

# **Lasting Peace in Darfur: The Role of Sustainable Management of Water and Land**

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Master Thesis submitted in fulfilment of the Degree  
Master of Science  
in Sustainable Development, Management and Policy

Submitted to Dr. Sabine Sedlacek

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Vienna, 9<sup>th</sup> June 2012



## **AFFIDAVIT**

I hereby affirm that this Master's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

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## **ABSTRACT**

This study deals with the question how sustainable management of water and land tenure can contribute to lasting peace in Darfur. It is argued that progress in the peace process depends on advancing interrelated developments and would benefit of taking into account a number of criteria identified in the study. A basic factor to be addressed is the harmonization of traditional and state governance structures to provide the individual with the security of using land and water through well-defined rights. Only governance structures that are adapted to the particular needs of the stakeholders in Darfur can lead to sustainable management of the two most vital resources, land and water, in terms of distribution and adequate infrastructure. These management practices are needed to assure sustainable development, whereas the latter should, as an absolute requirement, be included in any comprehensive peace agreement that has the potential to lead to lasting peace in Darfur.



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## LIST OF ABBREVIATIONS

AU	African Union
AUHIP	African Union High – Level Implementation Panel for Sudan
CAR	Central African Republic
CPA	Comprehensive Peace Agreement
DDPD	Doha Document for Peace in Darfur
DLC	Darfur Land Commission
DPA	Darfur Peace Agreement
DPP	Darfur Peace Process
DRA	Darfur Regional Authority
DSG	Darfur State Government
GONU	Government of National Unity
GoS	Government of Sudan
GoSS	Government of South Sudan
HA	Humanitarian Agency
HSBA	Humanitarian Security Baseline Assessment
ICC	International Criminal Court
IDPs	Internally Displaced Persons
JEM	Justice and Equality Movement
MDG	Millennium Development Goals
NCP	National Congress Party
NLC	National Land Commission
SLA-MM	Sudan Liberation Army – Minni Minawi
SLA-AW	Sudan Liberation Army – Wahid Mohamed al Nur
SLM/A	Sudanese Liberation Movement/Army
SRF	Sudan Revolutionary Front
UNAMID	African Union/United Nations hybrid mission in Darfur
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs,
WES	Sudan Water and Environmental Sanitation Sector
WGI	World Governance Index





# 1 INTRODUCTION

A rising awareness of the constraints posed by our dependency on natural resources can be observed around the globe. The depletion of resources results from a combination of the economic framework we live in and the limited space and capacity of the Earth. The awakening of “peak oil” and other developments like climate change and global environmental degradation has led people to realize that a different way of living has become unavoidable. It is questionable whether the next generation can sustain a similar living standard as we are used to nowadays. However, even if the livelihood of the future generations might alter it does not necessary involve a deprivation of life quality. The relatively new idea of sustainable development that rests on the three pillars of economic, social and environmental aspects and the inclusion of this way of thinking into future planning could shape the livelihoods of the next generations in a more positive manner.

The need for better management of our resources and the inclusion of sustainable development aspects should however not only be taken into account for countries or regions that can afford it or belong to the ‘developed’ side of the world. Old and traditional ways of common living and their respective way of sharing resources, some of them which are scarce, has shown that it can also be implemented in rural areas. Consideration is especially required when resource constraints lead to conflict. It seems then obvious that better resource management based on the concept of sustainable development, including good governance, would be an important factor in neutralizing the reasons for these conflicts and finding solutions for a more peaceful society. This paper departs from this statement to analyse the current situation in Darfur, the most Western region of the Republic of Sudan. The scarcity of its natural resources, especially water and land, stands in sharp contrast with the high degree of human suffering of the population in this region.

In this thesis I focus on the management systems of land tenure and water in Darfur and research their importance for understanding the root causes of the conflict, and in line with the statement above, their possible contribution to lasting peace in the region. Management systems of land and water allocation are analysed in parallel, due to the evident dependence of fertile land on water and the importance of water availability in areas where people actually live. The exploration of the pastoral and agricultural management systems with respect to land tenure management, property rights and governance is of special interest for this research.

A sound status quo analysis is provided, since this is important to present the inter-linkages of past and present situations. I want to find out, how certain water

and land tenure management approaches affect the security situation for the region, in order to derive essential criteria for conflict resolution in this specific situation. This would allow the reader to better position the resource dimension of this conflict and to understand why further assessment has to be done and what derived criteria are to be taken into consideration for continuous analysis.

At this stage, I would like to inform the reader of my personal interest in the conflict situation in this region and personal motivation for writing this study. I participated in the European peacekeeping mission in Chad and the Central African Republic (EUFOR Chad/RCA) from 2007 to 2008 and since then I follow the changing situations in this region of Sub-Saharan Africa. As an advisor for Civil-Military Coordination (CIMIC) I was proud to get in touch with the local population in Chad. The most inspiring experience I made during the eight months in the field was a 'combined-joint operation (CJO)', in which I took part as an advisor in civil affairs for an Irish platoon. We visited several small villages in the vicinity of Goz Beida in Eastern Chad to inform the local population about our tasks and to assess their immediate needs. Through talking to village and tribal chiefs I found out that water, security and property rights are of vital importance to these people and they are a substantial basis for their survival and well-being. I remember negotiating with a tribal chief in a village called Touboulus (Massalit tribe), where he informed me about the villages in the vicinity that needed international attention. In fact, he wanted the villages under his responsibility to receive assistance, since they were neglected from the national government of Chad. It can be argued that the needs from the people in Chad could be different from those in Sudan. Nevertheless international data, from the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) for example, give evidence that the conflict in Darfur had a spill-over effect to neighbouring countries, including to Chad. In this thesis I will present facts and figures presenting similar needs in Darfur.

## **1.1 Context and previous research**

In 2003, rebel groups were formed inside Darfur and they attacked governmental institutions, policemen and civilians. The direct response by governmental forces of the Republic of Sudan and other pro-governmental factions affected some four million people inside Darfur and led to the displacement of two million residents (United Nations, 2011a). Although the conflict in Darfur attracted international attention, turmoil, unrest, and the suffering of the population lasts until today. The most recent efforts, undertaken by the Government of Sudan, regional and local authorities and the international community point towards a slow process of restoring peace in the region. Within this multi-dimensional conflict situation the role of the environment, and the population sharing it, can be perceived as an endog-



enous variable connected to the roots of the problems. The United Nations Environmental Programme (UNEP) (2007) identified strong linkages between the environment and the conflict and labelled it as a key issue in the Darfur crisis. Combined with historical, political, economic and sociological factors, the environment is namely central to the people of Darfur, since it provides the main source of income for the local population.

The relation between the nomadic population and the farmers, and its importance for conducting sustainable management practices will be dealt with in this study. It is generally assumed that subsistence farming techniques and the use of corridors for transhumance create namely an imbalance between different property right regimes, consequently leading to tensions between these parts of the population, which historically and recently resulted in the outbreak of violent conflict. This phenomenon does not exist solely in Darfur, but can be observed all over the Sahel-zone and in other regions on our globe. The increase and rapid frequency in changing climatic conditions, desertification patterns and soil erosion complicate this inherent underlying tension even further in such societies. Governments, local and international stakeholders therefore have to address these concerns together.

The convening of multi-stakeholder conferences, including all affected parties in Darfur to find common solutions and to consider all needs of the various groups is an essential step towards lasting peace in the region. Many meetings and conferences have been held since 2003, leading to the Comprehensive Peace Agreement (CPA), the Darfur Peace Agreement (DPA), and the Doha Document for Peace in Darfur (DDPD). In these documents, various concerns of Sudan as a whole and Darfur in particular are taken into consideration. New organisations and governance structures were formed through these documents. They aim to address concerns in a way that satisfies the affected population on a long-term basis.

This research fits in the overall academic trend to give attention to sustainable aspects of land and water management. The efforts of the United Nations to reduce poverty in the world by fulfilling the Millennium Development Goals (MDG) by 2015 have shown some success on the global level (United Nations, The Millenium Development Goals Report 2011, 2011c). Efforts at the local level have to be undertaken in parallel. Especially for the situation of Darfur, most acknowledged researchers are stressing the need to integrate the environmental, social and economic factors for restoring peace in the region (Bromley, et al. 1991; Kevane, 1997; Morton, 2005; de Waal, 2007; Morton, 2008; Young, et al. 2005; Young, et al. 2009; Tearfund, 2007; UNEP, 2007; UNEP, 2008; University for Peace. Africa Programme, 2009; Bromley & Chavunduka, 2011; Mundt, 2011; Verhoeven, 2011; Suliman, 2011).

## 1.2 Research question

The purpose of this thesis is to explore the local conflict situation in Darfur by examining water and land tenure management systems in use. The above mentioned overall situation and the perceived importance for incorporating these elements into peace efforts, led me to the following research questions:

### Research question:

*How can the sustainable management of water and land tenure contribute to achieving lasting peace in Darfur?*

The hypothesis in conjunction with the theoretical framework is:

*If water and land are managed sustainably then it contributes to lasting peace in Darfur.*

This assumption may actually hold for other regions as well, but it is the specific situation of Darfur that stands central in this thesis. Specific bottom-up approaches in the region, the inclusion of the international community, the local situation, by considering endogenous dynamics and other aspects to be described throughout this research are expected to make the findings unique and not applicable for general use.

To analyse the specific situation in Darfur, sub-questions were generated to explore the different dimensions of this unique conflict environment and its linkages to land and water. First, an evolutionary process of how to manage land and water in an environment that does not provide the most abundant amount of resources, is assumed to have influenced the current resource management system. However, since factual evidence further in the thesis proves that these systems are no longer effective, another aspect becomes relevant. The development of these systems and the related conflicts results in the question of, how do governance structures at the regional and national level contribute to sustainable management of land tenure and water in Darfur.

The security situation and the interplay of various actors in the field of resource management further suggest an investigation of the resource availability and the stakeholders that are intending to create a more efficient outcome. Consequently I am interested if the scarcity of resources challenges sustainable management.

The conflict is often described as a result of the historical marginalization of Darfur as a region by national governments over time. Consequently, own hierarchical structures of the residents, known as traditional leadership, or “Native administration”, received a degree of freedom to control the use of resources and to ensure a peaceful coexistence between communities. The influence and the power of the native administration in Darfur decreased in the last decades due to the centralization and the implementation of governmental regulations intended to strengthen the influence of the national state in the region. An imbalance of power created tensions between communities. The consideration of this situation leads to the question of how current approaches of resources management are enhancing sustainable development in the region.

The recent efforts of the Darfur Peace Process (DPP) mark a change in approach of both the national government and the tribal administration. If a societal change is going to happen due to the DPP, the consideration of promoting sustainable development and the three dimensions thereof could further resolve the conflict situation and enhance a peaceful coexistence. Baker (2006, p. 7) describes the three dimensions of sustainable development as follows:

- Social: the relation to human mores and values, relationships and institutions
- Economic: the allocation and distribution of scarce resources
- Ecological: the contribution of both the economic and the social and their effect on the environment and its resources.

For the specific situation in Darfur, I am interested in how these three dimensions of sustainable management are incorporated in the DPP.

### **1.3 Scope and limitations**

Although there is a plethora of international, national, regional and local problems in Sudan, I narrowed the scope to the sustainability aspects of land tenure and water management in Darfur. Following the recommendations of Morton (2005), UNEP (2007), and Mundt (2011) the root causes of the existing conflict in Darfur can be found in the land tenure rights, property rights and the efficient allocation of resources. Although these aspects are not the only contributors to tensions in and around Darfur, it is nevertheless important to tackle the root causes (UNEP, 2007; Verhoeven, 2011; Suliman, 2011; Morton, 2005). These root causes can be linked to the historical development, or better to the constant marginalization by the governmental authorities, of Darfur when it comes to land tenure rights and water management. The scope of this research is thus limited to make the research relevant and its results scientifically solid in the limited framework of this

Master's Thesis. That is the theoretical framework I will be dealing with in order to answer the research question of this master's thesis.

The limitations are found in factors that span from national to multi- and international constraints. The conflict in Darfur is often interpreted as a multi-level conflict. However, different authors identified similar dimensions for the conflict in Darfur. Some examples are listed here:

*"...the conflict has drawn in a complex web of local, national, and transnational interests, which play out in different types of conflict throughout the region."* (Young, et al., 2009, p. 1)

*"...five types of conflict are identified in the region: (A) local, (B) subnational, (C) national, (D), regional, and (E) international. These are interrelated, interdependent, and overlapping conflicts."* (El-Battahani, 2009, p. 47. In: Hassan, et al., 2009)

*"Darfur is a typical North-East African civil war, considering of multiple overlapping conflicts interspersed with large-scale offensives by the government army and its proxies and rebels."* (de Waal, 2007, p. 1)

The previous quoted authors refer more to a multi-dimensional phenomenon by providing insight into the different hierarchical structures of government. I will address this complexity by arguing along the ideas of Hussein (2011), UNAMID (2011), and Morton (2008), who see the roots in the lack of governance and the breakdown of traditional leadership. De Waal (2007), and Young et al. (2009) are referring to the overarching dimension of the conflict situation. To look at problems from the inside, I will focus on internal problems and on the local dimension of the conflict, with some references to the outside if applicable only.

*"More accurately the conflict is deeply rooted in poor governance, triggering unfettered institutional and geographic interactions, compounded by the socio-economic catalysts of poverty, environmental degradation, etc., any long term solution must first address this issue since it bears the brunt of the cause."* (Suliman 2011, p. 9)

*"It reflects a growing body of opinion that competition for land is an important, even the most important driver of conflict in Sudan, especially in Darfur, and that there is an urgent need for far-reaching reforms to land policy, management and administration..."* (Morton 2008, p.1).

*"Water is one of the fundamental causes of conflict in Darfur. Underdeveloped resources, long years of conflict and draught have made it ever more valuable,*

*costly and hard to fetch for the people of Darfur. The growing number of internally displaced persons (IDPs) due to the conflict has added more pressure on the limited resources and infrastructure in the towns and contributed to their exhaustion.” (UNAMID 2011, p.4).*

The main limitation of the thesis is that no actual field study could be conducted. Due to the defined scope of the thesis in the context of a graduate study, and the obvious geographical distance to the study area, possibilities to actually derive primary data from the region and from the local population through interviews were excluded. However, the vast literature and the provision of data from international organisations, operating in the region for already some years as laid down in Chapter 2 support the arguments in the thesis.

Other limitations are to be found in the external influence on governance and management systems not always being quantifiable. Since the overall current security situation in Sudan is fragile, I must sometimes take other influencing factors from neighbouring regions into consideration, but it is difficult to accurately measure their impact.

Comparisons to other regions are equally challenging since the uniqueness of the situation emerged historically and the problems are to be seen solely in a local aspect. I argue therefore that solutions for conflict resolution have to be found on the ground, with participation of local stakeholders, but taking into account the power games of external stakeholders in the background.

## **1.4 Research objectives**

This research aims to narrow down the often discussed complexity of the conflict situation in Darfur by concentrating on the resource dimension as a root cause. Although other dimensions are relevant, I argue that not all of them can be addressed at the same time with the same intensity. Therefore this research provides a scientific contribution for the policy-, and decision makers by identifying certain key criteria in the field of land tenure and water management that should receive priority in conflict resolution efforts in Darfur. The findings should further assist:

- To understand the linkage between water management and land tenure rights;
- To strengthen the capacity for the residing population to improve the security situation at the local level;
- To show that different communal entities in various situations could coexist in peace taking into account certain pre-conditions;

- To provide the basis for additional quantitative research and data collection.

The introduction is followed by laying down the methodological approach for this research. Chapter 2 describes the mixed research approach that was used for the study. The interview partners and the use of data are explained and an explanation for the choice of the study site is given. Due to the perceived complexity of the situation at the study site Darfur, Chapter 3 provides background information to assist the reader in understanding the dynamics of the peace process. After a brief description of the region and the historical context of the conflict situation at the national and local level, a main focus in this Chapter is given to the various stakeholders. These stakeholders are seen to be key actors in terms of land and water management and are listed in a comprehensive form. The theoretical framework that forms the central part of Chapter 4 includes a synopsis of relevant literature. Basic concepts, like governance, resources management, sustainable development and peace are presented in reference to the literature to support the analysis part in Chapter 5. The analysis builds further on the defined concepts of the theoretical framework and provides additional depth within the context of the subject of the thesis. Both qualitative and quantitative data were used to answer the research question and the respective sub-questions as comprehensively as possible within the framework of this study. The conclusion then provides a summary of the findings and relevant considerations for further research on the topic.

## 2 METHODOLOGY

This section explains the methodology that was used to conduct the research. The central aspect of the thesis is the theoretical framework, established through an in-depth and solid research of the available literature on the topic. Four main elements and their interdependence were analysed to answer the research question. These elements are governance, resource management, sustainable development, and peace. The theoretical framework is described in Chapter 4. Before coming to this part, the reader is informed about the background to the problem in order to get situational awareness. This step is assessed as being vital to the proceeding, because it serves the purpose to narrow the scope of the thesis and make the reader aware of the particular situation I am interested in and that will be analysed further in the thesis. The theoretical framework incorporates the findings of the background information in chapter 3 and lays the basis for the analysis of chapter 5.

### 2.1 Research approach

A mixed methods approach is an appropriate way to analyse factual evidence and answering the research question. The combination of qualitative and quantitative methods provides a sound tool for triangulation. The checking of qualitative findings with quantitative results supports the analysis and especially the findings thereof (Flick, 2011). Creswell et al. (2003, p. 212) argue that a “*mixed method study involves the collection or analysis of both quantitative and/or qualitative data in a single study in which the data are collected concurrently or sequentially, are given a priority, and involve the integration of the data at one or more stages in the process of research.*”

A sequential exploratory strategy (Creswell, 2003; Robson, 2001) was used for this study because of the following reasons:

- It was to find out what variables to study for obtaining relevant results
- The size of the study population as well as the various actors imply a mixed method
- After the variables were found they were studied with a large sample of individuals
- The strength of both qualitative and quantitative research supports the understanding of the research problem
- Priority was given to the qualitative data collection

With this method I first gathered qualitative data to provide a comprehensive analysis of the research problem and to set a framework for fitting subsequent quantitative data. After this phase the secondary quantitative data from various online databases, as described in section 2.1.2, were analysed to support the previous findings. Due to the fact that most of quantitative data are incomplete and risk being inaccurate, by just looking at the given data from one side, it is scientifically not sound to rely on one single secondary data set. Cross-checking of quantitative data was thus important for analysing them and priority had to be given to qualitative data collection and analysis.

Figure 2.1.1 shows the sequential exploratory design, as introduced by Creswell (2003). The design further shows the sequential stages of analysis and at what part of the research qualitative and quantitative data were used.

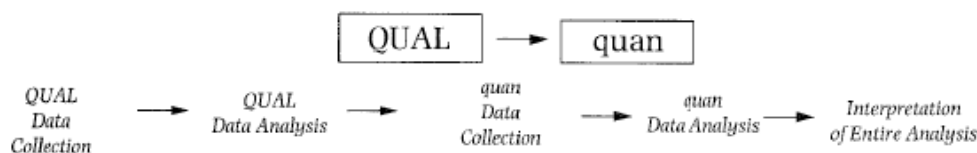


FIGURE 2.1.1: SEQUENTIAL EXPLORATORY DESIGN (SOURCE: CRESWELL 2003, P. 213)

The exploratory type of the research question allows the involvement of literature, interviews with experts and the analysis of data collected from official websites of national and international organisations.

The research design had an influence on the phases of research. The qualitative research collection was an important part to obtain background information which consequently made it possible to construct the theoretical framework.

### 2.1.1 Qualitative data

The study began with a broad survey of the literature that was related to the field of interest, which was the interaction between pastoralists and nomads in Darfur. The review aimed to include the most recent, and complementary literature, to get a holistic understanding of the situation. This early phase of inquiry formed the backbone for what found its outcome in this thesis as background information and supports the reader to get familiar with the research problem.

Material was reviewed in the fields of environmental management, governance, environmental governance, water management, land management, history of Sudan, history of Darfur and sustainable development in order to get familiar with



the basic concepts. Additionally the most recent documents, that are used for the current peace process in Darfur, including the Doha Document for Peace in Darfur, the Comprehensive Peace Agreement, were consulted to understand current approaches that deal with the complex phenomenon of the current situation and gain a conceptual understanding.

### **Interviews:**

Interviews were deemed useful to fill existing gaps in the literature, to collect additional information in a straightforward and personalized manner and to test developing research findings and assumptions with experienced experts on the topic of Darfur. Attention was paid to combine the knowledge of persons coming from various backgrounds to avoid a biased perception negatively influencing the overall results of the study. The interviews allowed including the personal experiences of these experts into the analysis, to gain information about their personal ideas about the situation in Darfur as well as to test the validity of the theoretical framework with their views on the relations between governance, resource management, sustainable development and peace. Interviews were conducted by personal contacts and e-mail discussions. The information from the interview partners contributed to the qualitative analysis of this paper. All verbal interviews were recorded and transcribed. On average, interviews lasted around one hour.

Ten individuals from different organisations were contacted in total. These included:

- Ambassador of Sudan in Austria, His Excellency Mahmoud Hassan ELAMIN, who took up his position in July 2009. He answered concrete questions for my research from the perspective of the official point of view of the Government of Sudan. Additionally he provided me with literature he deemed useful for my research
- Dr. Gerald Hainzl is working in the Institute for Peace Support and Conflict Management at the National Defence Academy as a senior research fellow. He is considered an expert on Africa and provided me with a sound picture about the situation in Sudan, and in Darfur in particular.
- Dr. Jan Pospisil holds a position as a senior fellow at the Austrian Institute for International Affairs. Additionally he is lecturer at the Department of Political Science at the University of Vienna. He is inter alia specialized in East-Africa and conducted field research in Sudan in 2009. Mr. Pospisil supported this research by answering my questions and provided me with additional insights on the recent situation in South Sudan.
- UNEP was contacted by establishing e-mail exchange with Mr. Robin Bovey, who is Programme Manager of UNEP in Sudan. He referred me to

colleagues who are both working on environmental issues in Darfur: Mr. Kreuzer, who was so kind to provide me with key documents about water and environmental degradation from UNEP, and Mr. Elmedani, with whom I had a conversation over e-mail.

- UNDP was contacted by establishing e-mail exchange with Mr. Christopher Laker, who is working on building governance and enforcing rule of Law in Darfur. Mr. Laker supported me with key documents from his organisation about the strengthening of rule of law in Darfur. Additionally these internal documents helped me to answer the interview questions I asked him per e-mail.<sup>1</sup>
- Mrs. Sheryl Doss from Yale University shared valuable information about sustainable land policies upon my request. She is the director of Graduate Studies MA Programme in international relations and senior lecturer at the department of economics at Yale University. Mrs. Doss provided me with information about the Annual World Bank Conference on Land and Poverty.
- Two NGOs, namely ACCORD and SUDIA were contacted due to their work experience in water and land management in Sudan. Unfortunately these organizations did not answer despite several requests. Consequently their experience could not be analysed in the depth envisaged for this study. Nevertheless these organizations serve as examples of NGOs that contribute to management processes in Darfur.

The interviews were conducted as informal conversational interviews (Patton, 2002) to gather information and data about the general situation in Darfur. This type of interview was particularly supportive in the beginning of the research. Semi-structured interviews (Kvale & Brinkmann, 2009) were used accordingly to obtain descriptions by the interviewees of the phenomenon of water and land use management in Darfur. The interviews followed an interview guideline that was established beforehand<sup>2</sup>. The topics to be covered by these interviews were also specified in advance, but the sequencing and wording of the questions were adjusted during the interview according to the conversation partner to reflect his experience and personality, and to maximize the benefits of the interviews (Patton, 2002).

After a review of the literature and the interviews, all data was processed and analysed. The analysis was followed by the gathering of quantitative data, which gave additional knowledge for answering the research question.

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<sup>1</sup> See Annex 2 for interview questions for Mr. Laker.

<sup>2</sup> See Annex 1 for the interview questions for H.E. ELAMIN, Mr. Hainzl and Mr. Pospisil.

### **2.1.2 Quantitative data**

The following databases were used in order to provide further data that support the previous findings of the qualitative analysis:

The derived results from the qualitative analysis of governance at the local level were cross-checked with governance indicators of Sudan, to show if the weak perceived performance of the region followed a similar trend of the nation. Therefore the Worlddata Bank database (World DataBank, 2012) was consulted.

Rainfall patterns are very differently indicated in the literature. However, to show a trend in rainfall over the years as well as to support the arguments from the qualitative analysis, quantitative findings supported me. The images and data used in the study were acquired using the GES-DISC interactive online Visualization.

Additional quantitative data have been derived from official documents. 54 official reports from the UN Secretary General to the Security Council on Darfur were revised towards their inclusion of statements of inter-tribal disputes. Other documents, describing the development of the peace process in Darfur were reviewed. These reports came from UNAMID and the Small Arms Survey, an NGO based in Geneva. Both analyses of the documents were incorporated in a time series, showing a trend. With the latter a graph was produced to describe the recent trend of the DPP. The first was analysed in terms of the awareness and the recognition of the international body to consider inter-tribal disputes and bring them to the peace agenda.

## **2.2 Development of a theoretical framework**

The establishment of a theoretical framework was supportive for the study. Arguing and analysing along pre-defined concepts narrowed the scope, allowed to remain focused on the research question throughout the research. The framework was taken from the main concepts found in the literature. Some hypotheses were generated out of the qualitative findings in the literature that were further analysed in Chapter 5. For testing the hypotheses qualitative findings supported the analysis part.

## **2.3 Selection of study site**

Darfur was chosen as study site, because it is in my personal interest, as explained above. In addition, Darfur provides a sound environment for investigating

current African dynamics, becoming increasingly important on the global level. The overall concern of environmental degradation that goes hand in hand with the loss of resources that sustain the livelihoods for millions of people in Africa could be observed in this region. Long disputes over basic needs are actually not unusual in the Sahel. Livestock and subsistence farming is an inherent part of the way of living of these populations for centuries already. What is new however is that thanks to media technology, globalization and changing geopolitical interests the problem became visible to the rest of the world. Although the reasons for this increased international awareness are too broad to be explained here, it can be assumed that the political unrest that marked the region during the last decade is actually just the tip of the iceberg.

These dynamics are playing an essential role for the country and should not be neglected at all. This research therefore tries to elaborate more than the visible part. Darfur can be seen as a region that needs attention in terms of the inner dynamics, especially with regard to what is shown on public media to raise attention also for outsiders, not actively engaged in the problems of Darfur and provide them with a more holistic picture.

The research question is especially addressing Darfur. It has to be made clear here that the research patterns are not applicable for any other region, because of the specific situation, as stated before. Despite this, problems in other regions of Africa have similar patterns. It has to be mentioned at this point that problems in other regions of Africa might be equally important, but should deserve their own investigation in terms of internal dynamics and the forms of governance in place.

### **3 BACKGROUND AND SITUATIONAL AWARENESS**

#### **3.1 The roots of the conflict**

In order to describe the situation in Darfur and to further analyse the complex situation in the area of water and land tenure management towards lasting peace a short historical overview of the area of interest is needed to provide an understanding of the dynamics that are taking place today. To give a sound picture of past implications on the present situation the following section will deal briefly with the development of the region over time. Reviewing the literature by considering past events support a sound analysis of the situation in Darfur. This part prepares the reader to apprehend the complexities of the region offering, what I call a situational awareness. The incremental development of an insecure environment can be found partly as a result of historical treatment of both internal and external forces.

The region is of particular interest due to the series of the conflicts that happened over a long historical period. But instead of describing all important events that happened over the centuries, it would be too lengthy for this study, I will divide this section into three parts dealing with (1) the geographical area and (2) people living in Darfur in order to come to (3) the roots of the conflict resulting from historical developments. Going through the literature it was interesting to explore, how different the approaches from various authors are when talking about the conflict situation in Darfur. While some authors (Morton, 2005; UNEP, 2007) are talking about the geographical area including its resources, others were focusing more on the people living in this area and their resource problems (Young, et al., 2005; Young, et al., 2009; Kevane, 1997; Bromley, et al., 1991; Ray & Hassan, 2009; Suliman, 2011). The remote position of the region and the evident marginalization from the national government over time, as well as the changing weather conditions and the further advance of the Sahara to the south are factors that ask for a combination of the geography, the livelihoods conditions and the resources available for the people. In my opinion it is necessary to combine these aspects when talking about Darfur.

### 3.1.1 Geographical aspects

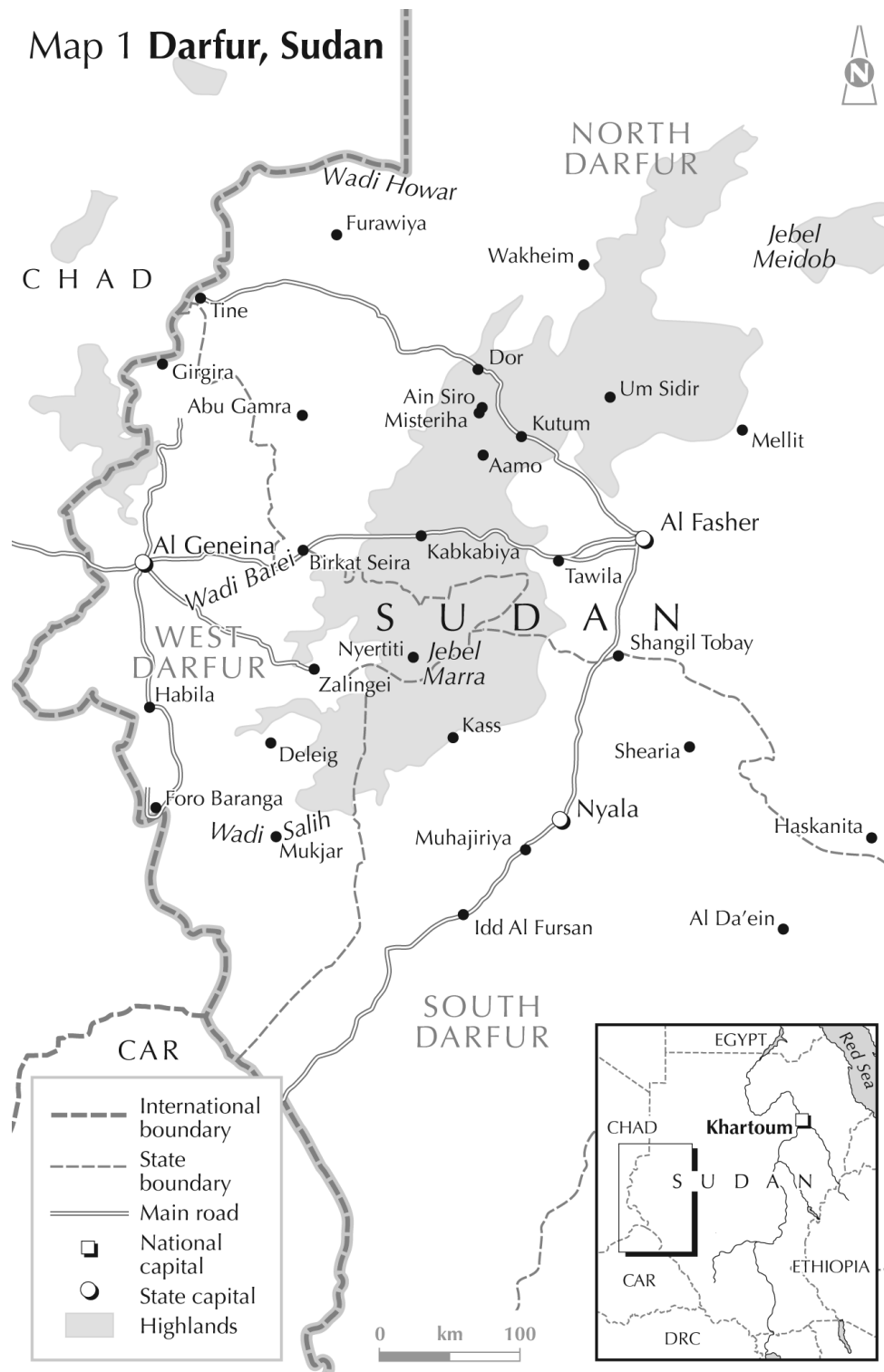


FIGURE 3.1.1: MAP DARFUR (SOURCE: FLINT, P. 6)

Darfur is a land-locked region in the Western part of the Republic of Sudan. The region borders Libya in the North, Chad in the West and Central African Republic (CAR) in the South-West and South Sudan in the South. Inside Sudan Darfur borders the Northern State in the North, North Kordofan and South Kordofan in

the West. With its 493,180 km<sup>2</sup> it has almost the size of France. Currently there are about 7.5 million people living in this area (United Nations, 2012). Although it is seen as challenging to assess the exact number of population due to the relatively high dynamics in movements related to the past conflict, the numbers of the United Nations used here seem to be the most accurate (Hainzl, 2011).

Darfur is divided into five administrative states, which are defined as North-, West-, Central-, East-, and South Darfur. The three largest towns are El Fasher (North), Nyala (South) and El Geneina (West), where almost 50 % of the entire population lives. These towns are also capitals of the respective states. Following the most recent Peace Agreement<sup>3</sup> President Omar Al-Bashir has announced the establishment of two new states (Central- and East Darfur) on 10<sup>th</sup> January 2012. New capitals<sup>4</sup> of Central and East Darfur were announced by the president as El Daein (East) and Zalingei (Central) (Sudan Tribune, 2012a).

Darfur itself is characterized by three main climatic zones, which span from the Sahara in the North over the Sahel in the middle towards a sub-Saharan tropical climate in the South. The landscape is characterized by six different areas. They are referred to as the volcanic mountainous area, the basement complex plateaux, outcrops of Nubian Sandstone, wind-blown sand sheets, stabilized *qoz*<sup>5</sup> sand sheets, alluvial areas in wadis<sup>6</sup> and drainage basins (Morton, 2005).

Water is of particular importance for the region as it provides the necessary means for the population to sustain their livelihood. Rainfall varies according to the climatic zones. Darfur has generally low and variable rainfall patterns over its years of record, with records dating back until the year 1917<sup>7</sup>. Significant shortages of average rainfall occurred in Darfur in the 1980's. Subsistence of the rural population remains oriented towards the rainy season (UNEP, 2007). After the major decline in rainfall in the 1980's the average rainfall seems to recover.

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<sup>3</sup>Described in section 3.5

<sup>4</sup>Due to the fact that these states have been established just recently, they will be considered in the research, when appropriate. There are hardly any data available yet and therefore, the study concentrates on the former three States of North-, West-, and South Darfur.

<sup>5</sup> created by erosion of Nubian sandstone

<sup>6</sup> Wadi is in the thesis referred to as a valley that remains dry except during the rainy season and the stream that flows through such a valley. Ref.:

<http://www.thefreedictionary.com/wadi> - retrieved on: 12.03.2012.

<sup>7</sup> Described in more detail in section 5.3.1

The average rainfall patterns have to be seen in relation with periods of droughts. These have occurred more frequently in the last decades. The phenomenon of recovering amount of rainfall and increasing droughts over the years and a high variability of those can be perceived as an impact of climate change (UNEP, 2008). The most accurate data for Darfur was gathered around the former three capitals of the states El Fasher (North Darfur), El Geneina (Western Darfur), and Nyala (South Darfur). As indicated above, two new administrative areas have been added in the beginning of 2012. However, the three former capitals of the states are well dispersed in the region and therefore representative for the region as a whole.

Rainfall quantity increases significantly going from North to South on the map. This means that there is less average rainfall in El Fasher than in Nyala. However, since patterns are very variable, the North-South shift does not hold for average measurements in entire Darfur. Spatial peaks in rainfall can be observed in the mountainous regions of Jebel Marra, Meidob and the high woodland savannah in the southern part of Darfur<sup>8</sup>. Average rainfall in Darfur is lowest in the North, with average of 250mm per year, highest in West Darfur with 500 mm per year and South Darfur has an average rainfall of 408mm per year. The rainy season usually takes place between June and September, although some rain can fall also in May and October (Tearfund, 2007).

### **3.1.2 The people of Darfur**

The roughly 7.5 million people living in Darfur are unequally distributed across the region. Due to the lack of recent figures, it is referred to the former three states, instead of the newly established five states. The distribution of the population is 25 % living in the North Darfur State, 27 % in the West Darfur State, and 48% in the South Darfur State (UNICEF, 2011a; UNICEF 2011b, UNICEF, 2011c). Around 1 million of the population live in towns with more than 10,000 inhabitants. These are about 30 towns in the entire region.

Alex de Waal (2009), an influential author about Darfur, is arguing that Darfurians have a remarkably stable continuous identity. Self-governing mechanisms formed the backbone of the culture for centuries. One negative impact for identity building has been the often reported marginalization of the people and the region by the political government around the capital Khartoum.

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<sup>8</sup> See figure 3.1.1



All people of Darfur are Muslims. However, religion does not seem to play a central role for the conflict situation. The previously assumed marginalization of black Africans, so-called “zurgas” from Arab Africans is heavily denied in recent literature (de Waal, 2007; de Waal, 2009; Young, 2005; Young, 2009). People’s identity is rather defined by historical development as laid down in the next section.

### **3.1.3 Historical development of the conflict**

The historical development of the region can be seen in the context of the current situation. Young et al. (2005) describe that in the past 200 years three factors have shaped the situation in Darfur. These factors are Islamism, trade and identity. Reviewing the historical development and starting with the Fur Sultanate in the middle of the 17<sup>th</sup> century, one can indeed identify these factors clearly. The name Darfur has its origin in this period. The word “Dar” means home or homeland and “Fur” is referring to an ethnicity in the region. The Sultanate as established around the Jebel Mara region in the centre of Darfur expanded peacefully during the 17<sup>th</sup> and 18<sup>th</sup> century and opened the region up to expanding commerce (Young, et al., 2005).

Another important tribe in the region, the Zaghawa, occupied the North Western part of the region already in the 16<sup>th</sup> century. Other groups migrated during the 17<sup>th</sup> century attracted by the prosperity of the region. Since then trade and peaceful expansion dominated history and led to multi-tribal settlements. The establishment of trade routes brought Arab travelling merchants, called “jallaba” to the region. At this time, around the middle of the 18<sup>th</sup> century, Islamism was first introduced and replaced the mainly animist belief (Young, et al., 2005). The real islamisation of the region took place in the 19<sup>th</sup> century, when Mahammad Ahmad (Mahdi) declared to restore Islam to its initial purity (Morton 2005; Young et al. 2005) after defeating the Turco-Egyptian rule in 1883. In 1898 Darfur became an independent Sultanate under Ali Dinar and remained in this position until the Anglo-Egyptian Condominium, which was in place from 1917 till 1956.

In addition to the three factors described by Young et al. (2005), another aspect is important to understand the lone standing status of Darfur over time. Neither the Turks, the Mahdist, nor the British undertook many efforts to establish a well-functioning economy in the region (Ray & Hassan, 2009). Until 1917 the Darfur Sultanate remained in place and maintained its own legislative framework. The sultanate operated factually autonomous for a long historical period. The footprints of traditional leadership are still present today and the system operates alongside the rule of law of Sudan, as mentioned above. The central governmental interests of Khartoum after independence in 1956 continued to neglect the re-

gion economically and only recently efforts were taken to improve this situation (University for Peace, 2006).

### **3.2 The conflict situation at the national level**

Darfur has been the scenery of many conflicts during the last centuries. In parallel to the conflicts inside the country of Sudan, it also played important roles in multinational conflicts with neighboring Libya and Chad. These conflicts played an important role in the development of Darfur. Throughout the literature, the current crisis in Darfur – referring to the outbreaks of the 2003 rebellion until the peace agreement in 2006<sup>9</sup> – is analyzed in context with those multilevel conflicts spanning from local to international. By having established a document for peace, first steps are already set to march in a good direction.

However, turmoil still remains in the region. The current security situation inside Sudan continues to be fragile and relates to many other conflicts than the one in Darfur. Other conflicts, like the North-South tension, the conflict over Abyei, South Kordofan, Jonglei or the Blue Nile region can be named as additional factors that contribute to the general instability of the country. The government of Sudan and its politicians are in particular dealing with another, complex situation, giving Darfur just a mark of being an additional problem.

During the time of this research the 2005 CPA was implemented and the former biggest state in Africa divided into two states, namely Southern Sudan, with capital in Juba and Sudan, where Khartoum remained capital. The newly established situation attracted international attention and the situation in Darfur was not touched so often by the media anymore. Nevertheless the actual conflict in Darfur can be expected to be dragged into the ongoing problems between the governments of South Sudan and Sudan. The other conflicts in Sudan are not within the scope of this research. In this paper the security situation at the local level is of interest for this piece of research. Counting the actual crisis and addressing these issues doesn't change the actual situation for the people in Darfur, or is expected to have an in-depth impact on the analysis of the research topic.

### **3.3 The conflict situation at the local level**

The post-independent period in Sudan was driven by many political changes, which fall out of the scope of this study. It is important to note that the economic situation in Darfur remained continuously fragile in all of these systems. Therefore I will rather focus on the current regime, which took power in 1989. At that

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<sup>9</sup> See section 3.5

time, considerable institutional chaos was present in terms of resource management. The development policies of the government blocked pastoralists from migration. Additionally, land from local cultivators was taken referring to the Unregistered Land Act of 1970<sup>10</sup> (Manger, 2009). The weakening of the native administration through the abolishment of the customary system<sup>11</sup> resulted in a weakening of rural governance. The rights of the local people were no longer effectively protected.

Further population growth and droughts during the last decades have caused tensions over natural resources. The destabilisation of the social dynamics and the weakening of governance structures for the rural population by the drastic change of land policies, imposed by the Unregistered Land Act, led to conflicts between tribes. Other drivers for conflict can be named as the import of assault rifles and other small arms resulting from the war between Chad and Libya in the 1980s. Conflict over natural resources and the claim of property rights experienced the highest outcome during the first tribal war from 1982-1989 between Arab and Fur tribes. A second period of conflict marked the year 1996 when again Arab tribes fought against Masalit tribes. In both cases it is said that more than thirty Arab tribes fought against Fur and Masalit (Ray & Hassan, 2009).

These dimensions of conflict between various tribes have to be seen in context with the competition over natural resources. Bromwich (2010, p.112) states that, *“it is necessary to disaggregate these local dimensions of conflict from the overarching political conflict at the national level in order to understand environmental dynamics in Darfur and identify how these issues interact.”*

These environmental dynamics of competition over water and land resources result from the degree of availability of both resources. The sufficient supply of rural water over time has contributed to an increase in population and livestock in all parts of Darfur. El Zain (2009) describes the consequences of this phenomenon as environmental degradation, decreased agricultural land productivity, food insecurity, population out-migration and settlement in areas that are presumed to have enough resources for the migrant as well as the host communities. Migration of population led to further conflicts between those, who perceive the land to be governmental owned, therefore granting them usufruct rights, and those, who perceive the land as their homeland, granting them ownership over land.

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<sup>10</sup> Explained in more detail in section 5.2.2

<sup>11</sup> See section 5.2.1

In the outbreak of the last conflict in 2003, two armed resistance groups, namely the Sudanese Liberation Movement/Army (SLM/A) and the Justice and Equality Movement (JEM) launched attacks against the government of Sudan. The rebel fighters have been recruited mainly from sedentary tribes and communities, such as the Fur, Zaghawa and Massalit (Hoile 2006, Young et al. 2009). Thanks to international pressure several peace agreements were signed since then<sup>12</sup>. Actual strategic targeting of Darfur against these resistance forces from the government of Sudan stopped occasionally, but is likely to return if rebel movements inside Darfur continue to undertake violent acts targeted against the GoS. This situation remains present until today.

### 3.4 Identification of key stakeholders and institutions

The identification of stakeholders, their interests and involvement in the situation in Darfur is essential for any further analysis. The participation of stakeholders at different levels, with various interests will show the dynamics that are going on in the region as well as the importance for coordinating these. It is not within the scope of this research to present every single group of stakeholders, there are simply too many, therefore only key stakeholders for establishment of better water and land management mechanisms will be presented in the following section. These stakeholders are seen as having a vital influence for the management of resources in Darfur. To describe these in an accurate way, these key stakeholders are listed in a hierarchical manner as indicated in Table 3.4.1 and more details are provided below.

<b>International level</b>	UN	AU	League of Arab Nations	
<b>National level</b>	GoS	Donors	Ministries	Councils and Departments
<b>Non-State Actors</b>	SRF	Pro-governmental Militias		
<b>NGOs</b>	SUDIA	ACCORD		
<b>Regional level</b>	DRA	DLC	DSG	SWC

<sup>12</sup> See section 3.5 and table 5.5.1

Local level	IDPs	Urban population	Rural population	Nomadic <sup>13</sup> population
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TABLE 3.4.1: STAKEHOLDERS

### **International level**

Despite the organisations identified in table 3.4.1, it is deemed relevant to mention that other large organisations and states contribute to the development of Sudan and Darfur. Due to the minor role in water and land management issues, these have been excluded in this overview. Nevertheless, it is worth mentioning that the European Union, China and the United States of America have their role in the Darfur Peace Process. The European position towards the situation could be perceived as being rather passive. Although there were efforts undertaken with an European mission on the Eastern border of Chad to prevent a spill-over effect from neighbouring Darfur, the active role in the region is more by donating money and financing projects. In the US there are many NGOs<sup>14</sup> that brought the security situation in Darfur on the political agenda. China is considered a big player in Sudan. Oilfield and logistics infrastructure are mainly constructed by Chinese companies. Chinas ties with Sudan are so strong that China even opposed president Bashir's indictment at the International Criminal Court in The Hague.

Neighbouring states were also influential for the security situation in Darfur. Sudan's continued struggle with Chad led to a proxy war between the states, where each country accused the other of financing rebel movements inside each other's territory. The signing of a non-aggression agreement in Dakar in 2008 eased this tension. Libya was suspected to send weapons and material to Darfur in support for a major rebel fraction called Justice and Equality Movement (JEM), one of the rebel forces involved in the last violent outbreak.

Fighters from JEM participated in the conflict in Libya in 2011 to support for the former Gaddafi-loyal forces. Now, after the assassination of the former president of Libya, the relation between the Sudan and Libya has to be re-established on the basis of the new government in place. Egypt, as a former ally of the United Kingdom and colonial power in the Sudan has water related interests about sharing the resources from the Nile with Sudan. The thereof resulting role for Darfur could only be estimated in economic terms.

<sup>13</sup> Here referred to as migratory people with livestock, including transhumance. Compare section 5.2.1.2

<sup>14</sup> Especially the NGOs "Eyes on Darfur", "Humans Right Watch", and "Save Darfur" have to be mentioned here, which contribute actively that Darfur remains on the international political agenda.

This short list of influential nations in Sudan is to reflect that the system to analyse does not rest in isolation, but is embedded in the overall geopolitical situation, which is not within the scope of this study. Nevertheless, the organisations as listed in Table 3.1 are estimated of having a high influential role for the establishment of sustainable management of water and land tenure in Darfur and are therefore described in more detail.

After the escalation of the conflict in 2003 the United Nations put their efforts of finding a lasting resolution. Many organisations of the UN family like the United Nations Environmental Programme (UNEP), United Nations Development Programme (UNDP), United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA), United Nations Children's Fund (UNICEF), United Nations High Commission for Refugees (UNHCR), and others, are currently participating in the peacebuilding efforts in Darfur. The UN efforts include the currently largest peace keeping operation in the world, with the highest budget, which was latest approved for the period from 1 June 2011 to 12 June 2012 with US \$ 7.84 billion. The Security Council Resolutions (SCR) 1590, 1769, and 2003 resulted in the deployment and enforcement of the international peacekeeping forces UNMIS and UNAMID.

UNAMID is a hybrid peacekeeping mission of the UN and the African Union. The African Union thus contributes most by deploying peacekeeping forces. In total, UNAMID contains around 18,000 military troops, out of total 23,000 uniformed personnel. The remaining 5000 personnel are composed by police and military observers.

As a mediator between states and not within states, the League of Arab States has been designed to pursue Arab interests. With the involvement in the crisis in Darfur and the support for international peace talks, the Arab League plays a role for restoring peace in the region, since part of the population in Darfur is from Arab origin, and the national government is mainly organized and composed of Arab elites.

### **National Level:**

The government of the Sudan is mainly composed of the National Congress Party (NCP). According to the CPA, the government was renamed as the government of National Unity (GNU) and incorporated the former enemy SPLM. After the referendum as agreed in the CPA, taking place in July 2011, the opposition, represented by the SPLM went out of the parliament and formed its own government in the newly established state of South Sudan, with capital in Juba. Leader of the NCP is President Umar Hassan Ahmad al- Bashir, who is in power since 1993. There is currently no constitution in place. The government is currently drafting a new one, which should replace the Interim National Constitution, which

was ratified in 2005. Reports in the media<sup>15</sup> argued that the NCP is in favour of people from Arabic origin and refer to the happenings in Darfur, where mainly black Africans (so-called “zurga”) were targeted by air strikes, pro-governmental militias and the Sudanese Armed Forces (SAF). These accusations could never be proved officially. However, the international awareness even led to prominent movies (Boll, 2010) about Darfur that shocked with horrifying images and presentation of genocide. The pro-Arab attitude of the government was never officially stated and it is hard to find evidence (Young, et al., 2005; de Waal, 2007; Morton, 2008; Ray & Hassan, 2009; Suliman, 2011;).

For the management of water and land resources different ministries are having various responsibilities. Influence of these ministries on management processes is limited in terms of financial support. Overall, the Ministry of Health, the Ministry of Irrigation and Water Resources, the Ministry of Agriculture, and the Ministry of Environment are having responsibilities to promote sustainable development throughout the country. Achieving the Millennium Development Goals is within the responsibility of these Ministries. With support of donors the Ministries are mainly committed to increase access to resources and improve the quality of water resources (GoS, 2012; de Wit, 2008; The Republic of Sudan, Ministry of Welfare & Social Security, & National Population Council General Secretariat, 2010).

Next to the Ministries a council for the interests of the nomadic population in Sudan is concerned with the development of this population group. The National Council for the Development of Nomads, formed by presidential decree in May 2008, has the responsibility to help nomads to reach the economic and social standards of other communities. Main functions are the coordination and opening of corridors for movement through rural areas, the support to pastoral women, the facilitation of livestock export and the promotion of a peaceful co-existence between farmers and pastoralists (Young, et al., 2009).

Sudan has a Water and Environmental Sanitation Sector (WES), which operates under the leadership of the Public Water Corporation (PWC), with support of UNICEF. The mission is to help realizing communities' right to survival and development through supporting equal and sustainable access to safe water, adequate sanitation and hygienic practices.

A large number of donors are present in Sudan, which however often concentrate on donations for the nation overall rather than a specific region, like Darfur. The

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<sup>15</sup> See: Darfur Daily News (2012). Most press releases are collected at this website and refer to the cruelties conducted from the GoS, which seems to be biased.

major donors for Darfur could be identified due to their presence in the High Level Committee, which is concerned with humanitarian assistance to Darfur. Additional countries involved, not mentioned yet are the United Kingdom and the Russian Federation, who in addition to the already mentioned states, support aid deliveries and the management of resources in Darfur. Furthermore donors provide expertise and support Sudan in drafting policies for environmental management (Reliefweb, 2009). Denmark, Italy and the Netherlands played an important role for the establishment of the National Land Commission (NLC). They equally functioned as donor governments and supported the process by the provision of financial aid (Pantuliano, 2007).

### **Non-State Actors:**

Pro-governmental militias that serve governmental interests have been influential due to their vast destruction and resettlement of local population in Darfur. Although never officially stated, it is assumed, that the raid conducted by armed militias, known as “Janjaweed”<sup>16</sup>, has led to displacement all over Darfur (Lindsay, 2007).

According to latest reports on the situation in the Sudan and South Sudan, it seems that the rebels in Darfur have allied with the rebels in South Sudan. Together they form the Sudan revolutionary front (Economist, 2012). Frequent changing in the composition of the rebel groups, their leadership and their naming makes it difficult to follow the correct composition and motivation of this group. However, for the purpose of this research rebel groups inside Darfur are assumed to have the intention for overthrowing the government in Khartoum.

### **NGOs:**

A vast number of NGOs are operating in Darfur in various fields. Two NGOs are taken here into consideration, in order to narrow the scope, which put their main efforts in the related fields of this research, namely peace and the management of land and water.

The African Centre for the Constructive Resolution of Disputes (ACCORD) is a civil society organisation, which is working throughout Africa and focuses on solutions for conflict on the continent. The organisation primarily aims to provide conflict resolutions, dialogue and institutional development as an alternative for armed violence and conflict. In Mid-April 2012, ACCORD hosted an international training programme on peace and security in Uppsala, Sweden and invited political leaders from Sudan (ACCORD, 2012).

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<sup>16</sup> English synonym to: “devils on horseback”.



The Sudanese Development Initiative (SUDIA) is a national NGO that claims to play a leading role in advancing peace, development and social justice for Sudan. The organisation frequently meets with national and international stakeholders in order to create a pool of expertise and realize problems at the local level. Aiming to support the Millennium Development Goal, SUDIA is focussing on three main areas, which are “advancing democracy”, “economic development”, and “building peace” (SUDIA, 2012).

### **Regional level:**

The Darfur Regional Authority was established under the terms of the Darfur Peace Process<sup>17</sup>. It serves as an interim authority in the region and consists of an executive organ and the DRA Council. Chairman of the DRA Eltigani Seisi<sup>18</sup> is in response for the establishment of the governance structure in the region (BBC News Africa, 2012). Therefore the DRA serves as an instrument for the implementation of the DDPD and collaborates with GoS under support of the international community (DDPD, 2011). The main aims of DRA are stated as to promote: peace and security, socio-economic development and growth, and justice, reconciliation and healing. One of the many tasks of DRA is to promote voluntary return for IDPs and refugees (UNAMID, 2012).

The Darfur Land Commission (DLC) was established on 13<sup>th</sup> July 2007 as a part of the DRA. Traditional and historical issues of land tenure should be addressed by the DLC. Additionally it should review natural resources management in the region (GAFAG, 2011).

State Water Corporations in the three Darfur states govern water resource development and management at state level. SWC functions under the auspices of the Ministry of Planning and Public Utilities (Addo & Salih, 2011).

For the interests of the nomads and concerning issues of pastoralist affairs, two main bodies are present in the region, which are: “The Commission for Nomads” in South Darfur and “El Waha Locality for Nomads” in El Fasher, North Darfur (Young, et al., 2009).

### **Local actors:**

As a consequence of the on-going conflict in Darfur, a vast number of local residents relocated inside the region. These internal displaced persons (IDPs) resettled mainly around towns. As of March 2012, 1.7 million IDPs were registered in

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<sup>17</sup> See Chapter 3.4

<sup>18</sup> He is the leader of the former LJM rebel faction, who now demonstrates commitment to DDPD.

IDP camps in Darfur. Many of those people have the interest to go back to their villages of origin, but as a condition security has to be re-established.

Instead of referring to just the rural population, it seems more appropriate to address this group of stakeholders as being pastoralists and farmers. Bradbury, et al. (2006) identified 34 different ethnic or linguistic groups in Darfur. However, for this thesis focus will only be given to the main difference between them: if they are residencies or nomads, farmers or pastoralists. For certain considerations throughout the research, the nomadic population is mentioned specifically.

Urban population in Darfur is difficult to describe nowadays. Although the fifth population census in 2008 gave indication about the population in Darfur, IDP camps were not taken into consideration or IDPs refused to participate in the data collection phase. Due to the fact that most IDPs settled near towns, for the purpose of gaining advantages of the infrastructure, real numbers of the urban population cannot be provided. This shortcoming of the 5<sup>th</sup> population census was recognized by the Darfur Relief and Documentation Centre in 2010.

### **3.5 Current state of the peace process**

The first peace agreement for the most recent conflict in Darfur was signed on the 6<sup>th</sup> May 2006 in Abuja, Nigeria. After an extended peace process started in 2004, this agreement was signed between the SLM and GoS (Agreement, 2006). The implementation of a transitional authority for Darfur was issued in this agreement. More recently, another peace agreement provides more power sharing opportunities for the population of Darfur, including the appointment of a vice-president for Sudan and a better status for the DRA that was established from the TDRA of the previous agreement. The actual status of Darfur should have been determined by a referendum in 2010. Until today no referendum was hold, and only recently the GoS provided the first financial aid to the DRA, making the latter operational with headquarters in El Fasher, North Darfur (Sudan Tribune, 2012b). The DDPD was finalized in the "All Stakeholder Conference" on May 2011 in Doha, Qatar. After a 2 year period of preparation with international assistance, the document serves as a basis to bring the conflict in Darfur to an end on a political level. The document recognizes that the *"conflict cannot be resolved militarily and a durable solution can only be obtained through an inclusive political process."* (DDPD, 2011, p.9).

Having established a legal framework to support the peace process, the GoS and the LJM signed the Protocol on the 14th of July 2011. Other parties like the JEM refused so far to sign the document. Important articles relevant for further analysis and that will have a direct impact at the local level, are highlighted below. Es-

pecially the consideration of water and land related issues are presented to recognize the efforts that have already been taken for raising the awareness of the importance of looking at the local level.

Article 10:

59. The Darfur Regional Authority (DRA) shall be established. The DRA shall serve as a principal instrument for the implementation of this Agreement in collaboration with the GoS and with the support of the international partners.

The activities of the DRA shall primarily aim to promote:

- i. Peace and Security;
- ii. Socio-economic development, stability and growth;
- iii. Justice, reconciliation and healing.

Article 11:

82: Without prejudice to the provisions of the Comprehensive Peace Agreement (CPA) relating to the North-South border and any international agreements in force between the Republic of Sudan and neighbouring countries, the Northern boundaries of Darfur shall return to their positions as of 1 January 1956.

Article 13:

84: The Parties agree that Local Government is essential to fulfilling the commitment to vest sovereignty in the people, bring power to the grass-roots and to ensure the effective participation of citizens in governance, promote development and make the management of public affairs most cost effective.

85: Native administration shall respect, where appropriate, the established historical and community traditions, customs and practices that have played vital role in the community.

Article 17:

123: It is highly important to recognize traditional and customary rights, including “hawakeer” and land historical rights, on a sound and sustainable basis to secure development and a means of livelihood in Darfur. This Agreement aims to establish the mechanisms needed for the recognition and protection of such rights.

Article 31:

172: Competition over pasture and water between herders and farmers is a serious problem in Darfur which shall be addressed in a comprehensive way by:

- i. Developing policies and projects to curb environmental degradation, raise the agricultural production and improve livestock production;
- ii. Gradually shifting emphasis from quantity in livestock production and animal husbandry;

- iii. Developing a framework for equitable access by various land and water resources;
- iv. Developing policies and projects aimed to establish agricultural, industrial and technological economy in the States;
- v. Developing research capacities in these areas.

**Development and management of Lands, Hawakeer<sup>19</sup> and Natural resources.**

Articles: 33-38<sup>20</sup>

Chapter IV: Compensation, return of internally displaced persons and refugees

Article 52: Housing, Land and property Restitution

TABLES 3.5.1: ARTICLES FROM THE DOHA DOCUMENT FOR PEACE IN DARFUR (SOURCE DPDD, 2011).

### 3.6 Additional relevant issues

The analysis of the local dimension of the conflict does not rest in isolation (Bromley et al. 2011). There are exogenous factors that can be named as the oil disputes between the North and the South, civil unrest in many other states of Sudan, climate change, national, regional and geopolitics (Bromley et al. 2011). Lack of appropriate property rights affect not only the conflict situation in Darfur, but can be found on the national level as well. The on-going fighting in Sudan brings insecurity to those who declare their rights on land. Without security of knowing that the land rights will not be given to others by the state, incentives for issues like preservation of the ecosystem, sustainable fuel wood collection, and careful waste management, become obsolete.

As derived from the literature, my focus at this point will cope with a narrow overview of a few of these factors and an inclusion where it seems appropriate. Generally it will be shown that these exogenous factors draw back to the overall problem of ineffective land tenure management and the availability of water. Further explanation and some implications will be given throughout the research.

The changing weather conditions over the last 40 years were pushing the Northern nomads more to the Southern areas. Especially the Baggara Arabs and their animals were migrating further south in the hope to find better pasture and more water. Rainfall patterns changed over the last decades as well and made the

<sup>19</sup> Refers to the “hakura” system – see section 5.2.1. Hawakeer is the direct translation from Arabic. For this research the term “hakura” is equivalent to the term “hawakeer” mentioned here.

<sup>20</sup> Not listed here in detail. The content is however integrated in the thesis and referred to where appropriate.

semi-arid area of Darfur very vulnerable, because shift in annual rainfall leads to rapid degradation of the resource base (Bromley et al. 2011). Desertification did not only happen due to climate change. Many tribes from the North were collecting an unsustainable amount of fuel wood and the drastic increase in population and livestock minimized the availability of pasture. This means that forests were eroded and the Sahara sand had the opportunity to expand further south. Climate change in the area is mostly perceived by changing weather conditions. The importance of rainfall for the people is evident and the variability over the last decades made it hard for farmers to increase their productivity. The increased southwards moving of nomadic groups brought increased pressure on scarce resources, such as water and land. The oil development made it difficult to resolve the conflicts that tend to focus on community land boundaries (Bromley et al. 2011).

Oil was the most important source of income for Sudan. Since the referendum according to the CPA from 2005, the South decided to separate and form a new state in 2011. Major oil fields are in the southern region of Sudan, now South Sudan. In 2000 oil accounted for 80% of Sudan's export. With the tensions nowadays and the problems of transferring the oil to Port Sudan, the South recently stopped oil production. Sudan is now interested in the remaining fields within the state. The unresolved question about the Abyei state and South Kordofan, makes it clear that the government wants the remaining oil resources for itself rather than sharing it with the South. Already during the crisis in Darfur the Ministry of Energy and Mining gave concessions for exploring oil potential in the Western parts of Sudan, which is Darfur (Broomley, et al., 2011). Block C and Block 12 are the potential oil reservoirs that run along the Chadian border and cover vast parts of Darfur. Especially Block 12 covers the area where most violence occurred between the governmental forces and the Darfur rebels (Coalition for international Justice 2006). However since then, some things changed. Due to the presence of UNAMID, the United Nations, the implementation of the DRA and the increased international attention, together with the interests of USA, China and England, the suspected procedures of displacing people by force, will hopefully not be a policy of the national government anymore.

## 4 THEORETICAL FRAMEWORK

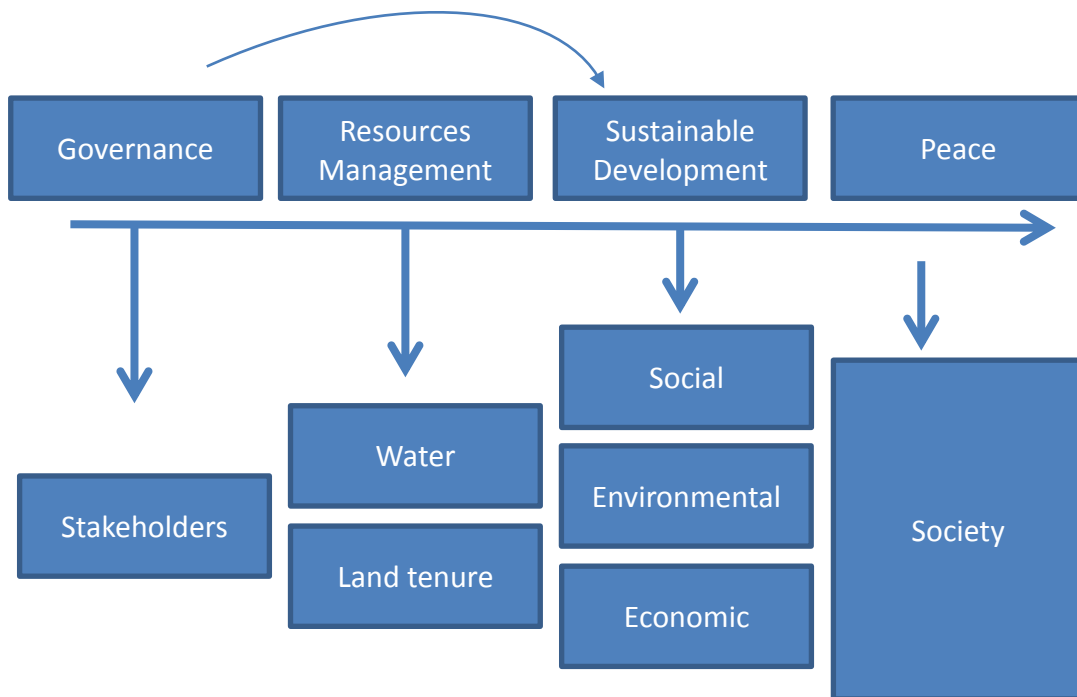


FIGURE 3.6.1: THEORETICAL FRAMEWORK

The basic theoretical framework of this thesis departs from the concepts that were found in the literature and applied to answer the research question, namely how sustainable management of water and land can contribute to achieving lasting peace in Darfur.

In this framework, it is assumed that governance and the involvement of all relevant stakeholders<sup>21</sup> play an essential role in the process for achieving lasting peace. The establishment of formal and informal ties is vital for advancing towards an establishment of proper resources management of water and land tenure. These management approaches are addressing basic needs of the population related to water and land. The incorporation of public participation into these resources management approaches will form the grounds to enable a sustainable development of the region. Relevant criteria derived from the governance structure, the sustainable management of water and land and the advance towards sustainable development will be identified in the analysis and linked in a comprehensive manner to the concept of peace for the society.

<sup>21</sup> As identified in section 3.4

## 4.1 Governance

The establishment of good relations or even partnerships amongst stakeholders is seen as an essential requirement for any development. Brinkerhoff (2007) defines three main components that are incorporated in the term 'governance'. Effectiveness, legitimacy, and security are the components he mentions as being fundamentals for managing competing interests for a common good. Several authors, i.e. Brinkerhoff (2007), Kjaer (2004), and Meadowcroft (2002) refer to governance as being something broader than government. The idea of steering comes in here. Who is steering and who is establishing the rules? The central government is in the case of governance no longer supreme, but has to interact with other stakeholders, seeing them as partners, to ensure effective implementation of agreements (Gray, 2007). Stakeholders from various fields, interacting with each other, come into play and establish networks that aim for increasing efficiency for a common purpose (Kjaer, 2004; Rhodes, 1997; Brinkerhoff, 2007).

Governance in Darfur can be seen as being biased from history and influenced by current political will. Due to the impact of colonial times and the implementation of various national "Land Acts", many regions in Africa have been marginalized<sup>22</sup> (Mohamed, 2007; Peters, 2009). This also holds for Sudan and Darfur respectively. Under the Anglo-Egyptian colonial government, the "Lugardian model" was introduced. This model was a particular form of administration that gave the local population the right and freedom to manage their own affairs by their own rulers, although under the guidance of the British administration (Young et al., 2005). The system first came into force in 1932. For the British administration in Sudan, the advantage was that this system provided security in the marginalized regions<sup>23</sup> but limited staff and costs. The so-called "native administration" was composed of village and tribal leaders. The development of a hierarchical structure<sup>24</sup> in Darfur was based on the earlier system of the Darfur Sultanate and traditional leaders were allocated according to their position and function (Kevane, 1997; Young et al., 2005).

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<sup>22</sup> Marginalization is often mentioned in this work and is thereof referred to the latest study from Mohamed (2007), who compared two period in time (1971-1980 and 1998-2002) according to per capita regional share of central expenditure, regional share of expenditure compared to regional population, and regional index of advantage and disadvantage. This was calculated as: regional share – average share, divided by the average share. In both periods in time it turned out that Darfur has been the most disadvantaged region compared to all others in the country.

<sup>23</sup> Such as Darfur

<sup>24</sup> See figure 5.2.2

The British colonial power gave the local administration a wide range of authority to manage internal affairs. The responsibility of the native administration included (i) the settlement of tribal conflict, (ii) the maintenance of justice, and (iii) and the collection of taxes (Mohamed, 2004). The system remained in place from 1920 to 1970. When Numei<sup>25</sup> came to power in Sudan he abolished the system by the declaration of abolition of traditional leadership and installed local governments instead in the states of Sudan. After Numei was overthrown by Sadiq al-Mahdi in 1985 the native administration was reinitialized, but in a weaker form. The re-established system was maintained for a short period, because in 1989 al-Mahdi was replaced through a military coup by Omar al-Bashir<sup>26</sup>. He put a strong focus on installing the Islamic law in the country. As a consequence, although the native administration remained in place, less power was given to tribal leaders – therefore the native administration was weakened again (Young, 2005).

#### **4.1.1 The allocation of property rights**

Since property rights are an important part of governance, especially when dealing with water and land management, theory from the literature is presented in this section to find property rights systems that apply for the situation in Darfur as well as to find allocation systems that are currently used to find their strengths and weaknesses for later analysis.

The “Tragedy of the Commons” from Hardin in 1968 was cited often throughout the literature on ecological economics and also when talking about property rights. Therefore, it can be seen as the basic principal when talking about common property rights (Hardin, 1968; Ostrom & Hess, 2007; Tietenberg et al. 2009). The basic idea is that individuals, who act independently, will ultimately deplete a common resource, even if this is not intended.

What kinds of property rights could be seen as being effective when common resources are shared? An efficient property right structure must apply three basic conditions, which are “exclusivity”, “transferability”, and “enforceability” (Tietenberg, 2009). The actual applicability on the situation in Darfur will be analysed in table 5.2.1.

Tetra Tech ARD is a partner organisation of the United States Agency for International Development (USAID), which has offices in various regions in Sudan. This organisation describes the importance of property rights as follows:

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<sup>25</sup> Numei was the president from 1969-1985

<sup>26</sup> The current president of the Republic of Sudan



*“Secure property rights are a critical component of economic development and social stability. Inappropriate property rights policies and institutional structures that are not synchronized with economic, political, and environmental realities can undermine growth, erode natural resource bases, and catalyze violent conflict. Conversely, strong property rights systems, which are viewed as legitimate, transparent, and negotiable, can lead to increased investment and productivity, political stability and better resource management.”* (Tetra Tech ARD , 2012).

Following this argument the hypothesis that the institutional structures<sup>27</sup> and clear property rights are supportive for a sustainable resources management are further elaborated upon in Chapter 5. The specific situation of the study site is taken into consideration by analysing the institutional structure of water and land management with special attention to the influence of the organisations on property rights.

I would like to draw attention towards the principle model existing between herders and farmers in our case-study. The resources most important for these two groups are water and land<sup>28</sup>. The right to use them should thus be determined by an appropriate property right. These rights are thus essential for their survival and livelihood Property rights in Africa nowadays are still an issue of concern.

## **4.2 Sustainable management of resources**

This section includes the findings from governance as indicated in the literature and combines it with concepts of sustainable resources management. The following hypothesis was therefore established:

*If governance structures at the regional and national level are effective, they contribute positively to a more sustainable resources management.*

Key resources, as analysed throughout the thesis are water and land. Main findings from the literature are presented to build on this hypothesis.

### **4.2.1 Land tenure system in Darfur**

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<sup>27</sup> Also described as governance in the thesis

<sup>28</sup> Predominantly for pasture and agriculture

Land is a valuable resource, though limited on our planet. Markets usually tend to allocate land to its highest valued use. Land serves many functions. Depending on the geographical position it can be used in various ways, like agriculture, residency or wilderness (Tietenberg et al. 2009). To gain benefits out of a region for a longer time, people have to maintain their land in a sustainable manner. Therefore property rights are needed to define the status of a specific resource, like water or land. Ostrom and Hess 2007 defined it as: “A *property right* is an enforceable authority to undertake particular action in specific domains”. (Ostrom & Hess, 2007, p.1). Moreover, property rights have the potential of reducing conflict in a potentially volatile situation (Tietenberg et al. 2009). Land tenure in Sub-Saharan Africa is often based on indigenous rights. It is argued that this system can still work efficiently, even though private property rights are not allocated (Migot-Adholla 1991, Morton 2005, Mundt 2011).

However, one could argue that these resources are managed as common pool resources, because both groups use it and gain their benefits out of them. Benefits have to be defined as increased economic productivity and livelihood. These common pool resources share two important attributes. First it is important for economic activity and second the benefit from one individual subtract the availability of the respective resource from another individual (Ostrom & Hess, 2007). This is actually the case, as past and recent fighting in Darfur between different tribes shows. However, this section serves for the basic understanding of current land tenure and rental practices in Sudan with a strong focus on the main parties involved.

The latest regulatory property system for land ownership derives from the Civil Transaction Act of 1984 that claimed that all so far not registered land belongs to the state (Kevane, 1997; Young, 2005). The 1970 declaration of abolition of traditional leadership made the dispersion of the property right situation even more complicated. Due to the lack in capacity of the national government to install appropriate institutions in the region to complement the abolished traditional leader, the government was stunned and wasn't able to install effective institutions for monitoring, registration or legal belongings. As a consequence, traditional leaders remained and followed customary law as they were used to. However, one could state that the declaration of the Unregistered Land Act of 1970 and the abolishment of traditional leadership even worsened the situation. Until recently the national government of Sudan failed to implement a regulatory body in Darfur, which is actually able to monitor the land tenure systems under a regulatory framework (Kevane, 1997). As indicated in table 5.2.1 the DDPD acknowledges for the first time the role of the native administration and tries to enforce the role of traditional leaders again.

Despite the imposed governmental land acts, the old traditional systems of communal customary property rights remained valid in most of the rural areas and encouraged the sedentary population to maintain their own mechanism for tenure rights within each community. The shift from customary right to an open access regime in many areas began (Young, 2009; Bromley et al. 2011). As a consequence the nomadic population was marginalized and had to rely on customary rights as well. Sharing the same resources under minimal legal enforced property rights created tensions between these two groups (Brink et al. 1991).

#### **4.2.2 Water management**

The current decreasing availability of fresh water in the world raises concerns and provides incentives for international organisations to rethink practices of water use. Water is a valuable resource, labelled a key resource, which is essential for the subsistence of humankind. People usually settle where there is enough water and other resources available to sustain their lives. The overall trend of population growth, in parallel with the rising per capita demand for water leads to more pollution and results in concerns about future water availabilities (Barrow, 2006). International efforts like the Millennium Development Goals, which aim to end poverty and thereby provide basic needs of the world's population, state clearly that there is growing water insecurity in certain areas in the world. Especially the rural population is affected. Although efforts have been made and some positive outcomes could be observed, water coverage in rural areas lacks behind the standards of urban areas, especially in Sub-Saharan Africa (United Nations, The Millenium Development Goals Report 2011, 2011c).

For Africa, there is an overall vision for achieving water security. At the 5<sup>th</sup> World Water Forum, which was held in Istanbul in 2009, agreement about financing as a priority for improving African water security could be achieved. Commitments of Africa's highest political levels are in place. *"A comprehensive integrated approach should be pursued on infrastructure development to optimize multi-purpose use with the acknowledgement of country and regional specifics."* (World Water Council, 2012). Further, water financing for Africa has the overarching goal of delivering economic growth. However, financing alone will not provide economic growth. More integrated solutions have to be found, especially where stocks are small and a high variability of precipitation and stream flows exist. The investments in infrastructure have to be complemented by watershed management, land use planning, appropriate information, and systems management (Gourbesville, 2008). An integrated approach, commonly known as Integrated Water Resource Management (IWRM) is followed by many organisations and is defined as: *"a process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant*

*economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”* (Global Water Partnership, 2012).

The concept rests on the three pillars of social equity, economic efficiency and environmental sustainability. Like the concept of sustainable development the approach tries to promote good practices to preserve water capacity for future generations. Basic components for water resource management can be described as the allocation of water, river basin management, stakeholder participation, pollution control, monitoring, economic and financial management and information management (Global Water Partnership, 2012; Merrey, 2008; Lautze et al. 2011; and Gourbesville, 2008).

IWRM is seen as a broad approach for describing general behaviours for water management. Every situation is unique and therefore specific solutions have to be found. The consideration of other aspects than just the economic one for water allocation is a strength of IWRM. However, it is not a catalogue of principles that can be used for every situation, but has to be adapted in a specific manner. Radif (1999, p.145) states that *“the overall objective for water management, which adopts integrated approaches, is to satisfy the freshwater needs of all countries for their sustainable development. Integrated water resource management is based on the perception of water as an integral part of the ecosystem, a natural resource and a social and economic good, whose quantity and quality determine the nature of its utilization.”*

Consequently, these elements have to be recognized by policy options on the national level. There is a need for governments to commit themselves for good water management practices. Good governance for implementing such approaches is therefore vital for success to achieve efficient water allocation (Radif, 1999; Sullivan, 2010).

Land management is incorporated in the approach of IWRM. For sustainable water and land management in order to ensure sustainability, adequate institutional and legal frameworks are needed (Omer, 2010). Especially for Darfur, main water issues could be addressed more effectively, if the main stakeholders are incorporated in the planning processes. Omer (2010) summarizes the main concerns related to water in the Western parts of the Sudan as follows:

- A general scarcity of water resources: mainly in terms of quality and access to it;
- Water conflicts between nomadic and non-nomadic tribes: there property rights come into play and the effective allocation of the resource is seen as vital to avoid conflicts;

- Water-borne diseases;
- Soil erosion and degradation caused by agriculture.

The following hypothesis is based on the before mentioned statement and the above indicated availability of land for the population and will be tested in the analysis part:

*If water and land are scarce they challenge sustainable management in Darfur.*

Water is however a vital resource and attention has to be given to the mentioned concerns in Sudan and in Darfur in particular. The participation of all stakeholders in water management, especially under the IWRM is a way to promote equity and sustainable development. The combination of water related problem with land issues will be addressed in the following section.

#### **4.2.3 The question of land tenure and water**

For the current crisis in Darfur approaches for possible solutions for restoring peace in the region have to be seen in the context of possible future environmental challenges. Whenever environmental aspects are taken into consideration, climate change and water accessibility have to be monitored. These two issues are seen as the main future environmental challenges for our planet (Tietenberg 2009).

The United Nations Millennium Assessment Report from 2005 pointed out that around one third of the world's population lives in areas with water stress. Water stress can be defined as an individual person having less than 20 litres of drinkable water<sup>29</sup> per day. Increase of the situation could be observed and leads to further concerns within the United Nations and other international organisations. Reasons for the decline of the key resources could be found in population growth, pollution, climate change and intense use of irrigation systems (WHO, 2005). Africa and Asia are the continents that suffer the most. Due to the reason that groundwater is faster consumed than replenished as well as the increasing decline of the aquifer levels, the availability of potable water decreases as well.

Coping with these problems requires international cooperation. Because environmental problems do not stop at national borders, cooperation between coun-

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<sup>29</sup> Without chemical and microbial contaminants. Basic needs for survival are indicated in the Sphere Project (2011) and indicate water need between 7.5 and 15 liters per day, depending on the region.

tries is the starting point for improving the global environmental situation. Water in particular is seen as a key resource, since other resources, like land and fertile soil depend on it. This essential element of life requires special attention. In any given region the effective allocation of ground and surface water has to be defined and compared to current practices<sup>30</sup>. Whereas there is enough water on our planet so far, it is not effectively distributed. The global supply of water is estimated as being ten times larger than consumption (Tietenberg 2009). However, it is a depletable resource and at state level allocation is not effective everywhere.

The most effective production system that has been used for thousands of years in the Northern region of the Sahelian belt is pastoralism. Due to the flexibility and the ex-ante decision capacity<sup>31</sup>, this system sustained for a long time in history. It risks to be minimally hit by environmental changes, because pastoralists change their locations frequently and react to changing weather conditions. Pastoralism as one form of economic activity in the area of the Sahel can be divided again into two populations. First, the Saharan nomads mainly focussing on camel breeding concentrate in the arid North of the Sahel. Second the Sahelian pastoralists can be found further South (Weber et al. 2011). Going more southwards to the Sahel, other forms of economic activity for subsistence emerge<sup>32</sup>. This economic activity is dominated by subsistence farming systems, where communities plant their crops on fertile ground. These communities (or tribes) are dependent on annual rainfall too. Due to a significantly higher amount per year compared to the Northern part, agricultural activity is facilitated. Without going too much into detail at this point, it can be stated that farming systems are more likely to be found in the Southern part of the Sahelian belt.

The presence of these two fundamentally different systems, namely pastoralism and agriculture, raises the question of property rights, as referred to above. Because of the simple fact that both systems need place and flexibility to expand, property rights have to be allocated effectively. Governance structures in Darfur have to cope with these concerns, both to solve disputes between herders and farmers and to allow proper resources management mechanisms of the key resources like water and land to allow the region and consequently the nation to move towards sustainable development. What sustainable development implies in this context will be discussed in the next section.

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<sup>30</sup> See section 5.3.1.3

<sup>31</sup> Refers here to the decision the pastoralist can make for moving his livestock. In comparison to the farmer, who has to decide ex-post, the pastoralist can decide to move further after rainfall (Bromley & Chavunduka, 2011)

<sup>32</sup> Compare section 5.3.2

### 4.3 Aspects for sustainable development

Poverty in developing countries is a key theme discussed at many international conferences these days. This is however not a new debate, since the concerns reach back some decades, when scientists postulated a shift in thinking and promoted different strategies for developing countries. The overall goal to keep pace with the faster growing economies in the West should not remain the over-arching objective for the in developing countries.

Instead, one should concentrate on small-scale technology and the local capacities available. Following this path would reduce the vital dependencies on resources like water and land for survival and the rural population in developing countries could solve their concerns easier (Dresner, 2002). A more sustainable consideration of the global situation was conceptualized, when the World Commission on Environment and Development in 1987 issued the well-known report, “Our Common Future”. The concept links the global situation to reducing the ‘wants’ of the rich and fulfilling the needs of the poor (Baker, 2006).

Sustainable development in this context is seen as the consequence of how well the resources are managed in terms of what governance structures are present and applied for the specific situation in Darfur. Matondo (2002, p.1) states that *“the quality of life is directly dependent on how well these resources<sup>33</sup> are planned and managed for sustainable development.”*

Consequently the following hypothesis derives from the issues mentioned in this section:

*If resources are managed sustainably they contribute to sustainable development in Darfur.*

The quality of life refers here to the social aspect of sustainable development. The analysis in Chapter 5 will explore the socio-economic aspects that arose from the current practices. Additionally, attention to environmental concerns will be given. Together, incorporating the three dimensions of sustainable development, the analysis explores how sustainable development is taken into consideration in Sudan and in Darfur in particular, and how they relate to peace. Conflict is seen as a major hindrance to promote sustainable development. According to an OECD report of 2010, no conflict-affected country in the world has yet

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<sup>33</sup> Matondo (2002) refers to air, land and water in this context.

achieved the MDGs (OECD, 2010). It is assumed at this stage that participation at the community level is seen as an important caveat to achieving sustainable development.

#### 4.4 Peace, conflict and conflict resolution

Like most theoretical terms, peace is somewhat difficult to define. The pure absence of violent conflict might be too less precise to define it. Webel (2007, pp. 12-13) gives a historical explanation in combination with human nature: *“... peace, like justice and happiness, is an historically shifting condition of our individual and collective natures, of our psychoses and politics, that at some times is less intangible and at other historical moments shines in the most distant horizons of our imaginations and desires.”* Actually peace is not tangible. A state of peace is hard to explain, looking from the collective to the individual dimension.

People could define negative concepts as war and conflict much easier than peace, since it results from certain events (Webel, 2007). But also conflict has two dimensions. It can be divided into violent and nonviolent conflict. As defined by Johansen (2007), the presence of violent conflicts is more frequently observed throughout history.

Galtung (1996) draws a more comprehensive picture for the term “conflict”, by presenting a conflict triangle. He argues that the determination of a clear statement that “this is a conflict” should not be used as being obvious since it stands for clear destructive behaviour. But destructive and constructive behaviour are not incompatible; they can exist at the same time, in the same place, in the same person. Additionally there is something underneath all cases which can be defined as attitudes. The contradiction is the essence of a conflict. Together, as shown in Figure 4. 2 Galtung (1996) defines conflict as the sum of attitudes (A) + behaviour (B) + contradiction (C), leading to the model:  $\text{Conflict} = A+B+C$ .

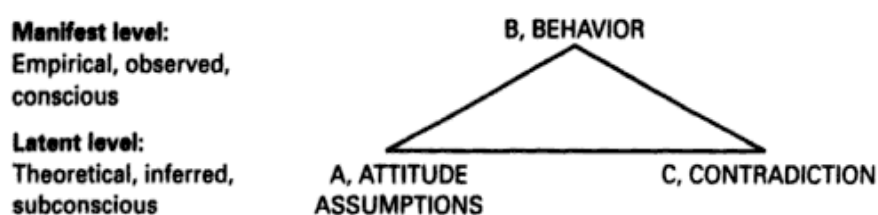


FIGURE 4.4.1: THE CONFLICT TRIANGLE (SOURCE: GALTUNG, 1996, P.72)



This framework model on the latent and manifest level shows that the peak of conflict<sup>34</sup> is just one component of the entire triangle. This conflict is seen as a dynamic process, where attitudes and behaviour are changing over time. However, in a conflict situation where the dynamics develop over time, the relationship between the parties becomes more oppressive. Parties organize around a structure to follow their interests. Hostile attitude is developed and the conflict formation starts to grow. Resolving a conflict at this stage must involve a change in attitudes of the parties as well as a transformation in relationships about the clashing interests at the core of the conflict (Ramsbotham, et al., 2005).

In the case of Darfur one could observe an asymmetric conflict. Here, many parties are involved, operating at different levels. An asymmetric conflict arises between dissimilar parties. Competition over resources led to violent clashes between tribes. Next to the insurgent activities against GoS, inter-tribal clashes came in the political reconciliation agenda just recently. In 2010 the UNSC gave attention to a disconcerting trend of local-level conflict between various communities in Darfur. *“Local conflicts have been exacerbated in the recent years by environmental degradation, demographic growth and the weakening of traditional conflict-resolution mechanisms. In addition, the conflicts have become increasingly lethal owing to the proliferation of weapons among communities in Darfur.”* (UNSC, 2010, p. 4).

The DPP is concentrating on a comprehensive solution, incorporating all stakeholders in Darfur. Webel (2007), argues that reconciliation is achieved by combined planning efforts. This means that joint reconstruction work and joint conflict resolutions will strengthen reconciliation and build trust over time. An impartial role of outside organisations, functioning as a mediator is supportive too.

The analysis will explore the hypothesis that is created from this statement, namely:

*Proper management of water and land is a precondition for lasting peace in Darfur.*

This brings me back to the initial question, left unanswered so far, namely how peace is defined and what assets it has to incorporate. For this study peace is defined as in Santa-Barbara (2007, p.185) as: *“the state in which humans can maximize use of their resources, physical, mental and cultural, and which gives*

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<sup>34</sup> The peak of conflict refers here to what can actually be observed. In the case of Darfur this can be defined as being either inter-tribal clashes, or mass atrocities.

*the most chance for happiness for most people.*” At the moment it can be said that the situation in Darfur hardly shows any patterns of the above mentioned definition due to continuing fighting and unrest. Nonetheless, recent reconciliation efforts consider the integration of a sustainable natural resources management. This makes the research question relevant for the field of study.

## **5 ANALYSIS OF THE CASE STUDY DARFUR**

### **5.1 Introduction**

Departing from the research question, this chapter will analyse, how the different factors in the theoretical framework could contribute to peace, if probably managed. Each part will explore the developments that led to the current situation and analyse its potential for conflict. The efforts of the relevant stakeholders to deal with these tensions will be analysed to see if these efforts contribute positively or negatively to decreasing the inherent tensions. In the last part of the chapter we will look into the recent overall peace efforts and if and how they have taken into account these different factors in a comprehensive manner or only in isolated efforts.

### **5.2 Governance and stakeholder analysis**

In this chapter the local governance systems will be analysed by incorporating the relevant stakeholders. Here, I present the different systems and how they are influential in local decision making. It will be argued that the different governance systems in place have created friction between the stakeholders over the last years. Under the DDPD the establishment of a Darfur Land Commission (DLC) was given attention. Possible changes in the local governance of resource management will be described by taking the relevant articles of the DDPD into account and putting the focus on the newly established authority for the region.

#### **5.2.1 Traditional governance structures**

The hierarchical structure of the native administration has been established by the people themselves. At the bottom of this structure are the village sheiks, who are responsible for the belongings (property) of a village and the people living within. Sheiks are directly elected by the inhabitants of a village. The next positions in the hierarchy are the Omdas or Furshas. Due to the diversity of the tribes living in Darfur, traditional positions in the native administration are called differently although have the same function. Omdas or Furshas are in charge of a commune of villages and are elected by the sheiks. The head of administration is called, also depending on the locality, Nazir, Melik, Sultan, Shartai, Magdum or Dimangawi. These positions head usually a number of Omdas/Furshas and are at the top of the hierarchy in the native administration. They are elected by a selected number of sheiks and Omdas/Furshas only (Kevane, 1997; Mohamed, 2004; Young, 2005; Morton, 2005; Young et al., 2009).

This section deals with the question of what traditional mechanisms were used to manage property rights over land and water, how to solve disputes over land and water and why there are challenges for today's use.

#### 5.2.1.1 Individual land tenure rights

The use of land and therefore the land tenure right distinguishes two different forms. These two forms are defined as (i) if it belongs to a person (which is called *haggahum*), or (ii) if it belongs to a person by ownership (called *haggahum milik*). The difference derives from the administrative status given by the traditional leader. A village sheikh and his superiors are administering the land that is not yet used and can allocate it to villagers, newcomers, or people from other villages. At this early stage of allocation, the sheikh collects the so-called *furta*, which is a 10% share of the harvest, equivalent to the land allocated. As long as the sheik is collecting the fee, land is *haggahum*. Interdependence between the sheikh and the holder of the land emerges, as indicated in Figure 5.1. When the sheikh decides to stop collecting the fee, land becomes *haggahum milik*. In the case of the sheik's death, the owner of *haggahum milik* may claim the land as his to the next sheikh (Kevane, 1997).

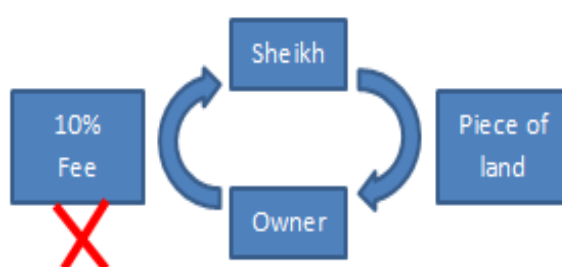


FIGURE 5.2.1: HAGGAHUM

It becomes clear that once granted *haggahum milik* by the sheikh, the owner, doesn't have to pay any fees anymore, as indicated by the red "x" in figure 5.2.1. Further, the piece of land belongs now to the individual owner and can even be inherited. Ownership without fee is not granted forever though. The owner is responsible that the piece of land allotted to him or her is cultivated and used for an agricultural or any other economic purpose. If the owner refuses to cultivate the land the property right is lost it becomes land of the community again and the village leader can grant property rights to another person. This simple system has worked pretty well in former times. It even allowed incorporating strangers into communal land. Strangers, like nomads, were allowed to use land for grazing by giving a fee to the village chief for the duration of their stay and then to return the

land when they moved on. Additional advantages arose from nomads using communal land, since the livestock left manure that even increased the productivity of the land.

Problems resulted from this form since many people have lost their land due to the fighting. These people settled in IDP sites and stay there until they return voluntarily to their places of origin. However, the land they possessed could be lost by the time they come back to their villages and given to someone else. This is a potential for conflict that often has to be addressed by the village leader. In case this authority is not present, affected individuals are exposed to state mechanisms that ask for a proof of ownership, which does not exist in many cases, because property rights are granted from the tribal authorities in verbal form. Hardly any documentation exists, which makes the proof of possession rather impossible.

However, unclaimed land on the village level is not an isolated island and other systems still in place today are superior to this. Despite the unclaimed land on the village level there was also the claimed land by villagers under the *haggahum milik*. Interference in this sector was and still is never well perceived by the individual land holder. Disputes between nomads, who did not control their livestock, coming into individually owned land and the individual farmers were usually brought before the sheikh, who in most cases was able to solve these problems, by asking compensation from the nomad.

#### **5.2.1.2 Clan land tenure rights**

Clan ownership is the superior system above the village level. The boundary of a community is well known and managed through negotiation between the omdas. Above the community land stands the land of the tribe, which is described as *dar* (University for Peace, 2006). These indigenous land rights are based on historical and customary rights. Usufruct rights are granted by the needs of the individuals or families mostly for a limited period in time. As a precondition for keeping usufruct rights, the owner must maintain the land for and give a share to the chief of the village, as indicated in the previous chapter. If land is not cultivated for a period, which varies locally and due to the decision of the sheikh, the land right is claimed back from the sheikh (Kevane, 1997).

The governance structure that derives from the above mentioned description is shown in Figure 5.2. It has been established under the Keira dynasty of Sultan Ibn Suliman (1680-1700), dates back about 300 years and is commonly known as *hakura* (Young et al., 2009). *Hakura* is generally a land grant provided by the sultan giving rights to a group of people for the management of land and natural

resources<sup>35</sup>. It exists in a written document and is dedicated to e.g. chiefly families, which reside in a *dar*. It is a form of “tribal land ownership” (Unruh, 2012).

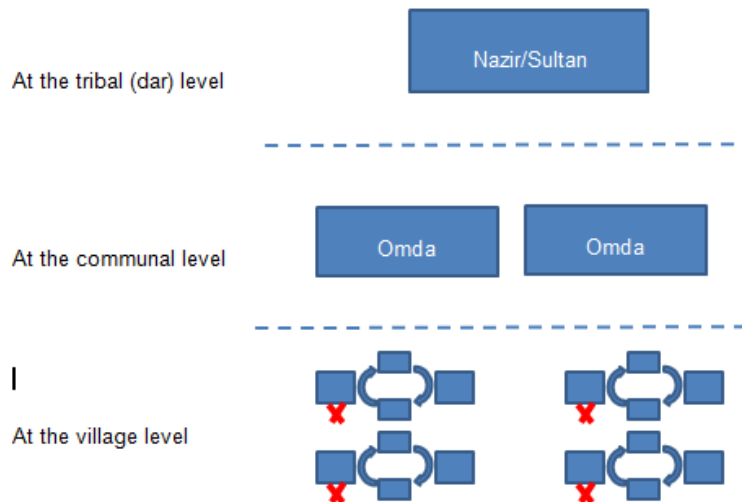


FIGURE 5.2.2: TRADITIONAL GOVERNANCE STRUCTURE

### 5.2.1.3 Pastoralism

Specific pastoralists can be considered as having a different role in the administrative position of tribal administration. Some tribes are not bound to the previously mentioned structure in Figure 5.2.2. Pastoralism can be defined to the form of pastoral production applied. Weber & Horst (2011) identify three forms of pastoralism, namely sedentary production, transhumance, and nomadism. Sedentary production describes the production of livestock near a town or village. Transhumance specifies the seasonal movement with livestock relying on corridors. Nomadism is guided by environmental conditions. Draughts or loss of grazing ground due to desertification leads communities to change their location sporadically. This group is the only pastoral group that does not hold ownership for either land or villages.

A peaceful coexistence between pastoralists and resident tribes was always an important issue for addressing peace in Darfur and was administered through tribal councils, which served as the basis for solving disputes over land or natural resources.

<sup>35</sup> Holds also for the use of water.

Nomadic livestock herding is described as a community activity. It often takes place on the land of another community. As long as the rules and regulations in terms of grazing, water use and manure, which vary across areas and communities, but have basically the principles as indicated above, are well accepted, no clashes between the groups happened. However, breaking the rules and regulations results in fines issued according to the legislative power of the resident community. Applying the legislation, or negotiating over it, is reported to lead to compensation and reconciliation (Young et al., 2005; O'Fahey, 2008; Unruh, 2012). *"... the Native administration provided a system of local governance that managed the use of natural resources and allowed various groups to live in relative peace and stability."* (Young et al., 2005, p. 29).

### **5.2.2 State administration**

Local governance in Darfur is best described as a combination of traditional leadership and national legislation. The roots of the conflict that can be derived from the resource dimension diminished the usual procedures for conflict resolution. Inter-ethnic conflicts, here referred to as the conflicts between farmers and pastoralists, were usually solved on a local basis by negotiations between the tribal chiefs in councils. For larger conflicts, a reconciliatory conference was formed under the supervision of senior native administrators and governmental officials. The increasing environmental pressure in the 1980s made these conferences more and more unable to resolve the problems (University for Peace, 2009). The parallel weakening of the tribal administrations due to governmental reforms made it even harder to find solutions under native supervision.

Due to the historical development of Darfur two parallel systems of local governance are actually in place at the same time. The national state administration and the local traditional tribal administrative system form together the governance structure in place. The latter originated out of the Fur Sultanate and has been integrated into colonial administration and remains in the national administration until today. While the British power in Sudan gave many responsibilities to the traditional tribal administration, the national governments tried to change this by imposing Local Government Acts in the years 1951, 1961, and 1971 that aimed to shift most responsibilities to the national governments. Legislative power was taken from tribal leaders and transferred to state courts. A purely administrative role remained for the tribal leaders, without any legislative power left (Young et al., 2009). The national government partly failed to impose these acts on the village level. That is why most of the traditional leadership roles stayed in place and have to be taken into consideration again by negotiating peace in Darfur (DDPD, 2011).

At the state level the government holds administrative units that are structured in a hierarchical manner similar to the traditional system. Three layers are represented by the governor at the state level, the commissioner at the level of the locality, and the administrative officer at the level of the administrative units (Young, et al. 2009). On the state level the Unregistered Land Act of 1970 is taken as a reference for land distribution. This Act simply stated that all land that was not registered before 1970 belongs to the state and abolished the native administration in 1971 (Unruh, 2012).

The newly established DDPD, which is the most recent outcome of the entire Darfur Peace Process, takes this situation into consideration and stresses the need to establish a common authority that encompasses both, traditional leadership and national legislation, in other words statutory rights and customary rights, by incorporating all relevant stakeholders, meaning traditional leaders and state officials (DDPD, 2011).

As already mentioned in the previous chapter the document has not yet been signed by all parties, which can be considered as the main weakness of this document. However, the current state of the Darfur Peace Process allows having a closer look at the relevant articles in the DDPD, because many parties already agreed on it<sup>36</sup>. In this agreement another form of government, namely the DRA, is suggested and should serve as a point of reference for addressing consolidation over land and water disputes.

For a functioning governance system it is an important issue to incorporate both, traditional and national authorities, into local land use and water resources planning. The above mentioned parallel systems of native administration and national legislation are combined for an inclusion of all stakeholders dealing with land issues and the management of resources. They are pooled in the DLC and can apply together a system for sound management.

The DLC is mentioned in detail in Article 38 in the DDPD. There it states that, *“The Darfur Land Commission shall be established. The DLC Council shall be composed of representatives of the Federal Government, the DRA, DSG, Native administration and local experts. The membership shall reflect land use interests in Darfur...”* (DDPD, 2011, p.43).

The DLC, however, is an independent and impartial organisation, embodied in the DRA. The DLC should work together with the NLC in order to share infor-

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<sup>36</sup> See section 3.5



mation and for the purpose of a co-decision making process. This would imply that the DLC is a permanent member of the NLC under the precondition to stay impartial and independent. For IWRM the corporation of DLC and NLC plays an important role, because IWRM is a national strategy that has also influence on Darfur.

### 5.2.3 Discussion over governance structures

The establishment of a central organisation, represented by the DRA and thereof the DLC for sustainable development and resource management is seen as an essential benefit for the region in relation to the three main facets of governance as described by Brinkerhoff (2007). Table 5.2.1 compares the three governance structures in relation to their perceived (i) effectiveness, (ii) legitimacy, and (iii) conflict management potential. The values are given a rank order. “1” is described as the weakest structure and “3” as the strongest. The personal opinion of the interview partners was included in the outcome of this table. In combining the results from the interviews and the literature<sup>37</sup> the following results were obtained.

	Native Administration	Local Government	DRA/DLC
Effectiveness	2	1	3
Legitimacy	1	2	3
Conflict management	2	1	3
Overall	5	4	9

TABLE 5.2.1: GOVERNANCE IN DARFUR (SOURCE: INTERVIEWS; DDPD, 2011; RAY ET AL. 2009).

Some assumptions had to be made that are based on the findings in the literature in order to derive these data.

Key issues for the allocation of the values in Table 5.2.1 were:

- The assumption that both DRA and DLC are effectively implemented and operational, given by international support, as indicated in the DDPD (2011)<sup>38</sup>.
- The inclusive approach of DLC by incorporating all stakeholders, as indicated in Article 38 of DDPD (2011).

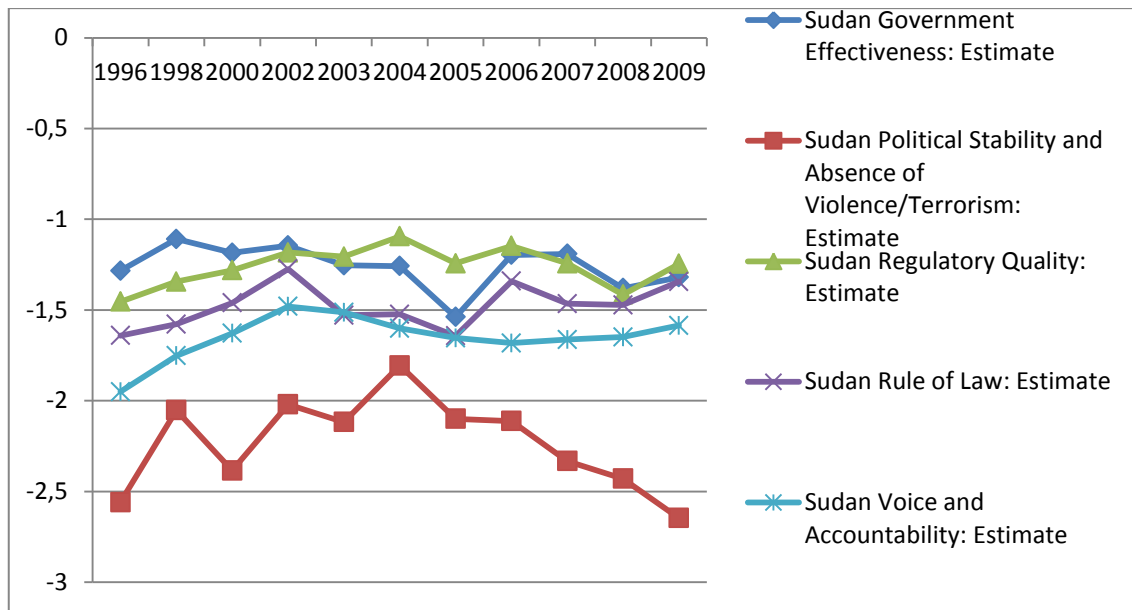
<sup>37</sup> Mainly the DDPD (2011) and UNSC (2012).

<sup>38</sup> DRA was first funded in May 2012. The status of DLC remains unclear.

- The weak implementation of governmental policies in Darfur and the marginalization of the region since the independence of Sudan in 1956 (Kevane, 1997; Morton, 2005; Young, et al., 2005; de Waal, 2007; UNEP, 2007; Ray & Hassan, 2009; Young, et al., 2009; Mundt, 2011; Suliman, 2011; Verhoeven, 2011).
- The weakening of the traditional leadership with the Unregistered Land Act of 1970 (Unruh, 2012).
- The successes of historical conflict mitigation mechanisms at the local level (Morton, 2005).
- The failure of historical conflict mitigation mechanisms at the regional level (Boll, 2010; Kevane, 1997).
- The rule of law in Darfur and the efforts of the GoS to implement Sharia, without enforcement (UNDP, 2011).
- The support of international organizations in the DPP and the inclusion of experts for the establishment of the DDPD.
- The perspective of the population of Darfur could be considered following the argumentations of Elamin, 2012 and could be described as positive in terms that there is willingness to accept a body (DRA) that includes all stakeholders for joint decision making.

To further support these findings, Graph 5.1 presents the performance of governance in Sudan as a whole. It was generated by the author during the time of analysis and provides additional validation to the above mentioned assumptions. The data were retrieved from the “World databank”, which monitored the World Governance Indicators (WGI) of Sudan over the period of 1996 until 2009. The generally six WGIs had to be reduced to five, due to lack of data of an indicator labelled as “control of corruption”. However, the displayed data in Graph 5.1 present a clear picture about the governance situation in Sudan until 2009. The data combine the views and estimates from a variety of survey institutions, think tanks, non-governmental institutions, and international organisations. The measures of governance are in units of a standard normal distribution and are running approximately from -2.5 to 2.5. Higher values correspond to better governance (Worldwide governance indicators, 2011; World Databank, 2012).

It is to mention that not one of these indicators reach a level above 0, which would indicate a more positive performance. All of these indicators are negatively allocated and interpret Sudan as having a rather weak governance performance as a whole. Especially the indicator representing “Political Stability” and the “Absence of violence and Terrorism” shows a significant downward shift over the last years. Graph 5.1 does not represent the problems in Darfur only, but describes a larger picture of Sudan. However, it is to point out at this stage that an overall weak performance of governance in the country might also contribute negatively to the establishment of functioning governance structures in a specific region, like Darfur.



GRAPH 5.1: GOVERNANCE IN SUDAN. (SOURCE: WORLD DATABANK 2012)

Bringing together the findings from governance at the local level, where native administration forms the dominant governance structure, and the regional level, we can conclude that the governance performance of Sudan might have a negative influence on the local level. It can be questioned, whether there is a causal relation between the weak governance performance of Sudan and the potential for conflict at the regional level. It could be assumed that no proper management of natural resources is possible within weak performing national governance structures. Currently international organisations play a vital role for supporting institutions in their administrative tasks<sup>39</sup>. However, on the long run, there is a need to harmonize the governance structures at the national level to derive successful output and stronger performing institutions at the regional level. The recent proposals in the context of the peace process are at least addressing these problems. This has influences on the achievement of sustainable peace for the society in Darfur. Especially with regard to the local level, where managing conflict over resources works within the community, but is unable to handle problems above community level. For this, a sound institutional framework is needed.

Former management of resources at the state and regional level and clear leadership roles became confusing over time. For the individual, this brings concrete and practical complications since it became almost impossible to address his/her needs of land or water to the right authority under statutory law. With both the na-

<sup>39</sup> UNDP is especially engaged in supporting institutions all over Sudan for a better harmonisation (UNDP, 2011).

tional and the traditional authority in place, disputes about responsibilities are likely to happen if these bodies rest in isolation and are not combined into one governance structure. Individuals may thus find easier benefit in violent conflict because of the absence of clear and reliable governance structures and their dependency on fair conflict management structures for their personal survival.

The implementation of a new authority, namely the DRA, which combines both traditional and national authorities in one single forum, could have some positive effects on bringing stakeholders together. However, I have to point out here, that the presumption of the functioning of this organisation is for the moment far from reality. Lack of funding and continued power struggle<sup>40</sup> for appointing ministers and other authorities for the DRA will play an important role for the future establishment of the organisation.

### **5.3 Managing water and land**

This section is dedicated to the importance of land and water in terms of availability. It is to find out if scarcity pushed the conflict situation to what it is today. The contribution of scarce water and land is generally considered to be a major hindrance to conflict resolution. Therefore, the quantity of the resources will be described here, as found in official databases<sup>41</sup>. Generally it is to say that there is a huge gap of data availability, which results from two reasons. First, the conflict situations in the region, especially since 2003, made it difficult or even impossible for national and international agencies to collect sufficient data, due to the lack of secure mobility. Second, the marginalization of the region and the weak financial and personal capacities of local agencies to monitor certain patterns, like rainfall or desertification contributed to a lack in available data. Nevertheless, there is a sufficient amount of data available to support the main arguments of this part and to find out, what the actual demand and supply of the resources water and land in Darfur are. In relation to the previous chapter, it will be discussed if governance structures of water and land in place were able to diminish the tensions, or just the opposite. Finally interdependencies of the agencies will be presented to answer the question how the resources are managed in the region.

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<sup>40</sup> Referring to the equal representation of all tribes in the DRA and also considering divers interest of pastoralists, farmers, IDPs and the urban population.

<sup>41</sup> See section 2.1.2

### **5.3.1 Water**

#### **5.3.1.1 Demand and supply of water in Darfur:**

The actual availability of water in quantitative terms will be explored in this part. The question is if the quantity of water available for the people in Darfur is sufficient to supply the population. Therefore data from average rainfalls, as well as estimated groundwater resources will be presented. Average rainfall data are available from the former three capitals El Fasher, Nyala, and El Geneina. In El Fasher rainfall has been frequently monitored since 1917, in Nyala and El Geneina since 1946 (Tearfund, 2007).

Rainfall varies between the arid North and the semi-tropic climate in the South. Salih and Abdo (2011) indicate that rainfalls in Darfur are highly seasonal and variable in space and time. An average coefficient of variation ranging from 30 % in Central Darfur to more than 40 % in the Northern desert is calculated. Especially in North Darfur, increased droughts could be observed. The 20 driest years since documentation took place since 1972. The influence of global climate change has not been analysed in depth yet, but is taken into account by several authors (UNEP 2007; UNEP, 2008; Bromley and Chavunduka, 2011; Verhoeven, 2011).

Seasonal wadis are the basis for the hydrological system in Darfur that suffices both livestock and population. The mountainous area of Jebel Marra catches the rainfall and delivers the water to the nine major Wadi systems. These systems distribute the water throughout Darfur. Average flow rates of these Wadis are estimated as being 1159 MCM/y<sup>42</sup>. This amount is unequally distributed in the areas of North-, South-, and West Darfur as 100MCM/y, 159MCM/y, and 900MCM/y respectively. The clear dominance of water availability in West Darfur can be seen from that distribution (Addo & Salih, 2011). Average rainfall, however, had its lowest rate in the 1980s. Severe droughts were the consequence. Table 5.3.1 is a collection of data from various sources (UNEP, 2008, Bromwich, 2009, Kevane and Gray, 2008). It shows the average rainfall patterns in the capitals of the three administrative areas from 2004 to 2008. This snapshot in time reflects a general trend of average rainfall, which is recorded by UNEP (2008). The average rainfall from 1978 – 2007 is reported as being 194mm/year<sup>43</sup> in El Fasher, 384mm/year in Nyala, and 427mm/year in El Geneina. Average rainfall of the most recent years of measurement is therefore higher than the average rainfall from 1978-2007.

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<sup>42</sup> Read: Million Cubic Meters per year

<sup>43</sup> Read: Millimeters per year

Location	Average rainfall (mm)	2004	2005	2006	2007	2008
EL Fasher	230	118	317	239	265	213
Nyala	442	432	487	467	457	368
El Geneina	482	442	636	419	508	406

TABLE 5.3.1: AVERAGE RAINFALL DATA. (SOURCE: UNEP, 2008, BROMWICH, 2009, KEVANE AND GRAY, 2008)

With regard to the droughts of the 1980s, it is relevant to ask if the average patterns recovered or remained low since. In order to provide statistical evidence, data from NASAs Goddard Earth Sciences Data and Information Center were retrieved. With this online tool, researchers can see monthly rainfall patterns related to the average rainfall per day in a given period. The area of Darfur was chosen for three different periods. First the period from 1980-1990, presented in Figure 5.3.1c shows a southwards shift of average rainfall during the drought. The other two periods from 1990-2000 and 2000-2010, presented in Figure 5.3.1b and 5.3.1a examine if this trend remained or did recover. The following figures suggest that after the 1990s rainfall recovered and shifted even further north.

A visual comparison of figure 5.3.1c with figures 5.3.1b and 5.3.1a shows clearly that rainfall patterns recovered over the last 20 years and even increased further during the period 1990 – 2010. The figures have to be read by looking at the North shifting of the colours that indicate the level of rainfall. Although the starting point of the analysis departed from a very dry period, quite fast improvements over the last 20 years can be found in the figures. To conclude, it has to be stated that a decrease in rainfall over the last 20 years could not be observed. Rainfall, which is essential for most of the rural population for subsistence farming and pasture recovered after the droughts in the 1980s, although yearly droughts are more likely to happen than ever before (Bromwich, 2010). The figures were not to present annual depressions in rainfall that lead to crop failures, but to show the average trend. However, there are groundwater resources as well that have to be considered in terms of water availability in the region.

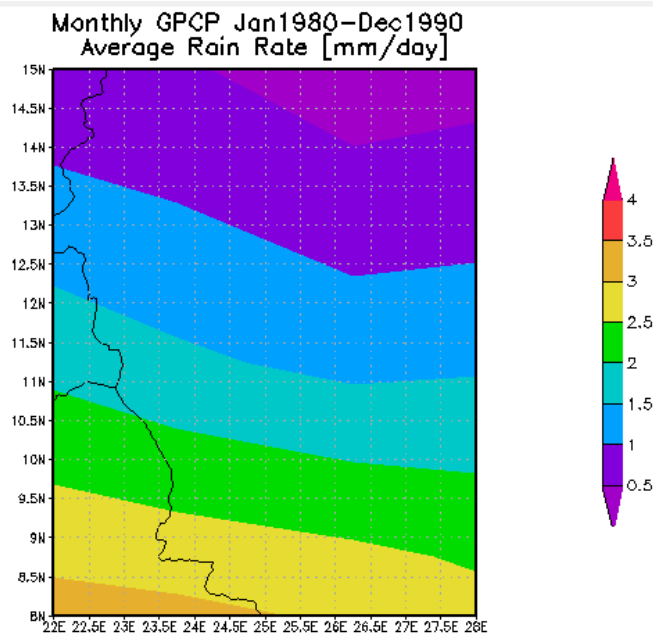


FIGURE 5.3.1A: RAINFALL 1980-1990 (SOURCE: GES-DISC, 2012).

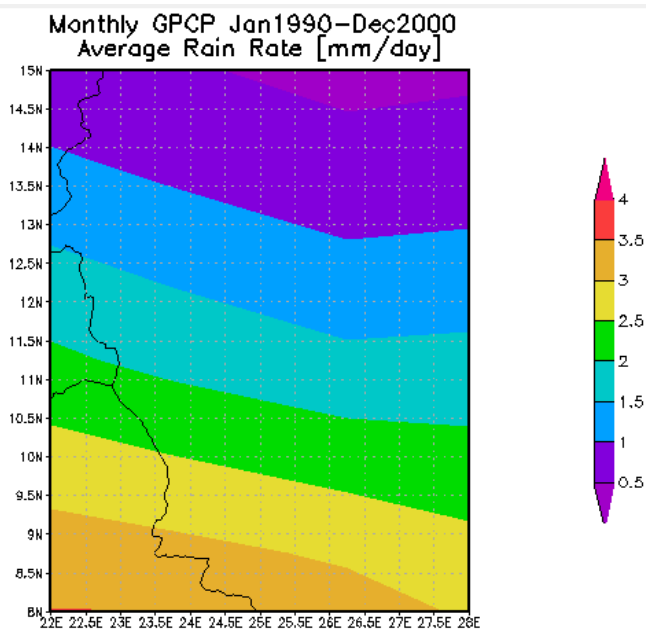


FIGURE 5.3.1B: RAINFALL 1990-2000 (SOURCE: GES-DISC, 2012).

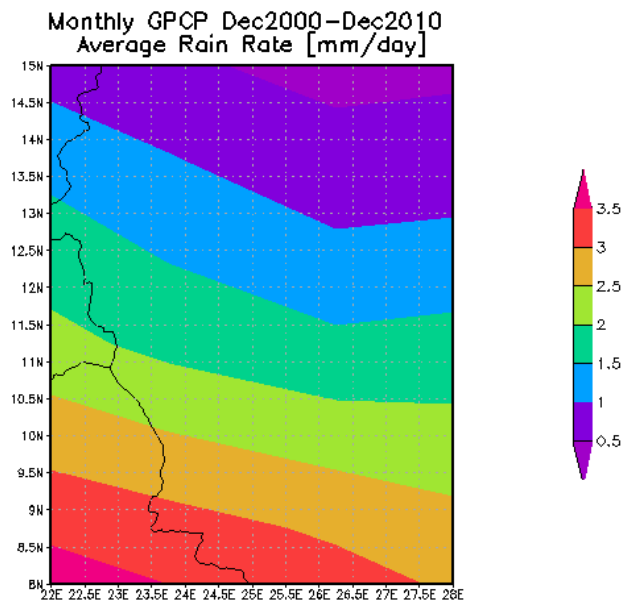


FIGURE 5.3.1C: RAINFALL 2000-2010 (SOURCE: GES-DISC, 2012).

#### 5.3.1.2 Groundwater:

The largest groundwater resources are contained in large sedimentary basin aquifers (UNEP, 2008). There are three basic hydrogeological units. These are the Nubian sandstone and Um Ruwaba aquifers, the Wadi Alluvial aquifers and the aquifers of the basement complex. More specifically, Abdo and Salih (2011) provide data from the basins in the region. There are seven basins, which are unequally distributed over Darfur. The largest basin is the Sahara basin in the North of North Darfur, which belongs to the Nubian sandstone aquifers, with an estimated total storage capacity of 4,000,000 MCM. The other six basins, integrated in the other aquifers, together provide a total storage of about 500,000 MCM. The overall abstraction of groundwater resources represents less than 2% of annual recharge. Therefore, it can be said that there is a huge potential for groundwater development in Darfur. The shortage of water therefore must result in a possible unequal distribution, as well as the less developed infrastructure. Efforts have to be taken to improve infrastructure of water resource use as well as the capacity to use this infrastructure.

#### 5.3.1.3 Water distribution

Water potential in Darfur is generally considered as being sufficient to sustain the livelihood of the population. However, the unequal distribution of these water resources in the three states of North-, West-, and South Darfur is the focus of this section. Data were processed by comparing the most recent studies about water distribution and water management in Darfur and comparing them with interna-



tional standards. For international standards, the SPHERE project is the most accurate benchmark for comparing the status quo and desired situation. The SPHERE project describes minimum standards, commonly accepted by humanitarian organisations, to ensure that people are able to live in dignity (The Sphere Project, 2011). Since the standards were developed for use in emergency situations, the SPHERE criteria can be seen at the absolute minimum for human survival. They are thus an interesting reference point that can be used in this study since Darfur is still a conflict situation, but should not be used as a benchmark for the needs of persons living a peaceful life in developing countries.

The studies included surveys and estimates from UNICEF 2011a, UNICEF 2011b, UNICEF 2011c, ProAct 2010, and UNICEF et al. 2009. The results that could be obtained from these studies are described in the following lines.

In North Darfur 49.9% are currently having access to improved water facilities. There are 1,366 hand pumps and 310 motorized pumps. The water available for the population, excluding animal consumption and water loss is about 30,498m<sup>3</sup> per day, out of which 15,819m<sup>3</sup> is available in rural areas and 14,679m<sup>3</sup> in urban areas (UNICEF, 2011a).

In West Darfur 44.7% of the population has access to improved drinking water. There are 1,343 hand pumps and 44 motorized pumps. Supply from functioning water sources is 11,795m<sup>3</sup> per day, out of which 7,177m<sup>3</sup> in rural areas and 4,618m<sup>3</sup> in urban areas (UNICEF, 2011b).

In South Darfur 52.1% of the population has access to improved drinking water. There are 2,237 hand pumps and 463 motorized pumps. The daily supply of water is 55,831m<sup>3</sup>, out of which 42,781m<sup>3</sup> are available for the rural and 13,050m<sup>3</sup> for the urban population (UNICEF, 2011c).

These numbers indicate an urgent need for the improvement of water infrastructure in Darfur as a whole, because the on average water supply from improved drinking facilities is only 48.9% and therefore not sufficient. Sphere project describes the “water supply standard 1” saying that: *“All people have safe and equitable access to a sufficient quantity of water for drinking, cooking, and personal and domestic hygiene. Public water points are sufficiently close to households to enable use of minimum water requirements.”* (The Sphere Project, 2011, p. 97).

Measure from this standard suggest that the average water need for an individual lies between 7,5 liters and 15 liters. The population of Darfur as indicated in the National Census of 2008 and the UNICEF estimates for 2010 with roughly 7,9 million people. Calculating the amount of water from the three states together,

the recent amount is 98124m<sup>3</sup>. It is to mention at this point that not all people are having equal access to water and water is not equally available everywhere in the region. Therefore the above indicated water shortage in supply arises. Further, humanitarian agencies assume the highest standards, which are 15l/p/d. However, water available for an individual, leaving aside water from wadis, rainfall, and hafirs would theoretically be:

$$S_i = S/P$$

Where,

$S_i$  = Supply for the individual.

$P$  = Population of Darfur as estimated for 2010.

$S$  = total supply from hand and motor pumps.

Therefore:

$$\begin{aligned} S_i &= 98124000/7900000 \\ &= 12,42 \text{ l/p/d}^{44} \end{aligned}$$

This result lies in between the suggested numbers of the Sphere project. By calculating the sum of actual daily water supply by pump one could argue that there is enough quantity to suffice everybody's basic needs. The tradedy of the actual situation appears by including another standard, as suggested by the Sphere project. The number of people per source, meaning the number of people by pump. The number of people per source highly depends on the availability of water and the yield of the source (The Sphere Project, 2011).

To show the actual problem of water availability in Darfur the maximum number of people per source was taken from the Sphere standards, which is 500 people per pump. No differences between hand and motorized pumps were made, because already the highest feasible number of people per pump was taken. Following this number by summing up all pumps in Darfur and dividing the population by the number of pumps the following result was obtained.

$$P_i = P/P_n$$

Where:

$P_i$  = number of people per pump

$P$  = total Population of Darfur

$P_n$  = total number of pumps (including hand and motor pumps)

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<sup>44</sup> Read litres per person per day

Therefore:

$$\begin{aligned} P_i &= 7900000/5763 \\ &= 1371 \text{ PpP}^{45} \end{aligned}$$

This number almost triples the suggested standard taking into consideration that the maximum number suggested for people per pump was included. Computing real life data, where the actual runoff per pump and the capacity of the yield as well as the sustainable supply of each pump is incorporated, one would probably reach a higher number, which would be even worse.

Another problem arises here. Since the announcement of the two additional states, Central and East Darfur, no institutions have been formed yet that govern the water supplies in these areas. Due to the expected referendum in July 2012, it may again happen that the administrative status of Darfur is changed. Three scenarios were generated from the available information already presented so far:

Scenario 1: Darfur maintains the status quo, keeping the five administrative states. That would mean that there is a lack of two additional SWCs that have to be established. Due to the weak functioning of the already existing ones additional efforts from the national and international institutions have to be made to strengthen these SWCs and give additional attention to the establishment of SWCs in Central-, and Eastern Darfur.

Scenario 2: Darfur becomes one Administrative State<sup>46</sup>. As a consequence all efforts that have been made to improve the already existing three SWC have to be revised. One central institution should then be created, that is responsible for water management throughout the entire Darfur region and includes all relevant stakeholders, by also considering differing needs<sup>47</sup>. The efforts and projects that have been implemented or thought of could be administrated centrally. Especially in terms of water management, which is often a cross-border issue, some benefits are likely to emerge in this scenario. Coordination would be easier and more cost effective under one administration too.

Scenario 3: Darfur returns to the former three States: This would mean that all efforts and projects that are underway could remain unchanged as of today, be-

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<sup>45</sup> Read "People per Pump"

<sup>46</sup> This scenario is possible and confirmed from (Elamin, 2012).

<sup>47</sup> See Table 5.4.2 for different social needs.

cause the two new states are not yet operational. Clear focus could be given to the needs of the three SWCs in terms of capacity building, the improvement of the equipment and staff. One shortcoming would be that difficulties in wadi management throughout the administrative borders had to be coordinated more efficiently by incorporating all three SWCs at the state level, national administration, and the PWC on the national and international level. Meetings and coordination measures had to be established for this purpose.

As one can see from the briefly described uncertainty of the future status of Darfur, water management efforts are likely to be affected by the unclear status of national institutions. However, the capacity of these institutions is limited as of now. Traditional leadership was not taken into consideration, in the previously mentioned scenarios, but is assumed of having an impact in terms of conflict management over resources.

#### **5.3.1.4 Efforts undertaken by international stakeholders for water management**

Water resource management is an important priority for the international community and the GoS. UNICEF and UNEP are working together on projects with WES and GWWD to improve the availability of water resources in the states, especially seen the challenges put by the high concentration of displaced people. The following section will give an analysis of the main concerns in the three states and approaches of the international and national organizations to improve the situation. As indicated in section 4.2.2 people living in rural areas are more affected by having less access to improved water facilities compared to the urban area. That is why during the conflict most of the IDPs settled around towns and villages to gain advantage from the infrastructure available, which in turn put stress on the available resources in towns and villages and gave rise to renewed conflict over these resources. Since the situation is different across Darfur, every of the three regions needs to be described separately in terms of stakeholder analysis.

#### **South Darfur:**

Although the last years were relatively stable in terms of annual rainfall, a possibility of droughts is taken into consideration. An increase in the urban population, especially around Nyala, resulted that more water is abstracted and the aquifers in the town become severely stressed (African Water Facility, 2011).

Despite the aquifers, this state has a good amount of surface water resources, which is represented by Wadis, coming from the Jebel Marra Mountains. Water harvesting techniques from the main Wadis, which are Nyala, Idra, and Elku are however very poor. To improve this situation, a groundwater monitoring system

has already been established in Nyala Wadi and some IDP camps. The purpose is to monitor groundwater levels and to further assess if these are under stress or not. It is expected that especially around the IDP sites, groundwater levels are under severe stress, due to the fact that many people are sharing the same sources and are concentrated at one place. It needs to be monitored, if the groundwater potential at the localities, where the IDP settled can cope with the demand of the new residents, or if this resource is going to deplete over a given period of time. UNICEF, UNEP, WES and GWWD are conducting water resources assessments in the region (UNICEF, 2011c).

The detection of additional wells and the potential for improving infrastructure for water harvesting, should guarantee a sustainable water supply to those localities under severe stress. The project activities from the before mentioned organisations include the establishment of new boreholes, water transmission pipelines from Konduwa to Nyala, the installation of storage tanks, pumping facilities, the replacement of underperforming pumps, and the installation of water metres for operational improvement. These projects are coordinated with the SWC. This project is expected to bring benefit to 450,000 inhabitants and should be finished by end 2012. The intended benefits can be summarized as resilience against droughts, increased productivity of water supply, and improved health outcomes (UNICEF, 2011c).

### **West Darfur:**

The state has a considerable amount of water resources. Like in South Darfur, the Wadis from the Jebel Marra Mountains carry huge water quantities to the area on a seasonal basis. The most considerable Wadis are Wadi Kaja, Bari and Azoum. The use of these water resources is not efficient however and most of the water runs off to neighbouring Chad without being used. The lack of water harvesting infrastructure demands investment in this sector. The amount of groundwater resources is limited in West Darfur due to the limited capacity of the basement complex and the volcanic rocks to store the water (UNICEF, 2011b).

The main concern in this area is the high IDP concentration in contrast to the limited amount of water supply. The combination of these two factors causes conflict over the resources. GWWD has recently established an office to monitor groundwater potential at IDP sites. Supported by UNEP, UNICEF, WES and SWC, GWWD is monitoring 21 locations with a main focus on IDP sites around El Geneina, Zalingie, Kulbus, Forbaranga and Morni. Other projects focus on the water supply improvements around the capital of El Geneina and also around Zalingei (African Water Facility, 2011). Focus areas or improving infrastructure are the power supply to water pumps, replacement of under-performing pumps,

construction of pipelines, installation of storage tanks, and pumping facilities, and the installation of meters for operational improvements. These activities should benefit around 200,000 people in El Geneina and Zalingei and enhance the economic sustainability of these two towns (UNICEF, 2011b).

### **North Darfur:**

The number of IDP sites in this state is equally high. Substantive water demand results from that fact. The average low rainfall patterns challenge the water supply for all people in addition. UNEP and UNICEF have established a groundwater monitoring system to assess the water potential to be prepared for droughts. Drought preparedness in this area is vital to the population. Therefore efforts for water harvesting were conducted in the state. The role of IWRM and the knowledge about this management for all stakeholders was emphasized in various workshops and meetings. The awareness rising for IWRM was done by GWWD (UNICEF, 2011a).

Disputes over the limited water resources often arise between communities. A sufficient supply of water is a priority for the international community and national actors to avoid further competition. Efforts include a construction of a water transfer from the Golo reservoir, energy supply to bore well motors, the establishment of new boreholes and the replacement of underperforming pumps and water meter installation. UNICEF and UNEP are conducting these projects in partnership with PWC and SWC. The installation of these facilities should support around 400,000 people in El Fasher in order to increase resilience against droughts, as well as the improvement of productivity (UNICEF, 2011a).

Overall, the preservation of water capacity for future generations and the inclusion of IWRM practices are well-thought off in these management approaches. However, pressing needs to fulfil people's immediate need might spatially be superior to sustainable management practices. The abundant water resources in Darfur are for the moment sufficient to allow approaches to primarily engage in infrastructure improvements. The lack of sufficient data and the unclear situation about resettlement intentions of IDP could nevertheless create possible water shortages also in terms of recharge capacity in certain areas. Therefore special attention has to be given to monitoring of the water resources and the placement of infrastructures projects as already started in North and South Darfur.

### 5.3.2 Land tenure

To understand the distribution of the land and to describe the land usage patterns in Darfur, various studies were consulted. This section serves the purpose to describe the usage of land and to analyse potential geographical “hot-spots”. In order to present an overview, databases from the Land and Water Division of the Food and Aid Organisation (FAO), the World Soil Information Database, the Famine Early Warning System Network (FEWS NET), the UN database of Sudan and the most recent research papers from Mazo (2010), Suliman (2008), Brown (2010), and FAO (2012) were analysed. By combining the research papers and comparing them with the databases, an exploration of the region’s most abundant and most fragile areas was made to present the situation of land in Darfur and to predict potential conflict in terms of land tenure thereof.

The land in Darfur can generally be considered as being part of the Sahel-zone, which spans through entire Africa from Senegal to Ethiopia. The North of Darfur supports mainly camel herding due to the good resistance of these animals to droughts. All of Darfur further north, from Tine on the Chadian border to the Berti Hills in the east, can be considered as nomadic land. Above this fictitious line no rain-fed agriculture can be practised. The main reason for the lack of agricultural activity in this area is the lower rainfall as compared to other parts of the region<sup>48</sup>. The area can be divided into two further areas, known as the semi-arid (or semi-desert) and desert. The semi-arid desert hosts most of the nomadic camel herders (Mazo, 2010).

Transhumance is conducted here during the rainy season and pastures are available during and shortly after the rainy season. Especially in the cool season from November to February the nomads from the tribe of the Rezeigat, tend to move even further north along the wadis to water their animals and often reach the borders to the Libyan Desert area. This border can be drawn as the area north of the Teiga Plateau and the Meidob hills. In addition to the Arab-nomads, other tribes are present in the northern area as well. These are known as the Zaghawa and the Bideyat tribes. These tribes do not move as far as the Libyan border and are more present in the southern part of the northern area. However, struggles for water have been frequently reported<sup>49</sup>. There is no evidence in the literature that the struggles emerge between specific tribes (Ray & Hassan, 2009), but should be rather understood as a general problem of lacking access to water in terms of unclear property rights.

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<sup>48</sup> See section 5.3.1.1

<sup>49</sup> Compare table 5.5.2

Moving further south from the semi-arid area, one will find an area where subsistence farming is conducted. This area is basically dominated by the Northern Jebel Marra plateau. No intensive agricultural activities can be performed due to the lack of water. However, people living there are highly dependent on annual rainfall, hafirs and wells for conducting their economic activity. The wadis, coming from the Jebel Marra Mountains form the basis for agriculture. Water from these Wadis is caught and used for subsistence agriculture. This area lies beyond the intensive rain-fed agriculture of the South and could be defined as being North of El Fasher in an East-West span. This area still belongs to Northern Darfur.

Non-Arab tribes, like Zaghawa and Bideyat are more present here than in the previously described Northern area. However, the struggle for water remains the same. Compared to the previous mentioned area, tensions for land tenure are more severe in this area. Because of the reason that some tribes moved south and settled in already occupied areas during the last decades, inter-tribal disputes were reported more frequently in this area than in the North<sup>50</sup>. Frequent struggle between Nomads and Farmers occurred in 1986 and 1996. In these times the tribes of Zaghawa and Rezeigat were fighting against each other. According to most recent documents of the UNSG, inter-tribal fighting in this area is increasing yet again.

The third defined area is the central rich area. Following the description of Suliman (2008) this area is the richest in terms of water, soil fertility, and other resources and is dominated by the Jebel Marra Mountains, which reach up to 3000m above sea level. The main ethnic group living in this region is the Fur tribe, after whom the entire region is named. In this area the most severe attacks were launched during the conflict, starting in 2003. The US Department of State Humanitarian Information Unit published a map in 2010, showing villages that were destroyed between February 2003 and August 2009 (Humanitarian Information Unit, 2009). According to this measurement, 3391 villages were confirmed as being either destroyed or damaged.

The abundant resources of that region could not prevent fighting, which led to the displacement of around 2.4 million people. However, at this point, one could state that resource scarcity or tribal clashes were not the cause for the displacement of such a vast amount of people. It was rather political dynamics that resulted from the marginalization of the region for a long time.

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<sup>50</sup> Compare table 5.5.2



The southernmost region of Darfur could be characterized as a semi-humid savannah. It is located in the eastern part of South Darfur and borders North Kordofan. Nomadic cattle herders are dominant here. Most of the livestock, produced in Darfur comes from this region. The herders are dependent on transhumance due to varying rainfall patterns. The region is less stable in ecological terms. The high variability of rainfalls and therefore pasture, resulted that most of the cattle herders move to the rich central area and towns during the last decades (Suliman, 2008), which led to conflict with farming tribes, such as the Fur.

### **Challenges:**

Securing the tenure rights over property is essential for the sustainable management and goes together with the right of exclusion<sup>51</sup>. However, tenure insecurity is a major concern for relations, between farmers and between herders and farmers. The bias between statutory rights and customary rights increases the level of insecurity. Due to historical evolution, the current situation was formed, which created a vacuum of enforcement. This is not only the case for Darfur, but can be observed in other places in Africa as well (Peters, 2008). The specific situation of Darfur is characterised by the blocking of corridors for transhumance by farmers that have settled arbitrarily as indicated from Elamin (2012) in combination with the political processes of the conflict. Additionally the uncertain situation of IDPs and their future places of residents make it difficult to consider just the traditional corridors, but also discuss alternative corridors. This discussion would need a strong organisation functioning as a mediator to assure all parties to discuss at the same level.

The most recent scientific approaches call for a dynamic model, where fixed boundaries are made more flexible and communities with different interests could adapt more easily to each other and to exogenous factors, like rainfall and desertification,. The specific situation in Darfur and the importance of available water and pasture is pointed out in articles from Weber et al. (2010), Abususwar et al. (2010), and Bromley et al. (2011), who focus on the interaction between farmers and herders. Unclear property rights mark the biggest challenge in this respect.

### **Opportunities:**

The overall functioning of traditional leadership in all above mentioned areas makes it generally possible to solve minor disputes at the local level. However, law enforcement of the traditional leaders has to be supported at the state level

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<sup>51</sup> Compare section 4.1.1

to ensure accountability on the one hand and encourage them for further negotiating disputes that are caused from the outside, like the unclear property right situation of the nomads. DLC and DRA will have a central role in supporting traditional leaders by granting them authority to resolve such local disputes. Elamin (2012) pointed out during the interview that people are generally tired of fighting over resources.

The perceived underdevelopment of the region and the lack of appropriate institutions that support entities in solving their conflicts called for the installation of the DRA, which is as of today positively perceived by the Darfurians. The inclusion of traditional leaders in the DRA and the opportunity to bring forward local problems that can be discussed in a regional context is seen as a major step for improving the security situation. Elamin (2012) argued further that a new generation of people evolved in the recent years in Darfur. The presence of international organisations and their information campaigns gave rise to the awareness of the regional problems in terms of resources management rather than just considering local concerns. The inclusion of various organisations in recent resources management structure is analysed in the next chapter.

### **5.3.3 Management structure**

With respect to Articles 13, paragraph 84; Article 17, paragraph 123; and Article 52, paragraph 260, 265, and 267 of DDPD (2011), enforcement of the traditional system and the internally displaced people seems to be taken into consideration in the efforts of the GoS and international organisations to restore peace and security in the region. However, the problem of property rights is still not addressed in a manner that a clear mechanism could be identified.

Management of water and land resources in Darfur was analysed in a holistic way, taking into account stakeholders that were previously identified in section 3.4. Departing from different levels of responsibility and contribution to water and land management in Darfur, stakeholders were allocated to identify first their responsibility and second their contribution to the current situation<sup>52</sup>.

The analysis resulted in the construction of figure 5.3.3, which shows stakeholders and the different levels departing from the international towards the local level. The role of the governmental organisations, representing top-down management and the inclusion of local stakeholders, representing bottom-up approaches

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<sup>52</sup> See section 5.3.1 and 5.3.2

was specifically of interest to determine the current governance structure and identify possible shortcomings and their influence on the peace process.

The role of the international organisations, be it either organisations of the United Nations, governmental-, or non-governmental organisations, was high lightened with respect to their current activities at different levels in the management structure. The inclusion of stakeholders in figure 5.3.3 should thereby frame the management approaches currently conducted, but leaves however space for the inclusion of other organisations, not included, due to either lack of appropriate information or the external position of those. Insurgents<sup>53</sup> that have a possible impact on the establishment of certain projects are meant here. Although the management structure is not seen as being directly affected by those, it is however to mention that these factions have an important impact by creating insecurity on the ground and therefore hinder the improvement of e.g. in the infrastructure, social relations, or the production scheme.

Governmental bodies are well aware what is needed, but have limited resources to undertake tasks also due to the security situation in the country (Tearfund, 2007). These include the Ministry of Irrigation and Water Resources, the Ministry of Health, the Ministry of Agriculture, and the Ministry of Environment. The PWC and GWWD are working under the Ministry of Irrigation, and Water Resources (Omer, 2010).

UNICEF is leading the so-called WASH sector in the humanitarian system for the coordination of water, sanitation and hygiene throughout Sudan (UNEP, 2008). Therefore a close coordination with national organisations and NGOs is needed. Coordination between organisations is done by taking IWRM into consideration.

In 2010 the government of Sudan completed its “Water and Environmental Sanitation Policy”. This policy sets out a long term vision for Darfur as a whole (Republic of Sudan, 2011). In this document, the government calls for the need to further strengthen the IWRM strategy. In this approach a multi-sectorial council should address the need for good water resource planning.

IWRM builds on the assessment of UNEP from 2007, which conducted a post-conflict environmental assessment for Sudan. IWRM should be the guiding principle for the water policy in Sudan. Integration of this approach for a number of projects in Darfur (UNEP, 2007; UNEP, 2008) is seen as important for any further development in the region.

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<sup>53</sup> See table 3.1: non state-actors.

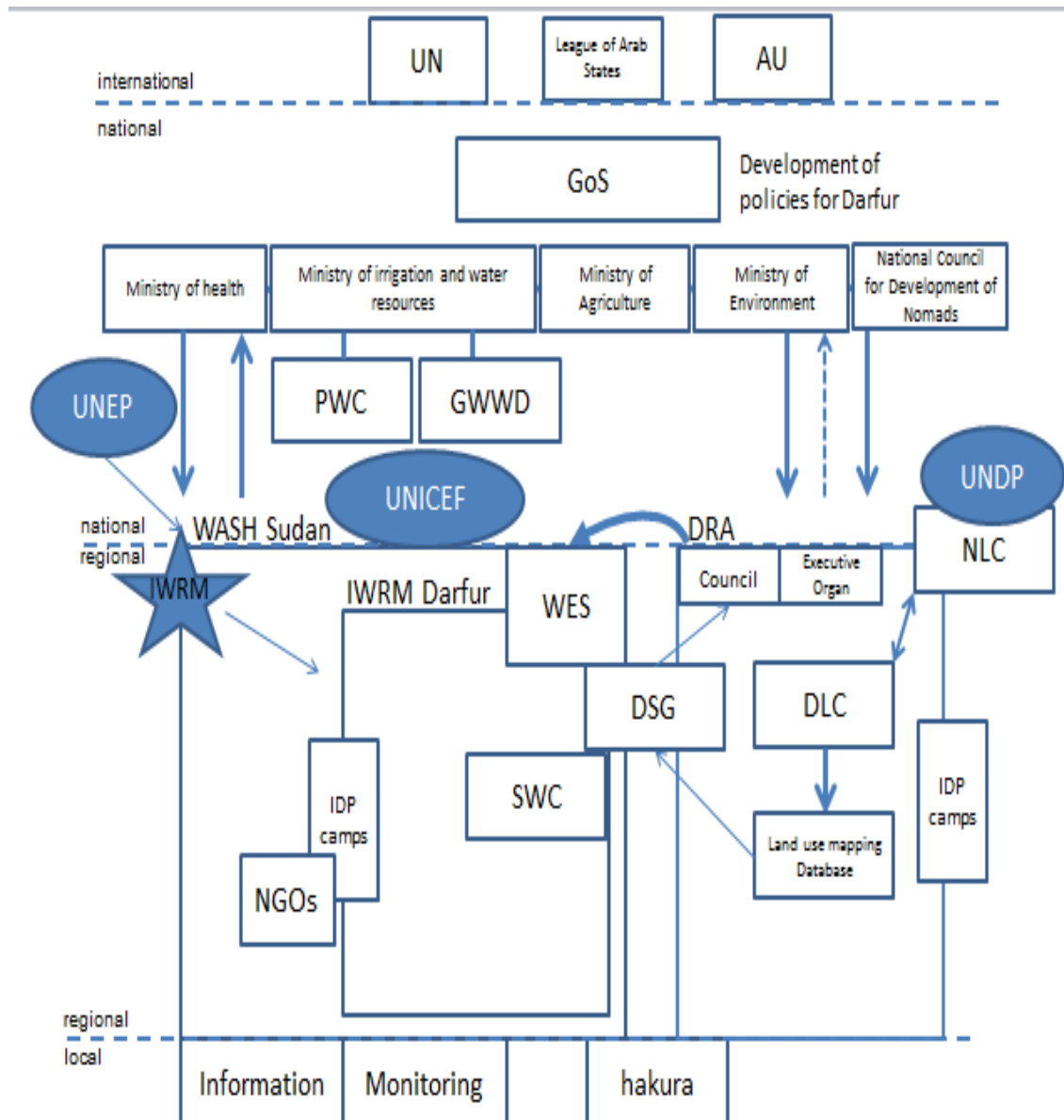


FIGURE 5.3.2: MANAGEMENT STRUCTURE (SOURCE: OWN CONTRIBUTION)

GWWD has a sound capacity to provide knowledge about the water resources in Darfur. Close cooperation between UNICEF and WES is therefore needed. During the period 1984 to 2005, 199 reports were stored in the GWWD library. All these reports are related to water supply, management and development in Darfur. The accessibility of these reports to other stakeholders contributes to a shared knowledge (Tearfund, 2007). Recent reports and the current stock of the library could not be identified due to restricted access. However, it is assumed that the numbers of reports increased further during the time between 2005 and 2012 and provide a basis for any researcher to further analyse the water situation of Darfur. For this purpose the reports should be made public.

The PWC is responsible for the country water policy and development. There are three specific SWCs in Darfur. Their capacity is very weak. They are lacking in qualified staffing, proper equipment and management and operational systems (Omer, 2010).

In Article 10 of the DDPD the primary competencies of the DRA are issued. There are 14 primary competencies stated in paragraphs 63 and 18 concurrent competencies stated in paragraph 64. These competencies are embedded in a so-called regional security committee. However, the core competencies related to the management of natural resources are listed as follows:

**Core competencies:**

- Implementation of the provision of the Agreement in collaboration with the GoS
- Achieving reconciliation and the consolidation of security and social peace
- Post-conflict reconstruction and development
- Environmental protection and addressing the consequences of climate change
- Planning, development and conservation of cattle routes and pastures
- Creation of durable conditions necessary for voluntary return and resettlement of IDP and refugees
- Planning for land use and the exercise of relevant rights
- Enhancing transparency and good governance
- Capacity building

**Concurrent competencies:**

- Socio-economic development in the region
- Financial and economic policies
- Urban development and housing planning
- Development of trade and industry
- Relief and humanitarian affairs
- Electricity generation and water and waste management
- Policies on land ownership, use and rights
- Management, protection and conservation of the environment
- Planning Darfur's natural resources

As one can see from these competencies most of the shortcomings presented throughout the analysis are well considered in the DDPD. The vital issue is the implementation and the time needed for the DRA to execute these competences. Moreover most of the core competences are very broad and as of today no clear measures were made of how to address these issues.

For further analysing this highly complex structure the interviews were useful to collect the opinions of experts to find out what the strengths and weaknesses of this management system of water and land tenure are.

Overall the respondents were quite reluctant to answering questions about the current system. The influence of the government and the respective ministries is partly restricted due to limits in financing and other priorities within the country<sup>54</sup>. Economic development of the entire country was emphasised to provide the basis for future projects that establish a sustainable provision of these resources. The presence of two overwhelming peace agreements, namely the CPA and the DDPD was seen as positive to promote peace and ensure a better governance structure by all interview partners. Hainzl (2011) and Pospisil (2012) however stated that the DDPD is weaker than the CPA, meaning that fewer provisions were made to the insurgents in Darfur than to those in South Sudan.

It is therefore questionable, if the DDPD should remain as it is or be further adapted to additional needs of the population. Water management for example is touched only briefly in the DDPD, whereas land tenure plays an important role and the need to establish a DLC is stressed frequently throughout the document. However, the role of the government is not the only vital element that could lead to a more sustainable peace. Bottom-up approaches from the community side are also important to consider. Hainzl stated: "I think that the problem in Darfur could have been solved at a certain time on the regional or local level."<sup>55</sup> The consideration of different tribes and therefore different cultures and traditions is very difficult<sup>56</sup>.

In a letter dated 19 March 2012 from the Secretary General of the United Nations addressed to the President of the Security Council the awareness of an inclusive approach including all stakeholders is described as follows:

*"To be credible, the process will need to be inclusive of a broad range of Darfuri stakeholders from all key constituencies (including diverse and equitable representation based on, inter alia, geography and tribe), safe and free from undue manipulation by parties or stakeholders. This will require certain conditions to be in place, in particular as they con-*

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<sup>54</sup> Special regard in this respect has to be given to other conflict situations in Sudan, like in Abyei, Kordofan and the relation between South Sudan and Sudan. Therefore Darfur is not the most pressing issue on a ministerial level.

<sup>55</sup> Translated from German: „Ich glaube, die ganze Fragestellung in Darfur hätte man zu einem gewissen Zeitpunkt auch regional oder lokal lösen können.“

<sup>56</sup> Here Hainzl is referring to the complex political situation that evolved out of the continuation of the conflict over the years. Local solutions however, still play a vital role for achieving peace in Darfur.

*cern the safety and security of participants and their political and civil rights.”* (UNSC, 2012, p.5).

Local solutions have especially been taken into account regarding the “*hakura*” system and the question of how this system could be included in the structure of current management at different levels. The recognition of traditional land ownership at all levels of government, in combination with customary and statutory law could only be discussed, when all stakeholders are involved and are allowed to have an equal say. The following reasons of why the incorporation of local stakeholders (especially omdas and nazirs) is important could be identified:

- For the re-establishment of traditional borders (of the dars) or legal borders, the necessity of knowing the existing or perceived property rights are vital.
- Although a land use database is under construction, it is still not clear, whether people that use the respective land have the legal or traditional right of using the land.
- Valuable information from traditional leaders could be included in the land use database.
- Traditional leaders have still an influential role on the people of Darfur.
- Bringing together traditional leaders could solve disputes, by discussing various needs in a common forum.
- People sharing the same resource, like water, could negotiate upon the varying needs<sup>57</sup> of the stakeholders.
- IDPs could more clearly indicate their intentions for resettlement and inform others of their intentions, which in turn will inform them if they are accepted or not.
- Compensation for land that was lost due to fighting could be negotiated.

The arguments mentioned assume a certain level of trust among the parties. For this issue, the international organisations function as a kind of neutral body that facilitates talks among stakeholders. With respect to water and land issues, UNEP, UNICEF and UNDP are considered as having an important role in these talks.

UNEP is especially engaged in management processes in Darfur. Together with UNICEF and UNDP, UNEP is working to strengthen partnerships throughout the region. In this process UNEP states that planning of infrastructure for water in-

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<sup>57</sup> Referred here to as the needs for e.g. personal or livestock use

cludes periods of consultation and review by relevant stakeholders. Councils for water management are formed. It is recognized that stakeholders however have different interests, like agricultural, pastoral, domestic or private sector use of water, which should be considered as well. The inclusion of all relevant stakeholders in these councils is therefore seen as an important aspect for managing water and land constraints together. With the presence of technical experts and specialists, like engineers and hydrologists, non-specialists can discuss their problems (UNEP, 2008).

The largest stakeholder consultation of such kind was held recently. Efforts from the United Nations and the GoS led to an international conference on the water situation in Darfur, on the 27<sup>th</sup> and 28<sup>th</sup> of June 2011. The purpose of this conference was mainly to raise funds for the improvement of the water infrastructure in Darfur. A budget of \$1 billion should enable inter-related water projects for the coming six years. Donor appeals for 64 projects are currently on the way. These projects should concentrate on the fragile situation of both, IDPs as well as on the urban and rural population.

Benefits from this conference could not be analysed during the time of research, because outcomes are expected to appear on a later stage. Nevertheless it is already remarkable, that the international community and the GoS address the issue of water in such a comprehensive manner. More than 500 water experts were attending this conference, which implies a holistic approach for seeking solutions for improving water scarcity in Darfur (Darfur international conference on water and peace, 2011).

Together with the on-going efforts of the United Nations and its partners, the Darfur Water Conference provided a baseline to drastically adjust the weak water infrastructure. The population most affected in Darfur are the IDPs. The UN 2012 Workplan for Sudan indicates that some 1.7 million people of the entire population in Darfur remain displaced since the outbreak of the conflict in 2003. These IDPs are distributed over the three administrative districts. WASH activities are currently addressing 538 000 people in North Darfur, 725 000 people in West Darfur, and 742 000 people in South Darfur (United Nations, 2011b). Verification of this number was conducted during the time of this research, by following the migratory trends in Darfur as indicated at UN-OCHA (2012). The concurrent objectives of the United Nations and partners for addressing continued needs of these people are:

- Sustain and expand access to safe water supply
- Sustain and expand access to improved sanitation
- Hygiene education



- The support of durable solutions that reduce aid dependence

(Darfur international conference on water and peace, 2011).

Following the analysis of the current situation of the organisations involved in managing water and land, one can conclude with some major shortcomings and related thoughts.

### **Shortcomings:**

- As of today, most pressing needs are discussed in terms of peoples' basic needs. Although some people are better off than others<sup>58</sup> the main efforts are focussing on the most vulnerable group, the IDPs. It is to question here if meanwhile the situation of especially the rural population, not benefiting from international aid is getting worse, and what incentives are offered this way for IDPs to return?
- The GoS is currently facing a challenging political environment, which prevents it from putting the focus solely on Darfur. Although most of the financial aid goes to Darfur, the region does not lie within the priority of GoS.
- The DSG is located in sectors indicated in figure 5.3.3, having influence over both resources and being active in resource management. The influence of the traditional system is however only represented at the local level, providing information to the state level. There the equity between the *dars* and the state level should be questioned in terms of decision making. It can be questioned if the DSG would allow traditional leaders to make decisions at the regional level by providing them an equal say in terms of resources planning.
- UNEP is currently pushing IWRM at the country level and tries to incorporate Darfur in planning efforts together with the GoS. Meanwhile UNDP is enforcing DRA in terms of building capacity to take eventually over the responsibility from UNEP by having a sound understanding of IWRM at the regional level by complying with national policies. Time plays a critical role in this respect. Since DRA got its first funding only at the beginning of this year it is to question how long it might take that DRA could take over responsibilities from international organisations.
- IDP camps are mostly looked after by international organisations and NGOs through covering peoples' basic needs. The provision of a suffi-

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<sup>58</sup> Compare the social analysis in table 5.4.2.

cient amount of water is one of the priorities of these organisations. Re-settlement of these people from IDP camps to their places of origin is a main task of DRA. How important is the concurrent support of international organisations and NGOs in this respect? Again, time and capacity will play a vital role in order to make sure that DRA can take over these tasks.

- Information gathered at the local level must go hand in hand with continued monitoring. Regular updates of data on the needs of the population should be assembled. Responsibilities for managing the information have to be allocated. It could not be exactly identified which organisation is responsible for this task. Leaving the international organisations aside, DRA, DLC, SWC, DSG and traditional leaders have a certain amount of information that has to be pooled and made accessible to all of them, especially with regard to the different *dars* and the states.

Summarizing all the findings from above, one could state that the GoS and respective ministries and councils are working closely together with the international community to improve the water supply situation in Darfur. The improvement of the infrastructure and the parallel building of capacities for local communities to interact with each other in terms of an effective water and land management at the local level are crucial for any kind of development in the region. Land management in particular has to be addressed departing from bottom-up approaches that include the needs and ideas of the local population. By improving the availability of water alone it is not clear, whether the allocation problems are dissolved or not. Property rights that include customary and statutory rights have to be acknowledged by one authority that is capable to pool all information needed and manage it in a way that people have the opportunity to negotiate on an equal basis about possible shortcomings.

## **5.4 Sustainable development aspects for water and land tenure management**

### **5.4.1 Sustainability aspects over time**

The political situation of the region has changed significantly since the outbreak of the major clashes in 2003. Although the centre of gravity for decision making can still be found in Khartoum, the people of Darfur got their chances to participate in governmental decision making and delivered a second<sup>2<sup>nd</sup></sup> Prime Minister into the GoS. As already stated, international attention to the civil war in 2003 and the presence of international forces (UNAMID) in the area, as well as fighting in other regions make it hard for the government to concentrate purely on Darfur

(Broomly, 2011; Weber et al., 2011; Hoile 2005). However this section will explore how continued efforts according to governance and the management structure, analysed in section 5.2 and 5.3, provide ground for the implementation of sustainable management strategies that influence the social, economic and environmental situation with respect to water and land.

#### 5.4.2 Social

An analysis of the social situation in Darfur is referring here to the population only. In order to visualize the above mentioned issues, table 5.4.1 analyses the social aspects of water and land demand of the population in Darfur, their conflict potential due to these resources, as well as their specific strengths and weaknesses. The population was therefore grouped into IDPs, urban (UP), rural (RP), and nomadic (NP) population. From the table it becomes clear, who is actually benefitting most from current development projects.

	Percent of Target Population <sup>59</sup>	Level of Water demand	Level of Land demand	Addressed by management projects	Conflict potential	Specific strengths and weaknesses
<b>IDP</b>	22% <sup>60</sup>	High: The supply can hardly be managed by IDPs themselves. IDPs are dependent on either the infrastructure of the nearby village or the International community	Very high: People left their homes due to the conflicts. Incentives for voluntary return depend on the security situation and the infrastructure at their former homes.	High Most attention from international development projects is given to these people. Humanitarian aid is mostly dedicated to them.	Medium Security inside the camps and places of residents is often an issue of concern. People compete over resources and are often not welcome at places where they settled down, because IDPs restrict the resources of others.	Weaknesses: Vulnerable due to insecure status, "Homeless", Dependent on humanitarian aid,  Strengths: Attention from international and national community.
<b>UP</b>	21%	Medium Density of population	Low Demand for land of the	Low/medium Recent funding of	Medium Some demonstration	Strengths: High level of organization,

<sup>59</sup> Sources: UNICEF, Census 2008.

<sup>60</sup> Disaggregated from the sum of the other three categories below. Although not specified clearly in reports or other data, it is however estimated that the majority derives from the rural population, by considering attacks of militias on rural villages.

		requires maintenance of water infrastructure  Urban planning projects <sup>61</sup> to be implemented	urban population is generally low.	Darfur Water Project Main offices of HA are in towns where people can seek shelter in cases of turmoil.	n reported. Recruiting ground for insurgents. Conflict over water is analysed as low due to presence of courts and executive bodies.	Rely on urban infrastructure, No need for land, direct access to DSG  Weaknesses:  Observed urbanization as an African phenomenon increase the demand of water in the cities.
RP	58,5%	High  Highly dependent on seasonal rainfalls, water demand for agricultural activities, no irrigation. Rain fed agriculture. Drinking water partly supplied by boreholes.	Medium  Land is administered by customary law and individuals having usufruct rights. Southwards shift due to desertification	Low  Remote position makes it difficult to address a vast majority of the rural population. Projects at the local scale were observed, but are few in comparison of the projects for the IDPs.	Medium  Potential conflicts between farmers and pastoralists due to unclear land tenure rights. Customary law can hardly be managed. Incomplete data and almost no monitoring of rights.	Strengths:  Individuals having support of their community/tribe . Integration of reconciliation mechanisms inside the tribe.  Weaknesses:  Absence of reconciliation processes for inter-tribal disputes. No determined boundaries.
NP	20,5%	High  Nomads move due to rainfalls and the availability of boreholes in the host area. The seasonal rainfalls force them to change location.	High  Corridors for transhumance have to be kept open. This is vital to change location.	Low  Nomadic population was incorporated in the DPP. Projects in terms of water or land management could not be identified.	Moderate  Agricultural activity of farmers restricts corridors. Southwards moving Nomads restrict the resources for residing population.	Strengths:  Very mobile and flexible to environmental change.  Weaknesses:  Poorly represented in local and national decision making processes. Dependent on corridors. Weak conflict resolution mechanisms.

TABLE 5.4.1: SOCIAL SITUATION DARFUR

<sup>61</sup> See African Water Facility (2011)

### 5.4.3 Environmental

The latest comprehensive environmental assessment was carried out by UNEP in the year 2007 for entire Sudan. The restricted access in the conflict region of Darfur limited the areas to be visited. *“The two major constraints encountered in the course of the assessment were security risks posed by ongoing military action and fieldwork logistics in Southern Sudan and Darfur.”* (UNEP, 2007, p.22).

Interview partners agreed with the general risk that is still present today to carry out another comprehensive environmental assessment to get sufficient data for detailed planning. The security situation limits the teams of the international organizations and of national stakeholders to access certain areas. Hereby the area around the Jebel Marra Mountains has to be named in particular. This area serves as a retreat base for rebel forces operating in Darfur. However, this area would be of special interest for analysing the actual surface water potential of Darfur, because it serves as the largest surface water storage in the region and supplies most wadis, as mentioned in section 5.3.2.

Changing conditions of the environment, especially in terms of climate change and population density have to be considered for resources management. The role of the UN and the GoS should be pointed out here in particular. Complex data gathering and processing is possible only for a larger organization, with support of the local organisations. Pospisil (2012) argues that the only organization capable to deal with the vast amount of data needed for environmental assessment is the UN. Capacity of the GoS is minimized somehow, by other constraints in the country. Therefore, the GoS has to rely on the support of the UN. It becomes apparent, when considering figure 5.3.3, where it is shown, which organizations of the UN support GoS in this respect.

### 5.4.4 Economic

Sudan is facing a challenging economic environment these days. Since the secession of South Sudan, holding most of the country's oil reserves, the future economic situation of Sudan remains unclear. Although there are no economic data available since secession, it could be already stated that the country is facing a severe loss in revenues. The United Nations (2012b) state that the Government's budget is based on a 36.5 % reduction in revenues. It is now seen that the underdevelopment and the marginalization of industry sectors and regions,

like Darfur, during the oil-boom years from 1998-2002<sup>62</sup> will now have a significant negative impact on the country's economy. Because of a lack of alternative economies, the dependency of the population on land and water is thus unlikely to change in the near future. This results in resource usage and distribution being a high interest at stake for the population. This sensitivity should thus be taken into account to understand the conflict potential on the individual level. Consequently it should be questioned if proposed projects for improving water infrastructure or the needed funds for institutions in Darfur will be delivered in a timely manner as indicated in the DDPD (2011). The participation of international aid agencies therefore plays a vital role for funding and maintaining projects in the region, which eventually could have an economic effect for the region.

## **5.5 Influence on peace**

We have now seen that the above three factors, governance structures, the availability of resources and its management, and sustainable development aspects are influencing peace in Darfur and contribute to the current and possible future situations. Especially international stakeholders have tried to solve gaps and frictions. If we now turn to the research question, this chapter looks at what efforts have been undertaken within the overall peace consolidation efforts to deal with the challenges arising from the three previous concepts to achieve peace.

Before we do so, an overview of the important steps of the peace process in the last years to provide an overall view of the progress or the degradation of the process is provided. Therefore all relevant peace efforts as well as the set-backs were taken into consideration. UNAMID (2011) and HSBA (2012) were reviewed and summarized in the table below. Positive values were assigned to any event considered as contributing positively to peace. These events were for example the signing of peace agreements between parties and the contribution by parties to peace talks. For each positive event the value "1" was assigned. For each negative event, like the withdrawal of a party from peace talks or new fighting, the value "-1" was assigned. In an additive manner the values were included into graph 5.2, which describes the situation of the peace process from April 2004 until February 2012. High values represent a positive stage of the peace process whereas low level indicate stagnation or drop-out of certain parties of the DPP.

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<sup>62</sup> Compare section 4.1

As a result, the calculations of graph 5.2 make apparent that overall peace in Darfur is still an area of concern. Although efforts were taken to bringing parties on the negotiation table, fightings and new outbreaks of violence continued to influence stability of the region until today.

- 8.4 2004: Humanitarian Ceasefire Agreement signed in N'Djamena
- 25.4.2004: Agreement between GoS, SLM/A and JEM to further hold peace talks
- 9.11.2004: Protocol between GoS, SLM/A and JEM on the improvement of the humanitarian situation
- 5.5.2006: SLA-MM and GoS sign DPA in Abuja. SLA-AW and JEM do not.
- 8.6.2006: SLM/FW and JEM sign Declaration of Commitment to the DPA
- 11.6.2006: Bashir grants amnesty to the parties, who sign DPA.
- 16.11.2006: AU and UN enforce the peace process, by organizing talks between GoS and non-signatories
- 10.5.2008: Omdurman attack by JEM
- 14.7.2008: Bashir indicted by the ICC
- 16.10.2008: NCP organizes the Sudan's People's Initiative. IDPs and civil society not represented: incorporation of a single Darfur region into further peace talks.
- 17.2.2009: GoS and JEM sit together in Doha: ceasefire, prisoners release
- 15.3.2009: Libya heading AU: convincing 5 factions to join Doha process
- 20.3.2009: Khartoum expulses 13 relief agencies as a reaction to ICC decision to issue arrest on president
- 6-19.11.2009: Doha declaration, first time with inclusion of civil society. JEM argues that civil society incorporates a majority of NCP sympathizers. Declaration calls for: justice and an end of impunity, settlement of land disputes, return of IDPs and the evacuation of settlers. – Follow up, January 2010.
- 23.2.2010: JEM retreats from Chad into Darfur, signing a "framework agreement" with GoS. Mainly ceasefire and prisoner release, but also an agenda for substantive talks for permanent ceasefire, future status of JEM fighters, compensation, and power-sharing at all levels of government. Qatar gives sweetener to this talk, offering almost US\$ 1 billion for development in Darfur. Darfur Arabs are unhappy, for only talking with Zaghawa tribe.
- 5.3.2010: UNAMID convoy ambushed by SLA/AW
- 18.3.2010: LJM and GoS sign framework agreement.
- 2.5.2010: JEM freezes participation in Doha
- 15.5.2010: GoS forces occupy Jebel Moon, JEM stronghold in north-west Darfur

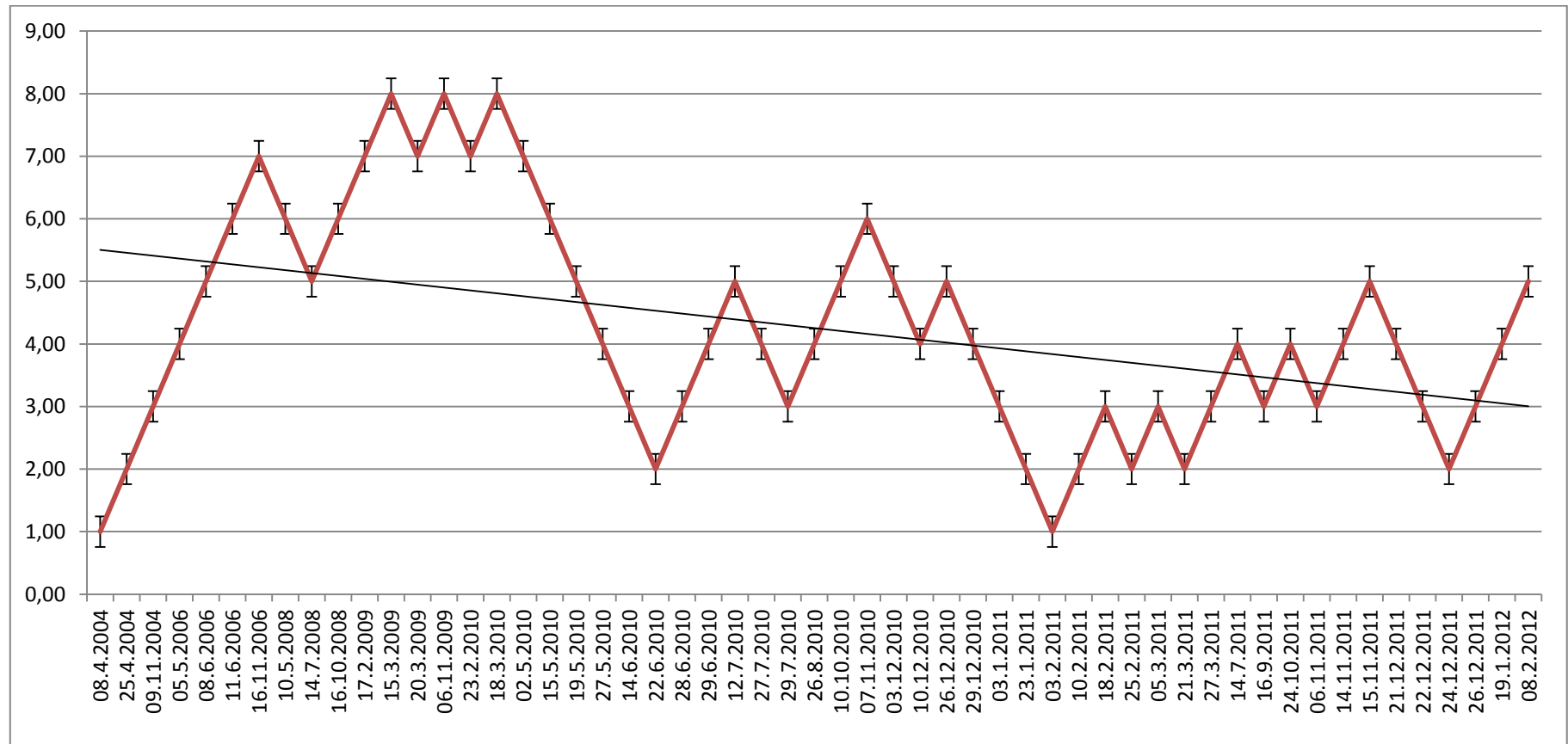
- 19.5.2010: JEM and GoS fight in South Darfur with heavy losses on both sides.
- 27.5.2010: JEM and SLA-AW fights against GoS forces in eastern Jebel Mara.
- 14.6.2010: Khalil Ibrahim: Doha is over. A peace agreement without the inclusion of all parties will not bring peace.
- 22.6.2010: Government turns away from Heidelberg Committee.
- 28.6.2010: Ceasefire agreement between Rizeigat Nouaiba and Misseriya tribes signed.
- 29.6.2010: Government meets with rebels and civil society for the first time.
- 12.7.2010: Second civil society meeting in Doha. Understanding to give particular focus on those communities whose support of any agreements is critical for their durability, in particular newly elected officials, IDPs, and Arab communities.
- 27.7.2010: Fighting between SLA-AW and the Ahmad Shafi faction near Zalingei.
- 29.7.2010: NCP approves new strategy (Domestication), with priority to security and development, opposed by all armed movements.
- 26.8.2010: AU, UNAMID, US and Arab League give unqualified support to new peace strategy of the government.
- 10.10.2010: Leaders of Rizeigat and Fur tribes sign an agreement for peaceful coexistence in Nyala, South Darfur
- 7.11.2010: LJM demands Vice-presidency in a single region Darfur due to successful peace talks.
- 3.12.2010: SLA-MM declared a legitimate military target. Leaders accused to seeking support in South Sudan.
- 10.12.2010: Government forces attack Khor Abeche, 80 km south of Nyala.
- 26.12.2010: JEM returns to Doha meetings.
- 29.12.2010: GoS retreats from Doha.
- 3.1.2011: South Sudan expels all Darfur rebels from its territory.
- 23.1.2011: Darfur members of the National Assembly reject the demand for a single Darfur region as proposed by the armed movements.
- 3.2.2011: Mini Minawi withdraws from Doha.
- 10.2.2011: Government sends delegation back to Doha.
- 18.2.2011: Special envoys from China, Russia, the US and other countries agree that the Darfur Political Process DPP will be initialized even without signed agreements in Doha.
- 25.2.2011: JEM and LJM say the wish of movements for a single region and a vice presidency is not taken into account.
- 5.3.2011: Pro-governmental faction in National Assembly calls for further division of Darfur into two additional states. Government adores proposal –



five regions better than one.

- 21.3.2011: UNAMID chief meets SLA-AW. Movements want to reunite to all armed movements together with JEM.
- 27.3.2011: All Darfur Stakeholder Conference (ADSC) convened. ADSC endorsed the draft peace document, but not all stakeholders were represented. Around 400 participants, including governmental officials, representatives of the armed movements, civil society groups, IDPs, refugees, tribal leaders, political forces, regional and international partners were participating in the conference.
- 14.7.2011: LJM and Government sign DDPD.
- 16.9.2011: JEM returns to North Darfur after fighting alongside the governmental forces of Colonel Muarmar Ghadafi in Libya.
- 24.10.2011: Tijani Sese (former LJM leader) is appointed the head of the Transitional Darfur Regional Authority.
- 6.11.2011: UNAMID peacekeeper killed near Nyala, South Darfur.
- 14.11.2011: SRF is formed, by SPLM-N, SLA-AW, SLA-MM, and JEM.
- 15-16.11.2011: US peace workshop. Bringing together SRF, LJM, civil society, UNAMID, special envoys and representatives of the international community.
- 21.12.2011: LJM field commanders are arrested in West Darfur.
- 22-23.12.2011: JEM attacks and moves east towards Kordofan.
- 24.12.2011: JEM chief Khalil Ibrahim killed in North Kordofan.
- 26.12.2011: Ten ministers and 5 commissioners appointed to the TDRA. First Darfur woman as minister.
- 19.1.2012: Splinter group of JEM signs DDPD.
- 6.2.2012: LJM deputy chairman announces withdrawal from DDPD.
- 8.2.2012: Celebration of the inauguration of the DRA in El Fasher.

Table 5.5.1: Darfur peace process main events and related problems: 2004-2012.  
(Source: UNAMID, 2011; HSBA, 2012)



GRAPH 5.2: DARFUR PEACE PROCESS MAIN EVENTS: 2004-2012. (SOURCE: UNAMID, 2011; HSBA, 2012)

Graph 5.2 can thus be seen as an attempt to show the peace process in a visual and straightforward way. The graph should not be understood as the general peace situation in Darfur. Although we see a clear upwards trend from the end of 2004 until the beginning of 2010 it is not to understand that there were no violent clashes during that period. On the contrary, this period represents the heaviest fighting in the region and led to the displacement of such a vast number of IDPs and refugees as indicated. Rather than measuring the intensity of the violence, it measures the overall developments, combining negative and positive attempts. The values in graph 5.2 correspond therefore to the peace process only and have to be separated from the actual security situation in the region. More recently the peace process was stagnating. The stagnation of the process could be the consequence of the increasing complexity of the overall situation and the varying positions of the parties involved in the peace process. Additional external factors like the participation of rebel factions in the war in Libya in 2011 or financial support for insurgents from outside Sudan are factors that are difficult to measure. Here the peace process indicated in graph 5.2 intends to show that the way towards agreement of the parties remains a long and contested path.

Apart from the political situation, the inter-tribal disputes increased over the time of the conflict as well. These conflicts were mainly linked to property distribution. The availability of water and land could be seen as the dynamics that emerge from tensions between societies and thus remain inside the region, whereas rebel factions intend to overthrow the GoS.

In order to find a relation between tribal conflicts and the management of water and land in the region, I draw my attention to reports of the United Nations Secretary General on the situation in Darfur. In total 54 reports were analysed according to the relation between inter-tribal fighting and either property rights for land or access to water. The intention by analysing these reports was to find out if inter-tribal conflict increased over time.

The political conflict in Darfur between the rebel movements and the GoS received considerable international attention. This assumption can be verified with regard to table 5.5.1, where the continued peace efforts are shown in a chronological manner. However, only in the year 2005, when fighting lasted already for two years, the United Nations recognized the presence of another problem in the region, namely the inter-tribal disputes. Nevertheless tribal disputes were initially still linked to the overall conflict situation and not disaggregated.<sup>63</sup> The first official

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<sup>63</sup> See Bromwich (2010), section 3.3.

statement opposing the overall assumption that tribes are solely conflicting with GoS was made in a report of the Secretary General on 4<sup>th</sup> March 2005:

*“It seems that much of the fighting by tribal militia is not necessarily connected to the political struggle between the Government and the rebel movements. Tribal militias are also involved in numerous incidents of livestock rustling as many large herds are moved to better pasture areas. Five cases of cattle rustling have been reported this month in South Darfur, and fighting was reported between rival Habania and Burgo tribesman in Nadeef and involving Daghou tribesman in Ishma on 10 February.”* (UNSC, 2005, p.3)

Although tribal-tensions were reported previously in these reports, they were in any kind always related to the conflict between governmental forces and insurgents, arguing that either tribe involved in the fighting supported one of those two groups. Consequently it should be differentiated when talking about the conflict situation.

An observed increase could result from two reasons. First, increased attention to this type of conflict was given by the United Nations only recently and therefore it was not indicated in the reports. Resulting from this assumption, one could conclude that inter-tribal fighting due to natural resources and the recognition of proper management of water and land is more and more taken seriously in the DPP. Second, the absence of management for water and land in terms of property rights put additional pressure on the population in times of hardship<sup>64</sup>. The absence of an institutional framework<sup>65</sup> in this period would explain an increase. GoS was apparently not efficient enough to address the tribal situation by itself. A statement from the UNSC from 2005 points out that reconciliation efforts were taken into account already some years ago.

*“In an effort to restore peace in Darfur and rebuild confidence among its citizens, the Government has initiated a process of tribal reconciliation and conflict resolution that has brought together a number of tribes, including nomads and pastoralists, in talks and negotiations. In previous reports, I have made it clear that I welcome these initiatives as a means of seeking settlement of past conflicts and of defusing tensions that may lead to future conflicts. The international community must closely monitor this process, however, to ensure that tribal reconciliation or conflict resolution talks do not become a substitute for a political settlement. To*

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<sup>64</sup> Conflict situation for almost 10 years without any progress.

<sup>65</sup> Referred here to the late implementation of the DRA and the absence of any other mechanisms that were strong enough to address resource management.

*be of maximum value, the tribal reconciliation process should not hinder the political talks with the rebel movements; should be fair and inclusive of all tribes; should be conducted by leaders who are legitimate representatives of their communities; should compensate victims directly; and should not be a substitute for the prosecution of war-crimes cases". (UNSC, 2005b, p.4).*

With respect to this statement it is remarkable that tribal reconciliation was more closely related to political talks with the rebel movement than with the tribal dynamic and the probable resources constraints tribes were facing.

Table 5.5.2 indicates the number of inter-tribal disputes as mentioned in documents of the United Nations. The conflict situation at the local level is more expanding towards the West and South of the region. The Northern part remains relatively stable, although reaching a peak in 2005, where especially in the first years of the conflict the line between inter-tribal clashes and tribal militia attacks on villages cannot be so clear cut and reported in an appropriate manner due to restricted access in these regions for UN personnel.

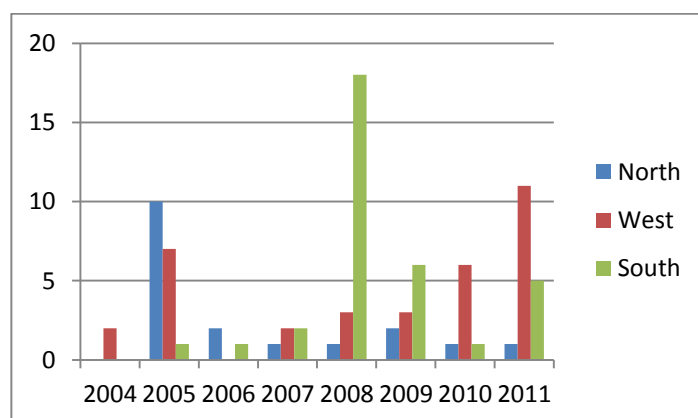


TABLE 5.5.2: INTER-TRIBAL CONFLICTS (SOURCE 2004-2011).

To conclude, peace in Darfur is not achieved as of today. In line with what Galtung (1996) indicates that attitudes and behaviour of people are changing over time with respect to the conflict situation, it can be stated that violent clashes between tribes, fighting for resources and property rights thereof, did not diminish over time. Following the reports of UNSC the contrary is actually true. Especially these conflicts increase over time, while peace talks are generally stagnating.

## 6 CONCLUSION

### 6.1 Summary

This summary guides again through the main findings by answering the research questions and the hypotheses.

#### **How do governance structures at the regional and national level contribute to a sustainable management of land tenure and water?**

Water and land are generally perceived as vital resources for human existence. Management approaches in Darfur have drastically changed over time in history and are today at an edge where it is questionable if efforts without any external support could be strong enough to manage these resources in a sustainable manner.

Sustainable management of resources has been a responsibility of the respective “dar” in former times. Traditional hierarchies<sup>66</sup> inside these “dars” formed the basis for a sustainable use of resources by considering the needs of the individual and the family. Sustainable management of resources by the individual granted the further use of the piece of land or the water source. Rights for exclusion were granted to the traditional leaders.

Although Darfur is known as an area of conflict already before the most recent conflict started in 2003, these conflicts remained local between tribes, were about resources and could be solved by intrinsic reconciliation mechanisms of the “dars”, which took into consideration all different forms of tribes, being either pastoralist, farmers, or agro-pastoralists.

Sustainable management of land tenure and water faced a major decline by the willingly imposture of governmental law over the traditional laws. Political centralization from Khartoum in order to gain more influence in the region, pushed the traditional management mechanisms aside. Empowerment of the new governmental mechanisms was however not enforced nor funded enough to achieve overall sustainable management of these resources, which ultimately led a kind of vacuum between traditional and political leaders of the states and the country. Traditional leaders were lacking the political power to manage the resources and

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<sup>66</sup> See figure 5.2.2

political leaders were lacking the financial resources and trust of the population to enforce sustainable management of water and land.

Consequences of the described vacuum can be found in land tenure insecurity, uncertainty in the rights to use water at the water points, and thereof a resulting mismanagement of these resources, which consequently contributed to increasing tensions between many tribes and against the government in Khartoum, contributing to the current conflict.

New approaches for sustainable management of these resources as part of the DPP try to include traditional and state administration into a common structure of governance. Joint decision making is however still perceived as a challenging task, since some major problems are not yet solved. These problems include trust among stakeholders, power sharing and funding for the full functioning of the institutions responsible for managing these resources.

Additional factors validating the hypothesis: *If governance structures at the regional and national level are effective, they contribute positively to a more sustainable resources management*, could be described as follows:

- As of today the interplay between traditional and governmental leaders remains an issue of concern. This affects all levels of governance. Inclusion of the *hakura* system in current management processes could provide the basis for shared knowledge in terms of property rights. Especially at the state level, inclusion of traditional forms of managing resources is likely to enhance collaboration of these two different forms of leadership.
- To address the status of IDPs and refugees that are willing to return to their homes, negotiation between existing land ownership under the *hakura* and DSG is vital to avoid new conflicts over resources.
- Legislative power of the native administration should be granted by GoS in order to provide the legal basis to solve small scale conflicts already at the local level. The issue of legitimacy of governance structures this needs to be addressed.
- DLC works as an independent body of DRA. Holistic approaches for water management, coordination with GoS and the NLC should be enforced, by pooling the information together, so that both parties could benefit of having equal access. This holds in particular for IWRM approaches, where management is not bound to either local or regional borders.
- The overall assessed weak governance performance of Sudan as indicated at WGI is assumed to contribute negatively to regional efforts for improving governance.

- For the moment international organisations, the United Nations in particular, are bridging the gaps between national and regional governance systems and enhance their communication. However, to achieve a sustainable solution so that regional institutions could work more closely together with national institutions and construct common policies for improved water and land management, the role of the international institutions has to fade out over time by simultaneously improving capacities at the regional and national level.
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The indicated points resulting from the analysis in this thesis show that currently governance structures at either the regional or the national level are underperforming to ensure solid natural resources management. The role of international organisations can be seen as neutralizing the weaknesses of national and regional institutions temporarily. Although improvements according to the DDPD (2011) were made to enhance governance at the regional level, one should be cautious about the national dynamics and the influence on the regional progress. Additionally the unclear legal status of Darfur as of today is assessed to impact negatively to improved management of water and land, and the establishment of clear property rights.

### **Does resource scarcity challenge sustainable management in Darfur?**

Data collection is challenging in times of conflict for achieving a sufficient basis for detailed analysis of the actual amount of water and the fertility of soil for agriculture and pasture. Most areas in Darfur have not been accessible for assessment teams for at least 5 years. The last assessment of the resources in this area was done in 2007 by UNEP. At this time only *hafirs* were analysed in Darfur to determine the potential for watering livestock.

The available data reviewed during my study suggest that there is a sufficient amount of water resources available and that there is still enough space for additional use because of the high recharge capacity of the aquifers and the high run-off rate of the wadis. Therefore I conclude that the real potential of the water resources in place is hampered by a lacking efficient usage of the available resources.

Land for rain-fed agriculture is richer the more one goes to the South of the region. However, people adapted to the environmental conditions and the fertility of land over time in history. For Darfur the existence of farmers and pastoralists can be explained by the changing conditions of land from North to South. Population density is still not high compared to the size of the region. The rural population



organizes around villages incorporated within a wider community living in traditional forms in a specific homeland (“dar”).

Overall I conclude that both resources, water and land, should not be seen as being scarce in absolute terms. The scarcity of these resources departs more from the lack of appropriate property rights and institutions that govern the use. Following the available patterns I argue that there is a need for infrastructure improvement in Darfur for improving efficiency of water supply and a need for strengthening the capacity of regional and local institutions to establish mechanisms that enhance a shared use of water and land.

The hypothesis that *if water and land are scarce they challenge sustainable management in Darfur* has therefore to be rejected. Water and land are not assessed as being scarce, it is rather the institutions and the lack of infrastructure that hinder on the one hand a sufficient supply and on the other hand management approaches that are sustainable, considering especially the social dimension.

In section 3.4 and 5.3.3 I identified the major stakeholders involved in managing water and land and their coordination. Water and land are managed by different organisations ranging from local to international level. Although efforts for improving the structure took place, by including international experts and knowledgeable organisation into this structure, there is still ample space for improvements.

The current structures for managing water and land show some interdependencies. At the national and regional level, IWRM is generally perceived as the right approach for finding sustainable solutions for water management, by also considering land issues. The DSG however lacks funds for successfully implementing IWRM.

Local stakeholders, representing the tribes and the IDPs are not equally introduced in the management structure. International organizations, like UNICEF, UNEP, or UNDP focus mainly on IDPs. The immediate need of these affected people is not questioned here. Nevertheless attention should also be given to other, less affected people, not being displaced. An imbalance of treatment between IDPs and the resident population could have the potential for people feeling marginalized. Moreover IDPs receive much more attention in terms of water management than in terms of land management. The unclear situation about a voluntary return of IDP could be targeted by granting those rights for land tenure and would be a clear incentive for return and thus normalization of the situation. This would be a task for the DLC in the newly established DRA. The slow establishment of the DRA and the weak funding makes it difficult to tackle this concern.

Despite the funding by the respective organisations, the availability of data and good monitoring and information, procedures of ... are still lacking behind. Although NGOs and the United Nations took over most responsibilities in these areas, it should be questioned if the responsible organisations of Sudan and Darfur could sustain these efforts on a long term without the contribution of international organisations. This doubt raises the problem for sustainability. What will happen, if international organisations eventually move out of Darfur? Although the Darfur receives considerable international attention and donations at the moment, it is unlikely that donations will continue forever.

The role of the international organisations in Darfur is vital for sustaining people's immediate needs and guaranteeing security by having UNAMID deployed. This should however only serve as a short term measure and is no sustainable solution. The chronology of peace talks in table 5.5.1 does not even show a clear improvement for peace over the last years. Although many international stakeholders are engaged in the continuation of the DPP and are urging the remaining rebel factions to sign peace with the government, no remarkable steps for a consolidated peace could be reached as of today.

### **How are current approaches enhancing sustainable development in Darfur?**

The inclusion of the local traditional authorities in the management processes for water and land can be seen as an achievement of the DPP. The domestication of the peace talks as the "new strategy for Darfur" issued by GoS in 2010 brought a change in terms of the contribution of stakeholders. For the first time local stakeholders were taken into consideration and inter-tribal disputes as one dimension of the conflict gained more attention. Local stakeholders from the various tribes could participate by bringing their concerns to the negotiation table. Water and land related issues gained prominence.

In the DDPD (2011) the consideration of the local needs in terms of resource management was addressed for the first time and possible processes for managing local demands were included. Although the DRA was just inaugurated in February 2012 and real benefits could not be observed as of today, the possibility of the traditional leaders to have a say in decision making processes could be assessed as being an improvement for future management approaches. Compared to previous peace efforts, bottom-up approaches for a more sustainable management of natural resources including water and land were just recently implemented following the DDPD (2011).

The suggested investments in improving water infrastructure have to be complemented with watershed management and land use planning. Appropriate management<sup>67</sup> will be eased by having the possibility to include local leaders in the process that actually have the knowledge of the situation on the ground.

Furthermore the traditional governance structure inside the *dars* served as a transitional form and existed in parallel to structure of the state. *Dars* are not bound to fixed boundaries and are therefore difficult to monitor. Traditional leaders are well aware of their personally perceived boundaries and could contribute again positively with their knowledge about the region. If there were disputes between tribal leaders about the boundaries, these conflicts could be prevented in a more comprehensive manner, including state officials and bringing the problem to a joint forum, where all stakeholders have an equal say, which contributes to finding sustainable solutions about land too<sup>68</sup>.

Different, and sometimes even contrasting, stakes of the various groups in Darfur made it difficult for managing resources in a sustainable way to satisfy all needs on a short term basis. The social dimension for including human mores and values in the peace process was newly addressed in the DDPD (2011)<sup>69</sup>. Acknowledging the needs of IDPs, urban-, rural-, and nomadic population by the respective institutions<sup>70</sup> and combining the findings for further management approaches with support of the United Nations and partners can be considered as a positive sign for improving bottom-up thinking in the peace process. The inclusion of stakeholders that have not been addressed in previous peace talks and the lawful implementations of their stakes in the DPP could ease future consolidations at the local level, because people feel adequately represented.

Economically there is still ample space for improving the situation at the local level. Although funds are promised by the GoS for improving the allocation and distribution of resources, the actual lack of appropriate infrastructure and the enforceable law remains an area of concern. Another challenge remains the lack of economic diversification, and the possibilities thereof, in Darfur. It can be expected that sustainable development remains challenged as long as the burden of the economic livelihood of the population depends exclusively on water and land, possibly leading to an over-exploitation of these resources on the long term.

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<sup>67</sup> See section 4.2.2

<sup>68</sup> See 3.5

<sup>69</sup> See *ibid* and table 5.4.1

<sup>70</sup> See table 5.4.1

The hypothesis *if resources are managed sustainably they contribute to sustainable development in Darfur* could not be proven in the framework of this thesis. Although groundwater monitoring could be identified in South and North Darfur, water harvesting is still assumed as being inefficient. Land tenure and therefore an improvement of land in terms of economic efficiency, social well-being, and environmental protection could not be observed.

### **How can the sustainable management of water and land tenure contribute to achieving lasting peace in Darfur?**

Water and land management in combination with the situation of property rights form the basis for the hypothesis that:

*Proper management of water and land is a precondition for lasting peace in Darfur.*

Departing from the governance aspects in Darfur and the local, regional and national level, I followed the course of arguing that a good governance structure contributes positively to sustainable resources management. In this context water and land tenure was the main focus of the study. Sustainable natural resource management with the basis of good governance, incorporating both, bottom-up and top-down approaches, was assumed to be supportive for sustainable development. Sustainable development in the region and the consideration of small scale improvement at the local level, through the improvement of the infrastructure, is carried out these days in the first place by international organisations rather than regional or national authorities.

The peace situation in Darfur remains fragile nevertheless. Trends of the last years were followed in order to answer the question, if there was an improvement in the peace situation since the outbreaks of violent conflict in 2003. A deterioration of the overall situation could not be identified either. Both at political and at local level, tensions between parties remained constant. At the local level, inter-tribal fighting even increased in certain areas in Darfur, as reported at the UNSC.

Inter-tribal fighting due to resource constraints and the confusing situation of property rights was more frequently reported during the last years. Efforts from the international community in partnership with GoS, trying to improve the humanitarian situation at the local level, by addressing people's most urgent needs did not lead to a decrease of conflict at the local level.

If we thus take into account the concepts from the theoretical framework, we need to conclude that, despite some positive signs, room can be identified for improving governance structures, and the related involvement of the different

stakeholders within, for strengthening resource management in terms of distribution and infrastructure, and for more adequately considering sustainable development aspects. In connection to the status-quo in the security situation, the analysis suggests that the following criteria would need to be taken into account in a comprehensive manner to increase the probability to achieve progress towards lasting peace in Darfur.

For governance aspects the most important criteria to be take into consideration for further resource management approaches are:

- Involvement of tribal leaders into decision making and planning
- Establishment of councils for tribal reconciliation in situations of unclear property rights, with inclusion of the DLC
- Acknowledgement of *hakura* at the state level
- Improving the capacities of DRA
- Long-term funding of DRA
- Reconsidering old policies, like the Unregistered Land Act from 1970
- Granting traditional leaders legislative rights within the *dars*
- DRA as a mediator between conflicting parties

Resource management that could enhance sustainable development in Darfur in the long run should be based on the following criteria:

- Data collection for water and land use, including local knowledge and information
- Establishment of a monitoring mechanism for water use and land distribution
- Infrastructure improvement for better water allocation
- Determination of the responsibilities of the different organisations
- Information exchange between DLC and NLC as well as SWC and WES respectively
- Sharing information of data gathered
- Assessing migratory patterns of IDPs and refugees rather than measuring their willingness to return and provide incentives for return
- Including IDP and refugee representatives (sheiks) into councils for determining the potential of conflict in areas they intend to resettle

Sustainable development in the long run is considered as a process and should include the following criteria:

- Defining the actual needs of the different population groups for water and land on a continued basis

- Establishment of an environmental analysis
- Establishment of economic opportunities for IDPs and refugees, if possible, identifying alternatives for land and water
- Considering scenarios after from the departure of HA
- Defining the legal status of Darfur

These above mentioned criteria are seen to be vital for contributing to lasting peace in Darfur. The management of water and land tenure is not described as the only solution for conflict mitigation, but is seen as having the potential to address certain problems at the grassroots level. Reconsidering the difficult political dynamics of the current situation in Darfur- they were only touched briefly in this thesis- I argue that a more sustainable management of water and land tenure contributes to peace by addressing the basic needs of the people through lowering opportunities for tensions about these resources at the local and regional level.

## **6.2 Contribution to knowledge**

With this research I aimed to contribute to the overall debate on the linkage between environment and security, departing from the assumption that environmental aspects are an essential part of any peaceful society. I looked into concrete opportunities offered by environmental considerations for conflict resolution by evaluating the need to incorporate natural resources in the DPP. The departure at the grassroots level is expected to support lasting peace in Darfur. Moreover I stressed the need to not only concentrate on the population most affected by the conflict, which is without doubt also important, but bear in mind a sustainable and comprehensive solution. Continued peace efforts have to include natural resources. First, they are vital for the people's livelihood. Second a mitigation of violent conflict is only achieved if the basic needs are provided and managed in a sustainable way.

Additionally I questioned the availability of resources in quantitative terms. With the data available to me, I could not identify an actual lack of resources available for the people of Darfur than rather an inefficient distribution and lack of infrastructure. For both resources a concrete scarcity could just be identified in terms of efficient distribution. Consequently, the availability of fertile land for either agriculture or livestock production or a combination of both must be achievable if managed in a sustainable way. The central role of professional and well-functioning governance structures has herewith been proved.

The importance of a good governance structures supporting resources management and solving disputes already at the local level asks for the inclusion of all stakeholders affected by certain circumstances. DRA could provide the appropriate function, if supported by GoS and international organisations, like the United Nations. The added value international organisations can bring to developing countries for an intermediate period in time is another clear outcome of this study, as long as it fits into the specificities and requirements of the country.

## **6.3 Future research**

In this research I faced several limitations. Most of all the distance between me and the study site was a crucial restraint. Although I have established a kind of feeling for the African culture during my work in Chad, Darfur might be different than I imagine it to be. It could not be proven if my perception of this region is either right or wrong. I therefore focused mainly on the most relevant literature that is available in scientific journals and on official websites. Departing from a broad picture of the situation I focussed to frame the situation in certain concepts, that I perceived as being worth considering and are heavily discussed these days in

scientific articles and in the media. Additional concepts relevant for water and land tenure management, like the financial system, rental service, migratory patterns, the influence of climate change, or the influence of the conflicts between North and South Sudan could not be included due to either the lack of data or the limited scope for this thesis.

This risk was however described in the beginning of the study, and more than being a limitation, it actually opens up the possibility of future research in terms of validating my research findings through a field visit. For future research I highly recommend to include the most recent trends, as indicate in the media that could affect sustainable land tenure and water management in Darfur. The following list includes areas that could be further elaborated on:

- Influence of South Sudan in spoiling the security situation in Darfur
- The financial resources effectively spent on infrastructure improvement projects in Darfur
- Migratory patterns of pastoralists, population due to climate change, and resettlement of IDPs and refugees
- Impact of desertification on land use and access to water
- Soil fertility for land use planning
- The level of trust between tribal and national authorities
- Appointment of officials due to political decisions or friendship and the influence of corruption
- Capacity of DSG for supporting DRA
- International interests in the region with regard to potential oil reserves
- Environmental degradation due to unsustainable waste management

With respect to the research topic I assume these additional criteria are important for future research in the field of sustainable water and land resources management. These criteria, although sometimes hard to measure, are seen as having an additional influence on lasting peace. Some criteria, like trust among parties, migratory patterns, and appointments of officials are reflecting inclusive dynamics that will not become apparent to researchers from outside. Therefore I also recommend including researchers from inside Darfur and Sudan into the international discussion about how to achieve lasting peace in Darfur and to participate with their knowledge and awareness about the situation.

Although universities in El Fasher and Khartoum are researching some of these criteria, it is often difficult for the external research community to access this information. This has two reasons. First, most of the research papers produced inside are written in Arabic, which is often not understood from researchers outside Arabic speaking countries. Second, the access to online journals or research



documents via online sources is either restricted or not functioning. During the time I conducted research on that topic I often visited official websites of Sudan. I consider these websites as poorly managed. Additionally they do not run on a regular basis, which again makes it difficult to have access to information when needed.

With regard to these problems I recommend a shared knowledge base about Darfur, especially including research from inside the country that could be accessed and read from the global research community. The knowledge from outside does in many cases not reflect internal feelings or perceptions about a certain topic. In order to find African solutions for African problems, the inclusion of internal knowledge could enhance finding appropriate solutions that suffice all parties.

## 7 BIBLIOGRAPHY

- Abusuwar, A., & Yahia, E. (2010). Pastoralist and seasonality: their effects on range productivity and carrying capacity in a semi-arid rangeland of Sudan. *Agriculture and Biology Journal of North America*, pp. 80-88.
- ACCORD. (2012, 4 15). ACCORD. Retrieved 4 15, 2012, from <http://www.accord.org.za/>
- Addo, G., & Salih, A. (2011, June). Water Resources Management in Darfur. *University of Khartoum Engineering Journal*, pp. 41-49.
- African Water Facility. (2011). *Darfur Water Project for Conflict Resolution and Peace-Building*. Tunis: African Water Facility.
- Agreement, D. P. (2006, May 5). *Sudan Human Security Baseline Assessment*. Retrieved November 12, 2011, from <http://www.smallarmssurveysudan.org/documents.html>
- Baker, S. (2006). *Sustainable Development*. New York: Routledge.
- Barrow, C. (2006). *Environmental Management for Sustainable Development* (2. ed.). London: Routledge.
- BBC News Africa. (2012, February 8). *BBCSudan: Darfur Regional Authority launched*. Retrieved March 12, 2012, from BBC: <http://www.bbc.co.uk/news/world-africa-16942578>
- Boll, U. (Director). (2010). *Darfur: Der vergessene Krieg* [Motion Picture].
- Bradbury, M., Ryle, J., Medley, M., & Sansculotte-Greenidge, K. (2006). *Local peace process in Sudan: A baseline Study*. Retrieved 12 12, 2011, from Rift Valley Institute: <http://citizenshift.org/local-peace-processes-sudan-baseline-study>
- Brink, R., Bromley, D., & Chavas, J.-P. (1991). *The economics of Chain and Abel: Agro-Pastoral property rights in the Sahel*. Washington: CFNPP Publications Department.
- Brinkerhoff, D. (2007). Governance Challenges in fragile states: re-establishing security, effectiveness, and reconstituting legitimacy. In D. Brinkerhoff, *Governance in Post-conflict Societies: Rebuilding fragile States*. (pp. 185-203). New York, London: Routledge.
- Bromley, D., & Chavunduka, C. (2011, March 24). Climate, carbon, civil war and flexible boundaries: Sudan's contested landscape. *Land Use Policy*, pp. 907-916.
- Bromwich, B. (2010, March 23). *Analysing resource constraints as one dimension of the conflict in Darfur*. Retrieved December 12, 2011, from Climate Change: [http://africa.ucepeace.org/documents/environment\\_files.pdf#page=125](http://africa.ucepeace.org/documents/environment_files.pdf#page=125)
- Coalition for International Justice. (2006). *Soil and Oil: Dirty business in Sudan*. Washington DC: Coalition for international Justice.
- Creswell, J., Clark, V., Gutmann, M., & Hanson, W. (2003). Advanced mixed methods research designs. In A. Tashakkori, & C. Teddlie, *Handbook of mixed methods in social and behavioural research*. London: SAGE Publications Inc. .

- Darfur Daily News. (2012, March 1). *Darfur daily News*. Retrieved March 1, 2012, from <http://darfurdaily.blogspot.com/>
- Darfur international conference on water an peace. (2011, June 27). *Darfur Water for Peace*. Retrieved December 1, 2012, from <http://darfurwaterforpeace.org/files/Donor%20Appeal%20Document.pdf>
- Darfur Relief and Documentation Center. (2010). *5th Population and housing census in Sudan - An incomplete exercise*. Geneva: Darfur Relief and Documentation Center.
- de Waal, A. (2007, June). Darfur and the failure of the responsibility to protect. *International Affairs*, pp. 1039-1054.
- de Waal, A. (2009). Who are the Darfurians? Arab and African Identities, Violence, and External Engagement. In S. Hassan, & C. Ray, *Darfur and the Crisis of Governance in Sudan: A critical Reader* (pp. 125-144). New York: Cornell University Press.
- de Wit, P. (2008, February 15.). *Worldbank*. Retrieved January 16., 2012, from [http://siteresources.worldbank.org/INTIE/Resources/475495-1202322503179/Draft\\_deWit\\_paper.pdf](http://siteresources.worldbank.org/INTIE/Resources/475495-1202322503179/Draft_deWit_paper.pdf)
- Diehl, P. (2005). *The Politics of Global Governance: International Organizations in an Interdependent World*. London: Lynne Rienner Publishers.
- Dresner, S. (2002). *The Principle of Sustainability*. London: Earthscan.
- Dungumaro, E., & Madulu, N. (2003). Public participation in integrated water resources management: The case of Tanzania. *Physics and Chemistry of the Earth*(28), 1009-1014.
- Economist, T. (2012, April 14-20). Sudan and South Sudan: Giving Divorce a bad name. pp. 37-38.
- El Zain, M. (2009). The Origins of Current Conflicts: Rural Water Provision and the Reshaping of Human Settlements and Environmental Resources in Western Sudan. In University for Peace, *Environment and Conflict in Africa: Reflections on Darfur* (pp. 128-160). Nairobi: University for Peace.
- Elamin, M. H. (2012, February 17). Darfur. (H. Hippacher, Interviewer)
- Flick, U. (2011). *Introducing Research Methodology*. London: SAGE Publications Ltd.
- Flint, J. (2010a). *Rhetoric and Reality: The Failure to resolve the Darfur Conflict*. Geneva: Small Arms Survey.
- Flint, J. (2010b). *The other war: Inter-Arab Conflict in Darfur*. Geneva: Small Arms Survey.
- GAFAG. (2011, March 23). *Geospatial World*. Retrieved December 15, 2011, from [http://geospatialworld.net/index.php?option=com\\_content&view=article&id=21895%3Aland-use-database-for-darfur-sudan&catid=58%3Aapplication-lis&Itemid=1](http://geospatialworld.net/index.php?option=com_content&view=article&id=21895%3Aland-use-database-for-darfur-sudan&catid=58%3Aapplication-lis&Itemid=1)
- Galtung, J. (1996). *Peace by peaceful means: Peace and conflict, development and civilization*. London: SAGE Publications Ltd.

- Global Water Partnership. (2012, 01 15). *Global Water Partnership*. Retrieved 3 12, 2012, from <http://www.gwp.org/en/The-Challenge/Water-resources-management/>
- GoS. (2012, April 1). *Sanitation and Water for All*. Retrieved April 15, 2012, from [http://www.sanitationandwaterforall.org/files/Sudan\\_-\\_Statement\\_to\\_2012\\_HLM\\_EN.pdf](http://www.sanitationandwaterforall.org/files/Sudan_-_Statement_to_2012_HLM_EN.pdf)
- Gourbesville, P. (2008, February 15). Challenges for integrated water resource management. *Physics and Chemistry on the Earth*, pp. 284-289.
- Gray, B. (2007). The process of partnership construction: anticipating obstacles and enhancing the likelihood of successful partnerships for sustainable development. In P. Glasbergen, F. Biermann, & A. Mol, *Partnerships, Governances and Sustainable Development* (pp. 29-48). Cheltenham: Edward Elgar.
- Hainzl, G. (2011, December 16). Darfur. (H. Hippacher, Interviewer)
- Hoile, D. (2005). *Darfur in Perspective*. London: The European-Sudanese Public Affairs Council.
- HSBA. (2012, February 21). *Small arms survey*. Retrieved March 16, 2012, from Humanitarian Security Baseline Assessment: <http://www.smallarmssurveysudan.org/pdfs/facts-figures/darfur-peace-process/HSBA-Darfur-Peace-Process-Chronology.pdf>
- Humanitarian Information Unit. (2009, August 31). *Darfur, Sudan: Confirmed Damaged and Destroyed Villages: 2003-2009*. Retrieved January 15, 2012, from U.S Department of State: [https://hiu.state.gov/Products/ChadSudan\\_DamagedDestroyedVillagesByYear\\_2009Aug31\\_HIU.pdf](https://hiu.state.gov/Products/ChadSudan_DamagedDestroyedVillagesByYear_2009Aug31_HIU.pdf)
- IAC. (2004). *Realizing the promise and potential of African Agriculture*. New York: InterAcademy Council.
- Kevane, M. (1997, October). Land tenure and rental in western Sudan. *Land use Policy*, pp. 295-310.
- Kjaer, A. (2004). *Governance*. Cambridge: Polity Press.
- Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of Qualitative research Interviewing* (2. ed.). London: SAGE Publications Ltd.
- Lautze, J., de Silva, S., Giordano, M., & Sanford, L. (2011). Putting the cart before the horse: Water governance and IWRM. *Natural Resource Forum*, pp. 1-8.
- Lindsay, T. (2007). *Darfur: A cultural Handbook*. Swindon: Defence Academy of the United Kingdom.
- Manger, L. (2009). Resource based conflict in Western Sudan: Some reflections on the role of the State. In U. f. Peace, *Environment and Conflict in Africa: Reflection on Darfur* (pp. 99-109). Ethiopia: University for Peace.
- Matondo, J. (2002). A comparison between conventional and integrated water resources planning and management. *Physics and Chemistry of the Earth*, pp. 831-838.

- Mazo, J. (2010, March 18). *Chapter Three: Darfur: The First modern Climate-Change conflict*. Retrieved April 2012, 12, from The Adelphi Papers: <http://dx.doi.org/10.1080/19445571003755538>
- Meadowcroft, J. (2002). Politics and scale: some implications for environmental governance. *Landscape and urban planning*(61.), pp. 169-179.
- Merrey, D. J. (2008). Is normative intergates water resources management implementable? Charting a practical course with lessons from Southern Africa. *Physics and Chemistery of the Earth*(33), pp. 899-905.
- Merry, D. (2008, July 4). Is normative water reource management implementable? Charting a practical course with lessons from Southern Africa. *Physics and Chemistry*, pp. 889-905.
- Migot-Adholla, S., Hazel, P., Blarel, B., & Place, F. (1991, January 1). Indigeneous land rights systems in Sub-Saharan Africa: A constraint on Productivity? *The World Bank Economic Review*, pp. 155-175.
- Mohamed, A. A. (2007, February 15). *Mapping Darfur*. Retrieved March 19, 2012, from The Nordic African Institute: [http://www.nai.uu.se/publications/electronic\\_publ/darfur.pdf](http://www.nai.uu.se/publications/electronic_publ/darfur.pdf)
- Mohamed, Y. (2004). Land tenure, land use and Conflicts in Darfur. In University for Peace, *Environmental Degradation as a cause of conflict in Darfur* (pp. 57-80). Khartoum: University for Peace.
- Morton, J. (2005). *A Darfur Compendium: A Review of Geographical, Historical and Economic Background to Development in the Region*. Hempstead: HTSPELLimited.
- Morton, J. (2008). *Managing political and economic claims to land in Darfur*. Retrieved 12 11, 2011, from JM&Co: [http://www.jfmorton.co.uk/t3\\_1.html](http://www.jfmorton.co.uk/t3_1.html)
- Mundt, A. (2011, January 25). *Addressing the Legacy of Conflict in Darfur: Shifting Land Tenure Patterns and Humanitarian Action*. Retrieved from Refugee Cooperation: <http://www.refugeecooperation.org/studyGroups/sudan.php>
- OECD. (2010, September 20). *Conflict, Fragility and armed violence are major factors preventing the achievement of the MDGs*. Retrieved January 16, 2012, from OECD: <http://www.oecd.org/dataoecd/20/50/46006119.pdf>
- O'Fahey, R. (2008). *The Darfur Sultanate*. New York: Columbia University Press.
- Omer, A. (2010, December 26.). Water resource management and sustainable development in Sudan. *International Journal of Water Resources and Environmental Engineering*(2), pp. 190-207.
- Ostrom, E., & Hess, C. (2007, November 29). *Private and Common Property Rights*. (Library, Ed.) Retrieved December 15, 2011, from SSRN: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1936062](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1936062)
- Pantuliano, S. (2007, December). *The land question: Sudan's peace nemesis*. Retrieved 11 24, 2011, from <http://www.odi.org.uk/resources/docs/4166.pdf>
- Patton, M. (2002). *Qualitative Research & Evaluation Methods*. London: SAGE Publications Inc.

- Peace, U. f. (2009). *Environment and Conflict in Africa: Reflections on Darfur*. Addis Ababa: University for Peace. Africa Programme.
- Peck, C. (1998). *Sustainable peace: The role of the UN and regional organisation in preventing peace*. New York: Rowman and Littlefield Publishers, Inc. .
- Peters, P. (2009). Challenges in land tenure and land reform in Africa: Anthropological contributions. *World Development*, 1317-1325.
- ProAct. (2010, July 1). *Environmental and livelihoods vulnerability mapping (ELVM) in north and south Darfur, Sudan*. Retrieved January 15, 2012, from ProAct network:  
<http://www.proactnetwork.org/proactwebsite/assessmentmonitoringevaluation/vulnerability-mapping-darfur-sudan>
- Public Water Corporation. (2009, April). *Basic Services Fund South Sudan*. Retrieved February 15., 2012, from <http://www.bsf-south-sudan.org/sites/default/files/SS+Tech+Guide--Water+Yard+Guidelines.pdf>
- Radif, A. (1999, November 9). Integrated water resources management (IWRM): an approach to face the challenges of the next century. *Desalination*(124), pp. 145-153.
- Ramsbotham, O., Woodhouse, T., & Miall, H. (2005). *Contemporary Conflict Resolution* (2. ed.). Cambridge: Polity Press.
- Ray, C., & Hassan, S. (2009). *Darfur and the Crisis of Governance in Sudan: A critical reader*. New York: Cornell University Press.
- Reliefweb. (2009, July 2.). *Reliefweb*. Retrieved December 15., 2011, from Terms of Reference strenghtened High Level Committee :  
<http://reliefweb.int/node/333534>
- Reliefweb. (2012, January 18.). Retrieved January 23., 2012, from <http://reliefweb.int/node/471225>
- Republic of Sudan. (2011, 12 25). *Wash in Schools*. Retrieved 3 25, 2012, from <http://www.washinschoolsmapping.com/projects/pdf/Sudan-KhartoumWASHPolicy.pdf>
- Rhodes, R. (1997). *Understanding governance: Policy Networks, Governance, Reflexivity and Accountability*. Berkshire: Open University Press.
- Robson , C. (2001). *Real World Research* (3. ed.). West Sussex: John Wiley & Sons Ltd.
- Santa-Barbara, J. (2007). Reconciliation. In C. Webel, & J. Galtung, *Handbook of peace and conflict studies* (pp. 173-186). New York: Routledge.
- Sudan Tribune. (2012a, January 11). *Sudan Tribune*. Retrieved February 2, 2012, from <http://www.sudantribune.com/Bashir-establishes-two-states-in,41256>
- Sudan Tribune. (2012b, May 10.). Retrieved May 13., 2012, from Sudan begins funding Darfur regional authority: <http://www.sudantribune.com/Sudan-begins-funding-Darfur,42550>
- SUDIA. (2012, 2 15). *SUDIA*. Retrieved 3 12, 2012, from <http://www.sudia.org/>

- Suliman, O. (2011). *The Darfur Conflict: Geography or institutions?* New York: Routledge.
- Sullivan, C. (2010, July 28). *Quantifying water vulnerability: a multi-dimensional approach*. Retrieved December 21, 2011, from Springerlink: <http://www.springerlink.com/content/h160806916281775/>
- Tearfund. (2007, October 25). *Darfur: water supply in a vulnerable environment*. Retrieved November 12, 2011, from Tearfund.org: <http://tilz.tearfund.org/webdocs/Tilz/Topics/watsan/darfurwatervulnerability.pdf>
- Tetra Tech ARD . (2012, January 12). *Land tenure and property rights*. Retrieved February 21, 2012, from Tetra Tech ARD: [http://www.tetrattechard.com/ard/index.php?option=com\\_k2&view=item&layout=item&id=53&Itemid=33&lang=us](http://www.tetrattechard.com/ard/index.php?option=com_k2&view=item&layout=item&id=53&Itemid=33&lang=us)
- The Republic of Sudan, Ministry of Welfare & Social Security, & National Population Council General Secretariat. (2010). *United Nation Development Programme*. Retrieved February 12., 2012, from Sudan Millennium Development Goals Progress Report 2010: <http://www.sd.undp.org/doc/Sudan%20MDGs%20Report%202010.pdf>
- The Sphere Project. (2011). *The Sphere Project: Humanitarian Charter and Minimum Standards in Humanitarian Response*. Northhampton: Practical Action.
- Tietenberg, T., & Lewis, L. (2009). *Environmental and Natural Resource Economics* (8. ed.). New York: Pearson.
- UNAMID. (2011, November 10). *Information Kit*. Retrieved January 15, 2012, from UNAMID: [www.unamid.unmissions.org](http://www.unamid.unmissions.org)
- UNAMID. (2012, January 15.). *New Darfur authority to give top priority to return of displaced people*. Retrieved March 12., 2012, from <http://unamid.unmissions.org/Default.aspx?tabid=11028&ctl=Details&mid=14215&ItemID=17741&language=en-US>
- UNDP. (2011). *Strategic Partnership for the Sudan*. Karthoum: UNDP.
- UNEP. (2007). *Sudan: Post-Conflict Environmental Assessment*. Nairobi: United Nations Environmental Programme.
- UNEP. (2008). *Water resource management in humanitarian programming in Darfur: The case for drought preparedness*. Geneva: United Nations Environmental Programme.
- UNICEF. (2011a, June 30.). *North Darfur State: 2010 Water, Sanitation and Hygiene (WASH) Situation Analysis and MDG Planning*. Retrieved January 15. , 2012, from Darfur Water for Peace Conference 2011: [www.darfurwaterforpeace.org](http://www.darfurwaterforpeace.org)
- UNICEF. (2011a, June 30.). *North Darfur State: 2010 Water, Sanitation and Hygiene (WASH) Stuation Analysis and MDG Planning*. Retrieved January 15., 2012, from Darfur Water for Peace Conference 2011: [www.darfurwaterforpeace.org](http://www.darfurwaterforpeace.org)
- UNICEF. (2011b, June 30.). *West Darfur State: 2010 Water, Sanitation and Hygiene (WASH) Stuation Analysis and MDG Planning*. Retrieved January 15., 2012, from Darfur Water for Peace Conference 2011: [www.darfurwaterforpeace.org](http://www.darfurwaterforpeace.org)

- UNICEF. (2011c, June 30.). *South Darfur State: 2010 Water, Sanitation and Hygiene (WASH) Situation Analysis and MDG Planning*. Retrieved January 15., 2012, from Darfur Water for Peace Conference 2011: [www.darfurwaterforpeace.org](http://www.darfurwaterforpeace.org)
- UNICEF, PWC, & WES. (2009, June 1). *Capacity, Depletion Risks & Contengency Planning*. Retrieved December 15, 2011, from WES Sudan: [http://wes-sudan.org/shared\\_rep.aspx](http://wes-sudan.org/shared_rep.aspx)
- United Nations. (2011a, July 20). *United Nations and Partners: 2011 Work Plan for Sudan*. Retrieved November 23, 2011, from <http://www.unocha.org/cap/appeals/united-nations-and-partners-2011-work-plan-sudan>
- United Nations. (2011b, December 7). *Sudan: UN and Partners Workplan 2012*. Retrieved February 18, 2012, from reliefweb: <http://reliefweb.int/node/463588>
- United Nations. (2011c). *The Millenium Development Goals Report 2011*. New York: United Nations.
- University for Peace. (2006). *Environmental Degradation as a cause of conflict in Darfur*. Khartoum: Reuters.
- UN-OCHA. (2012, April 30). *Sudan:Humanitarian Snapshot*. Retrieved May 3, 2012, from UNOCHA: [http://reliefweb.int/sites/reliefweb.int/files/resources/map\\_2081.pdf](http://reliefweb.int/sites/reliefweb.int/files/resources/map_2081.pdf)
- Unruh, J. (2012). *Opposed Legalities and Collective Action in a Conflict Context: The case of Land Rights in Darfur*. Washington DC: World Bank.
- UNSC. (2005a, March 4.). *UNAMID*. Retrieved March 15., 2012, from Report of the Secretary-General on situation in Darfur [S/2005/140]: <http://www.un.org/en/peacekeeping/missions/unamid/reports.shtml>
- UNSC. (2005b, July 18.). *UNAMID*. Retrieved March 15., 2012, from Monthly report of the Secretary-General on Sudan [S/2005/467]: <http://www.un.org/en/peacekeeping/missions/unamid/reports.shtml>
- UNSC. (2010, July 14.). *UNAMID*. Retrieved March 12., 2012, from Report of the Secretary-General on UNAMID [S/2010/382]: <http://www.un.org/en/peacekeeping/missions/unamid/reports.shtml>
- UNSC. (2012, March 20). *Letter dated 19 March 2012 from the Secretary-General addressed to the President of the Security Council*. Retrieved April 21, 2012, from United Nations Security Council: [http://www.un.org/Docs/sc/unsc\\_presandsg\\_letters12.htm](http://www.un.org/Docs/sc/unsc_presandsg_letters12.htm)
- Verhoeven, H. (2011, June 7). Climate Change, Conflict and Development in Sudan: Global Neo-Malthusian Narratives or Local Power Struggles. *Development and Change*(3), pp. 679-707.
- Webel, C. (2007). Introduction: toward a philosophy and metpsychology of peace. In C. Webel, & J. Galtung (Eds.), *Handbook of peace and Conflict Studies* (pp. 3-13). New York: Routedge.
- Weber, K., & Horst, S. (2011). Deseertification and livestock grazing: The roles of sedentarization, mobility and rest. *Pastoralism*, 1-11.



- World DataBank. (2012, April 17.). *World Development Indicators (WDI) & Global Development Finance (GDF)*. Retrieved April 24., 2012, from <http://databank.worldbank.org/ddp/home.do>
- World Soil Information Database. (1980). *Wageningen UR*. Retrieved March 25, 2012, from <http://library.wur.nl/isric/index2.html?url=http://library.wur.nl/WebQuery/isric/19923>
- Worldwide governance indicators. (2011). *Worldwide governance indicators*. Retrieved March 15, 2012, from <http://info.worldbank.org/governance/wgi/resources.htm>
- Young, H., Osman, A., Abusin, A., Asher, M., & Egemi, O. (2009). *Livelihood, Power and Choice: The Vulnerability of the Northern Rizaygat, Darfur, Sudan*. Medford: Feinstein International Institute.
- Young, H., Osman, A., Aklilu, Y., Dale, R., Badri, B., & Fuddle, A. (2005). *Darfur: Livelihoods under Siege*. Medford: Feinstein International Famine Center.

## APPENDICES

### Appendix 1: List of questions answered by the interview partners:

#### **General:**

Would you see a positive trend in the security situation in Darfur?

If yes, how would you characterise this?

Who are the key actors involved in the peace process?

What is the role of sustainable resources management?

How important are the recent peace efforts for the economic development of the region?

How would you see the situation of the insurgents?

#### **Land:**

How important is land for the people of Darfur? Is it better to talk about communal affiliation to land?

Could you identify any approaches for a development of land rights?

How do you perceive the National Transaction Act of 1970?

How developed would you see governance structures in the region?

#### **Water:**

Which organisations support cooperation with local and national governments?

Is there any kind of mediation done?

Could you identify geographical “hot-spots” where sustainable management of water is more important than elsewhere? Where? Why?

What measures for sustainable management of water should be taken?

#### **Peace:**

What is the role of UNAMID for supporting peace in Darfur? Does UNAMID have influence on the GoS? Does UNAMID have enough personnel, material and knowledge about the specific conflict situation?

How do you perceive the relation between sustainable management of resources and the presence of the international community?

Would you agree with the following statement: Sustainable management of water and land is an important factor for establishing peace in the Darfur?

## Appendix 2: Interview questions for Mr. Laker

1. How would you see the current situation in Darfur in terms of land tenure rights?
  - a. Are there any improvements due to the DPA/DDPD? Short list of achievements.
  - b. Are the Darfur Regional Authority and especially the Darfur Land Commission operational as of today?
  - c. What is the role of the tribal leaders in the governance structure? Are they integrated successfully?
  - d. How does the local population perceive the transition phase? Is there a general awareness about the political processes? Do people follow through any media (e.g. radio Dabanga?)
2. Where are geographically “hot-spots” for friction between herders and farmers?
  - a. Are there problems due to the implementation of the 2 new states?
  - b. Are the tribal leaders integrated in local reconciliation processes? If yes, how?
  - c. What is the role of UNDP in promoting rule of law?
  - d. What are the key stakeholders/institutions UNDP is working with on that issue?
3. What are the most recent efforts of the National Government for implementing good governance practices in Darfur?
  - a. Does the conflict in Abyei influence the promotion of the DDPD? If yes, how?
  - b. How would you assess the effectiveness of governance in terms of land allocation?
  - c. How would you assess the effectiveness of governance in terms of water management?