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Women's access to safe water
-In times of change and uncertainty

A case study from Mangapwani in Zanzibar, Tanzania

University of Gothenburg
Department of Human and Economic Geography
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Geography Program
Bachelor Thesis in Geography
December 2010

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Abstract

The main concern of this thesis is to find out how the potable and safe water situation in one village in Zanzibar affects the lives of the women and how the women experience the situation. The focus is on what kinds of constraints there are on a local and administrative level that may affect women's access to water.

The current UN definition of access to water is in its definition an abstract rough measuring of distance and time spent. Research within the field show that access to water is more complicated as there are several constraining factors that affect whether water is accessible or not. On a global level there has been a policy shift within the water sector during the latest decades towards market-based solutions where water is being recognised as an economic good. As an effort to counter balance this process the UN has stated water to be a human right. Still, the neo-liberalisation of water projects in developing countries has led to structures of decentralising water management to the communities, tariff implementation, and cost recovery. Feminist critics have illuminated how, women as an effect of these implementations, have been pushed further to the margins even though they are considered important stakeholders because of their role as water managers in the majority of the developing countries.

By examining the women's situation regarding water in Mangapwani, Zanzibar we try to tie the complicated knots of access to water and the current neo-liberalisation of water policies to a local reality. Mangapwani consists of a poor population who are facing structural changes within the water supply system where an economic view on water is being applied. The women are central in this aspect as they are both responsible for collecting and managing water and hold a vulnerable position in the society.

In order to address the purpose of this project a field study has been conducted in Mangapwani, a village area along the western coast of Unguja island in Zanzibar outside Tanzania Mainland. To fulfil the aim a qualitative approach was taken and semi-structured interviews; individual and group interviews, participatory observation and data collection through GPS were carried out. The GPS data analysis was done with GIS (Geographical Information Systems).

An important finding of this study is that the water project initiated in Mangapwani that aims to increase the access to water might actually lead to a decrease in access to water because of the low paying capacity of the poorer sections of the population. Another finding is that the current definition of access to water is narrow. With the on-going neo-liberalisation of water management more effort is needed to evaluate how the impacts of water as an economic good will affect poor women's access to water.

Keywords: women, water management, access to water, human right to water, Zanzibar

Muhtasari

Hoja kubwa ya ripoti hii ni kutaka kujua jinsi gani hali ya maji katika kijiji fulani kilichopo Zanzibar inaathiri maisha ya wanawake na jinsi wanawake wanavyoizoea hali hiyo. Lengo lipo kwenye aina ya vizuizi vilivyopo katika viwango vya kijiji na utawala ambavyo vinaathiri uwezo wa wanawake kupata maji.

Fasili ya sasa hivi ya Umoja wa Mataifa (UM) ya upatikanaji wa maji ipo katika uangalizi wa kipimo cha umbali na muda unaotumika kupata maji. Utafiti ndani ya eneo hili unaonesha kwamba upatikanaji wa maji ni mgumu zaidi kwa kuwa kuna vizuizi kadhaa vinavyoathiri kama maji yanapatikana au la. Katika hadhi ya kimataifa, kumekuwa na badiliko la sera katika sekta ya maji kwa kipindi cha miaka kumi iliyopita kuwa maji yanatambulika kama zao la kiuchumi. Katika juhudi za kuhamasisha mchakato huu, UM umetaja maji kama sehemu ya haki za binadamu. Lakini mamboleo huria ya jinsi miradi ya maji inavyofanyiwa kazi katika nchi zinazoendelea imesababisha miundo ya kugawanya menejimenti za maji kwa jamii, ushuru wa utekelezaji na gharama nafuu. Wakosoaji wa kijinsia wameona jinsi gani wanawake kama athari ya utekelezaji wamepelekwa mbele zaidi kwenye mipaka ya umaskini ingawa wanachukuliwa kama wahusika muhimu kutokana na jukumu lao kama meneja wa maji katika nchi nyingi sana zinazoendelea.

Kwa kuchunguza hali ya wanawake kuhusiana na maji katika Manapwani, Zanzibar tunajaribu kufunga vifundo vigumu vya upatikanaji wa maji na hali halisi ya mamboleo huria ya sera za maji kwa uhalisi wa jamii. Mangapwani ina jamii maskini ambayo inakabiliana na mabadiliko ya kimiundo ndani ya ugavi wa maji ambapo maono ya kiuchumi yanatumiwa. Wanawake ni wahusika wakuu katika kipengele hichi na wanahusika kwa ukusanyaji na usimamizi wa maji na wanashikilia nafasi ngumu katika jamii.

Ili kuzungumzia umuhimu wa mradi huu, utafiti umefanywa katika Mangapwani, kijiji kilichopo magharibi mwa kisiwa cha Unguja, Zanzibar, katika bahari ya Tanzania. Ili kukidhi madhumuni ya utafiti, ubora mbinu umetumika na muundo mahojiano, vyote kwa mmoja mmoja na kwa vikundi, uchunguzi ushiriki na kukusanya takwimu kupitia GPS. Uchambuzi wa takwimu wa GPS ulifanywa na GIS.

Matokeo makubwa ya utafiti huu ni kwamba mradi wa maji ulioanzishwa Mangapwani ambao unalenga kuongeza upatikanaji wa maji unaweza kusababisha kupungua kwa upatikanaji wa maji kwa sababu ya uwezo mdogo wa ulipaji katika jamii maskini. Kitu kingine ni maana halisi ya sasa ya dhana ya upatikanaji wa maji ni finyu mno. Ukijumlisha na muendelezo wa mamboleo huria wa usimamizi wa maji, jitihada zaidi zinahitajika ili kutathmini jinsi athari za maji kama zao la kiuchumi litakavyovyoathiri upatikanaji wa maji kwa wanawake.

Maneno Muhimu: wanawake, usimamizi wa maji, upatikanaji wa maji, haki ya binadamu ya maji, Zanzibar.

Acknowledgements

We would not have been able to carry through with this thesis without help from a number of people that we are forever thankful to.

We are incredibly thankful to Said Suleiman, who has played a major part in the fulfilment of this project. He helped us to conduct the pre-study in December 2009 and with his help again, we were able to fulfil our fieldwork in 2010. Even though he was under a lot of time pressure during the period of our field study he took time assisting us with importances for carrying out our fieldwork. We also want to dedicate a large thanks to Othman Khamis Ramadhan, who helped us throughout our fieldwork in Mangapwani. We are grateful for all the time he took to guide us around the village area and help us to get in contact with the women for our interviews. He made our time in the area a very nice and personal experience with a warming welcome into his family. We want to thank all the helping people at Zanzibar Water Authority and ACRA for assisting us with information and material essential for the conductance of this thesis. A special thanks to Mario Milanesi at ACRA for taking time to help us with different tasks. We want to thank Aysharose Mattembe and Saida Abdalla for excellent work of interpreting and Aysharose for also being our cultural guide. We also want to thank all of the 18 women who we interviewed in Mangapwani. They welcomed us in under their roofs and made our visit to Mangapwani unforgettable. Their generosity and wisdom is something that has inspired us through the writing of this thesis.

We want to thank the Department of Human and Economic Geography at the University of Gothenburg and Sida (The Swedish International Development Cooperation Agency) for providing us with the Minor Field Study scholarship that made this whole journey possible to begin with. We are also thankful to all the people that have given us advice and inspiration along the way, and to them who have proofread our thesis. Last but not least we want to thank our supervisor Margareta Espling for good advice and guidance through the process of writing this thesis.

4. Tuna jukumu kubwa jamani!

“Pwa zetu zi jamili,
zina jua, zi tawili;
tuna miendo ya kwenda,
na mambo ya kutenda!

Tuna ndoto za kuota;
pawepo maji ya kuchota
kwa wajao wetu waladi –
ndizo zetu ahadi!

Tuna safari ya kuhala,
kabla ya kwenda kulala!
Pwani kwetu na Visiwani,
tuna jukumu kubwa jamani! ”

Mkwajuni, Zanzibar, 1965.
(Lodhi, 1986:24)

Contents

Lists of Figures, Tables & Appendices

Figures:

Tables:

Appendices:

Abbreviations

ACRA	Association for Cooperation in Rural Areas in Africa and Latin America
ADBG	African Development Bank Group
ANGOZA	Association of Non-Governmental Organization of Zanzibar
CCM	Chama Cha Mapinduzi
CESCR	Committee on Economic, Social and Cultural Rights
CUF	Civic United Front
DRA	Demand-Response Approach
EAC	East African Community
EU	European Union
GAD	Gender and Development
GDP	Gross Domestic Product
GIS	Geographical Information Systems
GNI	Gross National Income
GPS	Global Positioning System
HDI	Human Development Index
HDR	Human Development Report
HIPC	Heavily Indebted Poor Countries
HPI	Human Poverty Index
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
MCC	Millennium Challenge Corporation
MDG	Millennium Development Goals
NBS	National Bureau of Statistics
NGO	Non-Governmental Organisation
PPP	Purchase Power Parity
PRSP	Poverty Reduction Strategy Paper
RGOZ	Revolutionary Government of Zanzibar
SAP	Structural Adjustment Programme
SIDA	Swedish International Development Cooperation Agency
TANU	Tanganyika African National Union
TSH	Tanzanian Shilling
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational Scientific and Cultural Organization
UN-HABITAT	United Nations Human Settlements Programme
USD	United States Dollar
WCED	World Commission on Environment and Development
WHO	World Health Organization
WID	Women in Development
WSSD	World Summit on Sustainable Development
ZAWA	Zanzibar Water Authority

1. Introduction

1.1 Why water?

During a field study in Uganda in November 2009, 6 months before we conducted our minor field study in Zanzibar we observed the reality of fetching water for the first time. We spent one week in a rural area, in western Uganda. During this time we learned a lot more than we could have imagined. We observed school aged children and younger walking with jerry cans of 20 litres from the only pump in the area, during school hours. We interviewed women and men who expressed how hard it is to walk through the rough ground of hills on small paths, with heavy buckets of water, not to mention the time they spend. The reality in this area was that more than 1,000 people were sharing only one safe water source, a hand-pumped well. The burden that the households, living with long distances to the pump, were experiencing resulted in them using alternative water sources. These sources were often small springs within closer distance to their homes but with unsafe water. Using these water sources caused illnesses like germs, bilharzia and cholera. With our limited experience of rural areas in developing countries, we wondered if this is the reality for most of the people living in rural areas? We reflected over access to water and how it is currently defined and started thinking about how relative access can be, which led us into asking another question: What kind of constraining factors are there in the society on a local level as well as on an organisational level that affect people's and especially women's access to water?

Access to safe water has had a central role throughout development history because of its importance in improving living conditions and to reduce poverty. From being defined by the United Nations [UN] as a basic human need in the 1950's, development opinion has shifted towards a neo-liberal agenda during the latest decades. In the Dublin principles 1999 water was defined as an economic good (Coles and Wallace, 2005). This has had a huge impact on how water policies are being implemented in developing countries since this economic approach towards natural resources has gained recognition among development agencies (Ahlers and Zwarteveen, 2009). The UN tried to counterbalance this shift by defining water as a human right a few years later (CESCR, 2002). They stressed the social values of water and connected it to the broader framework of human rights where the right to access safe water is seen as crucial to be able to fulfil basic human rights (WHO, 2003).

Another aspect of access to water is the essential role women have in managing water in the majority of places in the developing countries. Women are therefore directly affected by structural changes within safe water systems (Henshall Momsen, 2004). During the 1970's the growing critique of how women were consequently left out of the development process resulted in emerging feminist theories that eventually started to influence mainstream development theory. The outlook on women's participation when forming water policies has indeed shifted to recognise women as central in water management (Coles and Wallace, 2005). However there is an increasing concern within research that, even though recognised, women might still be marginalised because of how gender biases are woven into the current water policies. Too little effort is put into how and why women are central in water management (Harris, 2009). Studies have

shown that by formalising water structures through water committees, women's own informal networks considering water have been ignored (Cleaver, 1998). There is also a concern with the uniform package in which today's water policies come that shows little regard for local context (Harris, 2009). As an example, a study on this area highlights that when a water project was initiated in Tanzania the lack of context analysis led to health consequences for children. The imposed rules to improve sanitation around safe water sources led to children having to swim in water sources infected with bilharzia (Khosla and Pearl, 2003).

According to the World Health Organization [WHO] access to water is defined roughly through distance and time spent on fetching. One billion people are estimated to currently live without access to safe water sources. Access to water is complicated to define because there are more aspects to consider than the above (WHO, 2003). Seasonality of water availability affects people's pattern of water consumption. People may also get some water from a safe source and at the same time collect water from other sources (UNDP, 2006). Pricing of water is an aspect that can lead to reduced access for poor who then economise their water consumption. This can lead to further marginalisation of women since they in general have less paying capacity (Harris, 2009).

1.2 Problem statement

The prevailing neo-liberal development politics have influenced the formation of water policies towards a privatisation trend and decentralisation of water management (Ahlers and Zwarteveen, 2009). The lack of recognition of local knowledge and insufficient analysis on women's role in water management within the formation of water policies has led to further marginalisation of the rural poor women. There is a need of hearing poor rural women's voices and involving them more when constructing new policies or making changes within the water system (Aladuwaka and Momsen, 2010; Roy and Crow, 2004). Access to water defined by time spent and distance to the water source, is in its current definition abstract (WHO, 2003). Since there are more dimensions of access to water there is a need to identify and analyse these kinds of constraints and how they affect poor women in their everyday situation considering colleting water.

Several areas in Zanzibar, including Mangapwani village, are currently going through changes within the water system. Previously potable water has been free of charge and this is about to change fundamentally, by pricing structures, cost recovery and a devolution process of water management, all in accordance with the global liberalisation of water policies. Several projects are initiated on the island funded by international donors to facilitate this process where an expansion of total water supply is also being done (ACRA and ZAWA, 2009; ADBG, 2008; ZAWA, 2008). Even though women have been identified as stakeholders within the current water policy they are not being included in the formalisation of water institutions on a local level. Women are central in this aspect because they are most often responsible for fetching water as well as for taking care of all household duties (Henshall Momsen, 2004).

Women are interesting actors within the global debate about access to safe water in the developing world because they are central in water management and at the same time hold a vulnerable position in the society, especially the poor women. In this context we

think that highlighting local poor women's opinions and aspirations considering the water situation is both interesting and important.

1.3 Aim and research questions

The focus of this study is the women's water situation, with a special emphasis on their access to safe water. We want to understand how poor women cope with the current water situation and how changes within the potable water system affect women's everyday lives as well as what improvement they wish for within the aspects of water. To do so we want to examine how the current water situation looks like on a local and administrative level and what might constrain the accessibility.

Thus the aim is to get a wider understanding of the everyday lives, the experiences and the opinions of the women regarding the water situation and how the current water situation and its constraints might affect women's accessibility to safe water in one village in the project area in Zanzibar.

In order to fulfil the aim of this study we have chosen to examine the following four research questions:

- How is the women's water situation?
- What kind of constraints are the women experiencing?
- How are the women being affected by the current changes within the safe water system?
- What kind of aspirations do the women have and what kind of improvements do they wish for?

1.4 Delimitations and scope

Regarding the fieldwork we are limited to present women's thoughts of their water situation from one village in Zanzibar. The scope is to present how the water situation in Mangapwani is affecting women's everyday lives there and how these women think that their situation could be improved. Thus we will also present the current water situation and what kind of constraints there are on an administrative level that could have an impact on the women's accessibility to safe water. However, we do not intend to draw any general conclusions about water access. We will use Mangapwani as an example to show the complexity of access to water in a rural village with the circumstances prevailing in that specific geographical area.

The presentation of the administrative level will be based on material from the pre-study conducted in Zanzibar in December 2009. The pre-study was made to get a wider picture of the current water situation, how the authorities are working and what kind of projects there are in the area. The study also helped us to establish contacts with "gatekeepers" and delimits our study area. We will use relevant material from that study as well as from the other literature that we have chosen. This study will be analysed through theories and literature about water access and water policies as well as out of

human rights perspective and other relevant theories and earlier research within the field of safe water in the developing world.

1.5 Method and material

Since this study will be based on empirical material from the women we interviewed during our fieldwork we have adopted a qualitative approach. To be able to present material about theories and policies implementation considering water access in the developing world we have carried out a literature review.

We use a selection of material about the historical progress of water policy development and we present theories and ideological movements that have had an impact on the formation of how the policies are shaped today. We also present a selection of earlier research that we think is relevant for the understanding of water access. Since this thesis is in the field of geography we partly use literature from geographers. Some of the previous research is also written within the field of human geography and we have used that to get a geographic viewpoint of water development.

To be able to get a wider understanding of the everyday activities, related to water, of the women in Mangapwani we have conducted a field study. We have carried out semi-structured individual interviews with 14 different women and a group interview with four other women. To be able to understand the situation of water on an overall societal level as well as specifically on a local level in Mangapwani, we conducted four interviews with key informants. For this task we have also used material from our pre-study. We have also used GPS (Global Positioning System) to collect information to use for mapping and analyses in GIS (Geographical Information Systems). For further specification of methodology see chapter 4.

1.6 Outline of the thesis

The thesis consists of seven parts including this introduction. The part following the introduction is the theoretical framework consisting of a background description of development theory and the political processes that have shaped the current global water policies. The third part consists of previous research presenting an overview on related subjects and aims to strengthen our results.

The fourth part of the study is a presentation of the methodological approach and a discussion about different aspects of conducting fieldwork. The fifth part is a description of Tanzania and Zanzibar to get an understanding for regional aspects, presenting historical and current facts that are relevant for the understanding of the area. The sixth part is a presentation of the fieldwork area, aiming to put the water situation into context. In this chapter the current situation of water is presented along with different historical-, political- and geographical facts relevant for this thesis.

The seventh part of the study is a presentation of the empirical findings i.e. the women's experiences of the water situation, also being a large part of the study. The eighth and final chapter is the conclusions and concluding discussion, which discusses the result

and presents answers to the research questions. This chapter also responds to the purpose of the study and presents some of our own concluding remarks.

2. Theoretical framework

2.1 Introduction

> The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use. (CECSR, 2002:2)

To understand the discourse of water management in the developing countries it is important to look at different ideological approaches to development which have influenced and continue to influence international frameworks and national water policies. Main associations, such as the United Nations [UN] and the World Health Organization [WHO], have taken a stronger standpoint towards defining water a human right the last couple of decades. This is to underline the importance of access to safe water for all people; a standpoint that in many ways contradict the current global political agenda considering water (UNDP, 2006). We will take on an approach in this thesis that considers access to as water a human right.

Another, often overlooked, aspect that is of importance to understand the water situation in the developing world is the women's role. Women are mostly responsible for fetching water and therefore directly affected by changes and decisions made considering water supply systems (Henshall Momsen, 2004). We will therefore also present different alternative approaches to mainstream development theory.

This chapter deals with water on different geographical scales. It moves chronologically, beginning with an overview of political processes that have influenced development and water policies and how they have shaped the current global water agenda. It then gives a human rights perspective and current definitions of access to water.

2.2 An overview of development theory and water agendas

2.2.1 Mainstream approaches to development

Mainstream development theory emerged in the 1950's in the aftermath of the Second World War. The Bretton Woods institutions such as the International Monetary Fund [IMF] and the World Bank were created as an aid program to reconstruct Europe and prevent future conflicts. Development came to equal economic growth and out of the success in Europe the focus among economic theorists started to shift to the poor countries in the "Third World". Reasons for this were a growing questioning in the rich world of the social misery in the colonial countries. Also, the so-called under-developed regions were seen as a potential security threat (Hettne, 2008). Another aspect that contributed to an interest in the poor countries was the start of the cold war and the fight for strategic positions (de Vylder, 2007).

The development theories were mainly divided into two ideological standpoints, liberalism and structuralism. Liberalism was built on the assumption that something was missing in the poor countries, mainly savings. Walt Rostow's five stages to growth[1], from under-development to take-off, had a big impact on liberal theory with its progress thinking. Market economic strategies were strongly promoted and emphasised the importance of trading with the developed world (i.e. the industrialised west) to catch up. Structuralism sprung out of a criticism of the liberal agenda and was inspired by John Maynard Keynes' theory where the state, in opposition to the market was seen as the driving force of development. Raul Prebish, one of these theorists, saw that the negative terms of trade that the poor countries faced because of their raw material production would not enable them to catch up at all. On the contrary the only ones that profited from this were the already industrialised countries. The solution was to speed up the industrialising process in the poor countries by state controlled import substitution (ibid).

Both structuralism and liberalism were part of the modernism paradigm with a strong linear thinking focusing on the transformation of 'traditional' societies into modern westernised nations. Early development strategies thereby came to focus on macroeconomic policies where a majority of the developing countries implemented structuralist and socialist agendas after the independence from the former colonial rulers (Hettne, 2008).

2.2.2. The critique of the development paradigm

In the beginning of the 1970's a growing criticism of the linear thinking among the modernisation theorists emerged among intellectuals. The dependency theory defined development rather as a process and came as a reaction to the imbalances in the terms of trade. According to the dependency theorists the result of this was that the poor countries got stuck in a peripheral relationship, as raw material exporters, to the core west economies. Since the mainstream development was seen as a continuation of the exploiting process, the solution would be to cut of the trade relations and become self-reliant. An even more radical counterpoint was formulated by "Another development" movement by the end of the 1970's which rejected the concept of development altogether. With slogans such as need-orientation, self-reliance, ecological sustainability, it contrasted to the mechanical view offered by mainstream development with its emphasis on economics (de Vylder, 2007). Alternative models of how to measure poverty also occurred focusing on deprivations. It is an effort to try nuance the economic definition of poverty, which only see to the monetary side of the problem (Roy and Crow, 2004).

Chambers (1981) discussed the concept of the "Deprivation Trap" in an article from 1981. The deprivation trap considers a "cluster of disadvantages" that together or by itself can make a household poor. There are five dimensions that interact with each other to trap people in a situation of disadvantage (see figure 2.1). One of the five

[1] The five stages to growth model were invented by the economic historian Walt Rostow. Countries would transform from underdevelopment through different unavoidable economic stages to become developed industrialised nations (Todaro and Smith, 2009).

dimensions is poverty, i.e. lack of assets. The others are powerlessness, physical weakness, vulnerability and isolation, which are the broader dimensions of poverty.

The "Deprivation Trap" was designed to represent the rural context (ibid) but many of the aspects can be adapted into other contexts, that is, also on societal scale. Todaro and Smith (2009) argue that the different dimensions of deprivation affect each other, i.e. reinforcement of deprivations. Poverty should be understood as "a deprivation of basic capabilities", which is discussed out of Amartya Sen's perspective in an article by Roy and Crow (2004). Poverty and low income is not to be understood as the same thing because poverty can emerge very differently. They argue that Sen means that poverty keeps people from making free choice and that expansion of freedom is crucial for development. Freedom is to be able to expand your own capabilities and that will lead to people getting the chance to live those kinds of lives that they value. Access to safe water will clearly give people capability to live the kind of lives that they value. Health consequences of using unsafe water and suffering from the consequences of water as an economic good are both reasons that keep people in "unfreedom" (ibid).

Poverty – considers economic poverty, which has a big impact on an individual's ability to access basic needs such as food, water and medication. Poverty itself also has a big influence on the other parts of the deprivation trap; vulnerability, isolation, physical weakness and powerlessness (Chambers, 1983).

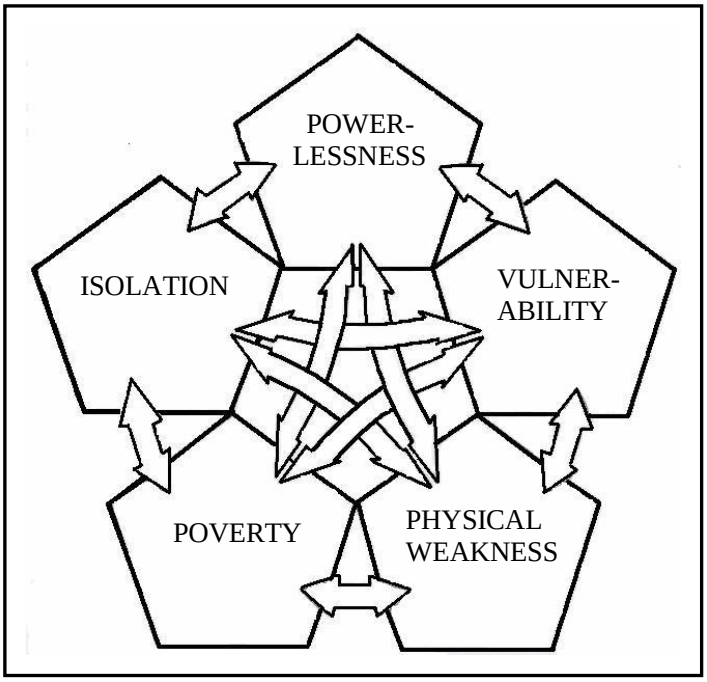

Figure 2.1 **The Deprivation Trap**
(Source: Chambers, 1983)

Physical weakness – refers to disability, poor health or under nutrition caused by e.g. starvation or sickness. This causes lack of ability to participate in social and community based activities as well as income generating work, which contribute to economic poverty and it sustains isolation. Women in particular are vulnerable to physical weakness especially during time of pregnancy and when the child is young. There can also be dependency issues if another family member is sick and the woman, mainly, has to take care of the sick relative, loosing time for other (for ex. income bringing) activities (ibid).

Isolation – considers the aspects of physical and social isolation or exclusion, from participating in societal spaces. People can also be isolated because of geographical position of where they live. Many rural areas in the developing world lack proper roads and possibilities for transport and not to mention the lack of electricity which is one source for communication with the outside world. This leaves many rural places geographically isolated. Isolation within communities also occurs, for ex. women are

often marginalised from accessing resources and decision-making positions. Also accessing education and information tend to be harder for women in the society which leads to poverty and powerlessness (ibid).

Vulnerability – considers the idea of people being vulnerable to the effects of for ex. natural disasters, diseases and death in the family. The expenses and consequences can overthrow an individual's or a household's economy and cause poverty and physical weakness (ibid).

Powerlessness – refers to individuals and groups in the society that have little or no power to influence their life situation, leaving them in a position with no choice but to accept the existing structures and power relations in the society. This can contribute to poverty through dependency for weaker individuals or groups on the more powerful, having to negotiate for accessing resources and social service. This can make the experience of poverty even more intense and make it more difficult to handle (ibid).

Feminist theories and environmental movements also emerged during the 1970's because of the absence of representation of gender and ecological sustainability in mainstream development but received little attention within practice until recent decades (Eriksson Baaz, 2002). Prior to the 1970's there was no specific strategy for including women in the development process. Early development cooperation had a mechanical view of the role of women as passive recipients of aid. The focus came to be on men, since they already had most resources. Women were seen mostly for their reproductive role in the family and less for other roles they had in the society (Henshall Momsen, 2004). Since the 1970's, due to a raised critique of how women were practically left out of the development process, a new set of theoretical schools have emerged influencing development policies throughout the decades. Gender theory sprung out of a concern with women's constant subordination that originated both in history and culture. When the expected trickle-down effects of early development cooperation never occurred feminist theories gained momentum. As a consequence, the focus drawn to women's situation shifted the attention within development towards marginalised groups within the society. Early on, the Women in Development [WID] approach highlighted the women as actors in the development process by broadening the analysis of women's positions in the society (Coles and Wallace, 2005). There was also a growing criticism within the emerging gender theory by women in developing countries, subjected through the Gender and Development approach [GAD]. They saw a problem with the overrepresentation of western feminist researchers in gender analysis (Henshall Momsen, 2004).

The empowerment approach has also had a big impact on development cooperation during the 1980's and the 1990's. This individual approach concentrated on both the psychological as well as the practical issues of women in development. In that sense empowering women would mean to give them tools to gain self-esteem and status within the society. Mainstreaming gender has been a process during the 1990's to incorporate elements from the empowerment approach into mainstream development cooperation. Mainstreaming in this sense basically means to incorporate women throughout all levels of policy implementation (ibid). A concern with this approach has been the simplification of gendered issues, such as hierarchies, ideology and power, leading to weak policy implementation that in fact preserves status quo (Coles and Wallace, 2005). A more radical standpoint has been formulated by Rocheleau et al.

(1996). By merging different feminist, political and environmentalist perspectives they have found a new approach; feminist political ecology. Where for ex. political ecologists focus on the uneven relation between access to resources and variables such as class, ethnicity and culture, political feminist ecology aims at bringing up gender as another crucial variable. They argue that the approach in this way can complement and fill potential gaps within gender and environment research.

2.2.3 Shifts within the approaches to development cooperation.

The developing world raced during the "golden 1960's" to build their newly formed nations, financing the process with raw material export and development aid. However, the start of the 1970's was marked by the oil crisis and a European recession. Many countries in the developing world started to loan on a big scale from international banks due to a decrease in the prices of export goods, difficulties to afford imports and also, favourable loan terms. This resulted in the big debt crisis in the beginning of the 1980's. Due to a shift in political climate and the emerging globalisation, the World Bank and the IMF gained power over the global development agenda. This resulted in the implementation of Structural Adjustment Programs [SAP] in the majority of the indebted developing economies. These neo-liberal reform programs, that the recipients must sign to get more loans and aid, were imposed in all political and economic sectors and led to a dismantling of the public social system. After about ten years of SAP's, studies showed disastrous consequences, especially in Africa and a realisation grew that the debt crisis could not be solved with the economic reforms initiated (Odén, 2006). SAP also hit women the hardest since sectors that were rationalised had relieved women's workload up until the initiation of the programs. This resulted in an increase of the women's household workload since they, instead of the state, had to fill in as health providers, which hindered their income generating activities (Henshall Momsen, 2004). During the 1990's debt relief and poverty reduction strategies were combined to reform and soften the SAP's through Heavily Indebted Poor Countries programs [HIPC] and Poverty Reduction Strategy Papers [PRSP]. This meant that, to get the debt relief, recipient countries must have an elaborate plan to combat poverty (Odén, 2006).

The end of 1990's saw a shift in the discourse of development cooperation with a new found realisation of local ownership and the civil society's role to achieve development goals (ibid). Many of the perspectives originated in the 1970's critical analysis of the mainstream development and the former counterpoint has seen both gender and environment aspects incorporated into the new mainstream. The UN, which had been opposed to the neo-liberal agenda, had earlier introduced the concept of Human Development[2] and Global Public Goods[3] which eventually came to influence the development agenda. This period ended up in the formulation of the Millennium Development Goals, in the year 2000, where targets were set to solve the development

[2] Human Development is a concept coined by UNDP. The focus is shifted from economics towards human wellbeing and right to participate fully in decisions that concern their lives. Development in this sense is an expansion of basic human rights where every human has the right to fulfil her potential (UNDP, 2010).

[3] Global Public Goods mean those goods that are a basic need and use for humanity. The goods are characterized as non-rival in consumption and having no exclusive benefits, such as water, air and land. These goods should not be exposed to the market forces because of the risks of failure within pricing but protected by the state to benefit users (Hettne, 2008).

problems concerning poverty, health, education and gender inequalities within a timeframe of 20 years (Hettne, 2008).

2.2.4 Development of water agendas

Water has had a central role in development practice, defined as a basic need by the UN, since the beginning of development cooperation in the 1950's. A lot of aid assistance came to focus on water provision due to its fundamental role in improving basic health and reducing poverty. The water programs initiated early on followed the same structure as all development cooperation at that time, circling around the role of the government as the development provider. Large scale copying of successful solutions in the West were implemented in the developing countries and came to be male dominated and lacked local analysis. Later on, mainly during the 1980's the women's role as water managers began to be realised resulting in an incorporation of gender within water policies (Coles and Wallace, 2005).

The impact of the SAP's during the 1980's and 1990's was evident within the water sector, where the spending of public sector was consequently cut down. The provision of water shifted to the private sector with demand driven incentives. The neo-liberal approach to water provision, together with the Sustainable Development paradigm[4], were manifested in the Dublin principles 1999, in which water was stated to be an economic good although finite and vulnerable (ibid). Overall, water policy, as all development sectors, moved through the decades from a welfare approach to become more market oriented all in accordance with the emergence of globalisation and the hegemony of neo-liberalism after the end of the cold war (van der Zaag and Savenije, 2006). Almost simultaneously the UN defined, in contrast, water to be a global public good due to its essential value to preserve human life. The publication intended to define and protect certain spheres from market forces (Kaul et al., 1999).

There is an on-going debate on what water as an economic good implies in the process of policy making. The debate has mainly been divided in two standpoints. In the more market oriented view, water is seen as any other good to be sold and bought according to the market principles of supply and demand. The other view emphasises the social values of water, stressing the importance of sustainability of the different uses of water (van der Zaag and Savenije, 2006). The debate also concerns the contradictory elements of the Dublin principles, especially the third principle which states that women are central to water management and the fourth principle which defines water as an economic good (Harris, 2009).

According to van der Zaag and Savenije (2006), water as an economic good comes with several problems. Since it is essential to life and since there is no alternative to water, the standard economic theory can hardly be applied to water as with any other good. Even if the demand for water can be somehow flexible in the agricultural sector, since water saving techniques can be applied, it is not the case with drinkable water. People will always need water no matter what the price is. When looking at the poor who are

[4] The report "Our Common Future" written by World Commission on Environment and Development 1987 defined sustainable development as '… development that meets the needs and aspirations of the present without compromising the ability of future generations to meet their own needs.' (WCED, 1987:43)

least likely to be able to pay for water and at the same time have a high demand it is evident that a strictly market oriented approach is unlikely to be sustainable. Van der Zaag and Savenije (2006:17) came to the conclusion:

> Instead of market pricing there is need for defining reasonable pricing structures that aim at cost recovery but that simultaneously ensure access to safe water for the poor, while taking ecological requirements into account.

This standpoint can be seen as an example of the ambiguity that persists within current water policymaking in how to successfully merge liberalist and welfarist approaches to be able to provide sustainable water policies.

The global water policy shift, which has moved the focus from expanding supplies to reforming institutional and legal sectors, can be understood as a part of a continuing capitalist extension (Ahlers and Zwarteveen, 2009). This has entailed a global privatisation process of water supply. The private water sector is currently on a global scale dominated by a few water firms that control around 80% of private water provision (Harris, 2009). Privatisation and commercialisation of water supply are the two processes shaping the current global political water agenda. Privatisation opens up for private investment and speculation. It includes a change, from public to private, by decentralising water management to local communities. Commercialisation is the introduction of economic thinking to fulfil "efficiency" in pricing and water distribution (Ahlers and Zwarteveen, 2009). Harris (2009) comes to a similar conclusion but adds cost recovery to the list of components. All these changes implemented in a majority of the developing countries go in accordance with the Dublin principles institution in 1999.

According to Ahlers and Zwarteveen (2009), these shifts do not primarily indicate a willingness to improve water management; it is a political process to facilitate further expansion of capital accumulation[5], a spatial process that goes way beyond the water sector. They further argue that there is a paradox with how a neo-liberal policy would be able to create a more equal access to water for populations in the developing world when the market systems function because of gendered inequality. Women stand for the most unpaid labour working as a coping mechanism when efficiency strategies are implemented according to the policies.

One aspect is that these policy implementations have been facilitated because of the dependent position the recipient countries hold towards donors and international financial agencies, such as the IMF. The financial crisis the recipient countries have battled since the 1980's, and especially the SAP's implemented, have had a facilitating role in how the shift in policy could occur at a global scale. Thus other options as how to govern water are practically ruled out in most cases. The effects of the neo-liberal shift in water policy are yet to be evaluated. Although there is vast literature and research on gender and water, there is still little of it that deals with the neo-liberalisation of water policy and how it affects gender issues and inequalities on the societal level (Harris, 2009).

[5] Capital accumulation occurs when a proportion of income is saved or invested to increase further income and output in an economy. It is fundamental to economic theory on how growth is generated (Todaro and Smith, 2009).

2.2.5 A human rights approach to water

In 2002 the United Nations Committee on Economic, Social and Cultural Rights [CESCR] stated water to be a human right in the general comment No 15. The comment is a clarification of the human rights and points out that the right to water includes both freedoms and entitlements. The freedoms ensure the right to access existing water sources while the entitlements give people the right to be able to equally access water systems. The comment also states further that water must be ensured in the aspects of availability, quality and accessibility. Availability and quality aspects can be described as to guarantee sufficient amount of clean water for domestic users promoting the right to a healthy life. The aspect of accessibility is divided into three dimensions; physical accessibility, which means that water sources must be within a close distance to users; economic accessibility, which should guarantee that water should be affordable to all people; and non-discrimination, which highlights the importance of the most marginalised groups need for equal access to water (CESCR, 2002).

The World Health Organization further defines the rights perspective to water in their report "The right to water". According to the report, every human has the right to safe water, independently of where you live, gender, age, or social group. There are several aspects of the right to water where it is related to the everyday life. Water contributes to achieve people's right to food, right to health, right to work, right to adequate housing and right to take part in the cultural life. All these aspects of human rights, which WHO include in their report, are hard to fulfill without access to safe water. When and where these rights are challenging to be fulfilled there are consequences such as poverty, diseases and starvation (WHO, 2003).

Defining water as a right is a clear standpoint that water should be considered an entitlement rather than a commodity. These are important statements that are problematic to solve with the current global water situation, where inequality is still a fact. A rights perspective implicates that provision of access to water is not a question of good will or charity, neither is it a question of supply and demand. It is an obligation of every state to provide this right to its population. It should be in each government's interest to make sure the population has access to safe water, or to work on fulfilling the access which includes protecting the water resources in a sustainable way for future generations (ibid).

2.2.6 Defining access to water

Without water people cannot survive and without clean water or enough amounts the dignity of human life is lost. There is a broad difference when talking about access to water in the "rich" world compared to in the developing world. Most people in the "rich" world are used to having optimal access, i.e. multiple taps inside the house, connected to a network that is maintained by a utility. Considering the developing world, access to water is defined somewhat differently. Based on the minimum basic water need for drinking and sanitation, estimated by the UN as 20-50 litres per person and day, basic access to water is defined in Human Development Report [HDR] 2006 as living within one kilometre from the nearest improved water source (see table 2.1 for criteria). An important dimension of this definition of access to water is also the separation between improved and unimproved water sources. The definition of improved water source is discussed in the HDR 2006 and needs to accomplish three dimensions of water security;

quality, quantity and proximity. Inside house connections, standpipes, protected wells and pumps are in the category of improved water sources. Water acquired from vendors and water trucks, as well as water drawn from streams or unprotected wells are all considered unimproved sources and are therefore not counted into access to water (UNDP, 2006).

Table 2.1 Access/distance to water

Service level	Distance/time	Likely volumes of water collected	Needs met	Intervention priority and actions
No access	More than 1 kilometre/more than 30 minutes	Very low (often below 5 litres per capita per day)	Consumption cannot be assured Hygiene practice compromised Basic consumption may be compromised	Very high Provision of basic level service
Basic access	Within 1 kilometre/within 30 minutes round trip	Average unlikely to exceed approximately 20 litres per capita per day	Consumption should be assured Hygiene may be compromised Laundry may occur off-plot – i.e. away from home	High Hygiene education Provision of intermediate level of service
Intermediate access	Water provided on-plot through at least one tap (yard level)	Average of approximately 50 litres per capita per day	Consumption assured Hygiene should not be compromised Laundry likely to occur on-plot – i.e. within the confines of the household	Low Hygiene promotion still yields health gains Encourage optimal access
Optimal access	Supply of water through multiple taps within the house	Average of 100-200 litres per capita per day	Consumption assured Hygiene should not be compromised Laundry will occur on-plot	Very low Hygiene promotion still yields health gains

(Source: Howard and Bartram, 2003)

According to this definition 1.1 billion people are estimated to live without basic access to water. Often people are limited to use less than 5 litres per person per day and mainly women carry heavy burdens back and forth from water sources that might not be sanitary. Clear definitions as these above are needed when making national policies and projects in order to know how to draw up solutions and create a framework for action. In reality the border between access to improved and unimproved water is often blurred. There are several other constraining factors apart from quality and distance that also contribute to whether people have access to a water source or not. Poverty, unequal power relations within the society, geographical conditions and gender relations also have an impact on access to water. For example, people might get some water from a tap but for different reasons at the same time collect water from rivers and unprotected wells. Seasonality of water is also a problem that makes the definition of access to water inconsistent (UNDP, 2006).

A way to nuance UN's definition of access to water is formulated by Crow (2001:4), where he identifies five modes of access to water:

1. Private ownership of land and a pump providing access to water from the ground or a watercourse.

2. Common property access – obtaining water from a river, pond or public tank through some communal rights of access.
3. Open access: unregulated access to a common resource (this mode of access is often, confusingly, termed common property).
4. State-backed provision – access to water through a government project, e.g. municipal tap water, or the water of an irrigation project.
5. Market access – purchase of water, e.g. from the owner of a pump or a water truck.

According to Crow, how people can obtain access to water is complex and is affected by social practices, technical abilities, natural conditions and gendered priorities within households. There are inequalities in each mode of access to water and the constraints result in poverty and health problems. They also reflect that the populations in the developing world are facing a wider set of material inequalities within their countries and between the global south and north (Crow, 2001).

3. Impacts on local scale and perspectives on gender and access to water

3.1 Introduction

This chapter is divided into two themes. The first part deals with aspects of current water policy implementations and how they affect people on a local scale. The second part deals with women and access to water. Research within the field of access to water show that the question of access is complicated as there are often a combination of multiple constraining factors that have an impact on whether people can get access to safe water or not. It further shows that more dimensions need to be evaluated than distance and quality as in UN's definition (see chapter 2.2.6 for clarification). The themes in this chapter deal, in different ways, with aspects of the complexity of access to water.

3.2 Local impacts of the neo-liberal policy structure

3.2.1 Devolution of water management to communities

The neo-liberal shift in policy is marked by a process of moving the management of water to local communities. One example of this is the widespread use of the Demand-Response Approach [DRA], which is a consequence of the Dublin Principles instituted in 1999. The approach is assuming that the focus of expanding supply is financially inefficient and the focus lies on making communities directly involved and accountable for managing water resources. This includes operating, managing and maintaining as well as financing the water supply system. The assumption is that the local communities will be able to shape and participate in the changing process. However, findings from a case study in Tanzania indicate that there are several issues with this devolution process that challenges the sustainability. There is a risk that unequal power relations within local societies affect the transparency and accountability of local water governance. There is a potential risk of neglect because communities in many cases have limited funds to maintain a water system and the government is not involved enough in monitoring. Local government's capacity needs to be strengthened and supported from the government in a more extensive way (Jiménez and Pérez-Foguet, 2010).

A critique towards the theoretical standpoint within current water policy has been aiming at getting women to participate in communal water management through formalisation of institutions (water committees) without sufficient analysis given to *why* it matters. The assumption that involving women automatically means sustainability and empowerment is becoming more and more an accepted truth in mainstream development research. Less attention is given to *how* it affects other inequalities in the society and what it implicates on the gender situation in a particular context (Harris, 2009).

An example is a study conducted in Zimbabwe where Cleaver (1998) found that local women possessed valuable knowledge of how to use water sources. Due to their historical local knowledge the women should be seen as experts in the field of local

water management. She found that women had organised groups and informal networks for dealing with aspects regarding water such as water security, supply and equal access. Policymakers when formalising the water management structure neglected these informal networks and the local knowledge. Local water committees were established and women would be participating as a measure for acknowledging women as central in water management. Cleaver concludes that the disregards of these informal networks led to weak attachment in the local society and that the poorest women who had the least possibility to participate in the water committees were at risk of being further marginalised.

Another study from South Africa highlights the poor women's [un]involvement in the decision-making structures implemented locally to elevate poor and especially women's participation in water management. An evaluation of the capacity building programmes initiated to empower forum members show that although participating in the initial stage, women tend to drop out. Among the reasons for declining numbers, Schreiner et al. (2004), saw that since most households were headed by women they already double worked, in both paid labour and in taking care of all household chores. Therefore they did not have time for engaging in forums and committees. This poses a potential problem in the formalisation of water management and the imperative of engaging women in decision-making structures.

3.2.2 Pricing structures and cost recovery

In the developing world, people with the lowest income pay around 5-10 times more for water than the wealthier part of the population. A lot of people already pay far more than they can afford to meet their basic need, thus many people have to economise water. When cost recovery programmes are implemented it can result in reduced access to water for the poor. People are then forced to use unimproved water sources or to buy water from vendors or other resellers which can end up costing a lot, money or even worse; illness or death of family members. There is a gender dimension to this problem since women are the majority of the poorest (UNDP, 2006). Brown (2010) brings up the impacts of water privatisation in developing countries based on a 15-year study. The current global economic structure is unfavourable for poor countries considering access to capital. Poor countries are considered to be high-risk loan takers, which result in high interest rates for private companies. This makes investments expensive and for private companies to reach cost recovery and still profit, they need to set higher tariffs for water users.

Research findings from Grabouw, in South Africa, indicate that there is a problem with achieving full cost recovery in an area that is facing sustained poverty. One aspect of cost recovery is that the local government should become self-sufficient when, in reality, a large proportion of the population is unemployed. This has led to the population accumulating debt for unpaid services. The implementation of cost recovery has in Grabouw's case led to distrust in the government by the poorer sections of the population who cannot afford the services (Peters and Oldfield, 2005).

In the Human Development Report 2006 it is stated that there is a general problem with tariff systems. The tariff system aims to increase the water supply and achieve equity but tends to create a more unequal situation. In Durban, South Africa, for example there

is an alternative subsidy-solution to the tariff system where instead of paying for every litre, 25 litres of water a day is free of charge. This is an alternative to achieve the framework of human right to water. There are problems within this block tariff system as well. It requires to be compensated with cross-subsidies where a sufficient number of high-consumption (often high-income) households use the higher blocks. Another problem that follows is that low-consumption (often low-income) households share a connection and thus end up on the high-consumption block (UNDP, 2006).

A study from Arusha, mainland Tanzania, on implementation of communal water points i.e. kiosks and stand posts for water, shows that the way the committees' are organised lack sustainability. The organisation is setup with a local administration that is responsible for providing water and collecting revenues. The administrative responsibilities that the committees have are too heavy. It has resulted in closure of some of these community-managed kiosks in Arusha. The study concludes that this form of organisation is not to recommend. The study also shows that the fee charged for a 20-litre container was 100 per cent higher than the pricing directions that the kiosk operators had. The recommended prices were too low to support the wages of the operators. However, the positive impacts were few but one to be mentioned is that the socio-economic situation in this semi-urban area was improved. Thus more households obtained their own yard connection but this brought along a problem. People started to sell water in competition with the kiosks (Debomy, 2000).

In Bugesera, Rwanda, the access to water of the majority of the people is limited. This is due to the large number of poor people facing a water system that charges for usage. The water is available but yet it results in people having to use alternative water sources such as rivers, lakes, ponds and wetlands, which are accessible and free of charge. Another problem that people are facing in Bugesera is the disability of the water pipelines to supply water, due to the poor maintenance of the water system. Many people thus have to walk long distances to other areas to collect water. Instead the areas where water is available experience long queues at the few free water sources available. The low ability to pay for water is linked to people's food security and their income generating activities. The author sees that for a tariff system to be sustainable policies must be integrated within different sectors to elevate people's economic income possibilities (Dushimumuremyi, 2009).

3.3 Women and water

3.3.1 Division of labour

The proportion of people living in rural areas around the world is currently decreasing at a high rate in favour of urban areas. Whereas in Latin America and Asia women stand for the movement towards urban areas, women in Africa in general stay in rural areas to a larger extent while men move to the cities in search for work. Women throughout the whole developing world are to a larger extent involved in agriculture than men. In developing countries, farms operated by women generally have less fertile soils and there is a tendency that women do not utilise all their land because they have less economic capacity and therefore concentrate on subsistence production. There is also a connection between the extent women are involved in agriculture and the distribution of land. In regions in the world where there is more small scale farming more women

are involved. There is a shared commonality of gendered tasks in agriculture in the developing world. Sub-Saharan Africa stands out as the region, in the developing world, where most women are involved in agriculture. The region has also a high proportion of small scale farming. Even though the number of people involved in agriculture has decreased in developing countries during the 1980's and the 1990's, for reasons such as labour migration into the cities, the situation seems not to have changed much in Africa (Henshall Momsen, 2004).

Socially constructed gender roles have a great impact on household responsibilities and contribute to separate women's and men's duties. In many societies women and men are expected to follow the gender identities that are socially developed within that context. Women are seen as having an instinct to be "caregivers" and to possess skills such as cooking, cleaning and other household duties. These gendered tasks are often seen as natural skills (Roy and Crow, 2005). In general women, in the developing world, are expected to take care of the everyday responsibilities that concern the household such as food preparation, farming and child caring. The tasks that require physical strength or is at a further distance from home is considered masculine. In the developing world women carry a heavy and time consuming burden by having multiple responsibilities. On top of the household duties, time is also consumed by walking long distances to fetch water or fuel wood. Since women in general have less leisure time than men, studies on the topic of time use have shown that there is a need for an understanding of gendered time use when initiating projects in order to be successful when incorporating women (Henshall Momsen, 2004).

An example from Zambia shows that the domestic labour and especially food preparation is more time consuming than agricultural work and is caused by the fact that development efforts has overlooked time use in the domestic sphere. Because of an increase in women's work load in farming they did not have enough energy to fetch water and fuel wood to prepare meals. This resulted in nutrition problems because of women's double work (ibid). A study on time allocation carried out in Pakistan focuses on the relation between access to water and how women spend their time. The study shows that where infrastructure for water is weak or deteriorating there is a tendency that women participate less in income generating activities. Women's leisure time also decreases because of time spent looking for water. The study also indicates that men's participation in income generating activities is not affected to the same extent. The authors conclude that the benefits from improved water infrastructure could have a poverty eradicating effect among women since they can participate more fully in productive labour and get sufficient time for rest (Ilahi and Grimard, 2000).

3.3.2 Women and water management

As women in the developing world are mainly responsible for household duties providing water automatically falls on the women's lot (Roy and Crow, 2005). Women are thus mostly responsible for activities related to water such as collecting water, cooking, cleaning, bathing and washing clothes, accompanied with the help from children (Henshall Momsen, 2004). In rural areas women or children can walk long distances to fetch water, often spending 4 to 5 hours per day carrying heavy loads of water. Adding to this is the physical problems that come along with carrying water on an everyday basis.Women in sub-Saharan Africa are estimated to spend more than 40

billion hours collecting water in a year. It is an indication that there is a huge amount of time and energy that is being taken from women that might keep them from accessing other activities or parts of the community (UNDP, 2006). This also limits women to participate in economic activities that require safe water, such as commercial food preparation and other commodities for local markets (Khosla and Pearl, 2003). Men are usually not participating in collecting water unless it is in connection to agriculture or livestock and their role is most often to take responsibility of the economy. Men often participate in the productive economy of paid labour, and as a result of this division of labour, the infrastructure for safe water is set behind while other infrastructure is seen as more valuable (UNDP, 2006).

Because women are central in the management of water researchers have consistently stressed the importance of valuing their knowledge around these issues (Aladuwaka and Momsen, 2010). The water sector was indeed one of the first in development cooperation that realised women's importance in the developing process in the 1980's and in mainstream development women's participation is nowadays seen as fundamental (Coles and Wallace, 2005). According to Aladuwaka and Momsen (2010), this is not reflected enough throughout development practice. Women are in contrast to their high involvement in handling water, to a large extent still absent in water management programmes (Khosla and Pearl, 2003). Thus the leading water organisation's projects are still dominated by men's participation. The absence of women in decision-making positions result in a bias for men-oriented solutions and women's needs and aspirations are put in the periphery (ibid).This also has to do with the fact that men's use of water is to a higher extent considered productive whereas women's use of water is considered domestic. The result is that women's position in water management is limited to the family sphere (Aladuwaka and Momsen, 2010). Cleaver (1998) points out that there is a risk of over-simplification of the domestic and productive uses of water. Women's use of water that is considered "domestic" might be used for food preparation for selling at local markets. In her case study from Zimbabwe she concluded that in fact the gendered uses of water were overlapping each other making it hard to distinguish between domestic and productive uses of water. More research is needed within the field to analyse household priorities.

Sayer and Campbell (2004) argue that a change within research and theory is needed towards a more integrated perspective to be able to understand the complex ecologic, economic and social systems that are incorporated in natural resource management. It is of fundamental importance to value the local knowledge the natural resource users possess (which is mostly women). This makes the local context and negotiation processes between stakeholders the focal point. At the same time there is a necessity for awareness for other scales outside the local context and how they interact. Development practice has until now been characterised by the reliance on external experts' analysis on local realities and narrow timeframes for projects. This has resulted in an over-generalisation of local contexts to be able to control the outcome and serve the international development donors' need for evaluation and measurement. This way of organising projects is especially ill-fitted considering natural resource management which is a complex matter and requires constant adaption to new realities by the users. This is a critique that Harris (2009), also formulates towards the current neo-liberal policy implementation, which is an on-going process on a global scale. Water management comes in a uniform package and leaves little room for the consideration of context.

An example of lacking context analysis from eastern Tanzania (mainland) shows that women and girls between 10-40 years of age together with young boys were infected by bilharzia by instituted rules for improved sanitation. The women and girls got infected being banned from using the hand pump for washing clothes. Instead they were forced to use another water source that was infected with bilharzia. The boys were infected by swimming and bathing in the water. The restrictions came from an ongoing well project in the area (Khosla and Pearl, 2003).

3.3.3 Poverty and access to water

Ever since the United Nations conferences of the 1990s, beginning with the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro ending with the 2000 World Millennium Development Summit in New York and the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, it has become clear that women's empowerment and gender equality is essential for poverty eradication. Most governments and many civil society groups have invested in the two important international agreements WSSD and the Millennium Development Goals (MDGs). In the best scenario these two agreements together will lead to progress in gender equality, poverty eradication and water resource management (ibid).

There is plenty of water available on the Earth but one major problem is the unequal distribution of it. Many poor countries in Africa and elsewhere struggle to improve the water supply in their countries. Five million people, every year, die from water-borne diseases because of lacking access to improved water and sanitation (UNDP, 2006). Women spend a lot of time daily collecting water, which leads to reduced time for other activities. Education will most often be less prioritised. Low education naturally leads to limited opportunities for economic development. Thus women often end up in a deprivation trap with few assets that keep them in poverty. The same pattern of deprivation can be seen with children growing up with water related diseases. They have difficulties in acquiring education, which is a poverty generating causality (Todaro and Smith, 2009). Women would thus benefit from improved access. They would get more time for other occupations and education. The health would also be improved (Henshall Momsen, 2004).

Inequalities on a societal level might obscure the fact that access to water also is a gendered inequality. Women and men have different possibilities to access water (Crow, 2001). To be able to understand how different constraints affect women's access to water Roy and Crow (2004), see a possibility in applying a social relations approach where gender should be seen as one aspect of social relations. Harris (2009) argues that privatisation in general rather often leads to more marginalisation of women and children that most often are the ones in need to access more resources. Women have from the start less access to money than men do and the money that they may have are possibly assigned for specific uses.

4. Methodology

4.1 Introduction

This chapter will include our methodological approach and an open discussion about different aspects of doing fieldwork. There will also be a small section about our pre-study method and what was conducted during that time. Most of the fieldwork material was collected during our main field study sponsored by Sida, through a Minor Field Study scholarship.

4.2 Methodological approach

4.2.1 Framework

Doing research in developing countries and being a so-called privileged western researcher is a complex matter. As Scheyvens and Storey (2003) write, it is important to consider how the researchers positionality might influence the people interviewed and thus also the data. The developing world has many years' experience of western researchers studying their people's lives and cultures and in some cases without benefitting at all from the research. This has recently led to a debate on how fieldwork should be conducted in the developing countries and how researchers need to be more sensitive to ethical dilemmas that come along with doing fieldwork (ibid). The attempt of this study is to highlight the women's own words, not only for us to be able to write this paper but to contribute to the importance of local voices considering the field of natural resource management. The natural resource management approach has sprung out of a criticism of how development research has been carried out. Further Sayer and Campbell (2004) argue that there is an over-belief in positivistic methods in research leading to a simplification of local contexts. This has led to research being disconnected from local stakeholders, leading to projects with low sustainability. A stronger emphasis, on constructivist methods that value the knowledge and competence of the local people, is seen as a key element within research to understand and therefore solve issues regarding natural resources.

The choice of scientific approach is based on what entrance the researcher has to the field of problem. If the study focuses on trying a hypothesis which also assumes a precise problem statement of the study, then a deductive approach is taken. As Halvorsen (1992) writes, an inductive approach is instead when the study is not aimed to explain the sustainability in some theories by trying hypothesis. Instead it aims to develop an as general picture as possible without having a clear problem statement to begin with. This study does not aim to give a general picture about the women's water situation or to try any hypothesis within. Our aim is to get a wider understanding of the women's situation regarding access to water and how they think that the situation could be improved. We have therefore adopted an inductive approach. By using both our field material and our theoretical framework we want to illustrate how the women deal with their water situation and how access to water can be problematic in its current wide definition.

An inductive approach is usually linked to using qualitative methods for research which is one of the key methods in social sciences. Quantitative methods on the other hand, are mainly connected to a deductive approach. The characteristics of quantitative methods are to be able to explain and compare certain phenomena by using mathematical and statistical tools to draw conclusions. Qualitative methods rather aim to understand and give a completeness of a problem. By using people's opinions and expressions the aim is to give a wider understanding for the problem even though it is usually based on fewer researched units than within quantitative research (ibid).

A qualitative approach is therefore suitable for our study since we do not aim to draw general conclusions of women's water situation. For ex. if our aim would have been to understand the average distance, the average access to public taps and other measurable data a quantitative method would be more suitable for the study. We chose to use different kinds of qualitative methods. As Valentine (2005) writes, triangulation is a way of using different methods for the purpose of better determining what the actual position is. According to Halvorsen (1992), triangulation can also be used as a way of complementing possible weaknesses within both quantitative and qualitative methods.

4.2.2 Interviews

Qualitative method such as interviews is a comprehensive tool to find out individual circumstances in contrast to for ex. questionnaires used in quantitative method. Questionnaires help to collect representative images of the population. As Valentine (2005) writes, an unstructured or semi-structured interview is more of an organised conversation that can vary according to the respondent's answers. Usually interviews are formed in that way even though structured interviews also can be used but they do not give as much space to own thoughts. An interview is also a good method for identifying how individual people understand their own lives and how things operate in a particular social context.

To be able to find out how the women in our study area experienced their water situation we saw individual interviews as an obvious choice of method. We used semi-structured interviews so that there would be room for the women to talk freely about their experiences if they wanted. After conducting all planned individual interviews we also wanted to do a group interview.

A group interview (also called focus group) is qualitative method that has been used by other human geographers although not to the same extent as individual interviews. The individuals forming a group interview are selected by the researchers to get personal opinions by discussing different topics relevant for the study (Conradson, 2005). The group interview conducted for this study worked as a follow-up interview on the topics we talked about during the individual interviews. We asked the women in the group interview questions regarding a preliminary analysis over the general opinions of the women regarding their water situation. The purpose was to find out if we had missed anything and if there were things still to be added to the topics.

As Valentine (2005) writes, "gatekeepers", are persons in organisations or special positions that can give access to people or areas interesting for the research. We mainly used two different gatekeepers but these people did not only work as our gatekeepers. They were also interviewed as our key informants due to the positions and information

they withheld. Two more key informants were interviewed seeing to that all the needed information about our study area, the project in the area and administrative processes within water related organisations, was collected.

4.2.3 Participatory observation

An observatory method is a key to get more information and knowledge about a community. A phenomenon that can be observed when using this method is "tacit knowledge", the things that are so obvious in a community that you "just know" them but may be hard to understand as an outsider or may be missed during interviews (Kesby et al.; Cook, 2005). We wanted to participate in women's households to be able to understand more deeply the everyday rhythm and routines. We felt it would enrich our study since we come from the outside and from a different culture with different values. Participatory observation gave us a complementary picture of how the current water situation affects the women in an everyday life perspective. We chose to participate in two of the already individually interviewed women's households. We followed their daily routines for two whole days each and it got us in direct contact with constraints and possibilities that face the women.

4.2.4 Geographical information system

The method of geographical information systems (GIS) can be seen as a toolbox of spatial processing functions. There are positive and negative aspects of using GIS and whether using this method is relevant for the project is a key decision to make before starting. It is important to be aware of the fact that GIS in itself will not make a poor project glow. Rather it works better when combining it with other methods (Martin, 2005). We used GPS for mapping spatial processes in our study area for further analysis in GIS. Our aim is to use GIS in combination with the other methods, thus not have it represent spatial processes by itself.

4.3 Doing fieldwork

4.3.1 Introduction

The experiences we have from our field study in Kasenda, Uganda, November 2009 guided us in constructing a setup for this study. When we were doing fieldwork we discovered the interesting aspect of how relative access to water can be. People were experiencing reduced access due several reasons, e.g. few safe water sources, health aspects, economic constraints, hilly landscape and gender positions. That made us realise that there are more dimensions to what may affect access to safe water than spatial distance. That resulted in a growing interest for women's access to safe water and what circumstances that may contribute to that, which led us into this study area and it also helped us to form the methodological approach.

4.3.2 Pre-study

We conducted a pre-study in December 2009. The aim was to find out what the hydrological conditions in Zanzibar (Unguja) are and how they may affect the water supply on Unguja since that is our geographical focus. We also wanted to find out how the current administration of water operates in Zanzibar and what kinds of problems and constraints they experience. Another focus of the pre-study was to find out whether there are any kinds of water development projects on the island and what these then are aiming to accomplish.

Interviews and field visits were conducted during the three weeks of study. Five interviews were carried out. Three of these were with employees within different departments of Zanzibar Water Authority [ZAWA] and one was the Director General at ZAWA. The fifth person was the coordinator of an Italian NGO, called Association for Cooperation in Rural Areas in Africa and Latin America [ACRA], who was working on the project "Capacity building for sustainable running water management and cost recovery in Zanzibar", an on-going project in the area where we conducted our main study. ZAWA and ACRA worked together in this project and one of the interviewed was the representative from ZAWA.

All field visits were done in cooperation with ZAWA. Employees that earlier had been interviewed took us out to see technological sites where parts of the water system are operated from. We went to see different project areas where ZAWA in cooperation with other organisations are working on improving the water system. In the area of the ACRA project they were drilling new boreholes for expanding the water supply.

The opportunity to carry out a pre-study like this one gave us a good head start for our main research. We use the information we collected mainly in chapters 5 and 6 as background material for presenting water conditions in Zanzibar. We will not evaluate the methods or discuss the actual pre-study in this paper. Throughout the pre-study we established contacts that later came to mean a lot for how our main research developed. A short report was written on the material collected and shared with our contact at ZAWA and ACRA, which we intend to do with this paper as well.

4.3.3 Selection and delimitation of study area

When locating a geographically relevant study area there were certain aspects that we were interested in for our research. We wanted to study women's everyday situation in an area that goes through a process of change considering water system provisioning. In our view, this changing environment would put these women in a position where they need to evaluate their situation and our intent would be to present their opinions and thoughts. We also wanted to be in a place where an example of global water policy agenda is implemented locally to be able to connect the local scenario to a broader arena.

When choosing a study location we first discussed the issue with a key informant at ZAWA who has broad knowledge of local conditions on the island considering access to water. The choice of village was then narrowed down to 17 shehias in the Western- and North B districts where there was a water supply project being implemented. Our starting point was to find a village which could be representative for the island in

economic standard and water access. But because of limited information and statistics we based the choice of study location on the information we got from the key informant. According to him, Mangapwani has relatively moderate access to water, compared to other villages in the project area. Another factor that made Mangapwani a good location was the proximity to Zanzibar town (around 22 km) where we stayed. Buses run several times per day which made it possible to commute on a daily basis. Going with local bus every day during the field study also proved to be an experience that opened up for a lot of conversations with local people.

4.3.4 Selection of informants

i) Key informants

Our previous contact with ZAWA came in handy to be able to find relevant key informants for the research. Our main contact also worked as one of our key informants who helped us to get started with the study. After locating the study area (The shehia of Mangapwani) we also needed key informants to access general information about this village. The same key informant from ZAWA helped us to get in contact with the Sheha of Mangapwani, who is the political leader of the village. This led us to get in contact with his secretary who became our main key informant in the village.

We chose to interview the secretary before getting in contact with the women of our study. We also carried out interviews with other employees at ZAWA and ACRA for further information about Mangapwani and for other relevant information.

ii) Interviewed women

We selected 14 women for individual interviews mainly based on an assessment of their economic and social situation. To be able to do this the key informant in the village helped us in finding women from households with specific criteria such as the quality of the house, number of household members, number of children, marital status and age. We wanted representatives from different economic circumstances to be able to identify a wider spectrum of access to water and how the women handle their water situation. Another criterion for selecting the women was where the households were geographically positioned in the village. We wanted to interview women from as many different areas and distances from wells and water taps as possible to be able to perceive different aspects of how the distance to water and location affect the women.

Because of his position we were hesitant to the key informant helping us to contact women for interviews at first. We were worried that power relations within the village, which we were unaware of, could affect the selection of women if the key informant was involved in the process as Valentine (2005) discuss. Our first plan was to walk around the village and select women after having an introductory conversation about their life situation. We wanted to carry out a socio-economic assessment based on the quality of their houses, but in the end it turned out difficult to walk around in the community without a representative introducing us. Another aspect that eliminated this technique was how much time it would have taken us to talk to all the women it would require for making a relevant selection. Since we had very specific criteria for the women we wanted to interview, we felt there was a limited possibility for the key informant to

direct us in a biased way. We also felt that he showed sensitivity to our requests and it proved to be advantageous to be introduced by someone with a broad local knowledge.

iii) Group interview

Towards the end of the field study we put together a group interview to fill in possible gaps of information. We wanted the women to discuss aspects of access to water that we found interesting from the information we collected during the individual interviews. We selected four women to participate in the group interview. We contacted these women by walking around the village with our key informant and they were randomly selected considering most aspects, except that we chose women from different areas of the village. Two of these women, though, came from the same area but together all of them represented three different areas.

iiii) Participatory observation

We also conducted a participatory observation with two women in two different households. We felt that it was important that our presence did not make the women uncomfortable if possible. Therefore we chose two women whom we already had interviewed individually earlier on during the field study and that we felt we got a good contact with. We also partly chose those women based on their poor access to water since we would be able observe more patterns. By choosing women with relatively poor access to water our data came out differently than if we would have chosen households where the women had better access to water. We wanted to be able to observe, primarily, constraining factors and how much time different tasks consumed in the everyday life related to water. We felt that focusing on the most vulnerable households would give us a richer view of the hardships concerning water that would not come up during an interview.

4.3.5 Selecting an interpreter

Since we speak very limited Swahili and since the respondents in most cases did not understand English we needed to find an interpreter who could work with us during the field study. Selecting an interpreter was a quite complicated process since there are many aspects to consider in how it will affect the informants. We chose to work with a woman since we thought it would be advantageous when interviewing women in a Muslim context. According to Simon (2006), men are generally less accepted into women's social spheres in Muslim societies. To use a man as an interpreter could at worst risk the possibility to carry out the interviews at all. Choosing a female interpreter was also most comfortable for us, as female researchers, since cultural gender differences might also affect the work situation with a male interpreter.

Through a community college in Gothenburg operating in Zanzibar we came in contact with Aysharose, a college student who lived in Zanzibar, who became our interpreter for the first part of the study. We instantly felt we got a good contact with her and that she understood how we wanted to conduct the interviews. During the course of the field study she also proved to be our cultural mentor, guiding us in how to behave socially. Without her help we would have been lost in translation many times, especially in the beginning. Due to unfortunate personal circumstances Aysharose had to quit beforehand leading to us having to find a new interpreter on short notice. Through Aysharose we

fortunately came in contact with Saida, a lawyer, who worked with us for the rest of the field study. Both Aysharose and Saida were in their late twenties, had small children and lived in Zanzibar Town. We felt it was an advantage that our interpreters did not have any relation to the village we were studying since we wanted their presence during the interview situation to be as neutral as possible towards the informants. A circumstance that might have been negative is that they both came from a different social class than the women we interviewed.

4.3.6 The collection of data

We carried out 19 interviews with a total of 22 people during the course of ten weeks field study, see table 4.1. In the group interview four women participated. We have chosen to leave out all the women's names because that was what we agreed on during the interviews.

Table 4.1 Number of interviewed informants

Form of interview	Number of interviews
Key informant interviews	4
Individually interviewed women	14
Group interviews	1 (4 women)

Source: Fieldwork material (2010)

i) Key informants

We carried out four key informant interviews. We chose to discuss different topics in a semi-structured way to be able to gather as much information about Mangapwani as possible. The interview guide (see Appendix 1) was a tool to keep us on track during the interviews. The interviews often led to openly discussing topics that we could not predict beforehand, which also leading to valuable information. The interviews were carried out differently in every case since we adapted to the environment where the interview was carried out. The key informant interviews with employees at ZAWA were conducted in the office space of the authority during working hours leading to shorter amount of time than wished for. The interview at ACRA was also conducted at the organisation's office but since there was no stress we had time to ask questions and follow-up questions more thoroughly. The interview with the key informant in the village was carried out in his home making the atmosphere friendly and open. Since he gave us much of his time we felt we had the possibility to ask as many questions as we needed to.

ii) Individually interviewed women

The interviews were carried out in a semi-structured way with us steering the conversation around relevant topics while leaving space for the women to motivate their answers and opinions. We wanted to be open for new information and views that we might not have been aware of beforehand and would have missed with a more structured interview set-up. To be able to have an overview over the interview situation we used an interview guide (see Appendix 2). As the fieldwork went on we modified and re-wrote the interview guide several times. We had to adjust the order of questions and

also reformulate some of the questions that we noticed were hard for the women to understand correctly.

The interviews with the women began with a "warming up" phase when we asked specific questions regarding the household and family situation that did not require a lot of reflection. We then moved on to questions about the water situation starting out with tangible issues putting the more complex and reflective questions at the end. We felt that this set-up would give the informant time to adjust to the interview situation gradually.

iii) Group interview

We wanted to talk to the women privately and at the same time somewhere neutral for them. But because of lack of available buildings we ended up interviewing them at one of the women's homes which in the end worked out fine. The interview was carried out in a semi-structured manner around different topics that we wanted them to discuss (see Appendix 3). Since we used an interpreter we had to pause very often for interpretation and note taking. Our interpreter handled this very professionally and had the capacity to remember several women's statements simultaneously. The dynamic in the group was very positive and all of the women spoke their mind, leading to discussions, even though we felt it took time for some of them to feel comfortable.

iv) Participatory observation

To be able to observe patterns related to how women handle water that might have been missed during interviews we spent two days each at two different women's households. We still stayed overnight in Zanzibar Town for practical reasons and were together with the family we observed from sunrise until sunset between approximately 7 am to 8 pm each day. We followed the woman in all her activities throughout the day taking notes in a field diary. The observations were carried out without an interpreter mainly because the working hours were too extensive. Instead we had to communicate in our limited Swahili because almost no one spoke English.

4.3.7 Mapping

Our main tool when collecting spatial geographical position data has been to use GPS. We mapped all public taps and wells in the study area with the GPS by recording waypoints. We also mapped all interviewed households position for the purpose of further analysis of distance and water access at home in GIS.

4.4 Reflections on doing fieldwork

4.4.1 Introduction

Before we entered the study site we had tried to prepare ourselves by reading method books where ethical issues when doing fieldwork were discussed but what we came to realise very fast was how hard it is to be fully prepared for a situation like this. This section will include our reflections on doing fieldwork in a different cultural context.

4.4.2 Unequal relations

As we come from another part of the world where the culture is different we would be seen as outsiders, not only because of our culture but also because of things we cannot change such as colour, sex and size (Leslie and Storey, 2003). Being white women in our case was mostly to our benefit during the fieldwork. We did meet difficulties of being white women in other social contexts outside the study sphere. However, Scheyvens and Storey (2003) write that it is important to reflect over how our study could benefit our participants. There was a water project going on in the area that aims to increase the water supply, as we realised was what most of the women wished for. Some women, though, did not know very much about this project, other than that they had to start paying for water within the near future. In these cases we informed the women what we knew about the project as an information exchange. Another thing we did to show that their time and participation was valued to us was to give each woman a small gift for household purposes.

There was one incident while doing participatory observation with one of the women who went to a local shop with us. We had offered to get her sugar and soap but at the shop she took commando and added all kinds of things for us to buy her. In this situation we were insecure about what was expected from us and we felt very uncomfortable. She had earlier mentioned a couple of times that she wanted us to take her to Sweden and asked for us to give away our mobile phones before leaving. This was though an exception from the other participants who at the most asked us to influence the authorities to install a new well or similar things.

4.4.3 Working with an interpreter

The use of an interpreter is a complicated matter still the literature on using interpreters within social research is limited. As Bujra (2006) writes there are several complicating aspects to consider when using an interpreter, especially in a new cultural context. Limitation of funds in many cases affects the possibility of hiring an experienced interpreter. That was the case during our study.

Other things that affect the translations during interviews is the fact that what the researcher gets is a second hand information inevitably influenced by the interpreters own position and preconceived ideas. In our case we tried to mitigate this by having the interpreter translate in first person. Adding our own inexperience at interviewing, it created several situations with misunderstandings between us, the interpreter and the interviewed woman. At some points discussions occurred between the interpreter and the interviewed woman ending with a short summary of what had been said. This resulted in frustrations when we found ourselves left outside of the conversation. Another aspect mentioned by Bujra (2006) is the importance of negotiating the relationship with the interpreter. It is an unequal relationship where the researcher on one hand is the employer. On the other hand the interpreter has power by being the vocal bridge between the researcher and the people being interviewed. To avoid misunderstandings we set up a written contract with our interpreter. We found this very helpful for both parts to know what was expected of each other. We also sat down with our interpreter before entering the field to clarify the purpose of the interviews and how we wanted her to translate. However, a contract does not ensure that misunderstandings will be avoided nor does it ensure the commitment of fulfilling the

work, which we experienced. In the end, using an interpreter was a great experience for us leading to a friendship outside of the field. Especially our first interpreter Aysharose was also invaluable to us as a mentor, guiding us in social situations where we had no pre-understanding of how to behave.

4.4.4 Interview effects

Each interview situation is unique depending on the connection between researcher and interviewee. There are potential problems when conducting interviews that have to do with the positionalities of the researcher and the interviewee. From the researchers point of view a lot has to do with how you present yourself to the interviewee both verbally and visually to make her or him feel comfortable. Interviewees might also answer questions differently depending on what they think is expected of them (Valentine, 2005). According to Halvorsen (1992), there are a few ground rules that a researcher can rely on and we tried to follow them during the interviews. We always introduced ourselves and the purpose of the study. We then also let the women know that their answers were going to be treated confidentially with full anonymity. We also added that they did not have to answer questions if they did not want to and to tell us if they did not understand what we meant. Doing this proved advantageous since some of the women backed out of answering certain questions and many also wanted us to clarify questions. There were some issues when conducting the interviews that might have affected the interview situation in a negative way. In almost all cases it was very difficult for us to find a place to sit privately with the woman interviewed. There was a constant lack of enclosed spaces and often it was too dark to sit inside the house anyway. Often we sat on the ground on plastic mats with children and relatives strolling by, listening to what was being said.

No matter how well we tried to present ourselves, guided by our mentor Aysharose, we were conscious about the fact that what we represented as white, western, female, privileged people would affect how the women interviewed perceived us in some way. Especially since we were two researchers plus an interpreter, we think this may have affected the result. Exactly how this affected the answers we cannot say but a constant feeling we had was that the women were often inhibited in their answers. Sometimes we got the impression that they were not used to put their thoughts into words and became uncomfortable by that. We tried to get around this by changing the question maybe two or three times, to make it more tangible. The problems with the communication around some topics led us getting a narrower range of answers than we had hoped for. Conducting the group interview on the contrary was a very positive experience where the women spoke their minds freely and discussed the topics very easily. Since we only performed one group interview it is hard to say whether it had to do with the dynamic of the group or that the women feeling more confident when not being outnumbered by the researchers, but it seems likely.

“It doesn’t always go as you plan” is a motto that we had great experience of during the time of fieldwork. We like to value the experience as educating rather than a failure. Whether you are an experienced fieldworker or not it is unavoidable to meet situations where things go in a different way than planned (Leslie and Storey, 2003). In some interviews, especially among the first ones we interviewed, our questions did not always make sense to the interviewees. We had to reformulate them the best we could but even

then they did not become clear to the woman. Sometimes it seemed to depend on our interpreter using slightly misleading words as when translating “improvement” as “help” into Swahili. After a few “trial and error” situations we asked our interpreter how she understood the question and it showed she had not understood it the way we meant. We realised how unpredictable it is to use an interpreter, but also how interpreting in a second language (for us and the interpreter) affects the interview situation. However, the more we interviewed, the more we learned how to ask clear and simple questions.

4.4.5 Participatory observation

Our preconceived ideas about doing participatory observation showed to be completely mistaken. As Cook (2005) writes, participatory methods are valuable for researchers who seek to identify patterns and behaviour that are hard to locate in an interview. We agree, however it was much more complicated than we had expected it to be. With our limited ability to explain (in Swahili) for the woman what we wanted it all started out very unclear. This became a limitation throughout the whole use of the method. We would have needed an interpreter for the first few hours that could clearly explain and ask the woman what we needed. However, the experience that came out of this method was of great value for us and for this study, especially for getting a comprehensive picture of the everyday routines and water related patterns.

5. A brief presentation of Tanzania and Zanzibar

5.1 Geographical location

The country is located in the East African region along the eastern coast of the African continent and it has eight neighbouring countries. These are Kenya, Uganda, Rwanda, Burundi, Democratic Republic of Congo, Zambia, Malawi and Mozambique (see figure 5.1).

Figure 5.1 Africa and the location of Tanzania
(Source: Perry-Castañeda Library Map Collection, 2010)

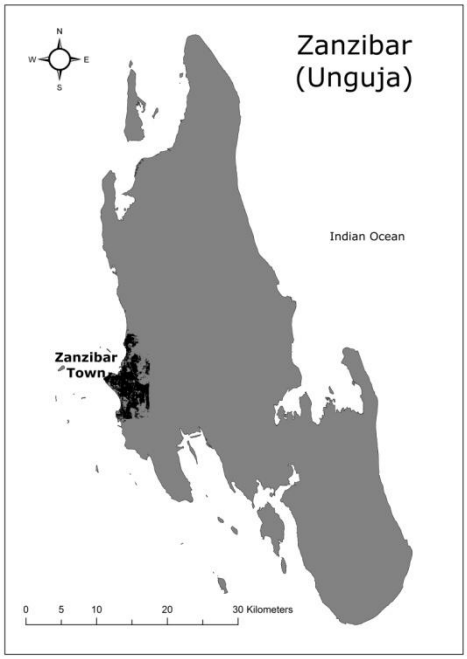

Figure 5.2 Unguja Island (Zanzibar)
(Source: Based on authors' elaboration, ZAWA, 2009)

The capital city is Dodoma, located almost in the middle of the country but the largest city is Dar es Salaam, located along the coast (see figure 5.1). Zanzibar is located outside the east coast, northeast of Dar es Salaam. Many may think of one island when they hear Zanzibar, but there are two different islands. The biggest one, Unguja, is mostly known as *the* Zanzibar (see figure 5.2) and the smaller island is Pemba, a little bit north from Unguja. The geographical position for Unguja, where this study was conducted, is latitude between 4° 30' and 6° 30' south and longitude between 39° and 40° east. The area of the island is approximately 1,600 km^2 (Ali, 2006), see figure 5.2.

5.2 Political profile

Tanzania is a multi-party republic and the National Assembly gets elected by popular vote.[6] The president is chief over the state and head of the government. There is also a house of representatives on Zanzibar, with an elected president that rules over internal matters of the island. Tanzania is considered to be a politically stable, compared to other countries in the East African region, with little political violence. Zanzibar, though has not had the same experience of political stability. The Chama Cha Mapinduzi [CCM] party was re-elected in the House of Representatives on Zanzibar in 2000, after circumstances that made the election having to be re-conducted in some districts. A growing disapproval among members of the other big party Civic United Front [CUF] led to political violence, that has appeared since this time, especially around election time (Encyclopedia of the Nations, 2010). The latest election in October 2010 was carried out peacefully in contrast to former elections. The two biggest political parties CCM and CUF then agreed on a two-party arrangement (EISA, 2010).

By independence time Tanzania adopted a socialist ideology that President Nyerere ruled, but that is now more or less abandoned. Instead, the ruling party, CCM is promoting a liberal ideology with a free market economy that is connection to the structural reforms supported by IMF and the World Bank (Encyclopedia of the Nations, 2010).

Tanzania, Kenya, Uganda, Rwanda and Burundi have joined the East African Community [EAC] that was first established in 1967 and thereafter dissolved in 1977 to yet again be re-established in 2000. The region has a high potential for cooperation and developing the region but cannot yet alone finance the capital-intensive investments that are required. The Community is therefore cooperating with other countries and organisations and is also dependent on financial help and aid from other countries and institutions like the World Bank (EAC, 2010). EAC has taken a liberal approach to development and wants to attract private investors and let them and the civil society to take leading roles in socio-economic development. Open trade between the member countries is also assured (ibid).

5.3 Socio-economic status

The official languages in Tanzania are English and Swahili. Tanzania is a former German and English colony that achieved independence in 1961. Islam and Christianity are the most common religions. On the mainland Islam and Christianity represent about 40 % of the population each, though to some extent less percentage of Muslims (Encyclopedia of the Nations, 2010). Muslims have populated Zanzibar since 7th century where they represent over 95 % of the population (Utrikespolitiska Institutet, 2007).

The 947,300 km^2 that constitute Tanzania holds a population of approximately 42.5 million with an annual population growth of 2.9 per cent (World Bank, 2008). The area of Zanzibar is approximately 1,600 km^2 (Ali, 2006), see figure 5.2. The total population is

[6] The first multiparty election was in October-November 1995. Before that during most of the post-independence time Tanzania was a one-party democracy dominated by the Chama Cha Mapinduzi (CCM or "the Revolutionary Party").

hard to state since numbers vary between different census data sources. The population of both islands is according to JICA (2006) about 1.1 million. The population growth rate is approximately the same as for the whole country (ibid).

Life expectancy at birth for whole country is 55.6 years and that is higher than all the other member countries of the East African Community. The literacy rate among women between 15 and 24 years of age in Tanzania is slightly lower than in the other EAC countries with the exception of Burundi (75.3 %), which is also at almost the same level as Tanzania (76.3 %) (World Bank, 2008). The adult literacy rate for 15 year olds and above is 72.3 %. The GNI per capita (PPP) was 1,260 USD in 2009 and the Human Development Index[7] [HDI] for the country is 0.530, which is slightly higher than sub-Saharan Africa. Tanzania is ranked far down the list of countries; 151st out of 182. The Human Poverty Index [HPI] is a multidimensional alternative to the classic poverty line calculation, and HPI-1[8] for Tanzania is 30%. There are three main dimensions of how HPI is measured. The dimensions are *a long and healthy life*, *knowledge* and *a decent standard of living* (UNDP, 2009).

5.4 Water policy history and water situation

Before independence in the 1950's water was a considered a commodity in Tanzania. Water was distributed from kiosks and people had to pay according to volume. After independence in 1961 the country changed the water policy into free water supply. The political party TANU with president Nyerere, made a pre-independence promise to the people that they would provide free basic water services. This was a promise that the government kept after being installed. In 1965 they started funding all water supply investments in the country and by 1970 they also started covering for all the costs of maintaining the system. At the same time, in 1970, rural water systems gave free water while the urban users were expected to pay, except when fetching from public standpoints. This made some people displeased with the situation. The system was already being criticised for being inefficient in the early 1970's and water as an economic good was put on the agenda once again but since the government had made the pre-independence promise of free water supply they were opposed to this idea (Mashauri and Katko, 1993). The early 1980's was a time of economic crisis and many developing countries went through major economic reforms in the end of the century formed by the IMF and World Bank (Boyd et al., 2003). First in the late 1980's the water situation reached a point where a change was unavoidable and even president Nyerere then stated that it was necessary. Around this time the tariff increased from having had a decreased pricing trend for over a decade's time (Mashauri and Katko, 1993).

The 1986 Structural Adjustment Programme implementation had a large impact on the changes within the water system, especially the increasing fees that had the same trend

[7] HDI provides a wider picture of a country's development level than GNI per capita which only considers one parameter. HDI also measures access to education, prospects of a long and healthy life and is at a maximum at 1.0. The highest score in the world is reached by Norway with a HDI of 0.971 (UNDP, 2009).

[8] HPI-1 is the term used for measuring poverty in developing countries and it differs from HPI-2, used for high-income countries. The three main dimensions of deprivation are used in both cases but HPI-2 has a fourth dimension; *social exclusion* (UNDP, 2009).

within healthcare and education (Boyd et al., 2003). The Tanzanian water system was at this time shifting towards a cost recovery system to be able to ensure water supply although the system faced a lot of problems. The fees were not always collected and since they were low from the start it did not leave many resources for maintaining the water utilities. As a result the poorest of the poor in both urban and rural areas suffered a lot since they were forced to buy water from resellers or vendors that sold for several times the official price for water (Mashauri and Katko, 1993). These national level reforms were unable to deliver improvements to the health and education services and were followed by a period of cost cuttings on social services. The cost cuttings led to new reforms that eventually led to somewhat more economic stability and more control over the public sector. In the report by Boyd et al. (2003) it is stated that the situation is generally varying and that the water and sanitation sectors are facing problems that remain to be resolved. To summarise the more recent influences on water policy's it has been towards cost recovery strategies where the donors will get their investments back through tax revenue and water user charges.

Tanzania is in an acute situation to improve the water situation and to take stronger actions to ensure the human right to water. The country is, according to WHO, in comparison to other sub-Saharan countries below the average of 59 % overall access to water. Tanzania also has the lowest access among all the countries in the East African sub-region. The main problem though, is not actual lack of water but lack of access, which is the situation in most parts of East Africa (WHO, 2009). The average everyday consumption of a Tanzanian is less than 50 litres per person per day. In the WHO table of access based on distance and time spent to fetch water (see table 2.1 in chapter 2), 20 litres per day is considered *basic access* and 50 litres of day is *intermediate access*. This would then mean that the average for the Tanzanians is only on basic access, which indicates on a compromised hygiene (WHO, 2008; Brown, 2010). The urban and rural access to an improved water source was 2006, 81 per cent 46 per cent respectively. However, and if it would be compared to the percentage in 1990, it would show a decrease in urban access and an increase in rural access (Brown, 2010).

5.5 A closer presentation of Zanzibar

Unguja and Pemba are together divided into 5 regions and the regions are further divided into districts and then into smaller geographical areas called shehias (Encyclopedia of the Nations, 2010). Each shehia is its own administrative entity and each one has a political chief, called Sheha. The Sheha is getting selected by the regional commission, which in turn is appointed by the central government, and is therefore loyal to the existing government (Interview 6, April 30, 2010).

While observing the rural and urban areas, travelling around Unguja Island, during the pre-study and our main fieldwork we noticed that the socio-economic differences can vary a lot between different places on the island. This is a judgement based on the construction of buildings. A general statement would be to say that the further away from Zanzibar Town area the poorer building materials. This is though, only a self-observed judgement that might not be entirely correct. However, it does correspond with one of our key informant, an employee at ACRA, who said that the further away from Zanzibar Town the poorer the people are (ibid). According to the National Bureau of Statistics Tanzania [NBS], the houses on Zanzibar are of slightly better quality than in

mainland Tanzania and that less than half of the households own agricultural land while over 80 % of mainland households do (NBS, 2005). According to Ali (2006), the rural population of Zanzibar represent about 70 % of the total population.

The major economic sectors on Zanzibar are agriculture, trade and industries, and recently also tourism. The majority of the population are involved in food production. Some of the most common food crops are rice, cassava, yams, sweet potatoes and bananas. Many cultivate for self-sufficiency and it is also common to keep livestock and do fishing. Zanzibar has a long history of producing and exporting cloves but the production has been reduced lately because of different reasons like deceased old trees. Other cash crops are coconuts, chillies and recently also seaweed (Zanzinet, 2004).

There are differences in for depth of soil around the islands and the agricultural production is mainly concentrated to the deep soil areas. There are coral rag areas, where the soil is very fertile but also very thin, which requires special farming techniques because of its seasonal sensitivity. Cloves prefer the deep soil areas in the western part of both islands (ibid).

The growing tourism on the islands, especially Unguja, might become a replacement for the recently failing clove industry. Around 100,000 tourists visit the islands annually and there are foreign investors building many hotels since the Revolutionary Government of Zanzibar [RGOZ] opened up for more liberal conditions for foreign investors. There are though, conflicting arguments whether the rest of Zanzibar's economy benefits from the tourism or not. According to the website for Zanzinet, the supporting arguments are that employment opportunities grow, higher prices can be set on goods and services because of the higher demand formed by the tourists. The opposing arguments are that the money usually goes straight to foreign agencies in the countries where the tourists originate from and that crimes, drugs and prostitution have increased in the last two decades due to tourism (ibid).

6. The study context

6.1 Introduction

The aim of this chapter is to give a presentation of Zanzibar's hydrological conditions, the water supply system and its constraints as well as presenting the specific geographical study area where we conducted our fieldwork. Thus the chapter is divided into two parts; the first will give a presentation of the hydrological conditions of Zanzibar, give an introduction to the current water situation and administration of the water system as well as a presentation of the current water policies and how they influence the water situation today. The second part will give an introduction to the shehia of Mangapwani where the individual and group interviews with the women were conducted. From now on when writing Zanzibar we are referring only to Unguja Island.

6.2 Zanzibar hydrology

Most small oceanic islands around the world face special geographical conditions, especially considering water resources and the hydrological cycle. Zanzibar is facing problems as many other islands, there is not much surface water. The supply of water can vary a lot during the year. During dry periods there might not be enough water, not even for pumping, but during the wet season there is usually plenty of water. One big problem though, is the surface runoff of rainwater. Close to 59 % of rainfall water in Zanzibar runs into the sea through surface or subsurface runoff. Another problem is saline groundwater that limits the usage possibilities (Ali, 2006).

The Zanzibar hydrology is directly affected by the monsoon winds that change during the year which are dependent on the difference in temperature between land and sea. The monsoon coming in during June – October brings in relatively cold and windy conditions. The winter monsoon brings in hot and arid conditions over the island during January and February and these are directly connected to the rain periods. The rain periods occur under the intervention of the monsoon winds. About half of the rain (51 %) falls during the long wet season called Masika from March – May. The short rain period November – December, called Vuli, answers for 22 % of the rainfall. The rest of the rain falls during the relatively dry seasons in between (ibid).

The rainfall varies within the island and the northern parts receive the most rain, over 1,900 mm/year. The central parts of the island are the least rainy and receive less than 1,500 mm/year. The islands climate is tropical which means that the annual maximum temperature is 30 degrees Celsius and minimum is 22 degrees Celsius thus there is little variation during the year. The highest temperature will occur in January and February (ibid).

The main water resource on the island is groundwater. Rivers exist and they are concentrated to the north-western and western parts of the island and are running straight out into the sea (see figure 6.1). The streams on the map may look wider than they actually are but it is mainly to show where they appear in on the island. This leads us to the problem of runoff water. As mentioned before over 50 % of the rainfall water runs into the sea. This means that there is a lot of fresh water that potentially could be collected using different techniques (ibid). Rainwater harvesting is one relatively simple technique that has been mentioned by the workers at Zanzibar Water Authority [ZAWA] on several occasions, during pre-study fieldtrips and interviews. The occurrence of rainwater harvesting is low but there have been projects focusing on promoting this to the local population (Interview 1, December 21, 2009).

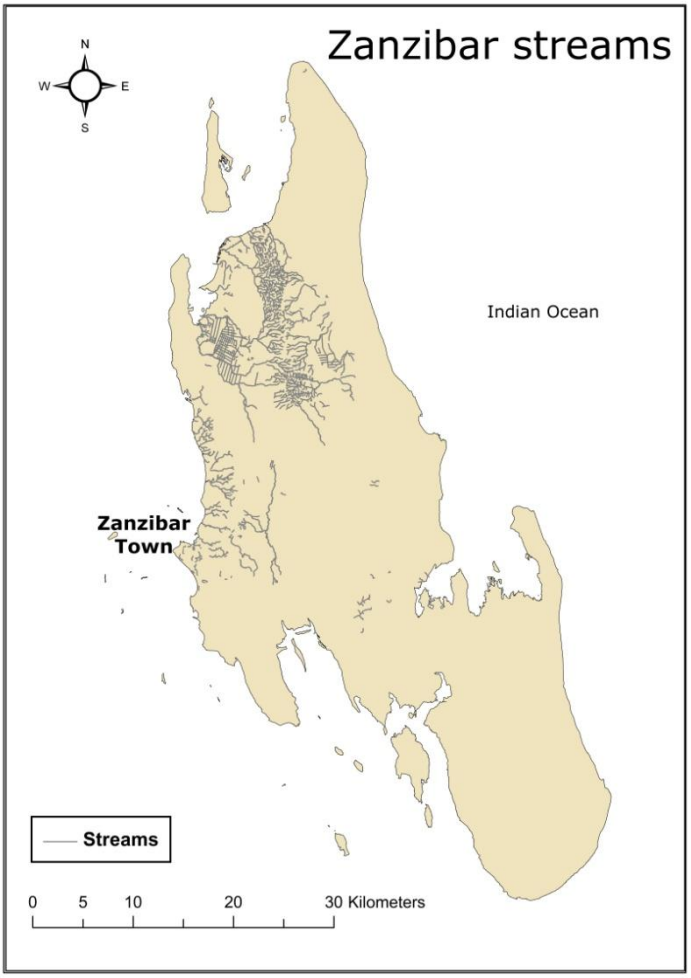

Figure 6.1 **Surface water and streams**
(Source: Based on authors' elaboration, ZAWA, 2009)

6.3 Current water situation and administration of water

6.3.1 Water supply infrastructure

The water resources being used on the island are mainly groundwater, caves and springs (Interview 4, December 21, 2009). The island is reliant on groundwater (Ali, 2006). The caves are both natural and human made and they can supply water year round, thus they are not affected by the seasons. One of the human made cave systems supplies water to several villages in the surrounding areas. The water is being pumped from the cave to a tank on a hill nearby. The main large springs are located in the semi-urban areas close to Zanzibar Town. The people in villages and even in the urban areas make their own wells for accessing the groundwater despite the public supply. The wells are though depending on the weather conditions and during the dry season they may not supply much water. Wells are usually around 15 metre deep. Boreholes are another way of accessing the groundwater. These are mainly constructed by ZAWA (ibid).

The island has more than 150 boreholes and wells. All private boreholes and wells need to be registered, which is an on-going process, so that it will be easier to estimate the total usage on the island. Another on-going project is to install water meters for same purpose. According to the Director General of ZAWA, it would be more sustainable to build a dam but there are environmental issues with that so for the moment that is not on the agenda (Interview 3, December 29, 2009). Figure 6.2 shows the main water infrastructure on the island; the pipeline scheme, large reservoirs, boreholes and wells. The concentration of infrastructure to the urban areas clearly indicates an urban bias of water systems since 70 % of the total population lives in rural areas (Ali, 2006).

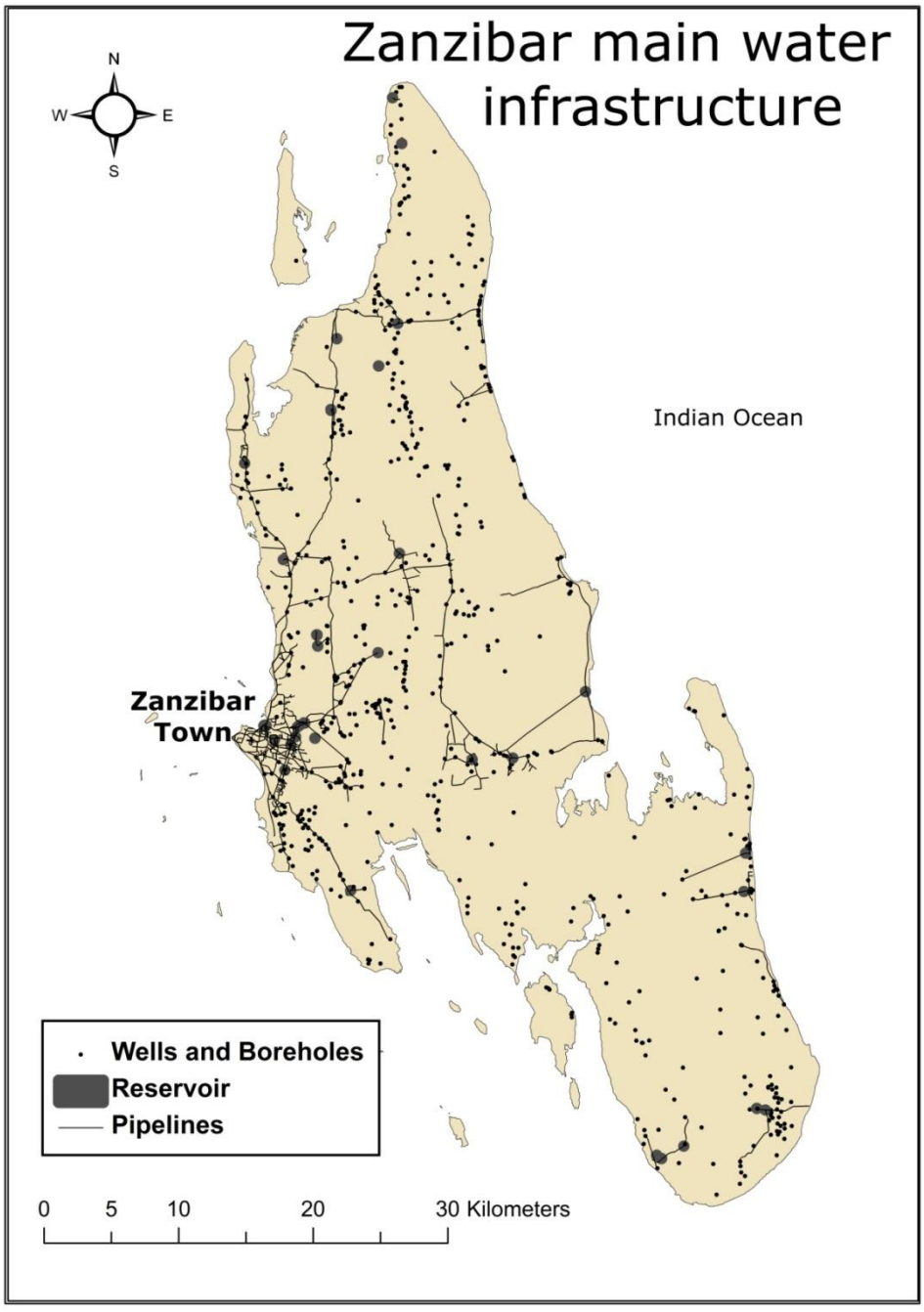

Figure 6.2 **Zanzibar water infrastructure**
(Source: Based on authors' elaboration, ZAWA 2009)

According to the Director General of ZAWA, the majority of the population have pipelines for water connected to their houses, 70 % of both islands' population (ibid). These numbers have not been confirmed in any documents. Even if the house is connected it does not mean that the water is reaching the house, since it has been shown that there is a problem with getting the water to reach everywhere. The numbers that were found show that the percentage of the urban and rural population, that had sustainable access to an improved water source during 2004/05, was 80 % and 51 % respectively. The target is to improve the situation till 2010 towards 90 % of the urban and 60 % of the rural population (ZAWA, 2007).

The current water supply system is facing many problems. The most urgent one may be that the supply of water does not cover the demand, while the population also continues to increase. The system is old and many pipelines are of the material asbestos cement that causes a lot of leakage problems since the material is vulnerable. Many of the pipelines are damaged and due to the lack of governmental support there is not enough money to maintain and develop the old pipeline system in order to meet the demand (ZAWA, 2008).

Saline water is a problem in some coastal areas of the island and the risk of saltwater intrusion along the coastline is a constant threat. Different things can cause intrusion of salt water. Pumping groundwater along the coastline is one of the reasons. This has already happened in some coastal areas, especially within the areas of high pressure of tourism, were many hotels are located. Another threat is the scenario of a rising sea level (Ali, 2006).

6.3.2 Zanzibar Water Authority

Zanzibar Water Authority is a governmental institution, operating since the 1990's. It was originally called the Urban Water Authority and in 1995, a Finnish organisation facilitated the reformation of the institution, by financial support. In August 2006 ZAWA was ready and operating. The Water Act document was then elaborated as part of the Zanzibar Water Authority set-up. Uganda Water Authority helped out to form out a strategic plan that ZAWA now prepares every fifth year. Every year they go through the plan, supported by the United Nations Human Settlements Programme [UN-HABITAT]. The NGO, Japan International Cooperation Agency [JICA], is one of the biggest financial supporters of ZAWA and JICA facilitates water projects, as well as provides facilities like pipelines, pumps, etc. They also support ZAWA with experts in form of skilled people (Interview 3, December 29, 2009).

ZAWA is set up with 3 different departments:

1. Technique department; drilling, water distribution, planning projects.
2. Costumer service; receive new clients, complains etc.
3. Finance and Administration; this department already existed before 2006 but they employed more staff.

All departments plan for their own budgets and they do not need to pass through the government or ministries. There are four directors all together, one in each department, and one in the Pemba branch. When decisions are being made they have to be approved by the chairman, who is now for the first time a woman. ZAWA operates independently

but still under the government. Decisions have to go from ZAWA to the Board and to the Ministries. The Government pays for salaries and electricity use but apart from that ZAWA is financed by costumers through fees (ibid).

There is 768 staff and some of them were taken over from before 2006. Some more posts are yet to be filled, especially in the customer service department. They are planning to open more branches around the island and then the staff will be more effectively used. This will also lead to easier access for people living away from Zanzibar Town (ibid).

6.4 Zanzibar vision 2020 and Zanzibar water policy

Due to both internal and external changes in the political and economic climate the Revolutionary Government of Zanzibar [RGOZ] is facing many challenges when it comes to providing a basic social safety net for its population. In the aftermath of an economic crisis in the 1980's, Zanzibar went through an implementation of a structural adjustment program. This led to an increased GDP but still the gaps between poor and rich widened. With this as a background the RGOZ have formulated development goals in the Zanzibar Vision 2020 with the overall objective to eradicate absolute poverty in the society. Other development goals in the vision include substantial reforms within most sectors in the society. Within the water sector the vision states that access to safe water should reach 100 % by the year 2020. To obtain this the government will mainly widen the capacity for water distribution, promote community ownership, implement and sustain a water tariff and billing system and promote the development of rain water harvesting technologies (RGOZ, 2000).

The Zanzibar islands have had a different historical trend of water policies and reforms compared to mainland Tanzania. The national policies have had limited influence over Zanzibar because of the relative independence of the islands' government. In the beginning of the 1990's a project called "Rural Water Supply Development Projects" was aiming to install a better water and sanitation system but it was stopped partly finished because the RGOZ wanted the water to stay free of charge in opposition to what the project and loan agreement was. The RGOZ has recently agreed to install a tariff system on the islands. Together with different organisations such as JICA and the African Development Bank Group [ADBG], the RGOZ are continuing the earlier interrupted project, to improve the water and sanitation system. The project includes better water systems wherein the rural areas will be provided with public standpoints supplying water on daily basis through a usage fee-system (ADBG, 2008).

In a progress report for the water sector in Zanzibar the millennium development goals are clearly mentioned; the water situation needs to be improved. The report clearly points out that the water situation is the most important change that needs to be done to be able to reach the other targets of the vision 2020. The Revolutionary Government of Zanzibar also recognises water as a human right and a human need and the importance of access to sustainable safe drinking water. The connection between water and poverty reduction as well as socio-economic development is clearly explained and noticed in that report (ZAWA, 2007).

Zanzibar Water Authority vision is:

> … *'to be the best water and sanitation service provider in East Africa'* and the mission is *'to develop and provide potable, adequate, affordable water supply and sanitation services in a sustainable and environmentally friendly manner'*. In this regard, ZAWA's motto states that: '*every drop counts; use water wisely'*.
>
> The core values include: teamwork and transparency; customer satisfaction; competent, committed and motivated staff; good governance; environmental sustainability; efficiency and effectiveness; gender sensitivity; corporate social responsibility and networking.
> (Source: ZAWA, 2008: vi)

The policy that directs the water sector in Zanzibar is built on the *National Water Policy 2004*. There is a basic outline of targets for the water sector. One of the main aspects that are raised is that ownership of water shall remain public as it is a basic resource and that the social importance of water is fundamental. On the other hand water is considered to be recognised as an economic good. The price for water should reflect the economic value and answer for related cost recovery (ZAWA, 2008).

The water authority shall maintain the water system and take care of possible interest within the maintenance of water. It is pointed out to be more important to satisfy the basic needs of the population rather than considering sub-sectors interests in water usage. There is also a clear environmental aspect considered in the policy documents of ZAWA. All utilisations within water supply and sanitation need to be conducted with environmental sensitivity (ZAWA, 2008).

6.5 Power cuts

During the three and a half weeks of conducting the pre-study, in Zanzibar, the electricity was absent the whole time and lasted for totally three months. The same thing happened earlier in 2009 and lasted for between four and five weeks. According to people around the island, the reason is that the power comes from Dar es Salaam on the mainland through a submarine cable. This cable tends to have problems that cause the electricity breaks. The electricity break has a negative impact on the ability to supply water. The pump stations, the boreholes, basically the whole water system is dependent on electricity to be able to perform in its best way. The solution that ZAWA uses is generators to provide power to the system. The generators are not enough to have all pumping stations working at the same time. Thus ZAWA moves around the generators between different spots. Sometimes they change the generator every day and sometimes less frequent. This means that one village may get water for one day but not the next while the village nearby will get water when the other does not. Some water spots do not have a generator placed out at all which makes the population totally dependent on private or alternative water sources like wells or streams (Interview 1, December 21, 2009 and fieldwork observations).

Concerning future power cuts ZAWA does not know what will happen. During the last power cut ZAWA reduced the tariffs for people that are already paying them in parts of the island. ZAWA received subsidies from the RGOZ since it was a national crisis. The RGOZ has provided the island with 32 new generators, which will be installed in Zanzibar Town, for electricity supply supporting the island in case of a new power cut (Interview 8, May 5, 2010).

There is an upcoming project on installing a new submarine electric transmission cable between mainland Tanzania and Unguja (Zanzibar). A US based organisation called Millennium Challenge Corporation [MCC] is leading this project in cooperation with the government. The project will take about one year to complete and this new cable will replace the existing, 30 years old cable (ibid).

Alternative solutions to improve energy capacity do not seem to be on the current agenda for the island. We have not talked to anyone at the Ministry of Energy so this is nothing we can state, though we think it is interesting. During our time of work in Zanzibar we did not notice any alternative energy sources. It is an island of sunshine almost year round with excellent conditions for solar energy. We randomly asked people we met about this and the most common answer we got was that it is too expensive to install. During our interview with one of our key informants at ZAWA (Interview 9, May 5, 2010) we asked him if they have considered alternative energy sources. He told us he did not have a clear answer, but he had heard that alternative sources such wind, solar and ocean have been discussed. He told us that there is one hospital on the island that uses solar energy and that there are a few villages where it is used as well.

6.6 Pricing structure for water

ZAWA have recently started to use a tariff system for water usage. Since 2008 people are supposed to pay according to usage or a monthly fee. In general people in urban areas already pay, but people in rural areas are still in progress to start paying. For example, a company with 30 employees pay a certain amount and a company with 200 pay another amount. There are special regulations for religious organisations and schools. Private people that have connection to their house pay 2,000 TSH, which is about USD 1.33 (according to the October 2010 exchange rate). When there is a meter installed the company or organisation and even private people pay according to the amount they use. Installing meters is an on-going project. There is an opening fee to be connected to the system. To collect the fee people either come to ZAWA with the payment or ZAWA workers go by car to collect the fee from the households in the villages. The future plan considering having more branches in different parts of the island is also going to help people that live away from Zanzibar Town to pay their fees etc. (Interview 2, December 21, 2009).

6.7 Capacity building project in Zanzibar

The project *Capacity Building for Sustainable Running Water Management and Cost Recovery in Zanzibar* is a partnership between ACRA (an Italian NGO), ZAWA, Association of Non-Governmental Organizations of Zanzibar [ANGOZA] and Chagamoto Life Preservation Fund (ACRA and ZAWA, 2009).

The three main components of the project, which is being implemented during a three year period (2008-2011), is the rehabilitation and improvement of water supply systems, a campaign on hygiene and sanitation and to elevate income generating possibilities. Since our study is focused on water accessibility the presentation of the project will mainly take up parts of the project that deal with water. The project area is concentrated to parts of the West District and the North District B on Unguja (see figure 6.3) and includes 17 shehias: Kiombamvua, Chuini, Mahonda, Makoba, Zingwezingwe, Kidanzini, Mfenesini, Mkadini, Kitope, Kama, Fujoni, Mangapwani, Misufini, Mafufuni, Mwakaje, Matetema and Mbaleni (ibid).

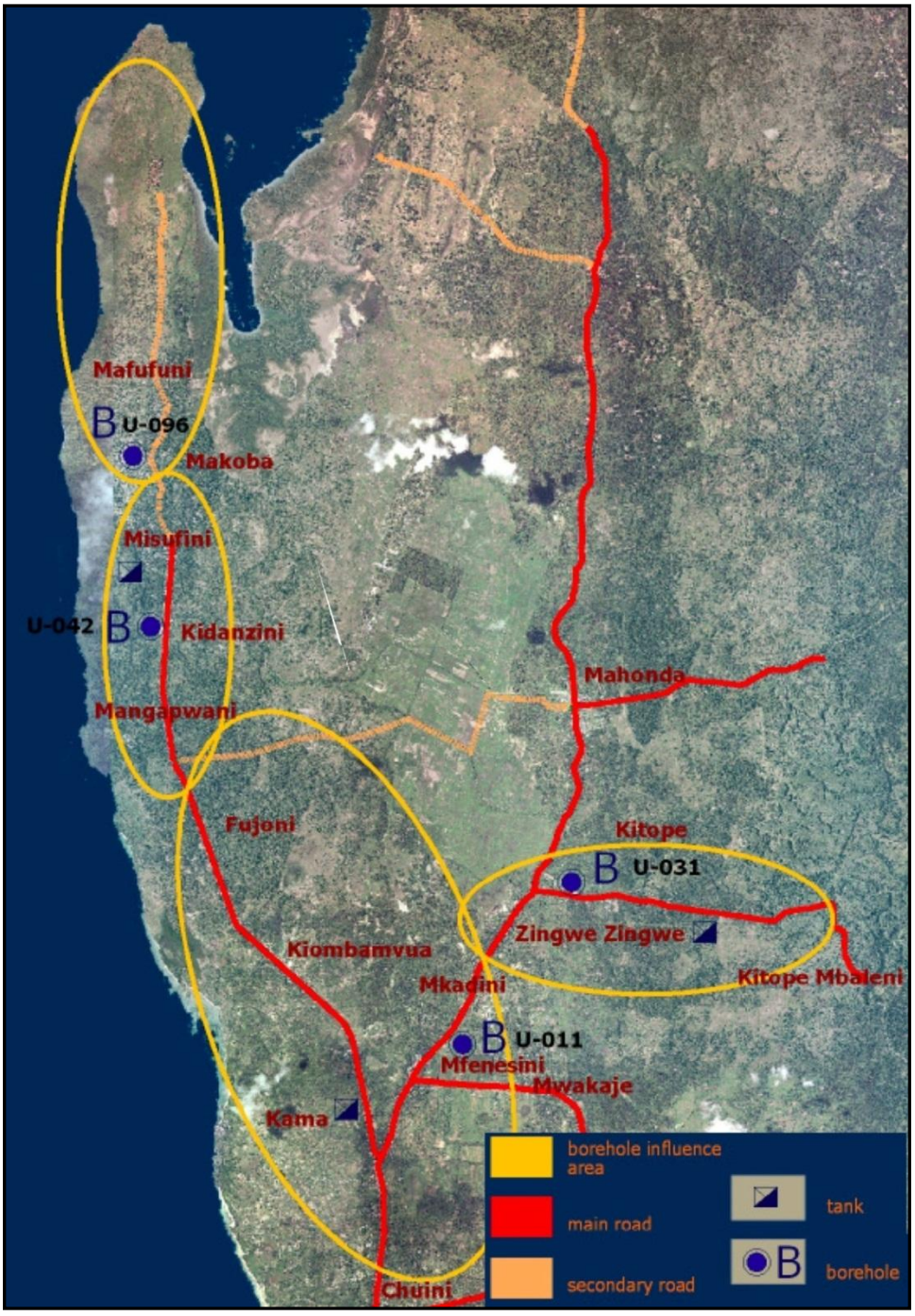

Figure 6.3 **The targeted communities and the plans for the water scheme**
(Source: ACRA, 2009)

The main problems facing the shehias in the area prior to the project was the rationing of water where communities go up to four days a week without water. There has also been frequent break down of pumps at the water stations and leakage of old asbestos cement pipes. The project's aim considering water access is to ensure continuous water supply to all shehias seven days a week through the installment of two new bore holes, in Mfenesini and another one where the main road parts as well as the construction of a tank in Kama with a capacity of 250m^3 and lay down of a new and bigger pipeline system (ibid).

To be able to attain sustainability the project is to a large extent focused on capacity building. The forming of local water committees in each shehia will de-centralize the institutional power of the water authority to some extent. The committees will be locally appointed by the population in the villages and will be semi-independent of ZAWA. The committee will sit for two years and will be followed by a village meeting where the population will decide whether to replace the committee's members or not. ZAWA will be accountable for ensuring that water is provided and that the committees are operating. They will also support the committees financially. In addition the committees will be partly funded by the tariffs they collect in the area to finance the salaries for the employees. The structure also involves two local plumbers that will be trained by ZAWA. They will acquire technical education and competence to be able to maintain the water infrastructure. Another task for the committees is to run and manage the setup of a water kiosk system where water will be paid for according to volume (Interview 6, April 30, 2010). The committees will also have some power to set and collect the local tariff. This is especially in the case of poor households who will be allowed a reduced tariff sum. The role for the committee will therefore also be to identify and define a tariff level for poor households (Interview 8, May 5, 2010).

In October 2010, if everything goes according to the plan, the initiated water committees will be fully organized and managing the water infrastructure in the local areas. The water committees are still only tried within the project areas but the system has been proposed to be applied all over the island eventually. According to a key informant at ACRA, political issues are in the way, at the time we of the interview (Interview 6, April 30, 2010).

6.8 Geography of Mangapwani

6.8.1 Introduction

The village of Mangapwani is a small fishing community situated around 21 km north of Zanzibar town near the west coast of the island (see figure 6.4). The shehia with the same name is known for its sandy beach and the historic legacy of the coral slave caves that that attracts tourists. The village itself is concentrated around a main road, which goes through the village leading to the neighbouring communities of Bumbwini, and Fujoni located to the north and south respectively, see figure 6.5 (McIntyre and Shand, 2006). The village has got a population of 1,627 and is divided into 12 areas and people usually live in the same area they are born if not migrating because of marriage. A little more than half of the population is female and 53% of the total population is under 18. There are 279 households with an average of around four persons per household but households with six up to ten people also occur (Interview 7, May 4, 2010).

Within Mangapwani it is hard to set a difference between which area is most popular and advantageous to live in since there is a mix of economic activities and standards of living in all areas. The most common occupations are cooperative farming, fishing or grinding of coral stones. Other activities that are common are personal business, selling products like milk, bananas, potatoes, cassava and mangoes. Fishing is the most common income generating activity. When it comes to farming people usually only cultivate for subsistence purposes and only sell a small portion of their harvest (ibid).

When comparing Mangapwani's economic conditions to the surrounding shehias the economic possibilities are similar to Fujoni, a slightly larger village located south of Mangapwani. This is because of the good fishing waters outside the villages which contribute to cash generating possibilities. Bumbwini and Zingwezingwe, located north and east of Mangapwani respectively, are somewhat worse off since they do little or no fishing and tend to be doing farming and stock keeping to a larger extent (ibid).

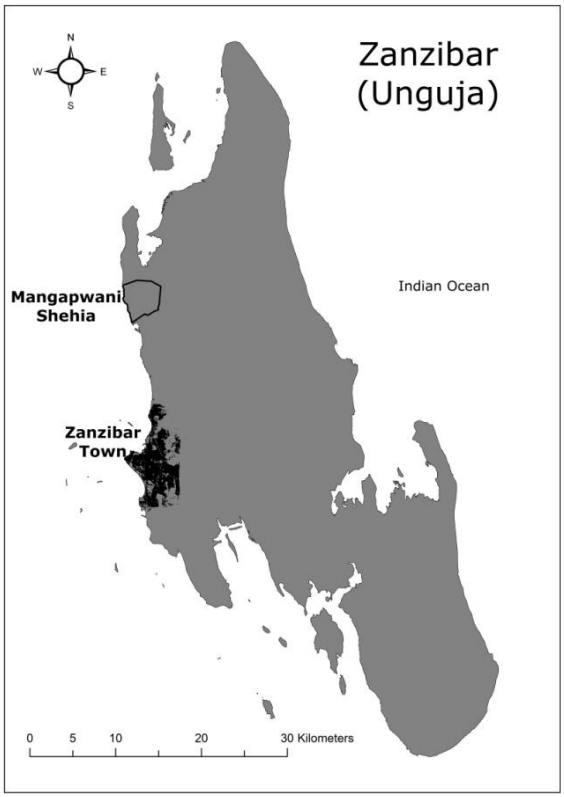

Figure 6.4 Mangapwani location
(Source: Based on authors' elaboration, ZAWA, 2009)

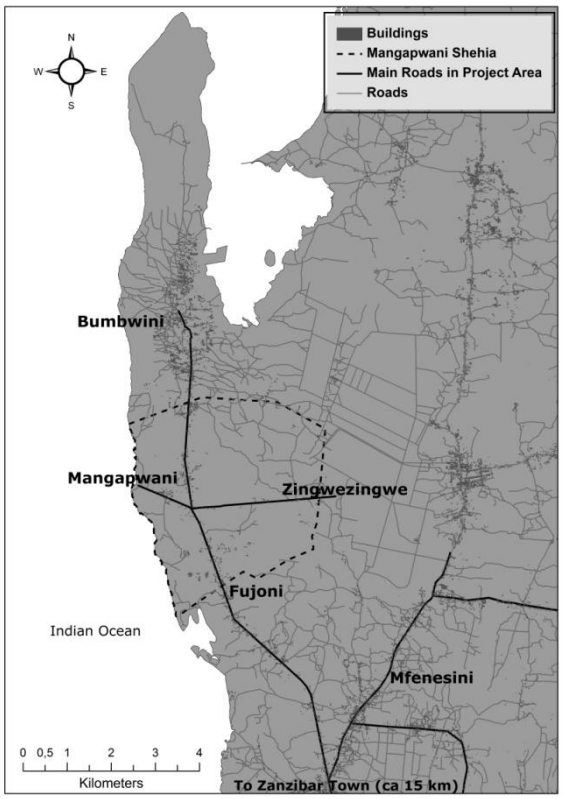

Figure 6.5 Mangapwani and neighboring shehias
(Source: Based on authors' elaboration, ZAWA, 2009)

6.8.2 Current water situation

Even though the surface water in Mangapwani is limited there is plenty of groundwater. There are seven protected wells and one hand pump that connects the population to the natural water sources (see figure 6.6). According to a key informant, the wells are free from illnesses since the wells are dug deep to the ground water level. Some of the wells closest to the ocean are saline though (Interview 7, May 4, 2010). The wells have enough water year-round even though the levels are lower in the dry season.

There are no rules as how to use the wells but rather norms; it is not allowed to wash in the well or fetch water with dirty cans or buckets. In addition people also sporadically use unprotected water sources such as a natural spring in a coral cave and natural springs that fill up temporarily during rainy seasons (ibid). Since 1993 tap water is being distributed to Mangapwani via a main pipeline that runs along the main road from water reservoirs in Bumbwini and Mfenesini (see figure 6.3). The water is being rationed between shehias due to a higher demand of water on the island than the water authority can supply and therefore ZAWA directs water to different shehias during different days of the week.

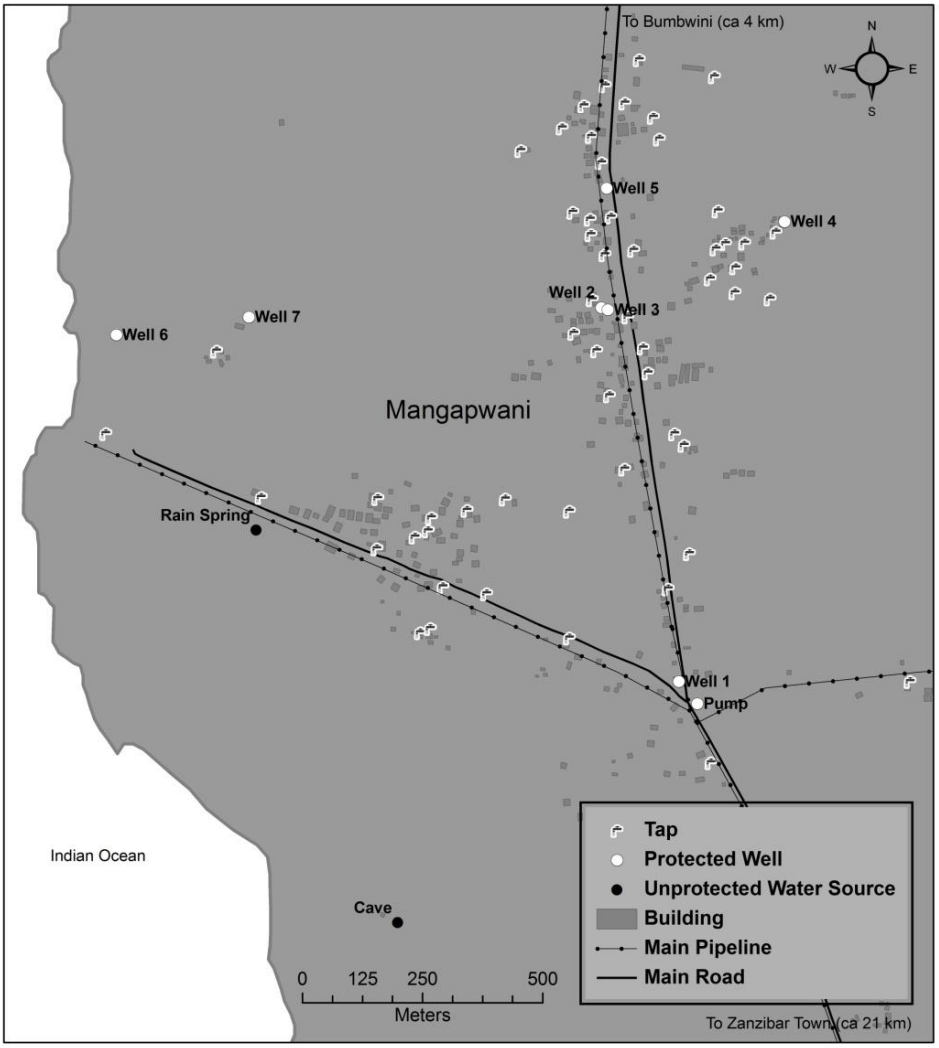

Figure 6.6 **Mangapwani water infrastructure**
(Source: ZAWA, 2009; fieldwork material, 2010)

The situation has been deteriorating since the latest power cut on the island when almost 30 % of the water pumps were damaged because of uneven current (Interview 8, May 5, 2010). The taps distribute water to Mangapwani approximately every third day shifting between the two reservoirs in Bumbwini and Mfenesini. The water that comes from Bumbwini is only coming at night however (Interview 7, May 4, 2010). There are around 75 public taps scattered over the area in Mangapwani (ACRA, 2009). The water has until now been free of charge. The key informant in the village stated it to be thirteen public taps (Interview 7, May 4, 2010). During the field study we tracked

around Mangapwani and counted all taps and found them to be almost five times as many.

Some 7 % of the population have private connections (ACRA, 2009). The part of the population that has financial abilities has also until now, 2010, been able to connect their house to the pipeline system via smaller pipes connected to the main pipeline. A problem has occurred with the household connections since there have been many connections and secondary connections to smaller pipes due to a higher demand from the population combined with no restrictions as to how people can connect. This has led to a lower water pressure meaning that less water is actually getting through to houses further away from the main pipeline (Interview 6, May 4, 2010). Most people though, are not connected to the pipeline system directly to their houses but through taps outside in the yard. As for the maintenance ZAWA is responsible for the public taps. The taps that are connected to households are maintained by the households themselves. The protected wells and the one hand-pump are all maintained by the community. When needed the community collect money to have them cleaned (ibid).

6.8.3 Power cuts in Mangapwani

Mangapwani is exposed now and then to power cuts that usually last for a shorter time. During the last year however, the island has experienced two power cuts that lasted for a longer period of time. Since people are dependent on electricity for their households and to be able to manage their businesses, for ex. juice production and workshops, a lot of activities had to close down for the time being. To cope with the situation people used alternative power sources such as gasoline driven generators as far as possible. There were also other economic losses like broken electric equipment and white ware due to uneven current when the electricity came back (Interview 7, May 4, 2010). The power cuts also stopped the distribution of tap water leading to the population being dependent on the protected wells and unprotected water sources such as springs. The high pressure on the wells led them to frequently dry up and people had to either wait for the wells to fill up or look for alternative wells further away from their village area. By the end of the power cut ZAWA brought a generator to Bumbwini and some of the taps in Mangapwani started working after that (Interview 6, April 30, 2010).

6.8.4 The water supply project in Mangapwani

The on-going ACRA/ZAWA project in Mangapwani is part of a wider project on the island, called Sustainable Running Water Management and Cost Recovery, with the main purpose is to support the water availability to 17 local authorities. Another target is to simultaneously elevate the population's possibilities to cash income. Concerning the water distribution to Mangapwani several changes will be made to improve the water supply. A new, bigger main pipeline is being installed from Bumbwini and Mfenesini with the purpose to supply Mangapwani with tap water continuously seven days a week. Another goal is to establish a water committee that will manage the water kiosk system, the water infrastructure and set tariffs. The main change for the population is that the water no longer will be free of charge and that the outside taps will be reduced and partially replaced by water kiosk stands. During the field study ACRA was still unsure of how the kiosk system would be implemented in Mangapwani when it comes to where to

place these kiosks and how many there will be. We got very limited information about the part of the project regarding the improvement of people's income possibilities in Mangapwani. But there is at least one women's group involved in agriculture (Interview 6, April 30, 2010).

There has been one public meeting concerned with the forming of water committees. At the meeting representatives from ACRA, ZAWA and the local political leaders informed the villagers about the coming changes in the water system. According to a key informant at ACRA, the attendance of the meeting was around 10% of the total population. A number he believed was good since the target they had set was 5 %. The meeting presented information about the structure of the water committees, the responsibilities of the Sheha and the implementation of a tariff for water. The tariff set for Mangapwani is a flat rate of 2,000 TSH/month per household connected directly via a tap. At the water kiosks the water will cost 20 TSH/ jerry can (20 L). There will also be a tariff for farms and the price will range, depending on the farm size, from 20,000 TSH/month to 190,000 TSH/month (ibid).

7. Managing water in the everyday life

7.1 Introduction

This chapter is about how the women in Mangapwani deal with their water situation. How they feel about changes and constraints, how they manage the current water situation and what they wish could become better within the water situation. The chapter is divided into four sections where the first is a presentation of the women and their life situation. The other three are thematic and deal with different aspects of access to water and its consequences on the women's life situations.

7.2 The interviewed women

Since our aim was to find out how women handle their water situation and how the daily routines look like, as well as to identify their access to water in a specific geographic area we have only interviewed women living in the village. The total number of interviewed women was 18. Fourteen of those women were selected for individual interviews and four women for one group interview. Two of the individually interviewed women were after conducting all interviews also part of our participatory observation. All the 18 women that were interviewed lived in the same geographic area, Mangapwani village.

Table 7.1 Civil status, age, education and household structure of the interviewed women

	Civil status	Age	Number of own children	Level of education
1	Married	42	7 children	Lower Secondary
2	Married	36	5 children	Higher Secondary
3	Married	62	11 children, 5 at home	Primary
4	Married	45	3 children no one at home	Primary + Business college
5	Widow	50-60	4 children all passed away, 1 granddaughter live w. her	Analphabetic
6	Married	25	2 children	Primary
7	Married	47	5 children	Lower Secondary
8	Married	38	5 children, 3 at home	Lower Secondary
9	Married	33	3 children	Lower Secondary
10	Married	80	No children	Learned to write and read as an adult
11	Married	35	3 children	Lower Secondary
12	Widow	80	No children, 3 young relatives live with her	Analphabetic
13	Married	38	8 children	Primary
14	Divorced	39	3 children	Lower Secondary
15	Married	30	2 children	Lower Secondary
16	Married	40	4 children	Lower Secondary
17	Married	49	7 children	Lower Secondary
18	Married	42	2 children	Lower Secondary

(Source: Fieldwork material, 2010)

Fifteen of the interviewed women were married and the three that were not, had been married. One was divorced and two were widows as seen in table 7.1. Almost all women knew their age except one, where we estimated her age that is seen in table 7.1. The age structure of the interview women varied but there was an over-representation of women between 30 and 50 years old. The household composition varied between the women but since there was a high representation of middle aged women, almost all had households with own children living at home, also shown in table 7.1.

We lack some information about the four women that participated in the group interview because we did not follow the same structure as for the individual interviews. Therefore we do not have information about the origin of birth or how long they have lived in the area. Out of all the 14 individually interviewed women half of them were either born or lived since early age in this area of the island. Two of them had been living in other places during longer periods. The other half of the women all moved to Mangapwani when they got married.

The level of formal education among all the 18 women was generally higher than expected, with a majority of the women attending at least secondary school. Only a few had attended higher education with one woman in higher secondary school and one woman who had gone to Business College. Fifteen of the women had acquired some kind of formal education but there were differences in level as seen in table 7.1. The three oldest women had the lowest level of education. Two of them were analphabetic and lack formal education and one had no formal education as a child but went to school to learn how to read and write as an adult.

During the interviews we noticed that the knowledge of English was very low among almost all the women. A few understood a little bit more but most of the women almost nothing. Thus we were completely dependent on our interpreter to communicate with the women.

We only asked the fourteen individually interviewed women questions regarding their own household. The four women we interviewed in group were asked in a more general way, about why women are responsible for collecting water.

In all of the households it was the woman's responsibility to take care of all water related activities. In three of the households the women were too old and sick to be able to fetch water for themselves and therefore the responsibility had been given to either an own child or a relative in the extended family. Those women were also being helped with all other household activities by a member of the family with the exception of one old woman who had both a house-boy and a house-girl.

> *Q: Why are women the ones responsible for water?*
>
> R: Because she is the housewife. We know water and we know the usage of water.
> (Married woman, 40 years, mother of 4, May 7, 2010)
>
> A: Because the men in the house have no time. We are the ones who are usually at home. The times you need water the man is not around. In our case maybe he goes fishing in the evening hours and we like to fetch in the morning. Then the men are

tired from fishing and we can't ask them to fetch. Sometimes they help but usually it's women's responsibility to fetch water.
(Married woman, 42 years, mother of 2, May 7, 2010)

Z: It's the tradition that a woman should fetch water, look after the house and take care of the children. If the husband is around he can help.
(Married woman, 49 years, mother of 7, May 7, 2010)

M: I agree. It is the women's responsibility. The man in the household brings home food and he wants to maybe take a bath. He doesn't know how it [the water] gets there. He just wants to use it. Because I have to do the household work it makes me have to go and fetch the water.
(Married woman, 30 years, m other of 2, May 7, 2010)

Other activities in the household that the women most commonly described as their responsibilities were to take care of the children, clean the house, wash clothes, wash dishes and cook. We could also observe when we participated in two households that both these women had the overall responsibility for everything in the household. In one of the cases the woman was divorced with no man living in the household, which may not exclude that the man (if there was one) would not help with water related activities. In the one household where the woman had a husband and another older man living in the household the woman did all water related activities by herself. Sometimes she would get help from an older female teenager in the household. In both observed households the women were occupied with household work throughout the day.

Apart from household activities twelve of the women were engaged in small scale farming mostly for subsistence purposes. One woman was a commercial farmer. Two other women were also working full time; one with big-scale business in a village shop, and the other with a chicken farm. Many of the other women also did other types of activities to contribute to the household's economy such as small-scale business selling clothes, cosmetics, pastry, coconuts or excess harvest from the farm.

7.3 The reality of fetching water

7.3.1 Daily routines considering collecting water

The four women that were group interviewed will not be represented here since they were not asked these kinds of questions. However, all the fourteen individually interviewed women's routines will be presented in this section. All of the women had a tap that they collected water from as their primary source. Not everyone had a tap connected to their own house even though the majority did. Nine of the women had taps connected in the house while five used public taps and four of these women had the tap they used right outside their house. All of the women had a tap within 100 metres from the house (see figure 7.1).

How often the taps were on and how much water they gave varied a lot depending on which area of Mangapwani the households were located in. The households located along the main road got the most frequent water supply. About half of them received water every second day from the tap they used. The households located in the

peripheral areas tended to get water less often as the pressure in the water pipelines decreased with distance to the main road. The tap water came a few times per week or it could come more irregular. Three of those households received water once a week. One of the respondents said she received water sometimes every day, sometimes twice a week and sometimes once a week. There were a couple of women that experienced very irregular water supply from the tap, they often had to wait for more than a week without any water from the tap and claimed that when the water came it sometimes did not even fill one bucket. The most common way for the women was to fill up all buckets and tanks throughout the day the tap was on.

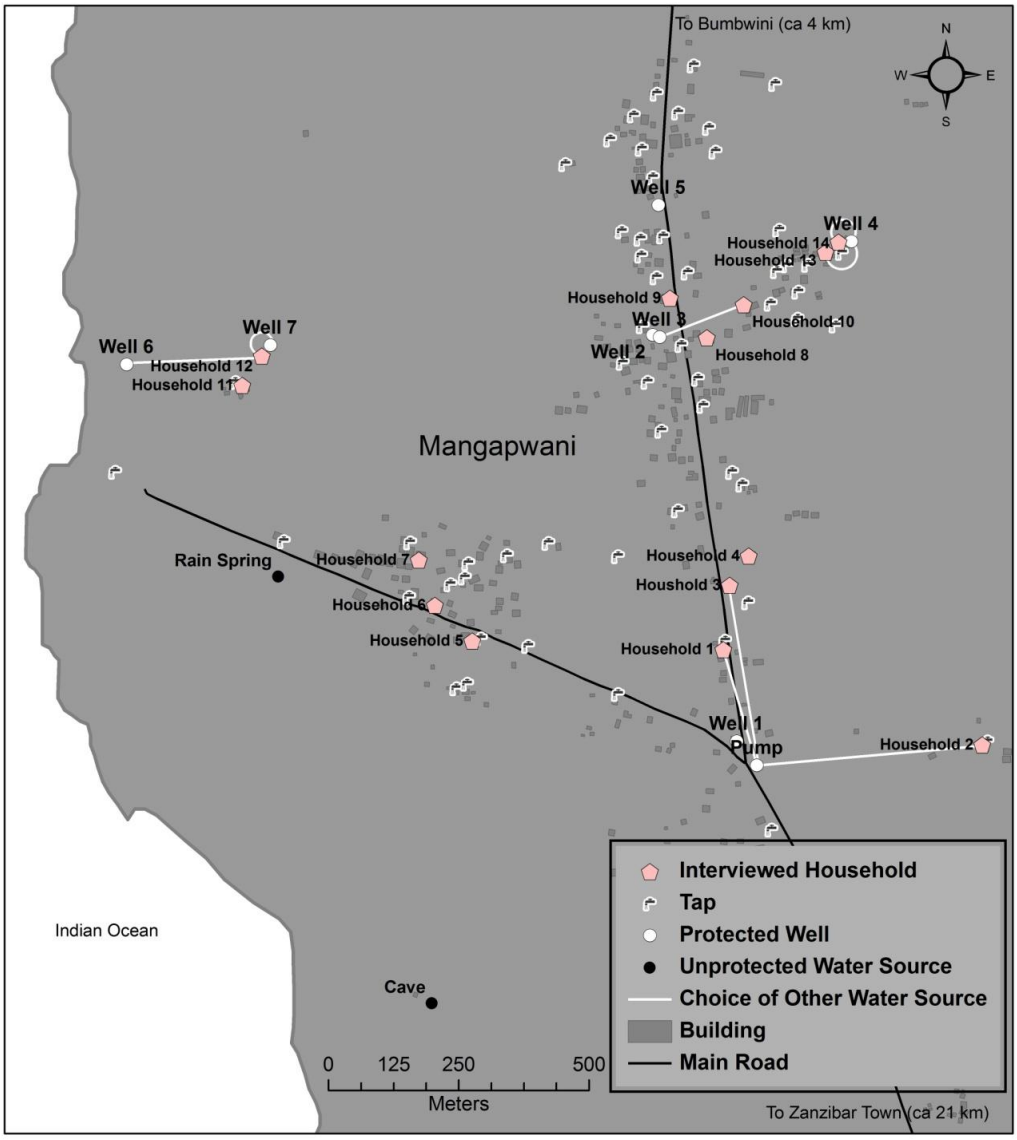

Figure 7.1 **Proximity between taps and households that need complementary water source during normal conditions**
(Source: ZAWA, 2009; Fieldwork material, 2010)

Due to the irregular water supply all of the women stored water in some way to make it last the days in between. They used tanks, buckets, pots, pans, and jerry cans, anything that might be available. All of the women had possibilities to store water but the capacity varied. Some of the women owned large barrels while a few only had some jerry cans and pots that they could store water in. Two of the women had possibilities to store a large amount of water. It is hard to say exactly how much water but it was between 500

and 800 litres. One woman stored 460 litres of drinking water but also had larger tanks outside that she and her husband used mainly for their commercial cultivation. The other twelve women had capacity to store between 40 and 240 litre each. During our participatory observation we noted:

> In the open part of the house there is a corner where they keep their buckets and jerry cans. There is also a larger green plastic bucket that they fill up with water from the tap when it's coming or as it is for the moment, water from the pump. They take water from the big bucket for cooking and drinking. One of the children took a mug and filled it to drink straight.
> (Notes from authors field diary, May 2010)

Only half of the women could survive on only using the tap water during normal conditions. The seven women that needed to use other water sources did not necessarily fetch water every day. How often they went varies but a majority of them (5) needed to fetch every day. There was some connection between having a tap inside the house and surviving on only tap water but it was not the situation among all the women that had a tap connected. The women that needed to fetch water from other sources than the tap represented both households that had a tap inside (3) and those that did not have one (4). The circumstances were individual, both because of their individual ability to store water and also the fact that some taps did not give enough water even when they were on. Another reason was the number of household members. The most common way to transport water to the household was by walking, carrying buckets or jerry cans on the head or by hand. Two women said that they used a cow and wagon once or twice per week to be able to fetch more water in one go (see figure 7.2). Using a bicycle is also a common way of transporting water between the water source and the household.

Figure 7.2 **Water being transported from the spring in the cave**
(Photographed by authors, April, 2010)

7.3.2 Water related activities and preference of water source

All the fourteen women used water in their everyday activities. Water was generally used for washing, cooking, drinking, bathing and cleaning. These activities took up much time from all the women's lives. They all spent a lot of time daily on doing these activities but the women did not necessarily do them all by themselves. The total time spent on these activities is hard to state. Since the women and their household members did all activities by hand we can only estimate that many hours was being spent on activities related to water. For example, during participatory observation, we observed how it took one woman several hours washing clothes, cleaning each garment very carefully. We had to leave before she was done with half of it and by then she had already been washing for two hours.

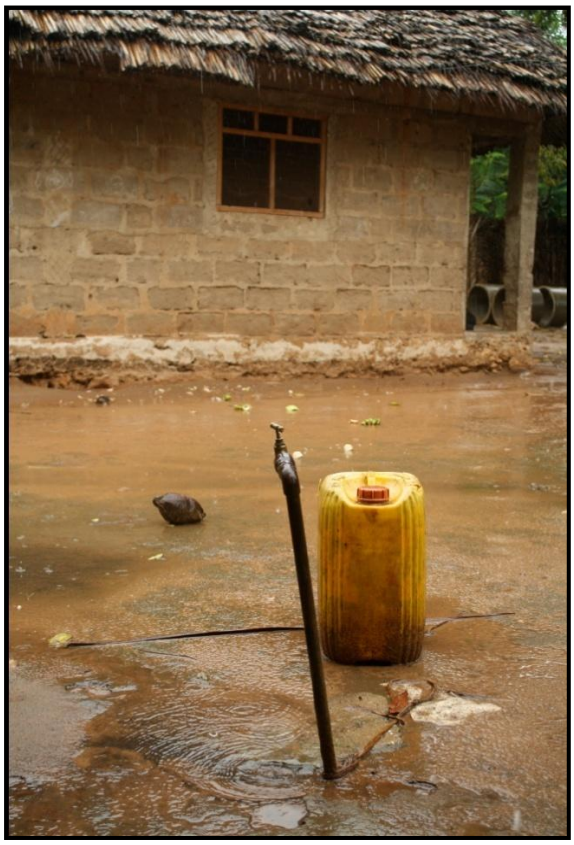

Figure 7.3 **Public tap and jerry can (common storage jar)**
(Photographed by authors, April, 2010)

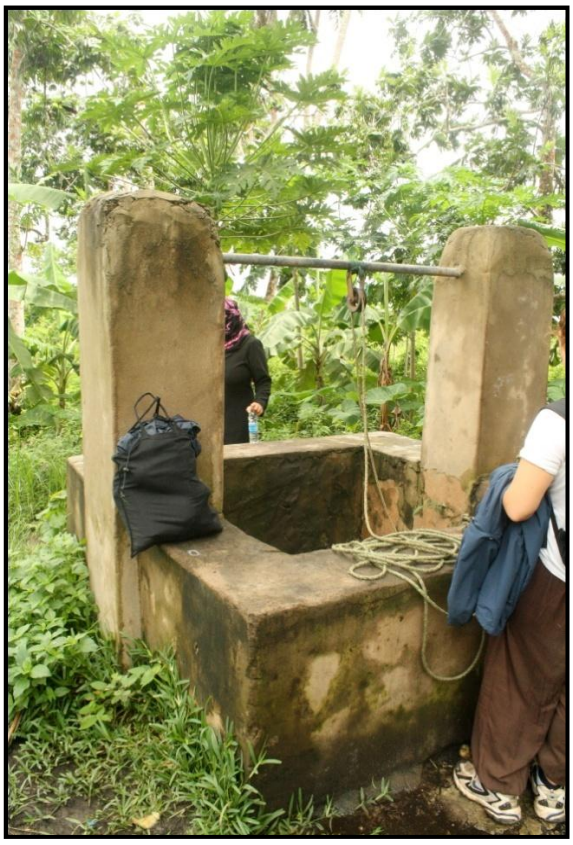

Figure 7.4 **Protected well, one of seven in the area.**
(Photographed by authors, April, 2010)

Many of the women mentioned that they got help from other household members. Children and teenagers for example helped to fetch water in those households where they on a weekly basis also used an improved well. During participatory observation we noted that the young girls in the household fetched water a couple of times or more during the day, before and after school.

The tap water was used to the largest extent possible and was stored and saved primarily for cooking and drinking (see figure 7.3 for illustration of an ordinary arrangement). Six of the women interviewed stated that they preferred the tap water. Among the women the tap water was seen as a good source and by most described as "safe and clean". Four of the women said that the good quality came from the chemicals

put inside the water by the water authority. The water was also described as free from salt, in contrast to other water sources. According to thirteen households, it was free from illnesses. One woman stated that the tap water gave illnesses like diarrhoea and stomach ache in both the dry and wet season. At the same time she said that she preferred tap water, making it hard to evaluate the answer.

The improved wells were under normal circumstances used as a complementary source for other household activities such as cleaning the house, washing clothes and dishes (see figure 7.4 for an example of an improved well). The unimproved sources, the cave and the open spring, were not being used at all during normal circumstances. They would only be used when the tap water was not enough or if there was a longer interruption of water supply. The improved wells were then used as primary sources for drinking. During these circumstances all women had to use the improved wells or the unimproved water sources.

The six different improved wells (see Appendix 4 for geographical information about the wells) varied in description of quality. What the improved wells had in common though was that the water was not as good as the tap water, according to most of the women. Well no. 5 was not used by any of the women we interviewed but we know that it was being used by other people in the village. Thus we did not collect any information about the quality during the field study.

The pump was used by three of the women during normal circumstances. Two more households used it when the water was not coming for a longer period of time. It was described as being not as good as the tap water but okay in taste. When the tap would be off for a longer period of time one of the women that used the pump said she preferred the pump water to the other wells because she could drink it without boiling it. Well no. 1 was being used by four of the women during unusual circumstances. One of them stated that this well was not so good.

> The water cannot be compared to the tap water. (…)The well is open, and dirt and insects can get inside and you can get sick if you drink it without boiling.
> (Woman, 50-60 years, widow, head of household of 2, April 16, 2010)

Another woman stated that the water from Well no. 1 was not even drinkable because it was too salty. Well no. 2 and 3 which were located very near each other were being used by three of the interviewed women, but only one of them used it during normal circumstances. These wells were described as not as good as the tap water in taste. One woman said she fetched water there sometimes because she had to when the taps were not working. She thought that the well was dirty since a lot of people were fetching from it. Another woman thought that the taste was not as good as the tap water but people that only fetched from that well thought it tasted good because they were used to it.

Well no. 4 was being used by two of the women and they used it during normal circumstances. They both felt that well water was good. The water was being described as a little saline but no one of them thought it affected the taste. Well no. 6 and 7 were

used by two of the women and one of them used both wells during normal circumstances. Well no. 6 was being used for drinking-water and was described as good in quality. The water in well no. 7, which was located closer to the households, was not drinkable because of its high concentration of salt and was being used for other household purposes.

The spring in the cave was used by two of the women but only if there was no tapping water for a longer time. The young girl that lived with her grandmother told us that the cave water was not good and that children would go inside and wash themselves. In her opinion it was not safe to use that water. Another woman commented that she did not drink the water from the cave since it gave cholera and diarrhoea. During the field study we visited the cave with one of the women. The spring was located at the bottom of a cave with slippery carved out stone stairs leading down, making it hard to get down and up. The water source was located at the bottom of the spacious coral cave and was more like a small pool of water than a spring. It was very damp and dark in the cave which made it hard to see whether the water was clear or not.

Many of the women also did rainwater harvesting. That water was most often being used for activities such as washing clothes and cleaning. The rainwater was not used as a primary water source mostly because it was not considered suitable for all kinds of purposes, especially not for drinking. It was described by the women as unsafe and sour. One of the women said it gave her stomach problems. We observed the different ways the women collected rainwater and many used a construction connected to the roof. The water was therefore often not clear, nor did it seem to be clean.

7.4 Living with uncertainty and change within the water system

7.4.1 Introduction

Mangapwani is experiencing uncertainty and changes as we write. The two main uncertainties are rationed water over the whole area and power cuts that also affect the whole area when they appear. While interviewing the women we asked them how the water situation was during the time with no power and how the women's daily routine considering water appeared during this time. We also asked them how they felt about that situation and if they received any kind of relevant information considering the course of events, during the time the power cut went on. When we discuss how power cuts have affected Mangapwani we refer to the two major power cuts that occurred during 2009/2010.

The changes that Mangapwani is experiencing are an implementation of a new water system. Fundamental changes in water administration and infrastructure are currently being carried out and will be ready by October 2010. Among the changes in the administration, the cost for water and the new water committees will affect the women. Within the infrastructural changes the women will be affected by the relocation and limitations of public taps and that water will have a more even supply.

7.4.2 Rationed water and its effects on the women

The everyday life for the women was being disturbed by the fact that the tap water was not regular. One immediate consequence was that half of the fourteen individually interviewed women had to fetch water from another source than the tap, whether it would be every day or a few times per week. Most of the women that did not use complementary sources were also being affected by the rationing of water. Four of them thought that they did not get enough water and they had to prioritise and skip water related activities in the household. The two activities that were skipped first of all were cleaning the house and washing clothes. The rationing would lead to an extra burden for the households that needed to use the improved wells as a complementary source on a daily or weekly basis. In all these households also children had to fetch water.

While doing participatory observation we noted that the women and the oldest children in the household fetched water several times per day, more often than both the women had stated during the interviews. We also noted how exhausted they were when returning with the heavy buckets on their shoulders and heads, especially the young children. Some of the children that regularly went to fetch water were not older than 10 years. One woman mentioned that the heaviest work in the household would be when there was no tap water at all. She was one of the women who needed to fetch water from a well on a daily basis. Another woman stated that she would get head pains from carrying water. When discussing collecting water with the women in the group interview they all agreed that it is both time consuming and hard work. When being asked what they thought was hard about collecting water most of them referred to the distances they have to walk. One of those women also stated that it is painful when carrying the water on her head. Others mentioned pulling water and carrying it by hand. One woman also said that it is heavy even though the distance is not far.

> It is tiring! You feel tired until the chest is paining. It is not like you fill one or two buckets, you have to carry around ten buckets so you can fulfil the household responsibilities. When carrying these ten buckets it is not the end of it. Every day you have to carry those buckets! The thing is that everything about fetching water is hard.
> (Woman, 42 years, mother of 2, May 7, 2010)

There was a clear unreliability in the pattern of how the water was rationed. At least half of the women were not sure exactly how often the water in the taps was coming and that it could be absent for longer than a week sometimes. We also observed in one of the households where we participated that the water had been absent for nearly 2 weeks. The woman said that this is normal.

One young girl, who was living together with her old grandmother, said that the tap is often only working during the night. For her that was a problem because she did not want to go outside in the middle of the night because of evil spirits

7.4.3 Living without tap water for a longer period of time

During the previous circumstances of long power cuts all the taps were out of function, permanently. That set all the women in a position where they were dependent on the improved wells and the unimproved spring in the cave for all their water needs (see figure 7.5 and 7.6 for comparison). One of the basic differences were that they had to fetch all their water either from a source that in most cases was located further away than the tap they normally use. The other basic difference was that they had to fetch water by pumping or pulling buckets by rope or simply by hand when they fetched from the spring. This was an extra burden, physically straining the women and children. It was also extra time consuming. For ex. one woman said she had to go back and forth to the well between 10 and 15 times every day to fill up her buckets. She said it could take two hours or more. This was a common situation for other households as well during those circumstances.

Since the wells were used as the primary water source for the whole village the pressure of people on the wells got very high. One woman said that during the three month long power cut, long queues occurred by the wells and that they had to wait for hours. Sometimes the wells went low on water and they either had to go to another well or even wait by the well over night for the water level to rise again.

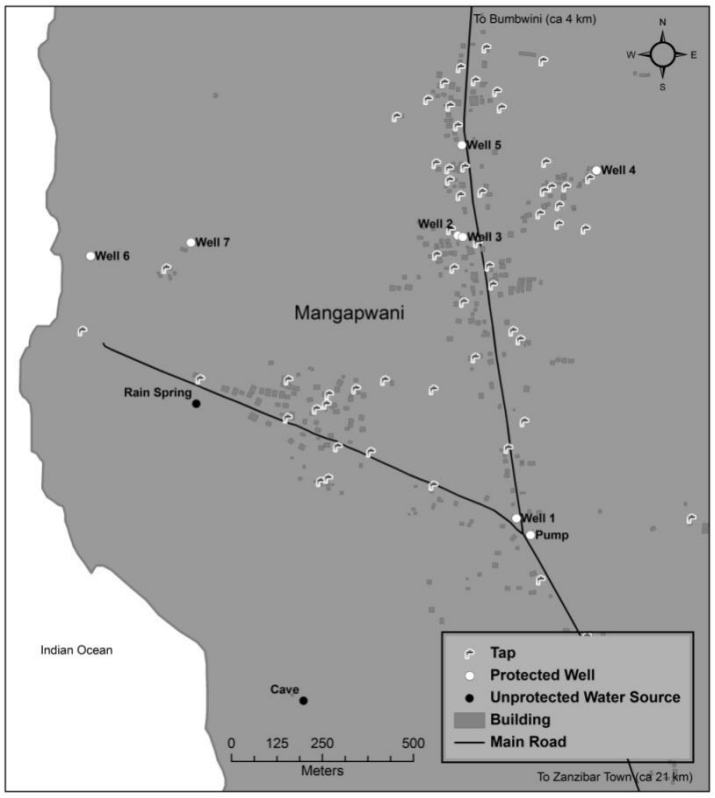

Figure 7.5 Water sources during normal circumstances
(Source: Fieldwork material, 2010)

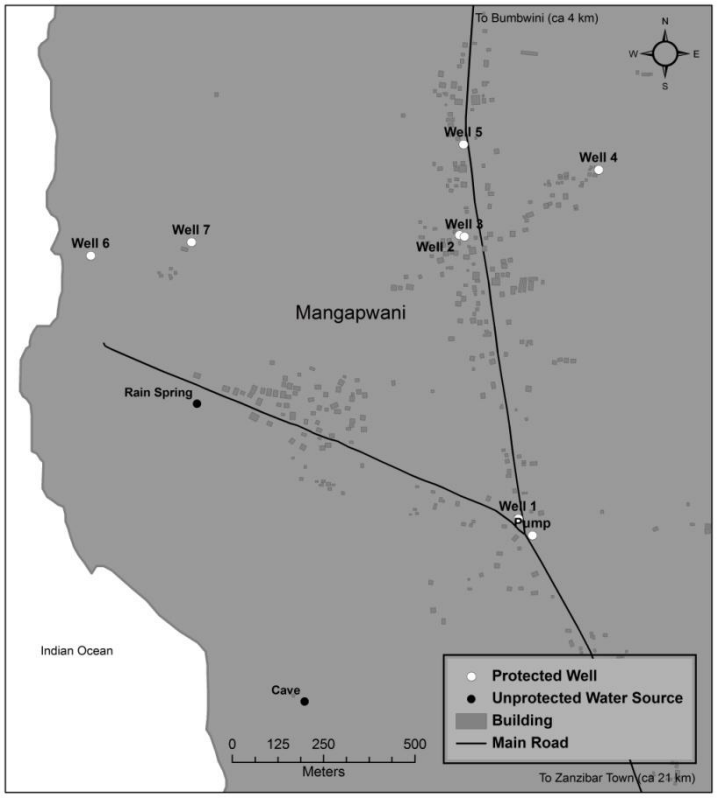

Figure 7.6 Water sources during power cut
(Source: ZAWA, 2009; Fieldwork material, 2010)

Q: How was the situation regarding water when the power was off?
We used to feel sad because the water was a problem.
Q: Did it affect your household in any way?
Yes, it was tiring. I had to spend time on the farm and no one could fetch water for me.
Q: Did it have any economic effects?
When the taps didn't give water we couldn't do other businesses because we had to spend the whole day fetching.
(Divorced woman, 39 years, head of household of 6 people, May 6, 2010)

At least five, out of the total 18 women interviewed, had to fetch water from the spring in the cave because of problems at the improved wells although it was considered as an unsafe source and they were aware of the risks it contained. As seen in figure 7.7 the cave is located over 500 metre away from the village areas.

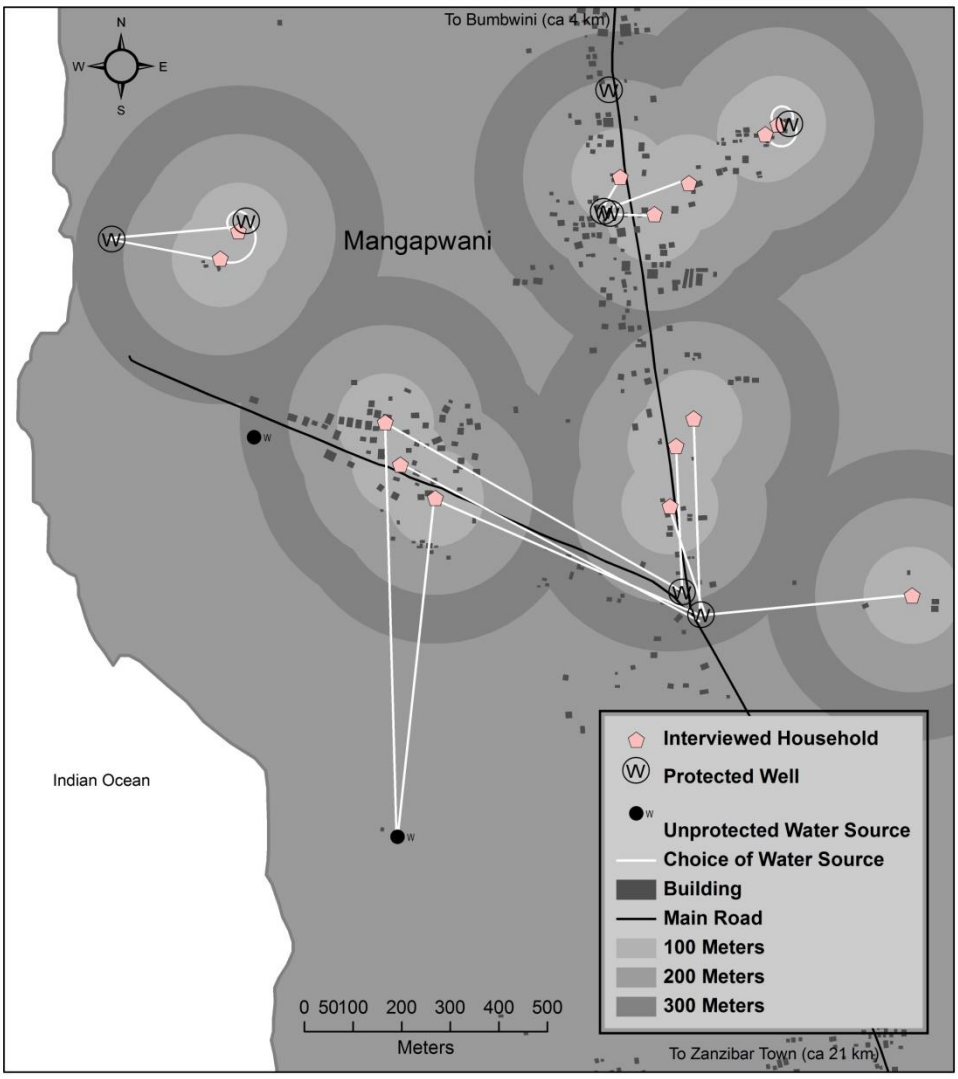

Figure 7.7 **Choice of water source during power cut**
(Source**:** ZAWA, 2009; Fieldwork material, 2010)

The women were also experiencing an extra burden due to the increased distance compared to normal water circumstances. The young girl who was living with her grandmother was using the spring in the cave because of the long queues by the improved wells, even though she was aware of the risks of using it. Furthermore, the spring is located further away in distance to the young girl's house than the well. One woman said that she was driven to use an unimproved well that contained cholera and bilharzia. She became sick from drinking that water which resulted in hospital visits with expenses of 2,000-3,000 TSH for one treatment. The distance to the households and the different water sources are illustrated in figure 7.7 and show how far the women and other household members that fetch water have to walk.

One problem that came along with the absence of water was the absence of information about the situation. When we asked the women if they had received any information about the power cut and how the situation was developing, four women said that they received very little information about it. They did not know when the water was going to return neither the power. One key informant at ZAWA said that it is problematic for the Water Authority to respond in these kinds of situations. What they did this time was to place generators to submit power to pumps so they could retain pressure in the pipelines. The generators could not cover the entire need for external electricity, especially in the rural areas. As a result the generators were moved from place to place for a few days support at a time. Another action that was taken to supply water was to let private vendors fill up tanks for free in Zanzibar Town to sell to the residents of the villages around the island.

Another problem that was discussed during the group interview was how the women could not get electricity to charge their mobile phones. This limited the communication between people. One key informant said that it also affected people's businesses that required electricity. For ex. his workshop, where he repairs electronic equipment, was out of business during the whole three months power cut. He also said that white ware was destroyed by the uneven electricity, for ex. his refrigerator got broken.

When the power came back after three months the supply of water, according to a few of the women, was worse than before the power cut. The reason for this could be that 30 % of the pumps on Unguja were ruined due to the power cut according to a key informant, an employee at ZAWA. The reason for this is that pumps need a stable current. When the electricity is uneven it creates small chocks that hit the motor. The motor has a relay that can take two or three shocks, after that it becomes weak. In most rural areas the boreholes are constructed with pumps located 50 metres down by the water level and therefore they are hard to repair (Interview 9, May 5, 2010).

7.4.4 Administrative changes

Within the new water project the women will have to start paying for water. Before the implementation of the coming tariff system there has been one village meeting where the whole population of Mangapwani was invited to attend. At the meeting representatives from ACRA, ZAWA and the local political leaders informed the villagers about the coming changes in the water system. After the information the population got to contribute with their thoughts and ideas. Among the thoughts of the people many were concerning how poor and old people could afford paying. There was a gendered

difference in the kind of questions brought up. Women tended to ask more about tangible issues like how they can benefit and reduce the suffering from fetching, while men asked how much they need to pay and what they can do if they have no money. They also asked more about how the committee will be managed. According to a key informant, ACRA was at the meeting ensuring that everyone will benefit from the changes and that the tariff will be adjusted for the poor by the local water committee (Interview 6, April 30, 2010).

Among the fourteen individually interviewed women, two said they knew there was a project concerning water in Mangapwani. The rest answered that they did not know of any projects. However, all of the women did know about a coming tariff for water even though the knowledge of how it will be implemented varied. Four of the women had either been to the meeting or had a household member that attended. They also had the most knowledge about the changes and the tariff. A key informant told us that it is the normal case that not all go to the village meetings. Often some from each area attend and afterwards spread the information further to the rest of the community. Of the other nine women who did not go to the meeting a few motivated not going with having to work or being sick. Only one woman said she had not heard of any meeting. Overall the knowledge about how much the tariff will be, varied a lot. Half of the women did not know how much the tariff was going to be. We missed asking three of the households because those interviews were conducted at an early stage of the study. The remaining four women, who had attended the meeting, were the only ones who knew about a tariff sum. Interestingly, when being asked how much the tariff sum was they gave us different answers with sums ranging from 1,000-3,000 TSH. We could see no connection between households attending the meeting and having a positive attitude towards the tariff. In fact three of the four households who had either been or had a household member attending were negative towards paying.

Out of the fourteen women four were positive to the coming tariff. Two of the women thought that the tariff is not the problem as long as the water comes every day. Another woman thought a tariff would have a positive impact on people so they would use the water more carefully since she thought some people today waste water, leaving the taps open for example.

Out of the fourteen women nine of them were negative to a tariff. Many expressed worry because of the consequences they think it will have on their household's economy. One woman thought the tariff will affect her household negatively because she already has many expenses, like hospital bills. Another woman felt that it is hard to pay but she does not know what to do. She thought the tariff will affect her economy so she has to skip buying soap. One of the two women that did not have any cash income at all said that when the authorities will start collect the tariff she is afraid she will be put in jail if she cannot pay since they need all received money for food. Four of the women, negative to the tariff, also expressed resignation when being asked how they feel about the tariff. As two of the women put it:

> We have agreed on paying the tariff because they say we should pay.
> (Woman, 62 years, mother of 11, April 15, 2010)

> We don't have any alternatives. If the government wants us to pay, we have to pay.
> (Woman, 38, mother of 5, April 19, 2010)

When we looked at the composition of the households and their attitude towards paying it was clear that the women positive towards a tariff also represented the households with the best standard of living and the highest income possibility. Among the women negative to a tariff the composition was more mixed although all of the poorest households are represented.

During the course of our field study we came to realize that many women felt they would be negatively affected by the tariff and were worried how to afford. Therefore, when we continued the interviews we started to ask the women, in total six, how much they thought was reasonable to pay per month. The majority (5) did not know how much the tariff would be. The first woman we asked became very upset and said she thought they should be paying nothing at all since everything is so costly. She thought it would be okay to pay between 500-1000 TSH. The other women's answers ranged from 1,000-2,500 TSH. One of the women who lived on remittances from relatives said 200 TSH was what she could afford. Two of the women also had an opinion about what was reasonable to pay for a poor person, which was between 1,000-1,500 TSH. The only woman who knew how much the tariff would be was also the woman who gave the one of the lowest sums reasonable to pay, 500 TSH per month.

During the group interview we asked the same questions as to the individually interviewed women. We were also interested in getting a general picture of how the attitude towards the tariff was in the community. All four women were very engaged in the issue during the interview and were very critical towards the tariff. All four women had been to the water meeting and were aware of the tariff sum. They also knew about the price for a jerry can at the up-coming water kiosks (20 TSH). The fact that there will be a kiosk system as opposed to free public taps was the issue that concerned the women the most. They felt this was critical for the poor households that would not be able to have a tap they could pay for monthly (2,000 TSH). In the end if they had to use a kiosk every day, one women calculated for us, it would lead to the household having to pay 6,000 TSH per month taking into account that 10 jerry cans (20L each) is needed daily. When being asked how much they thought was reasonable to pay they all felt that paying at all was going to be difficult since life now is very hard. One woman explained that first the education was privatised and fees for uniforms and books were introduced. Then the same thing happened with the health system. They started to pay for medicine and hospital visits and within a short future there will be a tariff for water. According to the women, many in Mangapwani are against the tariff. They think some will pay and others will not. Some people want to remove the taps and use the wells only.

> Many people in the village say its better you close all the taps and we will use the well water instead because all we have to buy is a rope and a bucket.
> (Woman, 42 years, mother of 2, May 7, 2010)

All the women agreed that if they could get water inside the house every day it would be worth paying 2,000 TSH per month although it would be hard for the poorest people. It was buying water outside at the kiosks that was most problematic according to them.

7.4.5 Infrastructural changes

As the water project Sustainable Running Water Management and Cost Recovery in Zanzibar will be fully installed, the kiosks will be the primary water spots for people living without a connection in their private houses. There was no clear statement from the project makers of how many kiosks there will be in the area but they will be considerably fewer than there were public taps during our field study (see figure 7.1 for the current distribution of public taps). The reason for this is, according to one of our key informants at ZAWA, because it will be too costly for the water committees. Since the committees will be responsible for and administrating the kiosks they cannot have as many as the public taps. The goal that the project has set is a maximum of 250 metres distance to the nearest kiosk. He also stated that the current average to tapping water is 400 metres while we noted that that the average is much less than that. We asked if there is a risk that there will be less access to water for people when the number of taps will be reduced. He claims that 100 metres is not far to walk to fetch water even though he admitted there is a potential risk that people will have to walk further than they do presently. He also mentioned that there is no possibility for the upcoming water committee to run and manage the existing number of taps in a sustainable way and therefore a reduction is needed (Interview 8, May 5, 2010).

During the group interview we asked the women what they thought about 250 metres as a maximum distance to tap water. The first woman to talk said that "it is a long distance and to be able to enjoy water we need to have it available inside our houses". All the other three women agreed on this and one woman argued that even having water right outside the house is a burden. Carrying buckets can take hours according to the women and the daily routines can go on until late afternoon without any rest in between. One woman said it is painful to carry water since she has problems with her legs and hands and argued that she is not the only one in that physical situation.

7.4.6 Future plans and actions to prevent uncertainties within the water supply

We asked one of our key informants at ZAWA what is going to happen in Mangapwani when the project is finished. We also wondered if there would be a follow-up on the project's sustainability. The answer was that the sustainability of the water supply depends upon the water committees and there will be no follow-up on this specific project although there might be new projects in the area in the future (Interview 8, May 5, 2010).

When interviewing a key informant at ACRA we wondered how they dealt with the fact that a number of individuals will have a considerable amount of power, especially when it comes to setting tariffs, when being chosen into the water committees. The key informant's opinion was that there is no risk if already powerful people in the communities will be in the water committees. According to him, there is a certain responsibility between people in the communities. The task for ACRA is not to evaluate power relations but to build the knowledge capacity to be able to deal with the responsibilities of being in the committee (Interview 6, April 30, 2010).

7.5 What the women think about their situation

> I would want to enjoy that every time I open the tap there is water!
> (Woman, 80 years, widow, April 29, 2010)

7.5.1 Introduction

This section will bring up the eighteen interviewed women's own thoughts and feelings considering the water situation. During the interviews we asked all the women if they wanted any kind of improvement considering water supply and if they felt they could influence their situation in any way. We expected it to be a quite easy question since most of the women were not satisfied with the situation they were in. But it proved to be difficult for many to understand what we meant with improvements and influence. It felt as if some women had difficulties when approaching the topics that required them to draw their own conclusions around the situation. That led us to have to change the question maybe two or three times, to make it more tangible. We had hoped for the women to talk more freely about their situation but in reality, in most cases, it turned out the opposite, which made us break down the questions to more or less yes, and no questions. The problems with the communication around these topics led to us getting a narrower amount of answers than we wanted. This has contributed to this data ending up somewhat limited.

7.5.2 Improvements of the situation

Out of the eighteen interviewed women all the seventeen that were asked the question if they wanted any kinds of improvements, wanted improvements of the water situation. We missed asking one woman in the early stages of the field study. The tap water was the most important source to improve. The most common improvement, that fifteen women wanted, was to get water from the taps every day. Other improvements that some of the women wished for was to have an alternative water source (a well) closer to the house than it was currently. One woman also mentioned that there are too few improved wells in the village. We asked the women in the group interview not specifically about improvements for their household but for the whole community. They had the most detailed idea of what kind of improvements they think would benefit Mangapwani. According to them, one idea would be to dig a well and have a reservoir that is able to spread water to all of Mangapwani as in Bumbwini and Mfenesini. This corresponds with the opinion of the key informant in the village. He thought that the best solution would be that every shehia had its own independent water reservoir. According to him, they have proposed the idea to ZAWA and have gotten the answer that they will look into it (Interview 7, May 4, 2010). Out of the individually interviewed women one of them expressed a wish for improvements for people other than her. She was also one out of two women who felt they got enough water as it was and when being asked about improvements she stated:

> I would like all of us in the community to get water. Water is life! In my house I get water but my neighbour doesn't get it. It's painful when you don't have water inside because it's so hard work fetching.
> (Woman, 33 years, mother of 3, April 20, 2010)

We also asked the women how they think the improvements would affect their situation. Six of the women thought that the positive outcomes would save them time or ease the burden of walking long distances. If they would not have to waste time fetching water the household activities would run smoother and give them time to do other activities like cooking and washing or helping another household member with what they do. Other positive effects that some women mentioned was that it would be better for their farming situation. One woman said that if she could get water every day she could irrigate her land making it possible to cultivate during the dry season and grow water-intensive crops like tomatoes.

During the group interview we asked the women to discuss the effects a tap connected directly to the house would have on their situation. They all had ideas of how benefiting it would be, making the household work run smoother and maybe give time to listen to the radio. One woman stated that even if she was sick she could easily do her household duties without worrying about collecting water. Another woman mentioned that with improved access to water she could do all her household chores at any time. Being able to directly access water, when returning from work at the farm, was another positive outcome that was mentioned.

7.5.3. Influence over water situation

Out of all eighteen interviewed women, three felt it could be possible to influence their situation. An option that they all thought of was to gather people around the area and share ideas and thoughts. One woman thought that they then could bring the opinions to the people that have the decision power. But according to her, it would not work considering water since there is no women's group that deals with water at the village meetings. Another woman said she could bring it up in a village meeting if the time was right but she could not be more specific about what the right time would be. We noticed a link between the standards of living and if the women thought they could influence their situation. All three women represented households with high standard of living in relation to the other women.

The majority (13) of the women thought there was no way for them to influence their situation. We missed asking two old women because they were fragile and became tired of the interview situation quicker than the other women forcing us to shorten the interviews. One of the reasons that five women thought of was that they felt there was no one to turn to with their problems and therefore there was no possibility for them to influence. One woman mentioned the Sheha as a person to turn to if there were practical problems with the tap. Another woman stated that they do not use a system of going to the Sheha and say what they want to change. Three of the women had an idea of who needed to be addressed to be able to influence. They all stated the water authorities as where they could go with complaints or ideas but no one thought they could personally

contact them. One of those women stated that she was scared of talking to the water authority because she is a villager and has no power to influence. Another said she cannot reach them from the village and a third felt that the people with power would not trust her because they do not know her.

> Sometimes the authorities come and ask what the problem is but they don't take it back with them to do something about it. Because of the election coming up, people come here because they want to be elected again. They just come here and promise things but then you see nothing of that happening even if they get elected. They sit 5 years and still nothing is being solved.
> (Woman, 47 years, mother of 5, April 19, 2010)

When being asked who they think could influence the situation the women in the group interview answered that it has to do with financial abilities. The locals cannot afford to do what they think is needed so they need sponsors like ACRA who can invest. One of the women thought that the only thing they can influence when it comes to the water situation is whether to pay for the water or not. A sponsor is something that several of the individually interviewed women also mentioned as a requirement to be able to change.

8. Conclusions and concluding discussion

8.1 Introduction

This chapter will present and discuss important findings of this study. Since we have taken the approach of water as a human right, this chapter will discuss the women's situation with the assumption that without enough water the dignity of human life is lost.

8.2 Conclusions

- The improved water supply together with the tariff for water can lead to a better access to water for women in a household who have the income to pay for a private connection. The consequence for the poorest women might actually be that they can buy some water from the kiosks but still have to use alternative water sources. This might continue the pattern of economising water and contribute to further marginalisation of the poorest women.

- The definition of access to water needs to contain more aspects than distance and time spent collecting. With an increasing neo-liberalisation of water policies and projects where water is considered an economic good, there needs to be a continued evaluation of the social impacts of these policies and especially poor women's possibilities to access water.

8.3 Women's situation in Mangapwani and the deprivation trap

The water situation in Mangapwani is as in many other rural parts of the developing world contributing to the women's already vulnerable situation. This can be illustrated in Chambers' "Deprivation Trap" (Chambers, 1993). The women in Mangapwani are experiencing rationed water on daily basis and many mentioned that they wish for continuity in water supply. Most of the women also mentioned that they experience a physical burden that comes with fetching water. However, the women's situation regarding safe water is in many aspects complicated and unfavourable for women's empowerment.

Physical weakness; The situation seen in Mangapwani is not helping the women to strengthen their physical ability. Rather it puts women in a position of having to use unimproved water sources during unpredictable circumstances. This means that during power cuts they have longer distance to water sources, improved and unimproved, as the taps are out of function. There are risks of getting waterborne diseases when using these water sources, even the improved wells are said to be less reliable than the tap water. The extra burden that all the women are experiencing under for ex. power cuts leads to physical weakness and less energy and time for other activities that may contribute to an income for the woman and her household. Even education for the

woman and other household members might be set behind due to extra workload of fetching water and reduced income.

Poverty; The situation of physical weakness will possibly lead to a lack of assets that leads to not being able to afford the costs of buying water or invest in safer water storage options. Neither would the women be able to choose the alternative to fetch water from a kiosk and improve the access by investing in a private connection. The circle of negative impacts that limited access to water has can easily set women in a poverty trap. The necessary everyday activities take much time from income bringing activities that lead to little or no ability to expand the economic situation.

Vulnerability; Having narrow margins for tackling unforeseen events as are appearing in Mangapwani puts many of the women in a vulnerable position. The currently rationed water, the unpredictable power cuts and changes within the water system including pricing for water is affecting the already vulnerable women. An already mainly poor population has low margins for coping with uncertainties. Especially women, who are mainly dependent on water for economic income as they prepare food or grow crops for selling, are vulnerable.

Isolation; Women are especially at risk of experiencing isolation within the community. Already being the one responsible for household chores and besides that having to spend extra time and energy on fetching water it will be harder for her to access social service and information. We identified this among the women we interviewed as it showed that almost none had been to the water meeting. Not being able to participate in the community means risking lack of education and less chance of getting an income. The pattern of isolation will be reinforced during for ex. power cuts where more time is needed to fetch water. The power cuts also limit the ability to communicate with the world outside the village due to no electricity to charge mobile phones, as the women in the group interview mentioned. This could lead to isolation and loss of income opportunity.

Powerlessness; Considering the aspect of women's ability to influence their water situation, we found that it was clearly pointing to a situation of powerlessness. Most of the women did not feel that they could influence the situation. For ex. many said that they could not afford paying the coming tariffs for water but said that they did not have a choice and that they would just have to deal with the fact that it is the new system. This clearly shows that the women had no chance in negotiating the process. Many women did not even know whom they could turn to if they had a problem they wanted to announce.

8.4 Definition of access to water

Distance to and time spent on fetching safe water is a common way to measure access to water. The UN defines access to water after these criteria (UNDP, 2006). In our study we found that there are other aspects that affect whether water is accessible or not. The three main aspects found in our study are unpredictable power cuts, infrastructural problems and on-going changes formed within the neo-liberal policy structure. Infrastructural problems such as poorly maintained pipeline systems, is a problem over

large parts of Zanzibar. The old pipelines are unable to supply enough water and the pressure of the water is too low. The two big power cuts appearing in 2009 and 2010 have also had an impact on the ability to pump the water through the pipelines, because of the breakdown of many supplying pumps. The power cuts limited the access to pipeline water completely since no water could flow through the pipelines during the times of no electricity. It has also had a limiting effect on the access to water. Another problem occurring was that the water does not always reach to the end parts of the pipelines, mainly due to many private joined connections onto the main line. The solution to this problem has been to ration the water so that people cannot access tap water more than about twice in a week. There are about to happen some major changes in the area as we write. Within a mainly EU sponsored project the water supply will be improved and the pipelines will be renewed. Along with this comes a fee for water and establishment of water committees in each village of the project area. Access for water will therefore be more consistent but the number of taps will be heavily reduced and water will be bought at a water kiosk maximum 250 metre from home. Another option is to pay a monthly fee for having water connected to the private house. To connect to the water system it requires a connection fee and pipes to be drawn, which can end up being costly. These costs may result in a barrier for the poorest proportion of the people to access this (in the long run) most cost-effective solution. Our findings are some clear examples of aspects that need to be discussed and considered to understand the dilemma within access to safe water.

As Crow (2001) writes, the way people can access water is unequal and varied. In Mangapwani most women would be considered to have basic access according to the UN's criteria of 30 minutes round-trip or within one kilometre distance. However, our findings show that there are many other aspects that cause limited access to safe water in Mangapwani. The women are experiencing that there is a constant physical burden that never stops due to the continuously fetching of water. Furthermore the absence of tap water during most of the days in a week and the extra burden that comes with that. Something that most women though think is that when the tap water is coming, the quality is good and most does not experience health problems using it. Because of the rationing many women economises the water and this can indeed affect health aspects. The rationing also makes women and children having to fetch from a few different water sources. The previous power cuts contribute to permanent absence of tap water and are indeed a total limitation in access to water. This situation is moreover unpredictable and can happen again because of the current badly maintained submarine power line between Dar es Salaam and Zanzibar. All women experienced an extra heavy burden during the power cuts and also life in general became more difficult. This situation is more of an example of how a society can suffer hard from unexpected circumstances and it also clearly indicates on powerlessness of the women in order to influence their situation. Roy and Crow (2004) discusses the importance of being able to live the life that each individual values. However, when there is tap water they most often use the closest tap that is less than 100 metres away from the house. The days that there is no water coming from the taps they have to fetch from another source, and these are in general further away and most of the women are dependent on using these sources.

Another important aspect of access to water that needs to be considered is of the criteria of 30 minute round-trip or less than one km distance, which can be seen as complex. Women and children from one of the households usually walk more than one time (often up to 10 times) to fetch water every day, which mean that the distance and time easily

exceeds the criteria for basic access. This leads to a heavy burden of fetching water from a point that is not inside the house or at the compound.

The coming situation with improved water supply through the pipeline system will definitely benefit the people that have a house connection and can afford to pay the fee. However, the women that do not have their own connection will be dependent on fetching water from a kiosk in exchange of a volume user's fee. This system will clearly lead to a decrease in access due to the kiosk system, the distance to the water points will increase. At the time of our fieldwork, people had public taps closer than 100 metres from their house but the average will be 250 metre with the implementation of the new project. The frequency of taps was also intense, with over 70 taps in the area but with the installation of the project the number of taps will be replaced by an unknown number of kiosks, though considerably fewer. Even though the water supply will be more frequent there are two new constraints instead, the tariff and the longer distance. The physical burden of fetching water might increase and the economic situation will worsen. Although considering the possibilities of being able to grow crops more sufficient even during dry periods, the women will have a lot larger costs for water, which will require more profits from selling crops to benefit. An already poor population that we witnessed in Mangapwani will suffer even harder when also having pay for safe water. Low margins will become even lower and most will the poorest of the poor suffer, even though relatively few. A couple of older women that we interview told us that they did not have much money as it was and having to pay for water will make it extremely hard. As to what Dushimumuremyi (2009) identifies in his thesis on water access in Bugesera in Rwanda, people are driven to use alternative improved and unimproved water sources due to the cost of safe water from pipelines. The tendencies to this kind of patterns can be predicted also in Mangapwani. Some women said, during the interviews, that they would rather only use the wells than having to pay for water. If this would become the trend of more women it would mean that most women would have to walk longer distance and spend more time to fetch water. This is a dimension of access. The water is present but to a price and when there is a way of avoiding losing money people may use alternative water sources, whether they are safe or not, which also comes with a health risk.

8.5 Marginalisation of women

There is a common understanding within both the neo-liberal approach as well as the feminist critique that engaging women in water management project is important. The debate rather concerns in which way women should be participating and on what terms. Since the neo-liberalisation of water management is a dominating and continuous process on a global scale it has huge implications on how gender is looked upon in these kinds of projects. In our findings from Mangapwani we could see that the structure of the project in many ways was designed out of a neo-liberal way of constructing water projects. It includes devolution of water management to the community, a tariff for water and cost recovery. One part that is clearly missing out is the women's direct involvement in water management. In the water policy papers and the Zanzibar Vision 2020 are clearly highlighting women's importance in the development process. As to what we can see this has not been reflected in the current project carried out in Mangapwani. Whether it depends on the local government or the international donors is

something that we cannot draw any conclusions about. However, efforts are being made to elevate some women's income generating possibilities through women's agricultural group, which can strengthen poor women who have the least possibility to pay for water.

Previous research has found that the neo-liberal approach to water management is not taking enough consideration to fully engage women in participation in water management (Aladuwaka and Momsen, 2010; Khosla and Pearl, 2003). As discussed by Cleaver (1998) women's voices and knowledge about water management is not taken into consideration when forming projects. Further Cleaver finds, in her studies from Zimbabwe, that the policymakers neglected the local women's expertise in water management. They installed water committees where women would participate as central in water management, but the women's already existing informal structures were being neglected. In that case it led to further marginalisation of the poorest women who had the least chance of taking part in the new water committees. Although we could not find any informal networks during our study, we could see that Mangapwani is experiencing a similar kind of disregard of local knowledge and hearing women's voices. The project is rather implemented in the area – not together with the people it concerns. The women have not been identified as stakeholders in the development of the project in such a way that it includes them in the committee process. When we asked the women about the water project in their area most did not know much about it and most had not been contacted by the project implementers, except for one village meeting where the plans for the project were announced and discussed. There were not any plans, which came to our knowledge during our field study, on engaging women in the water committees at all but rather let the village choose their committee members independently on social position and gender. Jiminez and Pérez-Fouget (2010), found in their study, that the devolution process to communities poses a risk of reinforcing unequal power relations within the community, compromising the accountability of the committees formed. They concluded that this way of implementing new structures tend to make it hard to get a good local attachment to the project and requires support from the government. A troublesome fact with the implementation of water committees in Mangapwani is that there are no concerns for giving as much power to a certain group in the community as the water committees will have. According to the key informant at ACRA, there seems to be no intention to analyse power relations within the local community, a fact we find worrying.

The majority of the women we interviewed in Mangapwani felt that there was no possibility for them to influence the situation. Although one woman stated that "we can't influence the water situation, the only thing we can influence in, is whether to pay for the water or not." The impression we got was that the powerlessness experienced by the woman was reflecting their position within the society. As Schreiner et al. (2004) found, women's double work, both income bringing and within the household, points out that there is a very limited time for women to engage in anything at all outside of the household. The evaluation of gendered time use and household priorities when initiating projects is something Cleaver (1998) calls for. The women in Mangapwani had very busy schedules every day since their responsibilities included doing all household chores, working on the farm as well as fetching water. Even if a woman would be appointed to be on the committee by the village, the poorer she is the lesser the probability is for her to be able to continue. In general the women in Mangapwani thought that the water situation could be improved. The overall answer during the

interviews was that the women wanted to access water from the taps every day. Some even had an alternative solution to how the water situation could be resolved. The solution that was brought up by women during the group interview and also by the key informant in the village was to install a reservoir that would supply Mangapwani with water. According to them this would make them independent in the aspect of water supply in contrast to the current situation with reservoirs in areas some distance away. This indicates a desire of not being dependent on other areas and risking disadvantage of rationed water as experienced during our fieldwork. This suggestion had been forwarded to ZAWA but with no clear follow-up. However, the water project does not include a solution like this so this is probably not on the agenda in the near future. Another concern strongly expressed by most of the women was the tariff implementation. The biggest issue was not the monthly tariff for a private connection of 2,000 TSH but the price at the water kiosks. According to the women in the group interview, 20 TSH per jerry can was too expensive for a woman to be able to afford buying all her water. A rough calculation showed that buying all water from the kiosks would exceed by far the monthly flat rate that private connections would cost. A further concern is that to be able to reach cost recovery the price actually needs to be 70 TSH per jerry can, according to the key informant at ZAWA. Peters and Oldfield (2005) came to the conclusion that there is a problem with instituting cost recovery in areas facing sustained poverty. If the paying capacity of the population is low the sustainability of community management can be compromised. The future implications for Mangapwani will most surely include dealing with cost recovery aspects as the majority of the population has limited paying capacity. One positive contribution we could see within the project was, however, that there were some efforts made to elevate women's income generation through agricultural groups.

The current water policy in Zanzibar is in its current state contradictory, considering how water should be seen. The *National water policy 2004*, which directs the water sector, lifts the social importance of safe water and that it shall remain as a public resource. The RGOZ also recognises water as a human right and a human need. On the other hand there is a discussion about water needing to be considered as an economic good, in accordance with the neo-liberal structures. There is clearly a dilemma in having these aspects working together. Maybe what is happening is that the strong forces of liberal thoughts and new water agendas cannot easily be fought? So how can we manage to reach the goal of not only considering water as a human right but also implement a sustainable structure where economic interests are being realised and at the same time ensuring the poorest population have access to safe water? We do not think this a simple task to solve and there are no easy ways to go, but one thing that we agree on is the importance of involving local people in the development of water management and especially women.

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Interview 1 (Ali Abdul, December 21, 2009): Employee at Zanzibar Water Authority

Interview 2 (Hafid, December 21, 2009): Employee at Zanzibar Water Authority, working in the customer service department

Interview 3 (Hemed Salim Hemed, December 21, 2009): Director General at Zanzibar Water Authority

Interview 4 (Masoud, December 21, 2009): Employee at Zanzibar Water Authority

Interview 5 (Said Suleiman and Mario Milanesi, December 28, 2009): Employees at Zanzibar Water Authority respectively coordinator for ACRA. Working together within the ACRA project.

Interview 6 (Hassan Ussi Ali, April 30, 2010): Employee at ACRA, Field Officer in Mangapwani

Interview 7 (Othman Khamis Ramadhan, May 4, 2010): Secretary of the Sheha in Mangapwani

Interview 8 (Said Suleiman, May 5, 2010): Employee at Zanzibar Water Authority, working within the ACRA project

Interview 9 (Moduk, May 5, 2010): Employee at Zanzibar Water Authority

Interviews with women in Mangapwani:

Interview 1: Married, 42 years, 7 children, lower secondary education (April 14, 2010)
Interview 2: Married, 36 years, 5 children, higher secondary education (April 14, 2010)
Interview 3: Married, 62 years, 11 children, 5 living at home, primary school education (April 15, 2010)
Interview 4: Married, 45 years, 3 children no one at home, primary school education and business collage (April 15, 2010)
Interview 5: Widow, 50-60 years, 4 children, all passed away, 1 granddaughter living with her, analphabetic (April 16, 2010)
Interview 6: Married, 25 years, 2 children, primary school education (April 19, 2010)
Interview 7: Married, 47 years, 5 children, lower secondary education (April 19, 2010)
Interview 8: Married, 38 years, 5 children, 3 at home, lower secondary education (April 19, 2010)
Interview 9: Married, 33 years, 3 children, lower secondary education (April 20, 2010)
Interview 10: Married, 80 years, no children, learned to read and write as an adult (April 20, 2010)
Interview 11: Married, 35 years, 3 children, lower secondary education (April 29, 2010)
Interview 12: Widow, 80 years, no children, 3 young relatives living with her, analphabetic (April 29, 2010)
Interview 13: Married, 38 years, 8 children, primary school education (May 3, 2010)
Interview 14: Divorced, 39 years, 3 children, lower secondary education (May 3, 2010)
Interview 15: Married, 30 years, 2 children, lower secondary education (May 7, 2010)
Interview 16: Married, 40 years, 4 children, lower secondary education (May 7, 2010)
Interview 17: Married, 49 years, 7 children, lower secondary education (May 7, 2010)
Interview 18: Married, 42 years, 2 children, lower secondary education (May 7, 2010)

Appendices

Appendix 1

Topics discussed with key informants in interviews at ZAWA, ACRA and in Mangapwani:

Topics discussed with the key informant at ZAWA

- Mangapwani in relation to other rural areas on Zanzibar considering socio economic level and access to water.
- How the prolonged power cuts have affected Mangapwani and Zanzibar.
- How ZAWA respond to power cuts.
- The different components of the coming tariff system.
- How the project will be implemented in Mangapwani.
- How cost recovery will be implemented.

Topics discussed with the key informant at ACRA

- The social composition of Mangapwani and rural areas in Zanzibar.
- The political decision making structure in shehias in Zanzibar.
- ACRA's involvement in the water project considering Mangapwani.
- How the project is carried out in the local communities.
- Structural components of the project such as tariff, water committee and local participation.

Topics discussed with the key informant in Mangapwani

- Demographic information about the population in Mangapwani.
- The situation in Mangapwani considering access to water.
- The decision making structure in Mangapwani.
- The effects of the prolonged power cuts in Mangapwani.
- The water project in Mangapwani.

Appendix 2

Interview guide for individually interviewed women

Personal information:

Maybe we can start with your name and age?
- How long have you been living here?
- Where did you live before?
- Why did you move here?

Did you go to school when you were a child?
- What standard did you finish?

How many are there in this household?
- Who are those people?
- What age are the children that live at home?

What are your responsibilities at home?
- What does that include?

Do you do any other kind of work outside the household?
- What do you do?
- Where do you have this business?
- Do you do anything else?

And what are your husband's responsibilities at home?
- Does he have any other kind of responsibility?
- Does your husband do any other kind of work outside the household?
- What kind of business did he use to do?
- Does he do any other kind of work?

What responsibilities do children have?

Do you grow any crops?
- What kind of crops?
- Do you sell crops as well?

Do you and your husband own any land?
- Do you hire the land?

Do you have any animals?
- What kind?
- How many?
- What do you use them for?

Regarding access to water

Who is responsible for fetching water?

Do you have a tap connected to the house?
- How often do you get water from the tap?

Do you store the water?
- How do you store it?
- How many litres do you store?
- For long does the water last?
- Do you feel you have enough water for the household purposes?
- What do you need more water for?
- Do you have to skip any activities because of too little water?

What do you use water for in the household?
How is the quality of the tap water?

- Have anyone in the household received any water related illnesses from that water?
- Do you normally boil the water?

Do you use other water sources as well?

- What kind of source is it?
- Which one is it?

When do you go to the well?

- How often did you go when the power was off?
- How many buckets do you fill each time you go?
- How do you carry it?
- Do you fetch all the buckets at the same time?
- Do you get help?
- How does he get the big buckets home?
- Is it enough for the household purposes?
- Why don't you get water from the well sometimes?

How is the quality of the well water?

- Why is there a difference?
- In what way is there a difference?
- Have anyone in your household got sick from the well water?
- Do you know if there are any water related illnesses from the well?

Do you use water from any other source?
Do you collect rainwater?

- How do you collect the water?
- What do you use the rainwater for?

Which water source do you prefer?

- Why?

Changes:
If you compare to 3 years ago, is it the same situation regarding access to water or have there been changes?

Water management:
Do you have any system in your community for maintaining the water sources?

- What happens if the well is broken?
- Are there any rules how to use the well?
- Is there any kind of behaviour that is unacceptable when it comes to handling water?

Who is responsible for providing water in your opinion?

- Why?

Aspirations:
Do you wish for any kind of improvement regarding access to water?

- How would those improvements affect your household?

Do you wish for any kind of improvement for your own household?
Do you feel you can influence your situation in any way regarding access to water?

- Do you feel you could go to someone if there is a problem?
- (If no) Why not?

- Who could that person be?

Current water system:
Do you know any water projects in your shehia?
Do you pay for water?
- Will you pay?
- How did you hear about paying for water?
- How do you feel about paying for water?
- How much will you have to pay?
- How much do you feel is reasonable to pay?
- Do you have any idea of how much you think would be ok for you to pay?
- How is the cost going to affect your household situation?

Do you go to village meetings?
- Did you go to the water meeting?
- (If no) Why not?

Is there anything you would like to add?

Authors' own Comments:

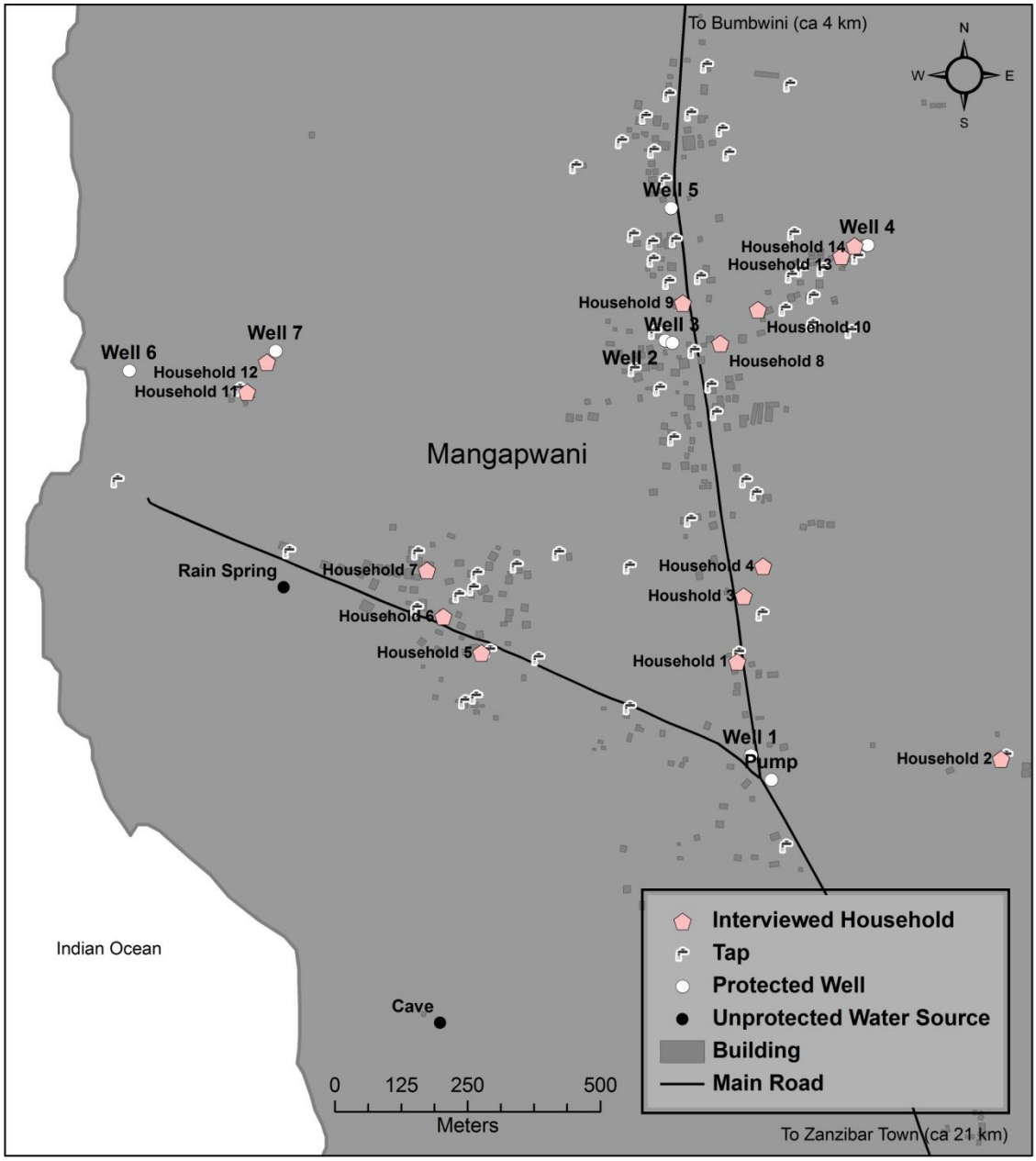
Appendix 3

Topics discussed during the group interview

- Water related illnesses and the quality of the water from different sources.
- The issue of distance when collecting water.
- Women's responsibilities and burden as water managers.
- The coming tariff for water and coping with costs for water.
- The situation during the prolonged power cuts.
- Influence on the situation regarding water.
- Improvements of the situation regarding water.

Appendix 4

Map of households interviewed and the different water sources used in Mangapwani



Interviewed households and available water sources in Mangapwani
(Source: ZAWA, 2009; Fieldwork material, 2010)