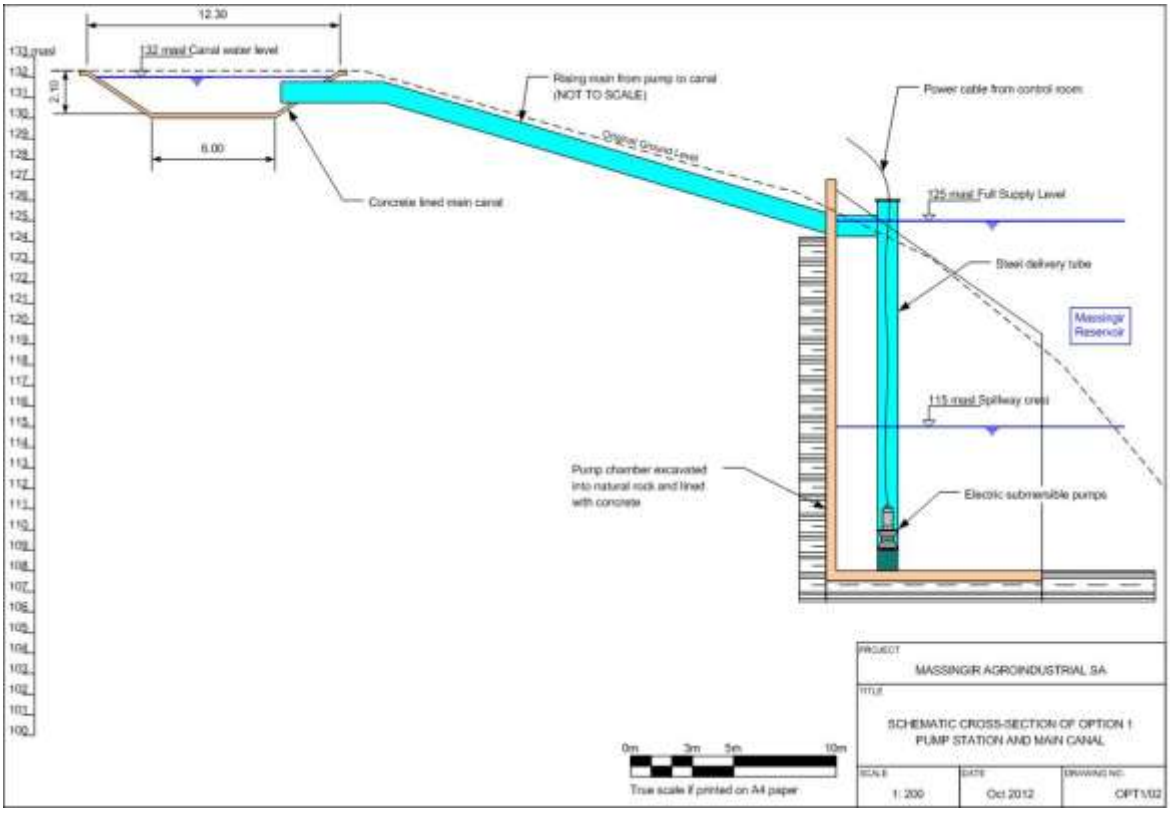

Figure 8 - Intake option 1 MAI

Source: Massingir AgroIndustrial, received November 2012

5.2 Water use practices

In Massingir, water is used for personal hygiene, drinking water, livestock farming and agriculture. At the time of the fieldwork, there was one industrial water user, Covane community lodge, a tourist lodge that extracts water directly from the reservoir lake[1]. Water for the town of Massingir is pumped and filtered from the reservoir lake. Communities along the reservoir lake and downstream along the Rio Elefantes pump or collect water from the reservoir lake or river. Pumped water is mainly used for irrigated agriculture, by individuals or water user associations. Communities in the Limpopo National Park (PNL) that are not in the vicinity of a river are using boreholes for water supply. According to the park warden it is not permitted to live inside a national park, whereas a reserve does allow habitation. Communities currently living in the PNL will be relocated outside of the park in the vicinity of the Rio Elefantes in the coming years[2]. Stress on water and land along the Rio Elefantes will therefore further increase.

Regarding water related issues, the huge water concession that is needed by the project of MAI is affecting lots of other water users, for it will change the flow regime downstream of the Massingir dam. Though it is not clear if the water concession to MAI comprises the same volume as was guaranteed to ProCana at the time, the planned area for cultivation remains unchanged, using the same advanced subsurface drip technology. Downstream water users will therefore be affected by a significant reduction in flow. In particular farmers and outgrowers in the Chokwe and Baixo Limpopo irrigation schemes are expected to experience water shortages if MAI will start producing at full capacity (van der Zaag et al. 2010).

5.3 Issues at local level

At the time of the research, water allocation to MAI was still being discussed, and consensus on the different water intake options has not been accomplished. Water users that will be affected by the water allocation to MAI should, according to the statutes of the CBL, participate in the decision-making process (see also the foreword of the statutes of the CBL, Box 4). But what is problematic at local level, is that such committees for water management do not exist. Water users however, are organised in water user associations (WUAs) that often function as a result of support from a non-governmental organisation (NGO). Water users that will be most affected by the large water concession are the farmers in the Chokwe and Baixo Limpopo irrigation schemes downstream of Massingir dam. The decision on the water concession to MAI has therefore not been a point of discussion for water users in and directly around Massingir. Agriculture is being practiced along the Elefantes river downstream of Massingir dam, but only on a small scale. Water is pumped from the river by individuals or WUAs. The individuals or members of WUAs that I observed and interviewed during my research often had a public function, for example a police officer, a school teacher, community leader or relatives thereof[3]. These people were informed on the project of MAI through the District government, but the information only entailed land allocation whereas water allocation was not mentioned. In the vicinity of the MAI project, communities will be directly affected by the project through resettlement of people or redistribution of the agricultural lands. One community that will be relocated by the MAI project is Maringuele. Whereas Maringuele did not have a functioning WUA at the time of the research, there has been a WUA in Maringuele that closely

[1] Folha cadastro UGBL, 2012; interview with manager Covane community lodge, MASS-01, 26/9/2012
[2] Interview park warden Limpopo National Park, PNL-02, 5/11/2012
[3] Interviews community leader Maringuele, MASS-08, 7/11/2012, farmers in Macaringue and Chinhangane, MASS-03, 27/9/2012, MASS-04, 27/9/2012, MASS-06, 3/10/2012

cooperated with ProCana at the time. This WUA, ASAMA, had an agreement with ProCana to establish a seed cane nursery on ASAMA's land (Figure 9)[1]. The agreement entailed that ProCana would use the land and pump that belonged to ASAMA. The remaining irrigation equipment, technical advice, water payments and input provision would be the responsibility of ProCana. The agreement was eventually not signed by ProCana, and proceeds were never paid to ASAMA, though ProCana did make use of the land and pump of the association.

There was also an agreement resulting from the *consulta communitaria* between ProCana and the community of Maringuele, stating that the community would be relocated to an elevated area with concrete houses. The demarcation of the land as well as resettlement of the community to an elevated area as agreed with ProCana was not changed in the agreement with MAI. The community was promised new housing as well as provision of work by the project. The community leader commented that because the demarcation remained unchanged, there was no conflict on the 'new' agreement with MAI. The people from the community have been waiting to be relocated since ProCana was still active on the site. But until MAI receives all the licenses to start production, the community will not be relocated. It is striking though that when I interviewed the community leader of Maringuele, he has not commented at all on the history between ProCana and ASAMA, though they have obviously had issues before with ProCana. At the time MAI came on the scene, ASAMA had already collapsed, and Maringuele was left with no organisation of water users. But there have still been some pumps in the community, owned by private farmers. The son of the community leader as well as the former president of ASAMA owned a private pump[2].

The community leader was very clearly stating the community was tired of waiting and did not want to stall the process of MAI so 'development could start'. This was again repeated by the same leader in the group discussion after a presentation of my research[3]. This example indicates a tendency of a community to sit and wait while others, be it the government or in this case a commercial project, bring development to the region. The community does not consider itself part of the arena of decision-making. When the communitarian consult on land demarcation was performed, there was no disagreement on delimitation of land. These limits have probably not been appointed by the community itself, but by ProCana or the State at the time and the community would just accept. But this issue mainly concerns land allocation, whereas water has not been on the agenda. So in what way does this relate to water allocation?

The policy on a participatory approach in water management proclaims "*The participation of beneficiaries during the phases of planning, implementation and management"* (Box 4). The example of the land demarcation already suggests that the 'beneficiaries', in this case the Maringuele community, have not been participating in the planning stage of the project, which I believe to be the most crucial stage in which participation should be incorporated. The planning of a project is where the decisions on land and water allocation are being made. Though community consultation has occurred in the delimitation of land for the project, communities have not been involved in the planning of this delimitation. Water users in Maringuele, as well as in other communities downstream of Massingir dam (Chalamuca irrigation scheme, Macaringue community) have not been informed or consulted on the decision on the water allocation to MAI. Another complication is the resettlement of communities from the Limpopo National Park to areas between the Rio Elefantes and the project area of MAI. These people will require water for domestic use and agriculture, increasing the stress on land and the water resource. There is an on-going discussion on whose responsibility it should be to assure the resettled communities of access to land and water. These

[1] Notes field visit A. Bolding May 2009
[2] Interviews community leader Maringuele, MASS-08, 7/11/2012, focal point Massingir, MASS-02, 26/9/2012
[3] Presentation of my research results in Massingir, PRES-MAS 7/12/2012

communities will also be influenced by the practices of MAI, but have not been consulted or included in the process of land and water allocation[1].

As discussed in section 5.1, the construction of an extra spillway in the Massingir dam incorporating a hydropower plant will also require sufficient head in the reservoir lake of Massingir. Impacts on downstream users are not necessarily a reduction in flow since hydropower generation is a non-consumptive water use, but releases from the dam according to electricity needs will have effects on the flow regime downstream, reducing the natural flow character of the river. The decision of water allocation to MAI in combination with water uses for hydropower is one that requires consultation of downstream water users.

Figure 9 - Abandoned infrastructure of ProCana at former ASAMA site

left: storage shed with sprinklers.
right: parts of subsurface drip system, valves have been removed
below: central pivot

Photo © author 2012 (3-10-2012)

[1] Interview staff member FONGA, NGO-01, 18/10/2012

5.4 MAI and stakeholder participation

The introduction of MAI in Massingir was no surprise for the local population, since ProCana had already preceded MAI. But this also resulted in some interesting dynamics. ProCana had already performed a communitarian consult as described in section 3.2.1 with the communities that were to be affected by the project. During this phase, delimitations and demarcations of land were already established[1]. So when MAI started its campaign in Massingir a few years after ProCana had left, most communities did not change the agreement as was established with ProCana. The Administrator of Massingir District expressed that during the ProCana project, communities never had a communitarian consult of this size before, and did not participate a lot during this consult. That resulted in a phase of 'pioneering' by ProCana, establishing limits of land which were not approved by the communities. To avoid another case of land grab as occurred during the ProCana project, the District government established community committees of 10 people to mediate between the company of MAI and their community when problems such as unclear demarcation of land arose[2]. Though the members of these committees have not been identified, it is very likely that the committees are presided by community leaders. The composition of such a committee influences the processes of decision-making within the communities. As already mentioned, people that have access to a pump, individually or via a WUA, often already have a high position on the hierarchic ladder. If mediators between MAI and communities consist of people with such positions, the question arises to what extent the interest of the entire community is being expressed, or if these committees serve to meet personal interests of the members.

The District government organised a meeting for the local population concerning the project of MAI, to inform people on the objectives of MAI and how this contributes to development at District level. In that meeting it was argued that MAI will provide jobs and will give an economic boost to the region. In November 2011 MAI took 45 community members on a trip to the TSB sugar estate in Malelane, South Africa. This trip was organised to promote the project, and provide representatives of the involved communities of Massingir of an example of an already functioning sugar estate[3]. This trip was at a strategic moment in the process, prior to the signing of the *acta de consulta communitaria* (official document stating the delimitation of land for the project) by the communities. Representatives of the communities were the community leader and one other person selected by the community (Figure 10). Since the *consulta communitaria* is prescribed by law (*Lei de Terras 1997*), action was taken by MAI. But the law on water (*Lei de Aguas 1991)* does not prescribe such a written agreement on water allocation for all stakeholders.

It is striking to see how the communitarian consult, which actually only concerns land use, differs from how stakeholders are included in decisions on water allocation. During the time of the field work, delimitation of land was already established with all 13 communities that required a communitarian consult[4]. Thus, consensus had been reached between communities, the state and MAI on which concession of land would be rewarded to the megaproject. In contrast, the water license had not been issued yet. The water concession and different options on water intakes were presented by MAI on the stakeholder platform in the basin (CBL), but the same 13 communities that are directly affected by the project have not been informed on the water allocation to MAI and were not present at that meeting[5]. I will further elaborate on MAI in the CBL in chapter 8.

[1] Interview community leader Maringuele, MASS-08, 7/11/2012
[2] Interview Administrator District Massingir, DGM-01, 7/11/2012
[3] Interview staff member MAI, MAI-02, 9/10/2012
[4] Interview staff member MAI, MAI-02, 9/10/2012
[5] Presentation MAI at CBL, 2/11/2012

At the end of my field work, I held a presentation at the District government offices, where almost all of the respondents for my research were present, representatives of MAI, the Limpopo National Park, the District office of economic activities (SDAE), the governor of Massingir District, a focal point of UGBL and members of the communities of Chinhangane (Chalamuca irrigation scheme) and Maringuele[1]. UGBL was not represented. During my presentation I touched upon the lack of communication between the government and local water users concerning the water license for MAI. I argued UGBL should inform and consult the other water users on the plans for water allocation to MAI. I received a defence argumentation from especially Maringuele community. The community leader understood that the conclusions in my presentation indicated that the project was not beneficial to their community. He argued that the community was in favour of the project, and further delays would only stall the proceedings of the project and therefore the development of the community.

My main conclusion from this reaction is that communities are not aware of possible constraints that a large water concession will bring along, because they are not informed. But here it must be noted that the personal objectives of the community leader might not represent the objectives of the entire community. Community leaders, though elected by the community itself, often receive other benefits for being the spokesperson for a community. All contact between MAI or the government with a community occurs via the community leader. If I would visit a community, I also first have to contact the community leader, who then decides who I can interview. The leader therefore gains a strategic position in negotiations, which can easily be used for personal gain, i.e. the 'gatekeeper'. The most striking example of such a hierarchy is the trip of community leaders to Malelane, South Africa, who then were expected to transmit their positive experiences to the rest of the community.

The Maringuele WUA ASAMA provides a good example as well, where the former director of the association still owns a private pump, presumably paid for by ProCana or other community funds[2]. The former president showed me his field, and proudly declared he was promoted with an award for best agricultural practices. He was very eager to demonstrate the work he did on his land as if to set an example for other farmers. I got the impression this man strongly believed he earned the pump because he was a better farmer that others. That impression was also confirmed when we were driving through the former ASAMA land, where a subsurface drip system had been installed by ProCana. Most of the equipment had been removed or molested by the local population to the great frustration of the former director of ASAMA. He again emphasised that the local population does not know how to deal with these kinds of 'developments'. They only destroy, whereas he himself has used the infrastructure provided. But this provision seems to have benefitted only him individually. It is also striking that this man was president of a WUA of Maringuele community, though he himself originally came from another community, and is currently not living in the Maringuele community but in the outskirts of Massingir town[3]. Though this man touched upon the problem with ProCana in the past, he clearly had benefited from the process and promoted development of the region through the megaproject. At the time of the research however, this man was having two jobs while also working on his plot, showing he indeed earned that award for best agricultural practices. His land was no longer next to the ASAMA site, but moved more upstream along the Elefantes river.

The community leader of Maringuele had a clear pro-MAI position. He argued that the opposition of people against the project of MAI grew out of jealousy. Other communities would be jealous on the

[1] The community of Maringuele was present because I arranged transportation for them. Macaringue community was not represented, because of there was no transportation. This underlines the difficulty of including isolated communities in committees or other sorts of reunions, since it is difficult to gather at one place.

[2] Notes field visit A. Bolding May 2009

[3] Interview and observations former president ASAMA/focal point of UGBL, MASS-02, 26/9/2012, MASS-05, 3/10/2012, MASS-08, 7/1/2012

Maringuele community for they would receive new houses, again emphasizing the importance of personal gain[1]. Whether the entire community of Maringuele will benefit from MAI remains unclear, since the only official document is the *consulta communitaria* on the delimitation of land, but agreements on housing and work provision remain vague. The community leader functions as the gate-keeper for the rest of the community, enjoying a privileged position for negotiations with MAI and distributions of benefits obtained from them. By keeping agreements with MAI vague, individual community members can never claim benefits unless they work through the gatekeeper, i.e. community leader. It is these processes of information brokering and negotiations behind closed doors that inhibit forms of participatory governance.

MAI is carrying out the responsibilities that are prescribed by law, consulting communities through the *acta communitaria*, and provides space for food security and smallholder farming as part of their social responsibility programme. But Mozambican law does not elaborate on how stakeholders should be included in decisions on water allocation. The regional water authority, UGBL, decides on water allocation and is responsible for the participation of stakeholders in the decision-making process. But at local level the decision on the water intake options is not discussed with water users and if they were to be discussed with representatives of communities, the position and personal objectives of this representative (community leader) should be taken into account.

Another problem is that the local population, as well as the District government, is under the impression that the water resource in the Limpopo Basin is abundant. UGBL is the responsible party to inform and consult its water users and should be aware that the perception of their stakeholders does not comply with the notion that water is a finite resource. Not only should UGBL better inform water users, the District government as key player in community consultation should also be informed by UGBL about possible constraints in water allocation.

Figure 10 - Presentation of MAI to the District government and Communities of Massingir

November 2011

Source: Presentation MAI at CBL meeting 2-11-2012

[1] Interview community leader Maringuele, MASS-08, 7/11/2012

5.5 Conclusion

The arena in which water management is practiced in Massingir is only including a small elite. Local water users are not involved in the decision-making process of water allocation to MAI. The water concession is not regarded as a local issue, whereas downstream users will definitely be affected by the large portion of the water resource that is rewarded to MAI. The downstream users that will be affected concern the two large irrigation schemes of Chokwe and Baixo Limpopo, but also small scale users located in between. At local level, small scale water users are not considered as important stakeholders regarding the water concession to MAI. UGBL is the managing authority in the Limpopo Basin for water management, but the decision on water allocation to MAI lies one level up, with ARA-Sul. At local level stakeholder participation in water management is practically non-existent and UGBL does not take a prominent position in this matter.

It is striking that land and water are managed completely separate from one another, whereas land allocation goes hand in hand with water allocation in the case of irrigated production. The processes on land and water allocation should therefore be fine-tuned, by using similar mechanisms in user consultation. The inclusion of stakeholders in water management is only effective if the stakes are known, but often stakeholders are not aware of their stake in water related issues. This case study has shown that the stakes in water allocation regarding the megaproject of MAI are far from known. It should be a priority of the water managing body (ARA-Sul, and thus UGBL) to inform and consult water users on important water management issues.

Often community leaders function as gatekeeper for the rest of the community, enjoying a privileged position for negotiations with MAI and distributions of benefits obtained from them. Other community members are kept unaware of the negotiations between these gatekeepers and MAI. This 'patron-client' hierarchy at local level prevents the participation of the community in governance.

6. REGADIO BAIXO LIMPOPO - EMPRESA PÚBLICA (RBL-EP)

"Here they don't have that kind of infrastructure, but they think they do and they want to charge you like you are in a first world country with everything properly organised."

Staff member CAFA
Nhancutse, Xai Xai District
Comment on RBL-EP

In this chapter I discuss the agricultural investments in the Lower Limpopo Irrigation scheme (RBL) which forms the second case study of the research. 'Regadio Baixo Limpopo' was established as a colonial dual production system, cooperative versus state-owned, and familiar sector versus commercial (flyer RBL-EP). After the severe floods in 2000/20001 the scheme was totally destroyed. Between 2006 and 2010 the irrigation scheme was partly rehabilitated as part of the Massingir Dam and Smallholder Agricultural Rehabilitation Project (MDSARP). As part of the rehabilitation, the scheme underwent drastic changes in organisation resulting in the set-up of a parastatal enterprise to manage the scheme. In 2010, *Regadío Baixo Limpopo - Empresa Pública* (RBL-EP) was established, responsible for the management and operation of the irrigation scheme of Baixo Limpopo. This 'decentralized' mechanism of water management by a local water management authority forms the basis for the second case study.

With this chapter I illustrate how stakeholder participation is being interpreted by this parastatal and how this change in governance has shaped the arena of water management in the irrigation scheme of Baixo Limpopo (RBL). Especially the new developments in the valley by a planned expansion of 20,000 ha irrigated agriculture by the Chinese company Wanbao will bring about changes in hydrological infrastructure and water allocation. The difference with the case study in the previous chapter is that Baixo Limpopo has been an area of high economic interest since colonial times, and irrigated agriculture has been practiced and managed for more than a century. The organisation of water users is therefore very different from the ones in Massingir. As downstream user, RBL will also be affected by the large water allocation that is to be issued to the project of MAI. With this case study I focus on the newly established local authority in water management, RBL-EP. I determine to what extent this new form of decentralized water governance is contributing to the IWRM principle of stakeholder participation and how issues such as allocation of land and water to investors in the scheme as well as the large water allocation to MAI in Massingir is being discussed with water users within RBL.

In section 6.1 I first provide an introduction to the parastatal RBL-EP. The next section describes the water use practices in RBL, not only within the jurisdiction of the parastatal, but in the entire valley of Baixo Limpopo (Figure 11). Section 6.3 describes how water users at local level are organised and participate in water management. The last section describes the arena in which water management is being practised, illustrating how the different stakeholders or stakeholder groups are included water management through RBL-EP.

6.1 The rise of RBL-EP

Since 2010, the management of the rehabilitated irrigation scheme of Baixo Limpopo (RBL) is organised in a new public enterprise, *Regadío Baixo Limpopo - Empresa Pública* (RBL-EP). RBL-EP started with an area of 12,000 ha, which was the contour of the original irrigation scheme before the floods in 2000/2001 (Figure 12). These contours have expanded when the Chinese company Wanbao Africa Agricultural Development, Ltd. started their rice cultivation programme in 2009, preparing land for irrigated rice cultivation. The contours of the scheme have been extended towards Chicumbane with an extra 6,225 ha (Figure 11). At the time of the research, RBL-EP was planning to increase the contours of the area of jurisdiction to the Districts of Chibuto (north) and towards Macía (south-west).

The objectives of RBL-EP are to "promote the economic agrarian development through (a) support and service provision to agrarian production systems in the irrigated perimeter of the Baixo Limpopo, (b) encouragement of the creation of a business community that operates in the value chain of agrarian production" (flyer RBL-EP). RBL-EP functions mainly as managing entity for the maintenance of the hydraulic infrastructure in the scheme, and for the provision of support in financial issues. For example, loans for agricultural production by small to medium scale farmers are mainly granted through RBL-EP[1]. RBL-EP is also member of the *Comité de Bacía do Limpopo* (CBL), the stakeholder platform organised by UGBL. As a member, RBL-EP is present at the meetings of the committee. Information discussed in the CBL that is passed on to their users concerns mainly weather predictions for the coming cropping season[2].

The initiative for the creation of a management unit for RBL came from the MDSARP rehabilitation project. Whereas the scheme was formerly managed by MSDARP under the authority of ARA-Sul, RBL-EP was set up under the authority of the Ministry of Agriculture (MINAG). The land in the irrigation scheme was taken over by RBL-EP from the Provincial Department of Agriculture (DPA). Since RBL-EP responds directly to MINAG, the central government has increased its grip on land tenure in the scheme. The setting up of the parastatal RBL-EP therefore gave way for exclusive use by MINAG instead of local initiatives (Ganho 2013). This shift in governance structure also resulted in differences in management of the scheme and prioritization of interests of the governing authority. The objectives of the MDSARP project were "to increase the dependable water flow to cultivate approximately 40,000 ha downstream by improving the efficiency of the Massingir dam and the productivity of smallholder farmers in Baixo Limpopo to increase incomes, reduce rural poverty and improve food security" (ADF 2007). There has been a shift from the objective of MDSARP to improve the productivity of particularly smallholder farmers to the creation of a 'business community' by RBL-EP. Who is included in this business community and who is not, becomes clear from the next two sections on water use practices and water management at local level.

[1] Interview director ARPONE, AR-01, 16/10/2012
[2] Interview director Associação de desenvolvimento de communidades rurais, ADCR-01, 19/10/2012

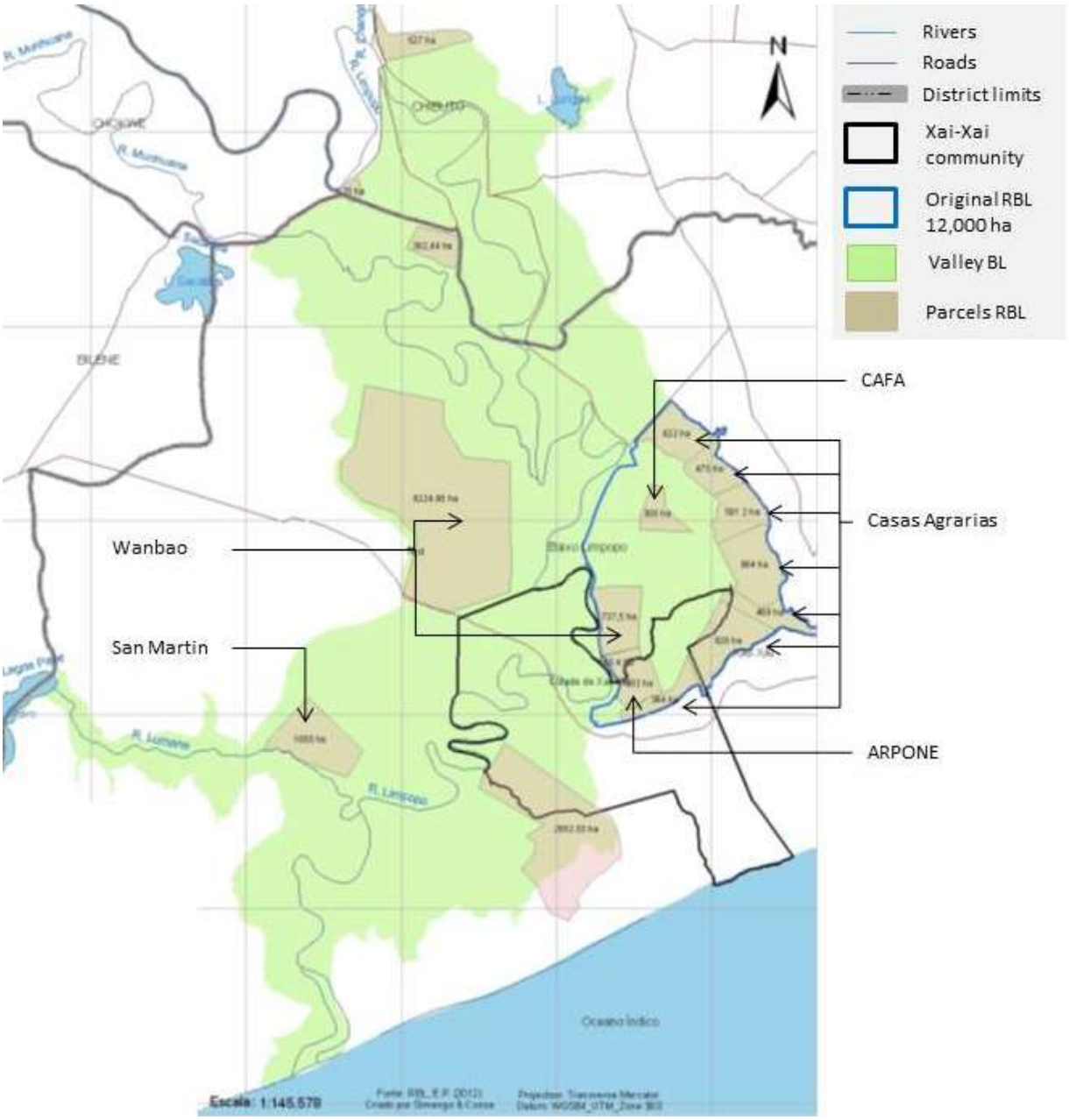

Figure 11 - Baixo Limpopo irrigation scheme and occupation by users

Source: RBL-EP

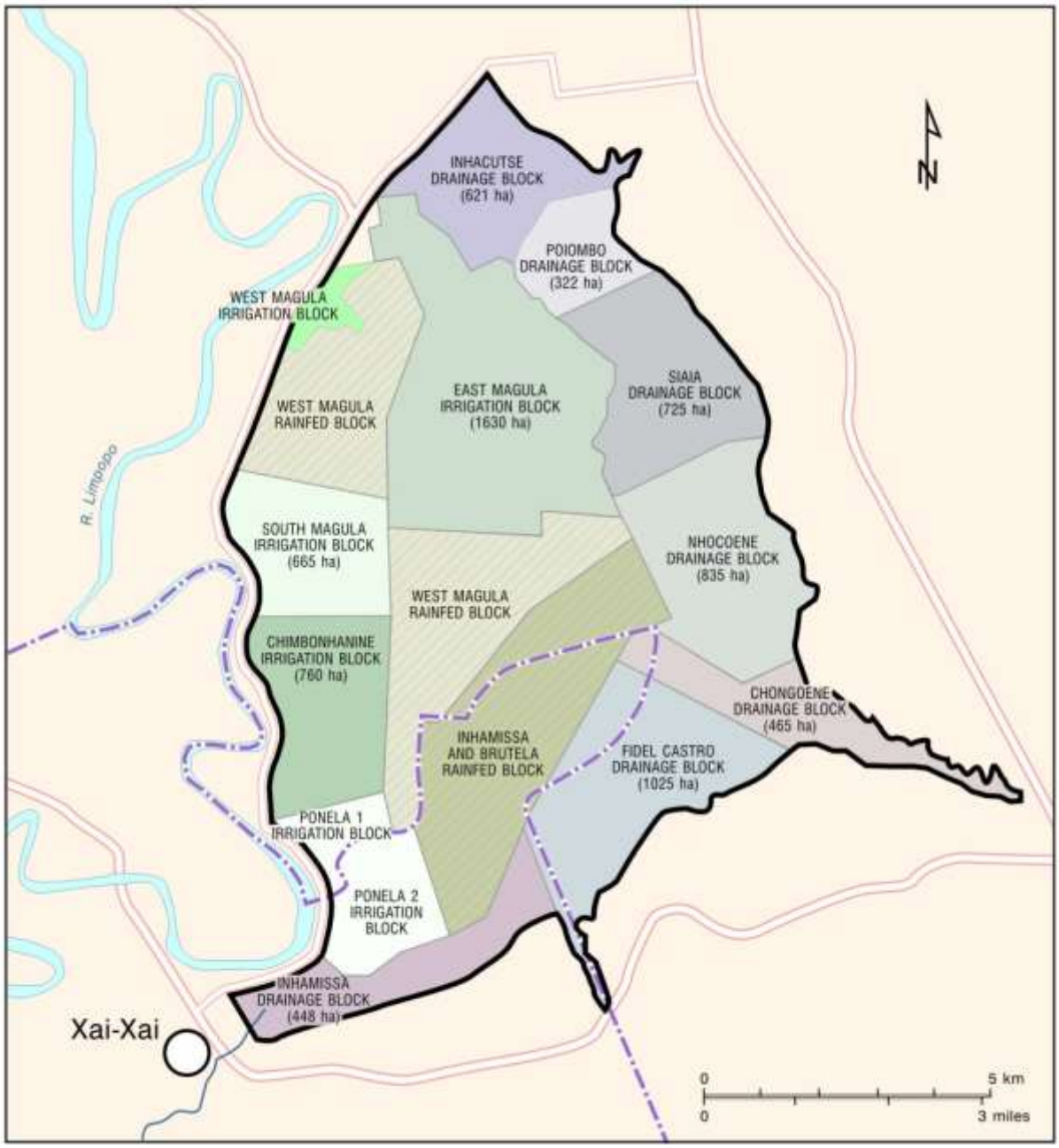

Figure 12 - original 12,000 ha of the Regadio Baixo Limpopo, user blocks

Source: Ganho 2013

6.2 Water use practices

Water in the valley of Baixo Limpopo is used for domestic use and agriculture. In the city of Xai Xai, groundwater is pumped up for domestic use by the public company FIPAG. The water in the Rio Limpopo debouches into the Indian Ocean. Upstream water is released from Massingir dam in the Rio Limpopo to regulate saline seawater intrusion at its estuary. The sandy dunes around the valley of Baixo Limpopo function as a freshwater reservoir and water seeps out through natural springs that is used in the irrigation scheme of Baixo Limpopo. The water is drained from the marshy soils (*machongos*) in the elevated areas through canals and pumped into the Rio Limpopo after it is used for irrigation in the lower lying areas of the scheme. In the dry season, the pumping station of RBL-EP at Chimbonhanine can also be used for irrigation of these lower areas (Ponela, Chimbonhanine and Magula blocks, Figure 12).

Within the perimeter of RBL-EP, smallholder farmers (the family sector) are organised in cooperatives called *Casas Agrarias*. There are a total of 7 Casas Agrarias, sizes ranging between 322 and 1025 ha (Figure 12). The plots of land reach up to 1 ha per user and are located in the *machongos*. Within the irrigation scheme, there are also private farmers with larger plots of between 5 and 20 ha, organized in an association of emerging commercial farmers (ARPONE). There are two foreign companies active in RBL-EP, the Portuguese cotton producer CAFA, growing 600 ha (planning to expand to 4,000 ha) and the Chinese megaproject of Wanbao, growing 7,000 ha of rice and planning to expand to 20,000 ha[1]. Outside the command area of RBL-EP, farmer initiatives are set-up in communities, forming water user associations (WUAs). These WUAs are mainly initiated by NGOs. One other commercial agricultural enterprise outside of RBL-EP, the Italian producer San Martin is cultivating 1,000 ha of rice and other cereals downstream of the city of Xai Xai, using water from the Lumane river (Figure 11). San Martin plans to expand to cultivate 2,000 ha[2].

RBL-EP is registered as a single water user by UGBL, though they are only the provider of water to water users in the scheme. RBL-EP is not officially a water user. Users within RBL-EP are not registered by UGBL, except for Wanbao. Wanbao is only registered, but does not have a water license (yet)[3].

6.3 Water management at local level

Water management as discussed in the previous chapter on Massingir is difficult to compare to water management at local level in Baixo Limpopo. Livelihoods of the local population and their water use practices have been highly influenced by the Portuguese colonialists before 1975 but also after independence. As described in chapter 3 on the historical background of Mozambique, Baixo Limpopo has been a priority region for economic development (Roesch 1988). This section discusses water management at local level per water user group, the smallholder farmers (*sector familiar*), commercial farming, a megaproject of Wanbao and agricultural activities outside the jurisdiction of RBL-EP. I will further elaborate on how the different stakeholders in the scheme are participating in water management concerning water allocation in the Limpopo Basin to the megaprojects of MAI and Wanbao.

[1] Interviews staff member of CAFA, XX-03, 24/10/2012 and staff member of Wanbao, WA-01, 18/10/2012
[2] Interview staff member San Martin, XX-01, 22/10/2012
[3] Cadastre UGBL (Folha Cadastro), not for publication, received 21/9/2012

Figure 14 - Main canal Casa Agraria of Chonguene

Photo © author 2012 (17-10-2012)

Figure 13 - Secondary Canal Casa Agraria of Chonguene

Photo © author 2012 (17-10-2012)

Figure 15 - Main canal and weir downstream of Casas Agrarias

Photo © author 2012 (17-10-2012)

6.3.1 Casas Agrarias

Casas Agrarias (CAs) are cooperatives of farmers in the family sector, each individual or family has a plot of up to 1 ha. The seven existing CAs were set-up as part of the Rehabilitation Project ((MDSARP) between 2003 and 2008 in the drainage blocks (*machongos*) of the scheme. The area has been used for the family sector since colonial times, when the irrigation scheme was set up as a dual system, commercial farming by the Portuguese settlers and subsistence farming by the local population (flyer RBL-EP). In fact, this dual system functioned as colonial estate, where African labourers worked on the fields of the Portuguese colonists and had a small plot in the drainage area for subsistence farming (Figure 12). Ownership of these *machongos* is a heritage from these times[1].

All CAs have a similar organisational structure, which was introduced by the members of MDSARP. This organisational structure was not a new thing, a comparative structure has been used since the Portuguese occupation. Every CA has a president and an administrative council. The scheme is divided into blocks, which in turn is sub-divided into *talhoes*, plots. Every block is coordinated by a *chefe de bloco*. Maintenance of the drainage canals is the responsibility of the users within the CAs (Figure 13 & Figure 14). For example, in the CA of Chonguene, farmers gather every Tuesday to clean the main canal together. Secondary and tertiary canals are cleaned under supervision of the *chefes de bloco*.

MDSARP rehabilitated the drainage canals without destroying the original division of plots. The majority of the farmers own the same plot or same amount of land as before rehabilitation. Ownership of land often goes back to colonial times. The president of the CA of Chonguene states that after the rehabilitation, the division of plots remained unaltered, so there was no question of eviction of people from the land. In Siaia, the president of the CA also claims land tenure remained mostly unaltered, only new members have entered because the total area of the CA increased after rehabilitation. New members then have to apply through the council of the CA and sign an agreement on the terms of use. This entails obligations such as required production, payments, observance of good agricultural practises and maintenance contribution. Since the formation of the CAs, farmers are obliged to produce on their plot. If farmers do not produce or do not comply with their responsibilities such as cleaning the canals they can be evicted from their plot, or sometimes they have to pay a fine[2].

The president of a CA is elected by the administrative council, though it remains unclear how the council is being formed. Two presidents of CAs commented that the CAs were set-up to facilitate improving the relation between government and farmers within the irrigation scheme. This implies the board of a CA functions as a gate-keeper for the rest of the users in the CA. Since members of the council and the president are also farmers in the scheme, access to a market or supplies for their plots is much easier than for other farmers in the scheme, since all communication and negotiations passes through them. Though the exact mechanisms of the establishment of the board was not verified during the research, it is important to understand that there exists a hierarchy in the CA, in which the leaders are most likely not elected democratically. This is a similar structure of water management as observed in the WUAs in Massingir District. There is a clear patron-client relation, where the gatekeeper enjoys more privileges than the people he (never a she) represents.

Members of the CAs regard RBL-EP as the owner of the scheme. RBL-EP mainly facilitates in fiscal issues for the CAs, such as mediating between banks and farmers to get a loan. An official agreement between RBL-EP and the CAs has been established, but has not been put to practice in some CAs. The agreement entails that CAs maintain their own canals and infrastructure, but pay a land-use fee to RBL-EP. This is approximately 500 MZN ($ 17.08) per hectare per year. The CAs are dependent on the maintenance of the main canal downstream, because downstream clogging can cause floods upstream in

[1] Interview technician and president Casa Agraria of Chonguene, CA-01, 17/10/2012
[2] Interview technician and president Casa Agraria of Chonguene, CA-01, 17/10/2012

the CAs (Figure 15). The fee to RBL-EP covers the costs of maintenance. Some CAs are already paying the fees to RBL-EP, some are not. The CA of Siaia has established an agreement with RBL-EP, but has not started paying yet[1]. The CA of Siaia argued the signing of the agreement was stalled due to the floods earlier that year. Problems concerning water allocation, flood control and maintenance of the system downstream are the responsibility of RBL-EP.

The farmers in the CAs, including the presidents are not aware that a stakeholder platform for water management exists. The *Comité de Bacía do Limpopo* (CBL) is unknown. The users also made it clear that 'these kinds of problems' (any issue outside the CA) do not concern them. The CAs that rely on water from springs for irrigation, have not experienced major problems of water scarcity in the past. Floods on the other hand have occurred more often. Large concessions of land and water such as the planned 20,000 ha of Wanbao are "not their problem, that should be taken care of by RBL-EP"[2].

This is not a one-way communication problem, CAs are also not included by RBL-EP in decision-making process pertaining to in the developments of Wanbao. For example, Wanbao signed an agreement with RBL-EP to provide technology transfer to 'beneficiaries' within the contours of RBL-EP. These beneficiaries were described in the agreement between Wanbao and the Provincial government as 'peasants in the Xai Xai irrigation scheme, local communities and neighbouring and other communities'. At time of the research, only commercial farmers from the commercial farmer association ARPONE had received this assistance, but none of the farmers from the CAs (Ganho 2013)[3]. The CAs however are included in the agricultural campaign of Wanbao, but in terms of rice production. They do not receive technological assistance, but are encouraged to produce rice, which will then be bought by Wanbao[4]. The farmers in the CAs in this case, suit the description of beneficiaries, but are excluded from the technology transfer. RBL-EP functions as mediator between beneficiaries and Wanbao, but has not involved farmers from the CAs in this agreement. The implementation of the agreement between Wanbao and RBL-EP does not align with the original objectives of MDSARP to "improve productivity of smallholder farmers in Baixo Limpopo to increase incomes, reduce rural poverty and improve food security" (ADF 2007). It does on the other hand relate to the objective of RBL-EP to encourage "the creation of a business community that operates in the value chain of agrarian production" (flyer RBL-EP). According to a staff member of RBL-EP, the CAs were excluded from the technology transfer by Wanbao because large machinery such as tractors could not reach the elevated areas of the CAs[5]. The exclusion of the CAs from this business community increases the gap between the smallholder farmer and commercial initiatives.

Communication between the different CAs and RBL-EP mainly concerns problems within the CAs. When a problem arises, often the president of a CA initiates such a meeting, for example if the CA experiences problems of clogging due to poor maintenance downstream[6]. Also, during the floods in January 2012, the RBL-EP gave out warnings to the presidents of the CAs, and destroyed fields were rehabilitated by RBL-EP. But this communication regards only problems and issues according to current practices in the CAs, new developments within the scheme such as the expansion by Wanbao or upstream in the Limpopo Basin such as the project of MAI are not on the agenda.

Concluding, there is a hierarchical organisation in the management of the CAs, through a board and supervisors of blocks and plots. The position of these gate-keepers however remains unclear, though this small elite gains easier access to goods and services from outside. Communication with RBL-EP concerns

[1] Interview president Casa Agraria of Siaia, RBL-05, 23/10/2012
[2] Pers. comm. president Casa Agraria of Chonguene, CA-01, 17/10/2012
[3] Interview staff member Wanbao, WA-01, 18/10/2012
[4] Interview staff member Wanbao, WA-01, 18/10/2012, list of recipients technology transfer and rice production plan for the CAs, provided by Wanbao on 18/10/2012
[5] Interview staff member RBL-EP, RBL-04, 22/10/2012
[6] Interview president Casa Agraria of Siaia, RBL-05, 23/10/2012

mainly problems or topics from within the CAs. There is a (to be) signed agreement on rights, duties and fees. Water management issues concern only local problems, there is no communication between the CAs and other users within RBL-EP let alone outside of RBL-EP. The farmers in the CAs are not included in the developments to "create a business community", again resulting in an increasing gap between the peasant and the 'civilized world'.

6.3.2 Commercial Farming

Commercial farming constitutes a large portion of the irrigation system of RBL-EP. Commercial farming within RBL-EP is being practiced by the Portuguese cotton producer CAFA, the association of emerging commercial farmers ARPONE and the Chinese megaproject of Wanbao. Wanbao will be discussed separately in the next section.

CAFA is a Portuguese based company that is cultivating 600 ha of cotton. The area of cultivation was originally planned to be included in the rehabilitation project between 2003 and 2008 but because of lack of funds this part was not rehabilitated. CAFA rehabilitated the area itself. The company installed a pump in the Limpopo river for irrigation water. CAFA is registered by UGBL as water user, but not licensed and thus does not pay any water fee. CAFA signed an agreement with RBL-EP on payments and obligations. They agreed that RBL-EP would maintain the drainage canal up between the Limpopo River and the fields of CAFA. CAFA was originally charged 3000 MZN ($ 100.-) per hectare per year, but did not agree to this. CAFA claimed the maintenance of the irrigation scheme has not been properly executed by RBL-EP, the agreement only entailed obligations from CAFA, but none from RBL-EP. During the floods of January 2012, the area of CAFA was flooded because the main canal was not properly maintained. CAFA complained, stating "RBL-EP is charging the water users as if they were in a first world country but does not provide that kind of services"[1]. The fee to RBL-EP was lowered after negotiation. At the moment of research CAFA was paying 1450 MZN ($ 49.-) per hectare per year[2].

This example provides insight in how policy on paper and policy in practice do not correspond. RBL-EP as parastatal has been set-up to manage the irrigation system, and has to obtain its income from the users in the system. The parastatal is however not financially self-sufficient at the moment, and the fees collected from the users are insufficient to provide the required services. The comment from CAFA was very adequate in this case, showing that the policy that RBL-EP has to follow is probably not a Mozambican invention, but is clearly adopted from the western world discourse on the economic value of natural resources. However, the rehabilitation of RBL has brought about a parastatal that is responsible for the management and thus the preservation of the system. Rehabilitation alone is not enough for the government of Mozambique to attain rights to charge for 'services' if these services are not provided. In the case of CAFA, the company rehabilitated the area itself. It is a vicious circle, RBL-EP needs the fees to increase its capacity, but cannot supply adequate services at the time these fees are collected. Therefore, this process of decentralization of management requires a great deal of financial assistance, which often is not provided. In that case, private investors such as CAFA take matters into their own hands, by preparing the land and infrastructure themselves, attaining a powerful position for negotiations. With these private investments often mingling of interests comes along. I will further also on this in the following section on Wanbao. At the time of the research, CAFA was not informed by RBL-EP or UGBL on the stakeholder platform for water management in the basin, though they had heard of it. CAFA showed little interest in participating in the committee, though 'the misuse of water' was mentioned as a major problem in Mozambique.

[1] Pers. comm. staff member CAFA, XX-03, 24/10/2012
[2] Interview staff member CAFA, XX-03, 24/10/2012

The other commercial activity within RBL-EP is the emerging farmer association ARPONE in the Ponela 2 Block (Figure 11). The objective of the association is farming, livestock farming and developing farm mechanisation. The association has a general assembly, a board council and a fiscal council. ARPONE was created after the MDSARP rehabilitation in 2008, but the association was formalized only in 2012 (ARPONE 2012). In 2012, ARPONE was in its fourth agricultural campaign, cultivating rice. The organisation structure of ARPONE is officially established in the Statutes. A general assembly had been elected in 2010 by the participating members. According to the president of the association, members were selected based on their experience in agriculture, as well as their financial capacity to invest in commercial farming[1]. Experience in agriculture however, did not seem a priority, based on the backgrounds of most members within ARPONE. According to a user list of ARPONE, members were businessmen, people that occupied positions in local Frelimo structures or (used to) hold other high institutional positions. There was also a women's association. Experience in agriculture did not seem an important condition for member to enter the association. The capacity to invest on the other hand, seems much more important. The best example for this is provided by the president of ARPONE himself, who is also the local Frelimo Secretary (Ganho 2013). According to a member from RBL-EP, the president only started cultivating the previous year and had very little to no agricultural background[2]. This underlines that the prerequisites for participating in the association are status and financial funds, while experience in agriculture does not seem that important.

The occupation of the Ponela 2 Block has changed since the MDSARP rehabilitation. One of the main reasons for this were the devastating floods of 2000. During the floods, Ponela 2 Block was fully destroyed, and agriculture was no longer possible. Between 2003 and 2008 the Block was fully rehabilitated. However, farmers that owned plots before MDSARP lost their right to land and their 'traditional occupation' of the land was not recognized because the plots had not been cultivated to a full extent since the 2000 floods (Ganho 2013). After the MDSARP rehabilitation, the land in the Ponela 2 Block could be awarded to anybody that competed[3]. There was a public tender for the land, where anyone could compete. Being accepted into the Ponela 2 Block automatically meant entering the WUA of ARPONE. This selection of members for ARPONE was supposedly carried out by MDSARP who was managing the scheme at the time. It shows from the member list of ARPONE that most 'farmers' that were accepted into the association did not have any agricultural background, but did hold high public functions[4]. A field visit of CP66 in 2008, confirmed this process, commenting 70 smallholder farmers had been evicted from the Block to make room for the 'emerging commercial farmers' of ARPONE[5]. At the time of the research, ARPONE had around 40 members, with plots ranging between 5 and 20 ha.

At the time of the research there were 12 members of ARPONE that received technical support from the Chinese company Wanbao in their agricultural campaign. Wanbao provided machinery and agricultural support during the sowing, growing and harvesting season[6]. The technical assistance from Wanbao enhanced a higher yield for the farmers in ARPONE. The service provisions by Wanbao however, were quite expensive. At the end of the crop season farmers from ARPONE could reimburse their expenses by selling their yield (rice) to Wanbao (Ganho 2013). ARPONE also received support from RBL-EP. The association paid a fee of 3000 MZN ($ 100.-) per hectare per year to RBL-EP for maintenance of the canals and other infrastructures, water supply and land lease. RBL-EP also maintained the canals within the Ponela 2 Block.

[1] Interview with president of ARPONE, AR-01, 16/10/2012
[2] Personal comment member RBL-EP, RBL-05
[3] Interview with president of ARPONE, AR-01, 16/10/2012
[4] Map of users of ARPONE, received from staff member Wanbao, 18/10/2012, complemented with information from A.S. Ganho
[5] Personal comment A. Bolding on CP66 field visit, 8-11 September 2008
[6] Interview staff member Wanbao, WA-01, 18/10/2012

Concluding, farmers from ARPONE often have no background in agriculture and hire others to do the work. The technology transfer from Wanbao enables members of ARPONE to increase their yield and thereby their income. Conditions to enter the association are mainly based on financial capability and status. ARPONE represents a local elite that only increases its wealth by becoming the beneficiary for technology transfer by Wanbao. This elite however does not meet the description of these beneficiaries, stating these should be "peasants in the Xai Xai irrigation scheme, local communities and neighbouring and other communities".

6.3.3 Wanbao

Since 2011, the Chinese private company Wanbao Africa Agricultural Development, Ltd has started cultivating in RBL, taking over from Hubei Lianfeng Mozambique, a state-farm initiative as part of a larger bilateral aid programme between Mozambique and China. Hubei Lianfeng originated from an agreement in 2008 between the provinces of Gaza, Mozambique and Hubei, China with the objective to increase rice production and to experiment with different kinds of hybrid rice. Wanbao took over when Hubei Lianfeng could not monilize the necessary funds to start cultivation. Wanbao requested a total area of 20,000 ha for cultivation (Ganho 2013). At the time of the research, Wanbao was cultivating 4,500 ha of land. Before Wanbao started their programme, Hubei Liangfeng was only cultivating 180 ha. The objective of the project of Wanbao has expanded from rice 'experimentation' to market oriented operations. But lots of things remain unclear on how Wanbao has been introduced in RBL, and what is exactly the objective of the project. According to a staff member of Wanbao, the objective of Wanbao is not to create jobs for Mozambicans, but to produce rice efficiently and provide technology transfer to Mozambican farmers. As mentioned in the previous section, this technology transfer occurs towards members of ARPONE.

Obtaining a land use license (DUAT) has been quite a different process for Wanbao, in comparison to MAI in Massingir. The difference here is that the project of Wanbao has resulted from an agreement between two governments. RBL-EP was informed by the Provincial government of Gaza to allocate 20,000 ha of land to Wanbao. But the contours of RBL-EP then only comprised the original 12,000 ha. RBL-EP had to explore land outside of the original perimeter of the scheme, to be able to grant that large amount of land to Wanbao. In 2012, an area of 6,225 ha was indicated in the floodplains west of the Limpopo river towards the village of Chicumbane (Figure 11), for the first stage of the Wanbao project. These floodplains however, were being used for subsistence farming by the surrounding communities, and thus a community consultation was needed for Wanbao to obtain a DUAT. However, communities had not been consulted in advance, and demarcation of the land occurred without informing or including these communities.

According to the Administrator of the District of Xai Xai, a community consultation had been carried out in 2011 when the project started. From his description it became clear that this concerned a single meeting where all the communities were gathered and being informed that Wanbao was going to occupy the demarcated area. The communities were not given the option to approve or decline the demarcation, this had already been established. The option the communities were given was either to give up their agricultural land to Wanbao and work for the project, or to have their agricultural lands relocated to an area outside of the land demarcated for Wanbao. There was no room for discussion on whether Wanbao could be granted the land, because it was already agreed upon by the Provincial government through RBL-EP. The communities opted for the latter[1].

[1] Interview Administrator Xai Xai District , DGX-01, 12/11/2012

From observations in 2012 it became clear that the designated plots outside of the area of Wanbao were not yet ready for use, from which I concluded that the farmers whose plots have been relocated have not been able to cultivate any land between 2011 and 2012. That is quite problematic, because the yields from agriculture are for subsistence. This was confirmed by a member of the Gaza NGO platform FONGA. This member, as well as a staff member of RBL-EP, also argued that the District government of Xai Xai had no business with the project of Wanbao, because the agreement was written in Chinese[1]. Concluding, the project has not been discussed at District level. RBL-EP was informed directly by the Provincial government that Wanbao would be granted 20,000 ha of land in the valley of Baixo Limpopo, and RBL-EP was expected to appoint this land.

From the quite vague description of how the project of Wanbao has been introduced in Baixo Limpopo[2] and the rather critical comments by the member of FONGA on the land allocation to Wanbao, it seems rather obvious that decisions on land allocation have not been discussed at local level. At the time of the research, Wanbao was preparing 6,225 ha of land in the floodplains towards the village of Chicumbane. This land has been flooded during the recent floods in early 2013, destroying large parts of the newly constructed infrastructure by Wanbao[3]. The flooding of the area is not surprising, since it is a floodplain of the Limpopo river. There is no dike between the river and the floodplain, whereas the other side of the river bank does have a flood protection dike. This dike serves to protect the original irrigation scheme as well as the lower lying part of Xai Xai town. There have been rumours Wanbao is planning to construct a dike for flood protection between the reclaimed land and the Limpopo river. This will have a massive impact on the original irrigation scheme of RBL, increasing the risk of flooding in the rest of the scheme and the city of Xai Xai by reducing the water storage capacity of the river by cutting of the floodplain[4]. Since RBL-EP has expanded its jurisdiction beyond of the contours of the original irrigation scheme, there is no consensus on who is responsible for the planning and, more important, the approval of the construction of such hydraulic infrastructures. The large water concession that is granted to MAI in Massingir will have its impacts on the flow regime in Baixo Limpopo. It remains unclear to what extent Wanbao is informed on other water uses in the basin and how they interact with the water managing authority UGBL. I will further elaborate on the relation between Wanbao and UGBL and other water users in the Limpopo Basin in chapter 8, describing the functioning of the *Comité de Bacía*.

6.3.4 Agriculture outside of RBL-EP's command

Outside the command area of RBL-EP other agricultural practices are worth mentioning. The Italian company San Martin is exploring a 1,000 ha of irrigated agriculture. San Martin is using water from the Rio Lumane just before its confluence with the Rio Limpopo downstream of RBL. This company installed its own pump, and is not paying any fees to RBL-EP. Communication goes directly through the Provincial Directorate of Agriculture (DPA). The manager of San Martin turned out to be the brother of a staff member in Wanbao. This manager also worked for Wanbao. The Administrator of the District of Xai Xai informed that communities around Chicumbane each have set up a commission to mediate in problems between the community and Wanbao or San Martin[5]. From this I derive that San Martin and Wanbao will eventually serve the same objective and perhaps merge to become one enterprise, which was

[1] Interview staff member FONGA, NGO-01, 18/10/2012 and staff member RBL-EP, RBL-04, 22/10/2012
[2] Interview Administrator Xai Xai District , DGX-01, 12/11/2012
[3] Observation by the author, 15/03/2013
[4] Interview former DHV staff member, XX-05, 14/03/2013
[5] Interview Administrator Xai Xai District , DGX-01, 12/11/2012. These commissions are supposedly organised by the Administrator. A staff member from RBL-EP however commented he was involved in the setting up of these commissions, but these were still in the process of formation (RBL-04, 22/10/2012)

also suggested by a staff member of another large agricultural company[1]. I also suspect that now RBL-EP is expanding its boundaries, San Martin will soon fall under the jurisdiction of the parastatal. San Martin was registered by UGBL as a water user but did not have a water use license and thus was not paying any water fee.

One community outside the contours of RBL-EP that practised irrigated agriculture has been visited during the research. The community, Guemulene in Chibuto District (north of Xai Xai), was located in the valley of Baixo Limpopo. This is not one of the communities that was relocated by Wanbao, but resides in a relatively unexplored area within the valley of Baixo Limpopo. Within the community there were three water user associations (WUAs). A member of the WUA 'Mbandlane' explained all three WUAs had been set up by external actors, but she had no memory of who they were. This was somewhat surprising, because I brought along an engineer who worked in the community for the Japanese NGO Jaeca for almost a year. This NGO designed and constructed a gravity irrigation system for the communities, from which several WUAs originated[2]. At time of the research, Jaeca was not present in Guemulene anymore. The engineer from Jaeca was present at my interview and knew the woman, from which I derived she was part of a WUA making use of the irrigation scheme as designed by Jaeca. The woman had no recollection on how her WUA had originated, and how members have entered the WUA at the time. I derived from her comments that she regards herself as part of an association but has no further interest in the organisation thereof. Others have the responsibility to 'keep things running'. Another member of the community of Guemulene that was not part of a WUA commented he was not part of a WUA because he was not living in the community at the time the WUAs were being set up. He was practising rain-fed agriculture outside of the irrigation system. This man was not willing to talk about his water use practices and indicated we had to take our questions to people that were members of a WUA.

The WUAs in Guemulene were regularly visited by technicians from the DPA. These technicians would come by to assist in the cultivation process and sell seeds to the associations. The WUAs were able to buy subsidized seeds from them, while individual farmers have to pay the original price[3]. The technicians were helping out in managing the irrigation scheme because the NGO Jaeca that had set the scheme up was not present anymore[4]. The only communication regarding land and water management at the time of the research was through the technician from the DPA.

From the water use practices in this community can be concluded that farmers or WUA outside the perimeter of RBL-EP are more or less isolated from governmental institutions. Technicians from the DPA are the only representatives of the government that are present in the community regarding agricultural practices and water use. They assist people using the irrigation scheme, who are organized in WUAs. Farmers outside of the associations practice rain-fed farming and do not receive assistance from these technicians. Being in a WUA in Guemulene clearly brings along some advantages. Irrigated agriculture is reserved for members of WUAs, and seeds are subsidized. From the reaction of the farmer that is not part of a WUA it seems that he is assuming that he is not entitled to enter a WUA or even comment on processes in the community. He also does not feel disadvantaged for not being in a WUA, he seems to accept the situation as it is. The same can be said for the woman that was part of a WUA. It shows that at field level, within the communities there exists a strong hierarchy that is not being

[1] Pers. Comm. staff member agricultural company, who has been involved in business with San Martin in the past, and also commented on the final objective of both San Martin and Wanbao: to produce soy instead of rice, for the Chinese market. I have not been able to verify this, but it is an interesting theory which in time will be proven right or wrong.
[2] Personal comment Japanese engineer Jaeca, 23/10/2012
[3] Interview member of water user association Mbandlane, XX-02, 23/10/2012
[4] One of these NGO's was Jaeca, the Japan-Africa Economic and Culture Association

questioned by the members of the community. People seem to accept that some people have more privileges than others. That being said, no one undertakes action to overcome these differences. It shows the classical top-down structure that has been part of Mozambican governance since colonial times, people have never been encouraged to organise themselves from the bottom-up. People wait for a superior to come and tell them what to do, the typical patron-client relation. In the case of Guemulene, the Japanese NGO Jaeca set-up the irrigation scheme and WUAs. As soon as Jaeca left, most supervision and management of the WUAs was directly taken over by a technician from the DPA. The WUA Mbandlane had no liaison to RBL-EP, the existence of the parastatal was not even known. None of the farmers in the community was registered by UGBL as water user[1]. UGBL did communicate any water related issues to the members of the community. They never heard of the stakeholder platform CBL.

6.4 RBL-EP and stakeholder participation

Decentralization of land and water management seems to have stopped at the local level, embodying itself in state-owned authorities on local level. RBL-EP as regional managing authority however merely seems to function as a puppet of the Provincial government, increasing the grip of the central government on land and water allocation in the irrigation scheme. When interests on a higher level need to be served, RBL-EP is being pressurized by the central government. Although the objective for RBL at the time of the rehabilitation (MDSARP) of the scheme was to "increase the dependable water flow to cultivate approximately 40,000 ha downstream by improving the efficiency of the Massingir dam and the productivity of smallholder farmers in Baixo Limpopo to increase incomes, reduce rural poverty and improve food security" (ADF 2007), the current objective of the scheme has shifted to serve a more commercial goal and a more limited number of actors. The objective of RBL-EP for the irrigation scheme is "to promote the economic agrarian development through (a) support and service provision to agrarian production systems in the irrigated perimeter of the Baixo Limpopo, (b) encouragement the creation of a business community that operates in the value chain of agrarian production" (flyer RBL-EP).

Smallholder farmers in the original irrigation scheme have been organised in *Casas Agrarias* (CAs) by the MDSARP. These CAs are currently not included as beneficiaries for technology transfer by Wanbao and thus prevented to become part of this agrarian value chain. Communities or WUAs outside the perimeter of RBL-EP are fully excluded from the value chain. The only beneficiaries that received technology transfer spin-offs from Wanbao at the time of the research was the emerging farmer association ARPONE. The definition of the beneficiaries, described in the agreement between Wanbao and the provincial government as "peasants in the Xai Xai irrigation scheme, local communities and neighbouring and other communities" would actually be more suiting for farmers from the CAs or communities and WUAs surrounding the irrigation scheme if RBL-EP. Members from ARPONE are clearly not peasants, they all have other occupations beside farming and live in urban areas.

When focussing on water related issues, the transition from management of the irrigation system of RBL by MDSARP under the authority of ARA-Sul to RBL-EP under the authority of DPA has not contributed to stakeholder participation in water management. The regional water managing authority UGBL invited RBL-EP to become a member of the Limpopo stakeholder platform in water management, the *Comité de Bacía do Limpopo* (CBL). By appointing RBL-EP as a member, UGBL holds RBL-EP responsible for communication on water related issues to the water users within their jurisdiction. UGBL expresses they

[1] Cadaster UGBL (Folha Cadastro), not for publication, received 21/9/2012

"hope RBL-EP takes the message from the CBL to its users"[1]. This clearly shows that according to UGBL the responsibility of communication on water management to water users in RBL lies with RBL-EP, not with UGBL. But as the previous section already clarified, this communication is very limited, especially regarding water related issues on a larger scale. Water allocation to large users such as Wanbao are not discussed with other water users in the scheme, let alone water concessions outside of RBL (Chokwe or Massingir). Especially farmers that are not part of the larger 'value chain', smallholder farmers and in particular those that are not organised in WUAs or cooperatives, have no interest in management issues if it doesn't directly concern their own land and water use practices. Even at community level, there exists a hierarchy within the community in which some members have more privileges than others. The council and presidents of the CA's do not seem to be elected democratically, though members of the CAs do not seem to mind. Farmers that are not part of a WUA do not feel deprived of their rights, they simply don't enjoy the same privileges as others. Stakeholder participation in water management in that sense is not encouraged by RBL-EP or UGBL at local level, while at the same time smallholder farmers do not feel the urge to be part of this decision-making arena.

6.5 Conclusion

After the rehabilitation of the Baixo Limpopo irrigation scheme (RBL) by MDSARP, the organisational structure and occupation of the scheme has changed. The parastatal RBL-EP under the authority of the Ministry of Agriculture (MINAG) has brought along changes in the management of the scheme, which was formerly managed by the MDSARP project under the authority of ARA-Sul. The shift in objective from increasing the productivity of smallholder farmers to creating a business community has led to prioritization of farmers that operate in the value chain of agrarian production. Smallholder farmers that were organised in the CAs were excluded from technology transfer from the Chinese company Wanbao, whereas a small elite of 'emerging commercial farmers' in the WUA of ARPONE were not.

Achieving economic development has mainly focussed on foreign investors in the irrigation scheme, such as the Chinese megaproject of irrigated rice of 20,000 ha. The introduction of Wanbao into the perimeter RBL-EP indicates the prioritization of the central government of large agricultural investments over the development of smallholder farmers in the scheme. The allocation of land and water to Wanbao has been decided upon at national level, overruling rights to land and water of the local population. RBL-EP has been used by the central government to legitimize this allocation, by expanding the perimeters of the parastatal to cover the area allocated to Wanbao. This way, community consultation by Wanbao could be avoided because the land then belonged to RBL-EP and thus MINAG.

None of the other water users within the perimeter of RBL-EP have been consulted on the land and water allocation to Wanbao, let alone the water allocation to MAI 200 km upstream. There is hardly any communication between the different users in the scheme, all contact occurs through RBL-EP. Users in the scheme are not consulted on water related issues, and none of the user groups in the scheme are members of the stakeholder platform for water management, the CBL. RBL-EP is a member of the CBL, and represents all users in the scheme. Water users outside the perimeters of RBL-EP are not aware this platform exists. However, several users that are represented by RBL-EP in the platform, are not also not aware of the platform or if they are, what is being discussed.

Access to land and water thus varies between the different users in the Valley of Baixo Limpopo. Whereas farmers in the CAs are mainly farmers that have been occupying the land for a long time, other farmers

[1] Interview director UGBL, AS-01, 10/9/2012

have been deprived of their right through 'traditional occupation'. Smallholder farmers have been evicted from their land in the Ponela 2 Block, making room for an elite that mainly existed of officials with a high socio-economic and financial rank. Within the CAs, presidents attain a prominent role in negotiations with RBL-EP. They function as gatekeepers for the rest of the community. Since RBL-EP lacks funds to maintain or construct parts of the infrastructure of the irrigation system, foreign investors make deals to construct the infrastructure themselves, such as CAFA and Wanbao. By doing so, these companies attain a powerful position for negotiations, whereas others remain dependent on services provided by RBL-EP. Fees to RBL-EP therefore vary, though these fees do not include payments for water. At the time of the research, none of the water users in the valley of Baixo Limpopo were paying water fees to RBL-EP or UGBL.

7. WATER LICENSING OF SMALLHOLDER FARMERS

The introduction of IWRM in Mozambique has resulted in the setting-up of regional water managing authorities, the ARA's, as well as stakeholder platforms. The fourth principle of IWRM suggests water should be considered as an economic good and should therefore be charged accordingly. In the Limpopo Basin UGBL has started a programme to identify and register water users for water payments. This cadastre forms the basis for UGBL for the implementation of IWRM principles, through the identification of stakeholders and the introduction of water payments[1]. Common water use is free of charge but also needs to be registered according to the 1991 Water Act (*Lei de Águas*). The cadastre as was being created at the time of the research however, only included water users that required licensing. This chapter discusses the process of water licensing and registration in the Limpopo Basin by UGBL, focussing on how the registration of smallholder farmers is being carried out. This process includes the identification of the water users as well as their water use practices and finally the introduction of a payment system for the water that is being consumed. The first section elaborates on how the water payment system is being implemented. Section 7.2 discusses how the introduction of water pricing affects the process of enhancing stakeholder participation for smallholder farmers.

7.1 The introduction of water pricing

Following the principle of the economic value of water, a Gross water tariff was established in the Water Tariff Policy (Decree 60/98) in 1998 (Magaia 2009). The 2007 Water Management Strategy (DNA 2007c) declares water has an economic as well as environmental, social and cultural value. Water is regarded as an important factor for economic development in Mozambique therefore also for reduction of poverty. Water tariffs should reflect operation and maintenance costs of water provisioning structures (*Estrategia Nacional de Gestão de Recursos Hídricos 2007*). The 2007 Strategy does not comment on market principles of this economic value or to increase the awareness that water is a finite resource.

In the Limpopo Basin, the principle of the economic value of water is also being introduced by ARA-Sul through their Basin Management Unit UGBL. The aim of introducing water payments is to recover the costs of maintenance and operation by UGBL by collecting fees from water users in the basin for the use of water and hydraulic infrastructures. A national water register is also being set-up as part of the Water Tariff Policy, in order to identify and register all water users. Implementation of water pricing in the Limpopo Basin however has been a slow process, not to say problematic.

The regional water managing authority ARA-Sul has great problems in collecting payments for water. ARA-Sul first established water tariffs for public water users such the drinking water company FIPAG and the Chokwe irrigation scheme HICEP. But the destruction of large parts of the Chokwe irrigation scheme by the floods of 2000/2001 have rendered HICEP incapable of paying the water tariff to ARA-Sul (website LimpopoRAK, consulted on 20/8/2013). Another constraint in introducing water pricing is that there are a lot of small scale water users in the basin that have not yet been identified by ARA-Sul. In the Limpopo Basin, ARA-Sul has set up a programme to identify the water users according to the National Water Register, which is carried out by four members of the basin management unit UGBL[2]. UGBL is cooperating with 'focal points', volunteers residing in the basin who are mainly water users

[1] Interview staff member UGBL, UGBL-01 21/9/2012
[2] Interview staff member UGBL, UGBL-05, 8/11/2012

themselves. Focal points often hold a high socio-economic position, and mediate between UGBL and other water users. They assist in identifying water users and the collection of water fees. Focal points are a useful tool because UGBL has a limited workforce and financial capacity to identify and contact all water users. Focal points are strategic points for UGBL, because they have knowledge on water use practices at local level and are able to bring UGBL in contact with water users. According to UGBL and a focal point, farmers in municipalities elect the focal points which then become their representative. But it seems that the farmers involved in this election are only a small group and do not represent all the water users in an area. It is a chicken and the egg tale. In order to reach the farmers, UGBL needs focal points. Focal points are elected by farmers, which in that case can only be farmers that are already in contact with a focal point. Especially small scale water users that live in remote areas are difficult to identify and contact, and thus remain invisible for UGBL if they have no relation to a focal point. Therefore focal points play an essential role in the identification process.

An important complication in the registration of water users, is that UGBL currently only registers water uses that require a water license, i.e. common water uses as described in section 3.2.2 are free of charge and are therefore not being registered. According to the 1991 Water Act common uses always have priority over other types of use and should also be registered as official water user. This was not done at the time of the research. According to a staff member of UGBL, this was mainly due to their limited capacity in work staff to register all users. Therefore the registration of water users was first only confined to large water users cultivating plots larger than 5 ha[1]. But by not registering common uses, these water users remain invisible for UGBL. Inclusion of common water users in the management and planning of water resources therefore is being hampered through this invisibility. It seems the choice of UGBL to exclude farmers cultivating plots smaller than 5 ha from registration is mainly motivated by financial interests. Water fees from these smallholder farmers are negligible or even zero when it considers common uses of water. Registration and legislation however, requires financial input from UGBL. Another, perhaps favourable result is that UGBL hereby reduces the number of water users by that need to be informed and consulted on water related issues.

7.2 Stakeholder participation and water pricing

From the procedure of water licensing as described above it can be concluded that the registration of water users by UGBL serves the objective to recover the costs of the service of water resource management in the basin. Common uses are free of charge and thus are not beneficial for cost recovery. There is also a group of water users that is being registered but does not receive a water license. These water users often are individuals or WUAs that practise irrigated agriculture on a small scale using a pump or other mechanic devices.According to a staff member of UGBL who is coordinating the user registration process in the Basin, it regards farmers that use irrigated agriculture on an area smaller than 5 ha. On the cadastre however, there are many farmers listed that have areas ranging between 2 and 5 ha. I conclude from this that there is no guideline for UGBL to determine whether a water user should or should not be registered. The distinction between water users that are registered and those that are not is made by the staff members of UGBL that are involved in the registration process.

The reason behind the fact that small scale water use is not being licensed accordingly is that the costs of licensing a water user are often higher than the water fee[2]. Registration of a water user on the other hand only entails writing down the name and GPS position of a water user in an excel file, whereas a water

[1] Interview staff member UGBL, UGBL-05, 8/11/2012
[2] Interview staff member UGBL, UGBL-05, 8/11/2012

license is a legal document. A water user or WUA needs to have official documentation in order to receive a license, which in many cases is not present. Rural populations often do not have an official ID or address, so water licenses cannot be issued.

According to a staff member of UGBL at the time of the research, registration of the water users was still in an initial phase. Eventually UGBL plans to register all water users, but at the time only medium to large water users were being registered and licensed, with irrigated areas starting at 5 ha and upwards[1]. Focal points were not used for communication on things other than registration and licensing. They were appointed as the tax collectors for water users in their network, and appointed for this purpose only[2]. It is not clear if focal points receive any payments or other privileges for these activities. It was argued by one focal point that the task was on a voluntary basis and he was not being paid by UGBL for his services[3].

I will illustrate the functioning of focal points through an example in Massingir district. One of the focal points in Massingir explained he was elected by farmers in the municipality. He happened to be the former director of the WUA ASAMA from the Maringuele community. His task as focal point was to collect water fees from 11 water users, individuals as well as some WUA's. The water bill from UGBL was delivered to the focal point, who then contacted the users on the list to inform them how much they had to pay. At the time of the fieldwork none of these users were paying, although they were being charged. I visited several water users from this list, from which the individual users were members of a community with a high public function. Other water users on the list were WUAs managed by NGOs (Figure 16)[4]. In the community of Macaringue, members of a WUA from the list of the focal point were a party member of FRELIMO, with a public function as police officer. Another member was a school teacher. The *líder communitaria* of Macaringue was one of the individual farmers on the user list (Figure 17). He was also the brother of the focal point. The focal point was originally from Macaringue, therefore most of the water users under his wing were located there. When asked, members from the WUA as well as the community leader claimed they were only registered as water user but did not need to pay for their water use, since they used very small volumes of water. UGBL came by once together with the focal point to register the official water users and inform them on the Water Tariff Policy. According to the cadastre of UGBL, the community leader received a water use license for a potential area of 3,000 ha but was not irrigating. According to the community leader he was using irrigation and a pump, but he was not paying for the water[5]. The water users on the list of the focal point commented that if the law prescribed that water must be paid for, they would pay for the water. However, they also commented that if they were to pay water fees to UGBL, they expected to receive a certain amount of service as well. Several water users in Macaringue were affected by sudden floods in January 2012, because UGBL released vast amounts of water from Massingir dam is a very short time without an early warning. Lots of water users lost their pumps, and standing crops were washed away. The water users in Macaringue were not satisfied by the lack of communication of UGBL.

The emergency releases from Massingir dam in January 2012 were caused by high precipitation in South Africa, and the deficit of Massingir dam to release water from the destroyed outlet pipe. Water levels in Massingir lake could not be lowered, only to the level of the spillway. UGBL responded to the rapid filling of the lake by releases a large volumes of water over a short period of time, so the stability of the dam would not be jeopardized. The short time lapse however caused that information on the flood releases did not reach all users in time, and lots of hydraulic infrastructure was destroyed by the floods.

[1] Interview staff member UGBL, UGBL-05, 8/11/2012
[2] Interview director UGBL, AS-02
[3] Personal comment Focal Point UGBL, 26/9/2012
[4] Field visits to Chinhangane and Macaringue, MASS-05, MASS-06, 3/10/2012 and MASS-03, MASS-04, 27/9/2012
[5] Interview community leader Macaringue, MASS-03, 27/9/2012

The floods also affected the WUA 'Chalamuca' from the community of Chinhangane. This WUA, also on the user list of the focal point, lost their pump and the irrigation scheme was destroyed. Chalamuca is set-up by the NGO World Relief, which provided a high-tech drip irrigation system to the WUA. World Relief is also the managing authority of the scheme, thought they mainly function as training facility for the farmers. Chalamuca was already in the phase of receiving a license from UGBL, though at the time of the research they were not paying for the water.

The water users from Macaringue and Chinhangane commented that if they were to be licensed by UGBL and start paying water fees, they expected services in return. The WUA Chalamuca claimed then the State should take over the responsibilities of the NGO World Relief. The farmers in Macaringue argued they expected to be reimbursed for the losses after the 2012 floods[1]. Water users at the local level are concerned with provision of a predictable flow, and expect to be informed in times of emergencies. The large water concession to MAI in this case, was not of interest to the users. Since the construction of Massingir dam, they have always had enough water, meaning that a scenario with a deficit in water is not perceived by these users. Changes in the flow regime by water allocation to MAI have not been discussed at local level and are therefore not a concern. Whereas UGBL is making an effort to identify small scale water users, and register them, this example proves that active user participation on this scale is not on the agenda for UGBL.

7.3 Conclusion: participation or cost recovery?

The process introducing water payments in the Limpopo Basin indicates fees are mainly collected for the objective of cost recovery by UGBL. But how does this relate to the objectives of a participatory approach in water management? As stated already in section 2.3.1, the Global Water Partnership argues that (website GWP):

"governments should work to ensure participation of all stakeholders, in particular, vulnerable groups of the population. Poor groups of the population will benefit least from a mere participatory environment without enhanced participation mechanisms. Decentralizing decision making to the lowest level is the only strategy to enhance participation"

In this case, the most vulnerable group of the population are those that are invisible for policy makers and implementers, i.e. common uses of the water resource. Even though UGBL is increasing its network of water users down to community level, this network only serves for cost recovery of the services provided by UGBL. Small scale water users are not informed on water related issues, none of the small scale users was aware of the existence of a stakeholder platform for water users. The focal point from Massingir was not totally sure about his knowledge on a stakeholder platform. When I informed him on the *Comité de Bacía*, he first said he was present there, but it later turned out he was referring to another committee or reunion where he acted as representative of the water users under his wing.

However, it seems that the term *Integrated* Water Resource Management has an entirely different meaning in the Limpopo Basin, most likely in most of the other river basins of Mozambique as well. Water registration and raising awareness of the economic value of water is regarded as a totally different feature compared to a participatory approach. Since UGBL is still in an initial phase in the registration of water users, focal points can be versatile in their functioning. Since the focal points are the direct link between

[1] Interviews water users in Chinhangane and Macaringue, MASS-05, MASS-06, 3/10/2012 and MASS-03, MASS-04, 27/9/2012

UGBL and water users, focal points can also be used to inform water users on important issues such as water allocation to the megaprojects of MAI and Wanbao.

But as the definition of GWP already mentions, especially vulnerable groups of the population should be regarded. Since focal points are mainly represented by an elite of water users with high socio-economic positions and registration of water users merely serves for the collection of fees, these vulnerable groups are left out of the network of water users of UGBL. Concluding, the objective to reach water users to the lowest level only concerns the collection of water fees. The only mechanisms that UGBL is using to reach these lowest levels are focal points. These focal points however are solely used for the collection of fees, and have no business with decentralization of decision-making.

Photo © author 2012 (Photo: Annika Meuche, 27-09-2012)

Figure 16 – Water pump in Macaringue, owned by a water user association

Photo © author 2012 (27-09-2012)

Figure 17 - Truck of Macaringue community leader with tomatoes for market in Massingir

8. COMITÉ DE BACÍA DO LIMPOPO

"To ensure sustainability and rational use of resources, participation of communities and water users will be promoted, with emphasis on the role of women in planning, implementation, management, use and maintenance of infrastructure of water supply and sanitation, so that the solutions adopted meet the desires and economic capacity of communities.""

Section from the 2007 Water Policy

The previous three cases have illustrated how water management at local level is being carried out and how important issues are communicated between the water managing authorities and water users. This chapter describes the functioning of the official stakeholder platform in the Limpopo Basin, the *Comité de Bacía do Limpopo* (CBL). The foreword of the statutes of the CBL mentions that the committee is set up to facilitate "*participation of beneficiaries during the phases of planning, implementation and management of operation and maintenance*" (Box 4). In this chapter I will elaborate on how this 'participation of beneficiaries' is being interpreted by UGBL and how this official arena of water management is functioning. The previous chapters have already described important issues in water management in the basin. I will use these cases to demonstrate how the arena of water management is being shaped in this formal stakeholder platform. But beside the official ways, informal arenas exist in which important decisions in the basin are being made. The functioning of these formal and informal platforms shows once more the importance of the hierarchal relations in the Mozambican society. Section 8.1 illustrates the how the formal platform, the CBL is being set-up, followed by the functioning of the platform in section 8.2. This section elaborates on the issues that are being discussed and in what form. Section 8.3 discussed the outcome of the interaction of the CBL as well as other arenas in which decision-making is taking place.

8.1 Composition of the CBL

The formal stakeholder platform CBL was first set up in 1998, but has been functioning regularly since 2004 (Ducrot 2011). The CBL has two ordinary meetings per year and in times of extreme weather an extraordinary meeting. UGBL appointed stakeholders that would be invited to the meetings of the CBL. The statutes of the CBL indicate the committee should have 13 members. The appointed stakeholders selected who these members should be[1]. According to the regional water authority ARA-Sul, every basin committee should have representatives of large, medium and small scale water users, WUAs, public and private institutions and local authorities (website ARA-Sul). The statutes of the CBL indicate the what

[1] Interview chairman CBL (director UGBL), AS-02, 8/11/2012. There is some unclarity on how the members and participants of the committee have been selected. It seems UGBL appointed the 'beneficiaries' in the first place, who then selected the 13 members for the CBL among each other.

should be the representation of the members of the committee. Table 3 indicates the description in the statutes of the CBL, and the actual representation of the members at time of the research.

Nr	Statutes	Actual
1	*Director of UGBL*	*Director of UGBL (chairman of CBL)*
1	*Representative of the Provincial government*	*Representative of the Provincial Directorate of Public Works and Housing (DPOPH)*
1	*Representative of the Ministry of Coordination of Environmental Affairs (MICOA)*	*Representative of the Provincial Directorate of Environment (DPC Ambiental)*
1	*Representative of Provincial Services of Rural Extension (SPER)*	*Representative of the Provincial Directorate of Agriculture (DPA)*
2	*Representatives of irrigation associations*	*Director of Associação de Desenvolvimento de Communidades Rurais* (ADCR) *Director of Mocfer Industries Alimentaires (MIA), Chokwe*
2	*Representatives of private farmers*	*Farmer from Chokwe (Mr. A. Taelane)*
2	*Representatives of agricultural enterprises*	*Empresa Capelas Mohambe, Chibuto*
2	*Representatives of management entities of irrigation perimeters*	*RBL-EP* *HICEP*
1	*Representative of industries*	-
	-	*PNL*

Table 3 - Representation of members of the CBL, according to the statutes and actual representation at the CBL meeting of November 2nd of 2012

As can be derived from the table, the actual number of members in 2012 was 12, and the representation according to the statutes was not as such. The Limpopo National Park (PNL) is not mentioned in the Statutes and a representative of industries was not there. There was only one representative of private farmers. Smallholder farmers are not directly a member of the CBL, but according to the statutes are represented by irrigation associations. The representatives of these associations however are not smallholder farmers themselves. In fact, one of the representatives is the director of an NGO in Xai Xai, *Associação de Desenvolvimento de Communidades Rurais* (ADCR). ADCR is an organisation that assist in capacity building of rural communities, which are the *Casas Agrarias* (CAs) in RBL. It is worthwhile to mention that he is a brother of the former Mozambican president Chissano. Though nothing can be concluded from this family tie, it shows that the representative for smallholder farmers again is a person with a high social-economical and clearly political family background. ADCR is an overarching NGO, not focussed on water related issues in particular. The director of ADCR owns 10 ha of farmland in the perimeter of RBL, in the emerging commercial farmer association ARPONE, and therefore also represents the private farmers in

the CBL[1]. The director commented that he does feel it is his responsibility to transfer information from the CBL to the people he represents. He stated that important issues will be transmitted to water users, such as extreme weather forecasts, but this is mainly done by the District government. Water allocation issues were not being mentioned as important issues by the director. He also commented that communication from water users to the CBL should not be channelled through him, but through Administrators of the District. This clearly shows there are several communication channels, of which the 'formal' channels seems to be the District government and Administrator. Here the question rises, what is the meaning of the word 'representative' in this case? It seems the representative of smallholder farmers is an individual unit that establishes the position of the people he represents. It seems he believes there is no need to discuss water related issues with these people. When asked, none of the respondents from the CAs was aware of the existence of a the CBL. They were neither informed by the District government on water related issues such as water allocation to Wanbao or MAI. So it seems that there is an enormous disfunctionality in the exchange of information between the members of the CBL and the people they represent.

Another example of how members of the CBL see themselves in transmitting information is the membership of the Limpopo National Park (PNL) from Massingir District. The PNL is not a water user, but regards itself as an important stakeholder because the PNL safeguards the quality of the water through preservation of the ecosystem. The park warden is the representative in the CBL, but another member of the park board who is responsible for communities living in the park had no clue about what was being discussed in the CBL. He argues the CBL "is a high level thing". The park warden also stated transmitting information from the CBL to other people such irrigators in communities within the PNL is not his role, but the role of the District government. His role in the CBL is only to safeguard that they are reimbursed for water quality conservation and therefore he does not need to communicate with other stakeholders in the PNL[2]. But then again, who is representing these stakeholders?

But the overall representation of the stakeholders in the Limpopo Basin must also be questioned. For the irrigation scheme of RBL, there is an overlapping representation amongst the members of the CBL. There is the director of ADCR, representing the CAs so it seems, he also represents the private farmers in ARPONE, and there is RBL-EP, which is representing all users within the scheme (see also chapter 6). But these are all organised WUAs within an state-owned irrigation scheme. What about the smallholder farmers in the rest of the basin? This is a point of discussion within UGBL as well. The chairman of the CBL commented that the members that are currently in the CBL should be revised, because water use practices have changed in the basin. Megaprojects are being introduced in the basin and the number of WUAs is increasing. New water users have been identified recently, but some zones within the basin do not have a representative in the CBL yet[3].

Beside the 12 members, there is a large list of 'invited people' (*convidados*). These are people that are invited by UGBL to participate in the CBL, according to their 'influence and need' in water management[4]. The chairman of the CBL pronounced them to be people that have something to say about water management. According to the invitation list of the meeting for November 2nd of 2012, the majority of these *convidados* were government officials, District Administrators and directors of the District office of economic activities(SDAE). Others are staff members of ARA-Sul and FIPAG and three commercial agricultural enterprises. There were two association representatives. The total number of people that were or member or invited was 49.

[1] Interview director ADCR, , ADCR-01, 19/10/2012
[2] Interview park warden Limpopo National Park, PNL-02. 5/11/2012
[3] Interview chairman CBL, AS-02, 8/11/2012
[4] Interview chairman CBL, AS-02, 8/11/2012

The chairman of the CBL (the director of UGBL) commented that the meetings of the CBL are public, anybody with an interest in water management can participate. But as the chairman already indicated, there is a clear line between people that are invited and those that are not. The meetings of the CBL are not publically announced in a journal or on a website. The members and *convidados* receive a personal invitation. This has mostly to do with financial constraints. The meetings of the CBL are paid for by the members themselves, reducing the financial capacity of the CBL to compensate for travel costs for example. Stakeholders that are invited to attend meetings of the CBL have to arrange transportation on their own expense. To increase the accessibility of the meetings, the location of the meetings rotates between District capitals in the basin. By rotating the location of the CBL, UGBL tries to increase participation of all stakeholders. The Limpopo Basin is very large, and transportation is major constraint for people to attend meetings of the CBL. Until recently, the meetings were held in Chokwe, which is quite central within the basin. By rotating the location of the meetings, stakeholders in remote areas can thus attend the meetings when they are organised in the vicinity. The meeting I attended on November 2nd 2012 for example was organised in Mabalane, Mabalane District. The attendance of stakeholders during that meeting was therefore dominated by people from Mabalane District.

As already mentioned in chapter 7, focal points were not invited to the meeting of the CBL. According to the director of UGBL and thus the chairman of the CBL, focal points were only a tool in establishing a payment system for water use. He also mentioned that the transmittance of information from the CBL is done by the District government, not UGBL. The District government has the responsibility to inform the population[1]. But here again it becomes clear that this formal channel on information transfer does not function, since smallholder farmers are not informed on what is discussed in the platform.

For the meeting of the CBL of November 2nd 2012 a total of 49 people were invited[2]. Many of those invited and some of the members were not present at the meeting. The number of people that attended the meeting was around 50. This indicates that there were people present that were informed about the meeting, but not officially invited. I refer to these communication channels as informal communication channels, because formally, UGBL does not invite others than members and *convidados*. But it does show the meeting can be attended by 'uninvited people'. Another observation during this meeting caught my attention, based on a section from the 2007 Water Policy as mentioned in the quote introducing this chapter. The percentage of women present at the meeting of the CBL in Mabalane was less than 5%. But these women all positioned high level functions. They were a shareholder of MAI, a staff member of HICEP, a representative of the District government of Mabalane and the secretary of the director of the CBL. But these are not the women the Water Policy of 2007 is referring to. It clearly underlines the role of women in communities. These women were not present at the meeting.

Concluding, the composition of the CBL is fully controlled by UGBL. Smallholder farmers are represented by an organisation without being aware a stakeholder platform exists. Members of the CBL that represent a group of stakeholders do not feel it is their responsibility A large constraint in attendance of the meetings by invited stakeholders is the lack of financial capacity of the CBL. The result is that stakeholders with a lower budget are not able to attend meetings when these are not held nearby. Obviously, those stakeholders are smallholder farmers, that do not have their own transportation or financial means to travel. The CBL, which was established as advisory body for the UGBL, is thus only accessible for again an elite of stakeholders with sufficient financial capacity. The participation of communities in the CBL is strongly emphasized in the statutes of the CBL, with special attention given to the participation of women. However, this group was not represented as such in the meeting of the CBL of November 2nd in 2012.

[1] Interview director UGBL, AS-02, 8/11/2012
[2] Invitation list CBL meeting 2/11/2013

8.2 Points of discussion

The meetings of the CBL are organised twice a year, just before the rainy season and at the beginning of the dry season. Topics that are customary during meetings are weather forecasts, basin hydrology and infrastructure, finances and water tariffs and often functioning of the dams in the basin. The meeting of the CBL that I have attended on November 2nd in 2012, the customary topics were being discussed, but there was also a presentation by an employee of the sugar cane project Massingir Agroindsustrial (MAI). The timing of the presentation seemed very strategic, since the water license was under discussion at ARA-Sul but had not been issued yet. The presentation of MAI had a clear objective to convince the attendants on the benefits of have a water intake directly from Massingir lake. The size of the water concession was not point of discussion. When considering this, the different intake options should not be that important for downstream water users if water would be abundant. However, the possibility of ending up with a scenario that left the downstream irrigation schemes of Chokwe and Baixo Limpopo with a deficit of water was not on the agenda. The PowerPoint presentation of MAI did mention that the water demand for the project would slowly increase to an estimated volume of 682 million m^3 per year by 2020. This is even more than was predicted by the model of van der Zaag et al. (2010). It remains unclear whether this large allocation of water to MAI, or formerly to ProCana has ever been discussed in the CBL. But I concluded from the reactions of the attendants at the meeting that they were not aware of (the severity of) this issue[1].

8.3 Outcome of the interaction

The issuing of the water license to MAI provides a good example of how and where decision-making is taking place in water management. Though MAI presented the project in Massingir at a meeting of the CBL, there was no consultation of the stakeholders that were present. There was room for discussion, but stakeholders could not vote or proclaim if they were in favour or against the water concession. When the meeting was over, the representative of MAI that held the presentation told me that this meeting had no influence on the decision on the water concession[2]. He felt it was important to get the support from other water users in the basin, but more for future relations. He explained the decision on the concession was taken at the 'highest' level. It can be disputed what is being indicated with this highest level. According to the 2007 Water Policy:

"*increased stakeholder involvement will be encouraged through the process of decentralization of the decision-making mechanisms and through a wide and pro-active dissemination of information on water resources and water uses. The decision of water allocation and prioritization of projects will be the responsibility of local governments under the Local Government Act, and the Ministry of Public Works and Housing, through the National Water Directorate, to ensure the management of water resources to achieve the strategic objectives of the Government.*" (Box 2).

The decision-making mechanisms however, do not seem to function to increase stakeholder participation. It is not only that decisions regarding important issues on water allocation are taken to a higher level, stakeholder participation in decision-making in water management in the current setting is practically non-existent. The stakeholder platform CBL is being used for transmittance of information and weather

[1] Observation meeting CBL, 2/11/2012
[2] Personal comment staff member MAI, 2/11/2012

forecasts in the Limpopo Basin. The members of the CBL are not representing the total of water users in the basin. In fact, smallholder users not represented at all. Or if they are, they are not aware they are being represented let alone are informed of the existence of a stakeholder platform. The CBL was created by the central government at the time of the 'decentralization process' of the water authorities. The objective of the platform however, completely misses its target.

9. CONCLUSION

With this research I have investigated how the principle of a participatory approach in water resource management, which constitutes a key element in IWRM, is being effectuated in Mozambique. The definition of stakeholder participation as defined by the Global Water Partnership focusses not only on decentralized governance, but clearly states that decision making should be incorporated down to the lowest level. Politics of water management are often referred to as the social interactions on national and international governance levels, though politics in water resource management is not only confined to state governance of the water resource. Different arenas in which water management is being practiced have been investigated in this research, at different policy levels.

With the 1991 Water Act, water management in Mozambique has shifted (1) from administrative boundaries to resource-based boundaries (2) from centralized state-managed towards decentralized stakeholder-based governance, and (3) from public management structures towards privatization of water management (Bolding 2004). This has led to the creation of decentralized water managing authorities, ARAs. In the Limpopo Basin in Mozambique, the water managing authority UGBL is responsible for implementing the principles of IWRM in the Basin. Four case studies from the Limpopo Basin have shown that the arenas of decision-making in water management do not incorporate all stakeholders, but only a small elite.

In the case of the water allocation to the company of MAI, planning on exploring and area of 37,000 ha for irrigated sugar cane, water users in the basin downstream of Massingir dam have not been informed on the effects of this enormous water concession. A model of the available water in the Limpopo Basin predicts that downstream users in Chokwe and Baixo Limpopo will experience water shortages if the water concession to MAI is issued (van der Zaag et al. 2010). In the irrigation scheme of Baixo Limpopo (RBL), the Chinese company Wanbao is preparing almost 7,000 ha of land for irrigated rive cultivation. The parastatal RBL-EP managing the perimeter of RBL represents water users under their jurisdiction, but has not consulted its users on the large allocation of land and water to Wanbao. RBL-EP has neither informed its users on the large water allocation to MAI upstream in the basin.

At local level, WUAs or other farming cooperatives are often presided by individuals that have not been elected democratically, but often already hold a high socio-economical position. All communication and negotiations has to go through the president or leader of these associations. In communities, this person is the community leader. These gate-keepers gain easier access to goods and services, and have a better position for negotiations. This hierarchy of patron-client relation prevents clients to participate in negotiations or the decision-making processes. But these gatekeepers are present at different levels, often giving shape the arenas in which water management is being practiced. At basin level, RBL-EP also functions as a gatekeeper, a patron controlling processes of water users, -clients- within its perimeter.

The official stakeholder platform for water management in the Limpopo Basin, the *Comité de Bacía de Limpopo* (CBL) is being set-up as part of the decentralization of water management. However, this platform merely functions as an advisory body. Stakeholders representing the water users of the Limpopo basin are actually not consulted on these large water allocations to MAI and Wanbao.

At community level, smallholder farmers are not aware that a stakeholder platform exists, even though they have 'representatives' in the CBL. Especially smallholder farmers that are not organised in WUAs and live in remote areas are not represented in the CBL. Smallholder farmers are gradually introduced in the water payment system by registration. This introduction of the economic value of water however does not seem to have the objective of creating awareness that water is a finite resource. Water fees are only

charged if it is financially beneficial to UGBL. Through focal points UGBL is mapping the water users in the basin. These (smallholder) water users are however not included in the decision-making arena of water management. Focal points are used for the mere purpose of the collection of water fees. The representatives of smallholder farmers in the CBL again are part of a small elite that holds a high socio-economic and political rank. Focal points are not invited to the CBL, and are not consulting or informing smallholder farmers on water related issues in the basin.

The different arenas in which water management is practiced are shaped in the classical patron-client hierarchy, allowing a small elite to be in charge of the decision-making process. The current implementation of a 'participatory approach' in water management in Mozambique therefore only increases the gap between the lowest level of the population, i.e. common users of the water resource, and large commercial actors and the state.

10. DISCUSSION AND RECOMMENDATIONS

With this research I have explored how the principles of IWRM have been implemented in the Mozambican water governance. Whereas IWRM principles indicate prerequisites for the successful implementation of these principles, it must be questioned to what extent these demands can be met. This research has shown that introducing stakeholder participation in water management in severely obstructed by patron-client relations. The Global Water Partnership argued that:

"governments should work to ensure participation of all stakeholders, in particular, vulnerable groups of the population. Poor groups of the population will benefit least from a mere participatory environment without enhanced participation mechanisms. Decentralizing decision making to the lowest level is the only strategy to enhance participation"

This proofs to be very difficult in a countries where state presence has been dominant, and participation in the political arena is mainly absent at the lowest levels of societies. The history and culture of a country is very important to take into account when IWRM is implemented in a country. For Mozambique, the effect of the implementation of the principle of a participatory approach in Mozambique must be questioned. Currently, half measures are being taken in the decentralization process of water management. Decentralization of water managing institutions have resulted in the creation of ARAs, but decision-making is still centralized. It becomes clear from the cases in this research that principles of IWRM, that is, stakeholder participation but also assigning an economic value to water, are interpreted differently in Mozambique than the international discourse.

The theory of Mollinga (2001) on different arenas in which water management is being practices proofed a very suitable framework for my research. Especially in Mozambique, the hierarchy of society plays an important role in shaping the different arenas of decision-making. My third research question (RQ) is based on Mollinga's definition of arenas. RQ 2 on water use practices at local level has complemented RQ 3 on filling in how these arena are being created. This could be a useful contribution for future research to further elaborate on how these arenas have come into existence.

I have performed this research with little knowledge on theories from the social sciences. During this research I have learned how to use different theories and concepts to clarify the aims of my research. The conclusions I have drawn from the different case studies indicate the importance of the hierarchical structure of Mozambican society. This topic would have been interesting to approach using the patron-client theory.

A difficulty performing this research is also caused by the patron-client relationship in Mozambique. Because there is a very clear hierarchy, it is very difficult to reach the 'lowest levels of the population'. In communities, you first have to visit the leader who then appoints the people you can interview. This way a large part of the population remains invisible. People often did not want to comment on why they hold a certain position, impeding my search on the process of how people have been elected as president of a WUA, or as focal point, or any other position.

Another difficulty I faced, was to visualize the scope of my case studies. I was very focussed on geographical boundaries, while at a later stage I realized the importance of linking the cases of Massingir and Baixo Limpopo. At the time of the field work, I was too much focussed on two separate cases. It would have been very interesting to include Chokwe water users, in particular HICEP into the case studies.

To enhance stakeholder participation in water management, it is important for the Mozambican water authorities to recognize the difficulties in implementing this is the hierarchical society of Mozambique. In the Limpopo Basin, the stakeholder platform CBL is being set up with the objective of:

"*arranging services according to the wishes and economic capacity of the beneficiaries themselves, and thereby improve the sustainability of the systems"* (Box 4).

If the CBL is to function as an actual decision-making platform, then the responsibility of the functioning of the platform might have to shift from UGBL to the beneficiaries themselves. Now the CBL is only financially compensated for by the members, but what is being discussed is controlled by UGBL. To effectively implement a participatory approach in water management, "*enhanced participation mechanisms"* (website GWP) are indeed necessary. By disconnecting registration of water users from stakeholder participation, UGBL is only impeding the process participatory management. The principle of IWRM that water is an economic good mainly aims at raising awareness that water is finite resource. Payments for water are regarded as an important way of achieving efficient and equitable use. By introducing water payments in combination with participation in the decision-making process, water users will be more willing to start paying for the water, but also participate more in water management, since it is a service they have to pay for. By using two completely different systems for stakeholder participation and payments for water, UGBL misses the target of IWRM. The construction of UGBL to use focal points for the identification of water users should go hand in hand with the introduction of a participatory approach. This could be a start close the gap between the "lowest level" and the government. Focal points however fit perfectly into the patron-client relationship. It will be very difficult to really crack open the closed structures in the Mozambican hierarchy, though good communication channels are the first start.

In the case of RBL-EP, the decentralization process of water management institution is not aligned with the managing structure of the agricultural institutions. UGBL places the responsibility of disseminating information to the users in the RBL scheme with RBL-EP, whereas RBL-EP passes it on to the District government or UGBL. If the different governmental institutions fine-tune which actors are responsible for communication to water users, then it becomes more clear to the water users as well where to place their comments or retrieve information. Stakeholder participation is a process in two directions, and communication channels should be aligned.

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APPENDIX I - time schedule research (2012)

Month	Week	
September	3-9	Maputo, logistics, conference IESE
	10-16	Xai Xai, first orientation
	17-23	Xai Xai, interviews / Chokwe interviews and orientation UGBL
	24-30	Massingir, first orientation, interviews and field visits
October	1-7	Massingir, interviews and field visits
	8-14	Maputo, interviews / conference ARA-Sul Pequenos Libombos
	15-21	Xai Xai interviews
	22-28	Xai Xai interviews
November	29-4	Maputo, Chokwe, Mabalane. Interviews and CBL meeting
	5-11	Massingir and Chokwe, interviews and data processing
	12-15	Xai Xai, interviews and data processing
		vacation
December	5	Maputo UEM Presentation
	7	Massingir, presentation and group discussion
	10	Xai Xai, presentation and group discussion