The Last Free River of Mesopotamia

Dams, water distribution and harms along the Greater Zab River in Turkey and Iraq

Greater Zab River by night – Bekhme, Iraqi Kurdistan.

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Abstract

The Last Free River of Mesopotamia:

Dams, water distribution and harms along the Greater Zab River in Turkey and Iraq

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Taking a green criminological perspective this research explores dams and its harms in the Tigris River basin. The thesis focuses on the Greater Zab River - a key undammed tributary of the Tigris - that flows through Turkey and Iraq and answers the following research question: *What harms can be identified as a consequence or in relation to dams in Mesopotamia, specifically when assessing the Greater Zab River?* The dam-related harms, both upstream and downstream, are described and the different stakeholders identified. Specific attention is given to how dams and its harms are framed. The research suggests national and ethnic identity may play a role in the framing of harms, while the actual victims and perpetrators are defined by socio economic status. Moreover, the planned dams along the Greater Zab River exemplify the global processes of states and corporations that perpetrate both illegal and legal harm for the benefit of powerful vested interests.

Keywords: *State-corporate crime, Greater Zab River, Water distribution, Dams, Tigris River, Turkey, Iraq, Kurdistan*

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List of abbreviations

BDP Peace and Democracy Party

BOT Build Operate Transfer

CDO Civil Development Organization

CIMI Canada Iraq Marshland Initiative

DSI General Directorate of State Hydraulic Works, Turkey

EIA Environmental Impact Assessment

GAP Southeastern Anatolia Project

ICSSI Iraq Civil Society Solidarity Initiative

IHA International Hydropower Association

IHD Human Rights Association

KBA Key Biodiversity Areas

KDP Kurdistan Democratic Party

KHRP Kurdish Human Right Project

KRG Kurdistan Regional Government

PKK Kurdistan Workers Party

PUK Patriotic Union of Kurdistan

SWLRI Strategy for Water and Land Resources of Iraq

WCD World Commission on Dams

WWC World Water Council

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1. Introduction The last free river of Mesopotamia

Water. It is the crucial substance to life and forms basis of our planet. Similarly, the rivers of our planet can be seen as the life veins that sustain our global ecosystem. This is particularly evident in Mesopotamia –the land between two rivers–, an area that partly covers four riparian countries: Turkey, Iraq, Syria and Iran. In a dry region with little rain, the Tigris and Euphrates rivers transformed the lands into fertile grounds that led to crucial inventions such as the wheel, the script and irrigated agriculture (Gibson, Lloyd, Owen 2012; Collon, 2011).

Dams, the subject of this thesis, allow to control rivers and can provide crucial benefits such as irrigation and energy generation (Frey & Linke, 2002, p. 1265). On the other hand, dams can cause displacement of people, harm the environment and disrupt ecosystems. Dams have become increasingly controversial due to those negative impacts but remain popular in emerging economies such as the BRIC[1] countries, Turkey, and Iran. They are often presented as vehicles of development that propel the nation into progress and the drawbacks seen as necessary sacrifices for the 'greater common good' of the country.

The Tigris River basin and the Greater Zab River in particular, exemplifies many of the controversies related to water and dams. On the one hand Iraq and Turkey are emerging economies that want to join the prosperous nations, but on the other hand nature and people are harmed in the process. Especially in the South of Iraq the upstream dams have led to droughts, desertification and salinization. The Greater Zab is of particular interest as it the last large Tigris tributary that still runs free.

This research will focus on the controversial impacts, or harms, that the planned dams may give along the Greater Zab and more downstream along the Tigris. Dams and its harms as potentially criminal activity have largely been ignored in criminology. It is this gap that I try to fill by explaining how to understand dams and related water issues from a (critical) criminologist' perspective. Such a perspective scrutinizes the power relations that shape both legal interpretations and ideas on why some harms are condoned and which actors benefit by encouraging those harms (see White, 2011; South et al., 2013; Stretesky et al., 2013). Indeed, harms instead of crime are placed central throughout this research. This led to the following research question and sub-questions:

What harms can be identified as a consequence or in relation to dams in Mesopotamia, specifically when assessing the Greater Zab River?

1) What plans related to dams exist in the Greater Zab basin?

2) What regulations and possible transgressions exist?

[1] Brazil, Russia, India, China which represent fast growing economies and emerging players in the global stage.

3) What are the (potential) social harms?

4) What are the (potential) environmental harms?

5) Who benefits and propagates the dams?

6) Who is harmed and what are the perspectives of these victims?

In order to explain all those issues this thesis will take the reader along the river and present the relevant issues and stakeholders. Over three months in the year 2013 I conducted fieldwork in Turkey and Iraq. Through qualitative methods I tried to understand the situation and expose underlying (power) dynamics and interests in the construction of dams.

In order to answer the research questions the text is structured as follows: Chapter two explains the theoretical concepts to understand dams from a criminological approach. Chapter three presents the methodology. Chapter four regards the context and describes the region, water issues and stakeholders of the area. Chapter five presents the findings in the Turkish part of the Greater Zab, while chapter six presents the findings for the Iraqi part of the basin. Chapter seven concerns the downstream consequences of upstream dams. Chapter eight will analyze the findings and identify key issues. Finally, chapter nine will summarize the findings and answer the research question.

2. Theoretical framework

This chapter will provide the theoretical tools to understand dams from a criminological approach. Throughout the thesis dams will be interpreted as socio-political phenomena, because in addition to their technical and economic nature dams are intrinsically political and social affairs. The underlying dynamics in dam construction, decision making and forming of regulations will be exposed through criminological concepts such as harm, victim and perpetrator that provide insights in the powers involved in the perpetration and framing of harms.

2.1 Dams

Dams have been built for millennia and served humans by storing drinking water and provide reservoirs for agriculture. Until the 20th century dams were relatively small, but after the 1930s the technology of dams truly departed both in scope and numbers. Countries that could afford to were building large dams. Dams became a symbol of modern development and symbols of national significance and pride (Mccully, 2001, pp. 1-4; Persson, 2010). For instance, the gigantic Hoover dam on the Colorado river that was built in the 1930s "is a National Historic Landmark and has been rated by the American Society of Civil Engineers as one of America's Seven Modern Civil Engineering Wonders." (USBR, 2005)

Indeed dams have been celebrated and admired for decades. Dams can provide essential needs to modernized countries such as renewable energy, irrigation of large plots of lands, protect against floods, or sometimes even opportunities for tourism (Frey & Linke, 2002, p. 1265). Particularly hydropower can be vital in the industrial development of a country, especially when little fossil resources exist (Sternberg, 2010, p. 715). Nowadays around 45.000 large dams exist worldwide and especially in emerging countries, including Turkey, dams remain popular (Kumar et al, 2011, p. 457).

The benefits of dams are not without drawbacks. Millions of people have been displaced due to dams and huge swaths of valuable lands have been lost under water (Barlow & Clark, 2002, p. 62; Mccully, 2001, p. 21). Economic costs are often disproportionate, while the average lifespan of a dam is only 50 years (ASCE, 2010; Baghel & Nüser, 2010, p. 231) An increasing body of work argues that the benefits of dams are often overstated and that not equally distributed among populations (see Asmal, 2000, xvii; Baghel & Nüsser, 2010; Klingensmith, 2007; Mcully, 2001; Morimoto, 2007; Shiva, 2002; Shiva, 2006; Singh, 2002). Especially the elaborate report of 2000 by the World Commission on Dams (WCD) was essential in acknowledging the negative impacts of dams. The commission - which involved both civil society, financiers, and industry - was the first attempt to evaluate decades of dam construction. Amongst others it concluded: "Dams are not confined to the

design, construction and operation of dams themselves but embrace a range of social, environmental and political choices on which the human aspiration to development and well-being depend" (Asmal, 2000, p. xxvii).

2.1.1 Dams as social phenomena

Traditionally, dams, water and hydro power were interpreted as technical queries that need technical solutions (Water Alternatives, n.d.). Indeed the planning and construction of dams is complex and ask for great technical expertise. However, such analyses do not take the socio-political context in account. Through the literature becomes clear that drawbacks are increasingly mentioned, but dams per se and the decision making processes in dam construction are not questioned[2] (see Bartle, 2002; Frey & Linke, 2002; Koch, 2002; Sternberg, 2006; Sternberg, 2010).

As a consequence the analysis of dams has moved beyond the technical realm and now a wide range of disciplines study dams and related issues (Water Alternatives, n.d.). Indeed the technical, economic and environmental aspects of dams inherently intertwine with power and politics. Knowledge is crucial in accepting or rejecting dams and other infrastructural projects, therefore dams can be seen as *politicized environments* (Baghel & Nüser, 2010).

According to such perspectives a proper analysis of dams needs to include the consequences for society and the decision making processes that play a role. Anthropologists, economists, sociologists, ecologists among many other disciplines have tried to include such political and social questions involved in dam construction[3]. Some of those are multifaceted, for instance through an ecosystem services approach (Dukan et al., 2010) others focus on the local experiences related to benefits and drawbacks.

2.1.2 Dams and water distribution

Further enforcing the social and political relevance of dams is their relation to water distribution. Dams are instruments that allow to control and reallocate water sources; therefore dams also convey the political question of water ownership. Free flowing, untapped, rivers can be controlled and commodified by corporations or states. This may be especially problematic for transnational rivers as riparian states may compete over ownership. Both the Euphrates and Tigris Rivers are

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[2] See for instance magazines such as *Energy Policy* and *Renewable and Sustainable Energy Reviews*

[3] A journal like *Water Alternatives* is one of the key journals that publishes on such power relations and takes a multidisciplinary approach in questions of water.

exemplary of such rivers.

Those basins are popular to proof the idea that water scarcity leads to war (see Connell, 2013; Barlow & Clarke, 2002; Rahaman, 2012; Shiva, 2002; Starr, 1991). Indeed water has always been prone to conflict, even the word river relates to rivals; sharers of the same stream (Dinar et al., 2012; Mccully, 2001, p. 22). Controlling rivers through dams can even hold strategic potential, as its reservoirs can be used to pressure downstream countries (Williams, 2011, p. 203).

Nevertheless, this idea of full-fledged water wars needs nuance. As a historical analysis of Wolf shows, only seven skirmishes over water have taken place over water in the 20th century, while 145 water treaties have been signed (1998). Wolf suggests shared water sources in general lead to cooperation instead of war. Even though states use though language, almost 20 years of ´water war´ rhetoric have passed without any water related armed conflict (Dinar et al, 2012, Selby 2013; Williams 2011, p. 204).) To analyze water issues in terms of hydro politics therefore is more applicable. Instead of violent conflict, questions of water ownership and distribution are mostly played out in non-violent manners in the negotiation realm, involving both state and non-state actors (Warner, 2008; Zeitoun & Warner, 2006).

Still, as the water conflict over water privatization and resulting price hikes in Cochabamba, Bolivia in 1999 illustrates, increasingly communities and corporations and/or states conflict over water. Water may also be the indirect or underlying source of conflict and violence. Barlow suggests that the Darfur war in Sudan was indirectly over water (2008), and others claim the Syrian civil war never would have happened without the droughts and water shortage (Friedman, 2013). More and more authors use the concept of *water grabbing* to explain the state and corporate attempts to own or *grab* water at costs of communities (Franco & Kay, 2012; Islar, 2012; Matthews, 2012)

Indeed, the question is not really whether we will have full-fledged water wars or not, but the fact is that water is a contested resource. Water shortage and distribution is therefore not a matter of building pipelines, dams, and other technical aspects, but involves negotiation, and struggle between interested parties. Just as dams, water distribution is intrinsically interwoven with power, especially in water scarce countries.

2.2 Criminological approaches towards dams

Dams and their dynamics have received little attention by criminologists; indeed, at a first glance dams and criminology seem far apart. Only one criminological study exists, regarding the Pak Moon dam in Thailand (Friedrich & Friedrich, 2002). In this study, Friedrich & Friedrich argue that the World Bank is a criminogenic enterprise which engages in many worldwide harms (Ibid.). General criminology may not have to do much with dams, but a socially engaged criminology would need to

consider dams as much research suggests that those projects lead to many negative impacts. To do so the boundaries of the criminological field need to be stretched.

2.2.1 Conventional criminology

Conventional criminology focuses on crimes of the poor, i.e. street crimes such as theft, burglary and other minor offenses (Kramer & Michalowski, 2006, p. 6; Stretesky et al., 2013, p. 39). Breaches of laws by states and corporations have received relatively little attention within the discipline (Kramer & Michalowski, 2006, pp. 6–10). The first attempt to do so was in the 1940s, when Sutherland and his focus on white-collar opened up the field for studying crimes of the powerful (Sutherland, 1949). His groundbreaking research and many others afterwards showed how transgressions of laws by powerful individuals are often ignored or less sanctioned. Most of these sort of crimes fall under the umbrella terms of *state crime* and *corporate crime*.

Dams can be approached from such a position. A criminologist may focus on issues of corruption in contracting, disregard for environmental or working regulations, and insufficient EIAs. In fact, numerous other studies have proven that dam construction often breach national or international legal frameworks, subsequently leading to human right violations and environmental damage (see Baghel & Nüsser, 2010; Klingensmith, 2007; Mcully, 2001; Singh, 2002). Such a research would take a legal approach to state and corporate crime and focus on existing laws and transgressions by the powerful actors.

2.2.2 Critical criminology

Critical criminology aims to broaden such definitions and argues how many harmful activities do not fit the framework of mainstream criminology. Some dam related harms and damage may be completely legal according regulations and laws. Moreover, some criminologists argue that the legal difference between crime and regulatory transgressions proof how biased the legal system is (Michalowski & Kramer, 2006, p. 4). Critical criminologists criticize conventional criminology and argue the definition of crime itself should be questioned by criminologists. According to their view, conventional criminology is essentially an extension of law enforcement (Chambliss, Michalowski, Kramer 2010, p. 1; Hillyard & Tombs, 2007, p. 11).

In reality, many 'crimes' are defined as such by a powerful elite that creates laws to serve their own interests (Chambliss 1972, p. 251). This explains why some very harmful acts receive little attention while others are overemphasized (Stretesky et al., 2013, p. 6). In order to convey those legal acts, critical criminologists introduced the more inclusive concept of harm in order to convey activities that may be considered 'criminal' and are harmful towards society (Hillyard & Tombs,

2007; Hulsman, 1986). Through the concept of harms, both illegal harms; crimes, and legal harms can be included in the analysis. Such a focus on harm is bound to include the socio political context in which laws are created (Hulsman, 1986; White, 2011, pp. 16-17).

2.3 Harms and environmental victimization

2.3.1 Social Harm

Harms may be analyzed through the framework of international law, or human rights based approaches, but can also move beyond legislation (Michalkowski & Kramer, 2006, p. 13). Those social injuries or "legally permissible acts or sets of conditions whose consequences are similar to those of illegal acts" (Michalkowski 1985: 357 in Michalkowski & Kramer, 2006, p. 13) can be more severe in its scope than illegal harms (crimes). For instance, wars are extremely socially injurious activities, but may be completely legal according to national and international law (Green & Ward, 2004). Similarly, dams and its resulting loss of livelihoods and forced displacement constitute serious social harms, while those may be permitted according to the legal system.

2.3.2 Environmental harm

Another type of harm, environmental or *green* harm, is also increasingly acquiring attention within criminology (White 2008, pp. 17-18). Green criminology is a branch within critical criminology (Stretesky et al., 2013). It has extended the focus of harms beyond human harms. Three approaches regarding the relation of humans and their environment can be distinguished (see White 2008, pp. 14-15; White 2011, p. 23).

In the first, the anthropocentric approach, the human is placed central. The environment is seen as merely instrumental to the human species, and therefore environmental harm is only relevant if it also affects people (White, 2008, p. 17). At the other side of the spectrum is the approach that is based on animal rights and species justice. In this approach the non-human animal and how it is harmed by human activities takes a central position (White, 2008, pp. 14-15; White, 2011, p. 23). More or less in the middle, lays the approach of eco justice. From this perspective humans are merely a component of the whole ecosystem and thus the ecosystem should also be preserved for its own sake (Ibid.).

An eco-justice perspective acknowledges the interrelatedness between human and non-human animals, but also how humans are simply a sprocket of a much larger cycle (Ibid.). Moreover, the transnational nature of environmental harms is acknowledged (White, 2011, p. 15). Indeed, the

negative consequences of dams are beyond social harms or localized environmental harms and do not respect national borders. Ecosystems that depend on river flows may be disrupted through dams and at the same time humans may also be harmed by the disruption of those ecosystems. For instance, lakes that dry out due to dams harm the biodiversity but also the people that depend on that flora and fauna for their subsistence. This may also lead to *spin-off* crimes as people lose their ways of sustaining themselves and need to find other, possible illegal, ways to survive (White, 2011, p.14)

2.3.3 Environmental victimization

Harms lead to victims, and accordingly environmental harms lead to environmental victims. "Environmental victim implies that someone or something is being harmed through the conscious or neglectful actions of another" (White, 2011, p. 105). Note that this definition includes both the non-human and human victim.

Just as environmental crime and environmental harm have acquired little attention within criminology, environmental victims have largely been ignored in the victimology field (Hall, 2011, pp. 373-374). Moreover, green criminology has given relatively attention to the dynamics of environmental victimization (Hall, 2011). One key contribution has been the observation that *"Environmental victims are often, in effect, sacrificed for the benefit of a more powerful entity"* (Williams, 1996, p. 314). Victimization may be a by-product of an event, but not everyone or everything has the same chance of being a victim (Williams, 1996, p. 313; White 2011, p. 110). Human environmental victims are frequently from less powerful groups such as minorities and the poor (White, 2011, p. 111).

Green criminology has put attention on *inequality of impacts* in environmental victimization (Hall, 2011, p. 382). A convincing body of work shows how ethnicity or color may play a role, especially in the case of *environmental additions* (Stretesky et al., 2013, p. 68) Black people in the Unites States have a higher change of environmental victimization, just as people in the 'Global South' are more likely to be affected by environmental harm (Gaarder, 2013, p. 273).

Besides the unequal distribution of harms, victimization itself is often not acknowledged as such. Victims may not realize there is an actor responsible for their victimization. Their dismay can be perceived as a consequence of the environment, 'natural' processes, or even an act of God. (White, 2011, p. 116). For instance, harms that result from policies of the state are frequently portrayed as natural disasters (Green & Ward 2004, p. 52). This is in part due to the complexity of environmental (transnational) harm (White, 2011, p. 14). Gaarder (2013) has shown how states and corporations also try to "evade responsibility by individualizing harm" (p. 279). Instead of acknowledging the cause of harm and placing responsibility on the perpetrator, victims are supposed to deal and solve

the consequences. For instance, if a water source is polluted by industrial activities, corporations and states may propagate bottled drinking water as a solution instead of addressing the pollution.

Besides putting responsibility on the individual, existing inequalities in race, class and gender are exploited in order to conceal harm (Brisman & South, 2013, p. 11). As we also shall see throughout the research, historical and contextual factors of ethnic conflict and victimization partly define how harms are interpreted. Existing power relations and vested interests shape how harms are interpreted. At times harms may be purposefully politicized, while in other cases not, depending on who has the power to do so. For instance, environmental harm may even be a purposeful strategy of war. The usage of Agent Orange during the Vietnam War is a prime example (Zierler, 2011). In Turkey forests have also been purposefully destructed in order to curb guerrilla activities and indirectly to assimilate local populations (Etten, Vos, Jongerden, Klaasse, Hoeve, 2008). Indeed, seemingly politically neutral megaprojects are not only politicized environments, but can even be political tools.

2.4 Perpetrators

2.4.1 Colluding interests of state-corporate players

When placing responsibility for social and environmental harm this inevitably leads to a focus on states and corporations, particularly at the intersection of both. As Gaarder (2013) claims: "The majority of green harms is a result of corporate-political relationships in the pursuit of profit, not just a few individuals making harmful choices" (p. 279)

Many critical criminologists conceive states as the "perpetrators of the most serious and widespread crimes" (Green & Ward, 2004, p. 4). Largely ignored by conventional criminology, nation states (of all kinds) have been responsible for millions of deaths and other crimes, however since the state itself defines the law such activities are not criminalized (Chambliss et al., 2010; Green & Ward, 2004, p. 1).

The other prime group of perpetrators is corporations. Again numerous examples exist on socially and environmental harmful activities by corporations. Those range from breaching safety regulations that violate human rights of workers (Tombs & Whyte, 2007), or environmental crimes of which the BP oil spill of 2010 is a recent example.

Another form is the collusion between states and corporations; *state-corporate crime* (Kramer & Michalowski, 1990). State corporate crime is at the junction of political and economic interests and according Michalowski and Kramer (2006) "whenever the economic and political powers are consolidated, the potential for harm is magnified" (p. 3).

The interests of corporations and states often intersect and ties between economic and political elites are strong. Even more so, Michalowski and Kramer (2006) claim that the separation of money and power is a *social fiction*: "What is economic is always political; political is always economic. This reality, however, is regularly obscured within liberal democratic discourse, which approaches economics and politics as separate spheres of concern" (p. 2).

When applied to dams, those combined interests are illustrated in what some call the *iron triangle* (Roy 2002, p. 77) or *hydro-industrial complex* (Economist, 2013), i.e., the combined and interdependent interests of politicians, officials and the dam industry. Indeed, with a turnover of billions a year the economic stakes in dam construction are high and the trade of water is already one of the largest worldwide industries and is only expected to grow much more (Barlow & Clarke, 2002: 104). For politicians and local officials the stakes are also high. Politicians may gain support for their efforts of 'developing the nation' and jobs are provided and economic and industrial activity may increase.

2.4.2 The state corporate lobby and shaping the discourse

States and officials portray dams as instruments to 'develop the nation' and to serve the 'greater common good'. Harms are often portrayed as necessary sacrifices and some harmful activities even propagated as solutions. Those views are exerted in fora such as the World Water Fora of the World Water Council (WWC), where states and corporations meet (Barlow & Clark, 2002, pp. 79-80). The WWC not only plays a crucial role in encouraging dams worldwide but also in the commodification of water as the interests of the dam industry and water industry collide.

The dam industry also spends millions of dollars to portray dams in a positive light and forms associations and organizations to propagate this view. Besides, the WWC other examples include the International Hydropower Association (IHA) which aim is to "advance sustainable hydropower" (IHA, n.d.) and seemingly scientific journals such as the Hydropower & Dams journal that rely on donations from the hydro industry (Hydropower & Dams n.d.). Corporations generally tend to portray themselves as crucial to society, and limiting them means harming society (Stretesky et al., 2013, p. 27) Even when corporations admit harmful activities, in many instances the solutions only turn out to profit themselves (Stretesky et al., 2013, p. 4).

For instance, in the context of global warming the dam industry has framed itself as the clean alternative to fossil fuel-based power generation. In contrast to this, an increasing body of research shows that hydro power can be more polluting than fossil fuel based power plants especially in tropical regions such as the Amazon (Farrer, 2007, p. 13; Fearnside, 2002, p. 93; Gunkel, 2009, p. 732; Mäkinen & Khan, 2010, p. 103; Mcully, 2006, p. 3). The dam reservoirs produce high emissions of methane gas, which has 21 times the effect of CO2 on global warming (Graham-Rowe,

2005). In reaction to this inconvenient data spends large amounts of money on biased research, academics and NGOs in order to refute those claims an, and create uncertainty regarding to the facts (Kemman, 2013; Mcully, 2006). This strategy has proven successful before in relation to climate change and the tobacco industry (Oreskes & Conway, 2010).

2.4.3 The larger context: global political economy

Indicating the organizations, i.e. states and corporations, responsible for harms are first step in understanding why those harms take place. Another is by understanding the larger context of the political economy (see Stretesky, et al., 2013, White 2002). Indeed, corporations and state function in a specific political economy which is dominated by capitalism. In capitalism and its system of production; "The ecological system is nothing but a warehouse of stored resources awaiting exploitation" [rephrased] (Burkett in Stretesky et al., 2013, p. 65). Extending this to environmental harm; "Capital by its very logic imposes what is in effect a scorched earth strategy" (Foster, 2007, p. 7).

Capitalism is not the only ideology harming the environment, for instance soviet communism (which can be considered state capitalism) gave many tremendous harms, however neoliberal capitalism is now globally dominant. Its related extensive commodification of all aspects of nature, combined with the idea of ever expanding production and unlimited growth are vital in the disruption nature and lead to ongoing *ecological destruction* (Stretesky et al., 2013, p. 21; White, 2002, p. 487). The majority of social and environmental harms can be led back those larger processes.

Two particular problematic mechanisms can be distinguished: *ecological additions and ecological withdrawals*. Those concepts help to give more insights in how our present global economy works and explains how the system legitimizes environmental and social harms. Those two processes are fundamental interactions in capitalism; "the withdrawing of natural resources to create products that can be sold in the marketplace" (Stretesky et al., 2013, p. 39) and respectively the disposal of used materials; pollution (Schnaiberg, 1980, p. 23). Both of them harm nature in multifold manners, natural processes are disrupted, disorganized and damaged by taking energy or respectively relocating energy (Stretesky et al., 2013, pp. 21, 39).

Ecological withdrawals fit with the logic of building dams. Stretesky et al. explain what global consequences may arise when water is taken and used to create a product, for example electricity (2013, p. 39). Phytoplanktons in the seas rely on the soil and silica that come from the river. This soil and silica is obstructed by dams from reaching the sea. Consequently, the phytoplankton misses its primary food source and in turn the whole ecosystem of which phytoplankton is the base is harmed. In other words: "By disrupting the flow of water, dams disorganize the ecosystem and disturb the efficiency of the ocean's primary production unit." (Stretesky et al., 2013, pp. 39-49)

In sum, dams can be considered a representation of the presently dominant political economy and systems of production. States and corporations are the main actors that push to conform to the aims of this political economy as it serves their interests. Indeed dams provide some benefits, however, those are not equally divided and with great cost for nature and (marginalized) people. Individuals, both victims and perpetrators may believe that dams serve the people and necessary development, but this is only due to powerful mechanisms to shape the discourse on dams as such.

3. Methodology

This chapter will discuss the methodological aspects of this research. I will discuss how challenges and methodological issues were tackled, present the research methods and reflect on weaknesses and strengths within the research

3.1 Research design

The research question – *What harms can be identified as a consequence or in relation to dams in Mesopotamia, specifically when assessing the Greater Zab River?* – shows this research is multi-sited. During 14 weeks I conducted fieldwork in Southeastern Turkey and Northern Iraq; Iraqi Kurdistan. I travelled to numerous locations; to the remote Southeastern Hakkâri province where the Greater Zab River originates; to Erbil, the financially booming capital of Iraqi Kurdistan; and to many other cities and villages in between.

This research focuses on the Greater Zab River, and for most part I followed its course. This trans boundary river flows through Turkey and Iraq and is a prime tributary of the Tigris River. Therefore, this river exemplifies many of the larger water related issues in the Tigris River system and the general impacts of dams. By scrutinizing laws and demonstrating dam-related harms this river reveals the effects and politics of dams both on a local and a geopolitical level.

My initial focus was rather different, even larger than the present emphasis. I planned to travel along the Tigris River to document the different impacts of dams for communities along the river. I was especially interested to live among the Marsh Arabs[4] in Southern Iraq. These traditionally living people depend on the Euphrates and Tigris flows for their existence and are therefore affected by upstream changes. Unfortunately my attempts to acquire a visa for Iraq[5] were unsuccessful. Despite promising hopes that the visa could be arranged through Nature Iraq, an environmental NGO that has projects in the marshes, after one month I learned the visa was declined. During that time I waited at the Nature Iraq office in Suleymaniyah, Iraqi Kurdistan[6]. Here, the staff helped me in many other affairs and gave insights in water issues throughout Iraq.

[4] Sometimes also referred to as Ma'dan

[5] Acquiring a visa for Iraq is difficult due to the security situation. My application at the Iraqi embassy in the Netherlands was declined and I heard from other people (foreign journalists) that without good connections acquiring a visa is impossible.

[6] As elaborated more thoroughly later, the Northern Kurdish region of Iraq has different visa regulations than the rest of Iraq and is relatively safe and easily accessible.

My alternative plan was to visit the Kurdish guerrillas at the border of Iraq and Turkey: the Kurdistan Workers Party (PKK). The chief area of this forbidden guerrilla organization is around Qandil, a rugged mountainous area that forms the border between Kurdish Iraq, Turkey and Iran. The PKK can be considered a regional power while no research regarding their perspectives on the water issues has been done up till now. I was particularly interested the role of dams may play in the peace negotiations[7] between Turkey and the PKK, especially since dams in Turkey are often believed to be directed against the PKK. Visiting the mountains of Qandil seemed possible as I have many contacts. However, despite trying five different channels, three meetings with different PKK representatives, numerous emails and phone calls, it turned out to be impossible.[8]

3.2 Methods

3.2.1 Fundamental outsets of research

Besides describing the harms and issues of dams in Turkey and Iraq, one of the aims of this research is understanding the harms of dams and the related politics and perspectives. This type of research, i.e. both interpretive and explanatory make qualitative methods particularly utile (Boeije, 2005b, p. 253). Quantitative methods could also provide insights in the consequences of dams, however, numbers and quantitative data often fail to take the complex reality in account (Beyens & Tournel 2010, p. 202). Numbers are also easily manipulated to serve particular interests (Andreas & Greenhill, 2010).

Contrary to what some (positivist) social scientists believe, I believe no objective reality exist, but many coexisting ideas and discourses that shape and lead to different realities (Russel, Bernard, 2006, p. 5). Consequently, in the thesis, dams are interpreted as sociological constructs. Especially the expected consequences of dams are strongly shaped by discourses, as people have not experienced the consequences yet. This research aims to understand those different ideas and meanings towards dams from an *emic perspective*, a local insider's view (Staring & Swaaningen, 2010, p. 36).

[7] The Turkish authorities and the PKK have been negotiating since the ceasefire of March 2013 to find a solution for the longstanding conflict.

[8] Each time I explained my aims, and every time the contact responded enthusiastically, and that a visit would be no problem. I can only speculate why it was not possible, but the peace negotiations may have played a role. For example, during the time that I tried to go there, there was a change of command within the organization of the PKK (Can, 2013).

Besides, being qualitative, this research is characterized by versatility. I was in the same area (Turkish and Iraqi Kurdistan) over three months in 2011 and therefore have some understanding of the region and local practices. I knew that plans and promises easily change and as the obstacles in my initial plans illustrate, an inductive approach was the only suitable way. Such an approach also fits with the underlying emancipatory aims of this research (Boeije, 2005a, p. 83). This type of research tries to stay connected with the field situation and leave the academic 'ivory tower'. Indeed I hope this thesis may play an emancipatory role in raising awareness and open discussion on dams. Research that is not adapted to the field situation and remains in the academic realm has little social relevance. Truly, "theory should be tied to action" (White, 2011, p. 2).

On the other hand, a flexible and inductive approach creates challenges regarding the focus of the research and is more time-consuming. In order not to lose track I used *sensitizing concepts* (Bowen, 2006) and followed an empirical cycle of inductive and deductive interpretations (Boeije, 2005a. p. 83). Unlike some grounded theorists prefer, I did not aim to enter the field as a *blank slate* (Mortelmans, 2010, p. 92) but still remained open to new ideas and theories. Eventually these considerations and the advice of locals led me to focus on the Greater Zab, a neglected river both in the literature and regional context.

3.2.2 Data collection: sampling, access and research methods

Taking the fundamental methodological points in account interviews, (participant) observation, and desk research have been the chief methods of the research (DeWalt & DeWalt, 2002, p.2). With regard to interviews and participant observation the selection of the research population has been made due to their knowledge in relation to the subject; *purposive sampling (*Boeije, 2005b, p. 269). As the research question conveys many subjects and locations, the research population is very diverse; I spoke to water experts, officials, activists and local villagers.

In the beginning of the fieldwork I primarily met experts as they can help to acquire a general overview and point out particular issues (Baarda, de Goede, Meer-Middelburg, 2007, p. 19). To meet such people and officials I went to the regional urban centers of Kurdish Iraq; Duhok, Erbil and Suleymaniyah. Most of the experts and officials here spoke English. Later in the research, when the focus on the Greater Zab became clearer, I visited villages and communities along the Greater Zab. Contrarily to the officials and water experts in the urban centers, the people in those communities are generally from a lower socio-economic background and did not speak English.

Most of the collected data is based on semi-structured in-depth interviews and informal conversations. Altogether around 40 interviews took place. In line with the inductive approach of this research I spoke with many actors and participated in many meetings that later proved to be

less relevant for the thesis. The interviews are presented in the annexes. Annex one concerns interviews that were used throughout the thesis, as shown I conducted 13 interviews in Hakkâri , Turkey and 16 interviews in Kurdistan, Iraq. Annex two concisely describes other meetings and conversations that have not been cited but indirectly have helped in the research.

The interviews ranged from semi-structured towards unstructured. I met most officials in their offices, while other interviews may not have been seen as such by the respondent, for example during activities. Such informal conversations, meetings and activities can be seen as part of participant observation techniques (DeWalt & DeWalt, 2002, p. 4). During interviews and conversations I observed both verbal and nonverbal information such as the surroundings and body language, besides I made use of probing technics such as repetition, silence, and summarizing (Russel, Bernard, 2006, pp. 217-223).

In order to reach respondents I used a variety of methods. Sometimes I found contacts through the internet, sometimes through the *snowball method* (Boeije, 2005b, p. 271), and often I just tried my luck by going to a village or office. I also participated in activities with respondents that helped to build up rapport and resulted in other contacts. (DeWalt & DeWalt, 2002, p. 40). During the research I had several *gatekeepers,* who helped me in reaching relevant contacts and data (DeWalt & DeWalt, 2002, p. 36). In Hakkâri, I met two persons who were extremely helpful in reaching contacts and translation and at Nature Iraq two employees functioned as *gatekeepers* and helped me in meeting many other (key) informants.

Desk research is another key method in the research. In Turkey much information is available through internet, but in Iraq most information is not put online. Especially in Kurdish Iraq I depended on Nature Iraq databases and Ministry of Water and Agriculture of the Kurdistan Regional Government (KRG) in Erbil to acquire maps and other data on rivers. Obtaining such information often took much effort and time. For instance, in one case I traveled 10 hours back and forth just to get a CD with an Environmental Impact Assessment (EIA). Without personal visits I could not acquire such data as e-mails with the same request were not answered. Those official documents have been used both to learn about the plans, but also to analyze which issues are emphasized or neglected, in other words; how issues are framed.

3.2.3 Ethical and safety issues

Throughout the research the *Framework for research ethics* of the Economic and Social Research Council[9] has been applied. During the research I continuously reflected on safety and ethical issues

[9] http://www.esrc.ac.uk/_images/Framework-for-Research-Ethics_tcm8-4586.pdf

for informants; not doing harm has been fundamental in this. Most respondents had no problems in being mentioned by name in position, however, several interviews with sensitive information are anonymized. In general respondents were informed and asked for consent before interviewing. In more informal, unstructured, conversations this was less clear, but still the respondent knew my general research aims.

A few instances in the field posed ethical questions when I choose to take a (semi) covert role. For example I pretended to be a tourist at Turkish military checkpoints in Hakkâri province. The subject of the PKK is very sensitive, and I could be accused of being a foreign spy. In other cases I would present myself as sociologist instead of criminologist. In state institutions I often left open what kind of researcher I was since critical research may be problematic. Consequently some state officials thought I was a hydrologist just like them, or even part of a dam company. Such covert or semi-covert roles were taken to protect myself and to acquire the necessary access.

In the Hakkâri province, Turkey, the sensitivity of the subject became particularly clear. In Hakkâri city I wished to speak to the local governor[10], but my *gatekeeper* convinced me that could pose problems for him or me as he could be arrested later and I could be deported. Confirming the likelihood of this risk, I heard that six years ago two students from France got deported when they tried to research the dams in the area.

The safety of my translators was particularly relevant. Many locals, including family members of my gatekeepers, are imprisoned for political activities that would be rendered legal in other countries. Speaking about dams and the PKK may give them trouble later. My translators sometimes made this clear. Another example took place in Çukurca, when we were at dam site that had been the scene of heavy fighting only few months ago. My translator did not want to speak with local villagers at the dam site as he feared repercussions from either the PKK or the Turkish military.

Contrarily to Turkey in the Kurdish part of Iraq there were little security issues. Only the borders remain unstable. For instance, when I joined on a field trip of Nature Iraq, we were not allowed to go to the Tigris River and speak with river communities close to the Syrian border. Also, sometimes I was stopped at checkpoints by local security officials but never with significant trouble.

[10] The local governor, the *Kaymakan,* is appointed by the central state. He or she embodies the local representation of the state and has power over key institutions such as the local military and police.

3.3 Quality of data

3.3.1 Reliability & Validity

Qualitative research tends to have issues with reliability as it is little standardized (Maesschalck, 2010, p. 122). The internal reliability of the research has been strengthened by continuously reflecting on the influence of my own role and the possible hidden agenda of the respondent. Data triangulation helped to improve the external reliability. I checked the answers of different positioned individuals, for instance the claims of officials, dam experts and local villagers. Lastly, I consulted and checked my findings with expert informants. Many interviews have been recorded or noted down, moreover, I documented my activities and reflected daily on the research.

Regarding validity, the major challenge throughout this research has been language. 'Talking the Talk' is crucial in participant observation as speaking the local language helps in a deep understanding of local dynamics and issues (DeWalt & DeWalt, 2002, p. 48). Three languages are spoken in the area of research: Turkish, Kurdish and Arabic. It was impossible to learn those properly due to time limits, moreover some Kurdish dialects differ as much as English and German (Kreyenbroek, 1992, p. 55). Nevertheless, knowing a local language, especially Kurdish, could have eased the research. Especially for villages and in Turkey I needed translators, consequently I could not visit some dam affected villages in Iraqi Kurdistan as I did not find the necessary help.

Using a translator creates other dynamics, both for good and bad. For instance, in Hakkâri it often helped that my translators were local and understood the local ways to reach people. For instance, through my translator some officials opened up as he managed to gain their trust throughout the interviews. Also, in the city of Hakkâri through the skills of my translator we managed to have six interviews in a day without planning beforehand. I did not have a budget for translation and therefore often needed to take the opportunities as they were. In Khanaqin, Iraq it seemed my translator was more interested in expressing his opinion than the thoughts of the two PKK members I was interested in. With the risk of being impolite I repeatedly had to emphasize if he could translate my questions to them and their answers instead of expressing his ideas

Besides, the previously mentioned data triangulation I used methodological triangulation to improve internal validity. Interviews were checked with literature, and statements were observed if possible. This often proved to be necessary. For instance, when some officials in Erbil said a dam was already finished, I found out that they did not even started construction. Throughout the research I have not reached saturation as the scope was too broad, but my *purposive selection* to speak to the right informants partly helped to substitute that.

To increase external validity I try to give a *thick description* throughout the research, a rich description that includes explanations of the context in which the phenomena take place (Geertz, 1973; Boeije, 2006, p. 131). I described and tried to understand local and regional differences, however, due to budget, scope, and time limitations leaving out some details was inevitable. Such a thick description helps to compare to other cases. Moreover, the case has been generalized to theory in order to make it more comparable. Just as other research on dams, this research represents many globally applicable issues that relate to dams.

3.3.2 Reflection

Taking social constructionist outsets in account, the interaction between the researcher and the respondent also shapes the researchers' (and possible respondent) perspective (Beyens & Tournel, 2010, p. 202). My identity as a male student from the Netherlands influenced the research. This has both to advantages and disadvantages. For instance, being an outsider can help to shed light on issues that are not clear to the locals and expose tacit aspects (White, 2011, p. 30), however, in order to do so you have to learn 'Walking the Walk'; get accepted by the locals (DeWalt & DeWalt, 2002, pp. 49–52).

Acquiring such acceptance can only be reached by spending an extended time in the field and by getting immersed by the local culture and people. I have spent much time among the Kurds, and I am familiar with many cultural practices such as hospitality, lack of planning and the culture of honor. Nevertheless, there were still issues that I was not prepared for, or that proved to be insurmountable. For example, much of the earlier mentioned issues regarding access (i.e. visiting the PKK), seemed to be related with not saying no. In Kurdistan, and also among the Turks and Arabs, saying no is interpreted as very rude. Instead of saying no, a complex set of avoidance and excuses will eventually show that the person will not or cannot help you.

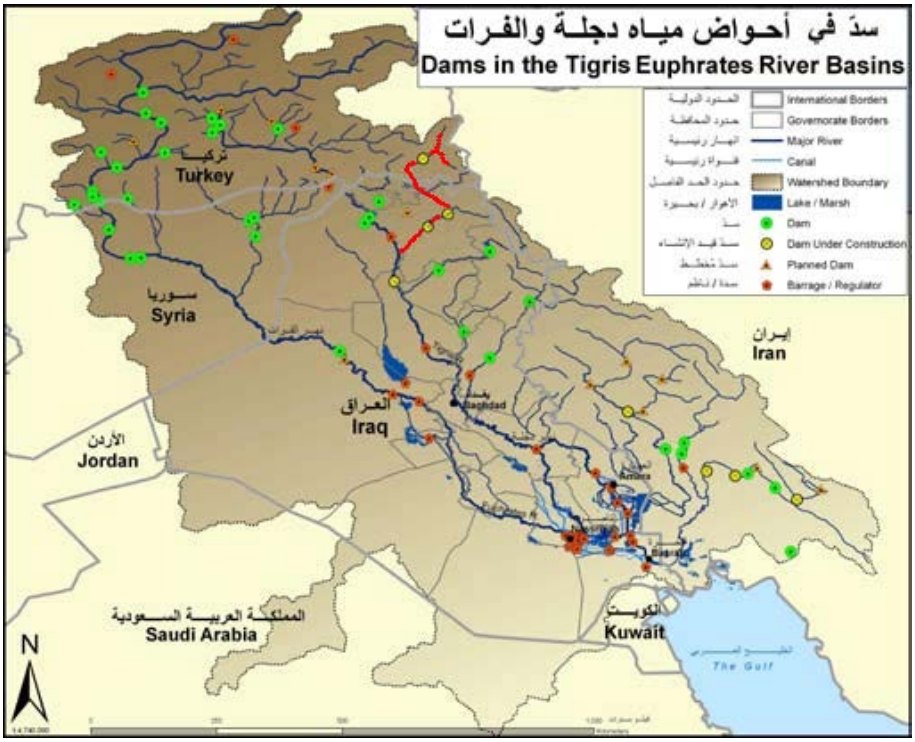
On the other hand I had great benefits by being a foreigner. For instance, it helped to get access to high positioned individuals and a particular advantage is the Kurdish hospitality. Guests are treated with the utmost respect and often complete strangers paid for me. I was helped with accommodation, translation, interviews; the willingness of the locals to help you sometimes seems infinite. With regard to reciprocity this might give some issues. How to thank people for their help and what to give back? In part I hope to return something through this thesis by giving a view to some of them. Reciprocity also means that sometimes you do things that might not directly help your research. This means I went to numerous weddings, drank liters of tea, and joined many picnics and dinners. Obviously this was often for my own enjoyment, but also to show that research is more than just extracting information from the field.

4. Context A layman's guide to water and dams in Mesopotamia

This chapter gives an overview of the region and the general context. I will first zoom out to the whole region with particular attention to the Tigris River. In doing so, the dams and some of the key water issues along the river are presented. Moreover, the Greater Zab River is described, with specific attention to the Kurdistan region.

4.1 Mesopotamia: the Tigris and Euphrates Basins

Figure 4.1 Dams in the Tigris and Euphrates River Basins, Greater Zab River colored red



(CIMI, 2010, p. 9)

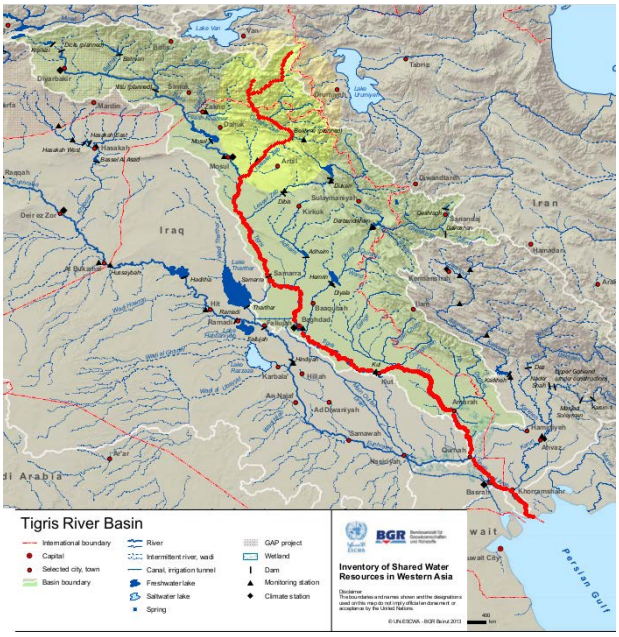
The Tigris River originates in the mountains of Southeastern Turkey, at the Hazar Lake and the Euphrates originates only 80 km apart from the Tigris. They flow independently till the southern tip of Iraq, hundreds of kilometers downstream, to become the Shat al Arab (Gibson et al., 2012). Over 54 million people depend on the flow of those two rivers as precipitation and groundwater are low

throughout the region (UN-ESCWA & BGR, 2013, p. 106). Some consider the Euphrates and Tigris as one basin, while others refer to them as separate basins.[11]

Together the Tigris and Euphrates cover most of ancient Mesopotamia. This region is considered the cradle of western civilization and part of the Fertile Crescent (Collon, 2011; Gibson et al., 2012). Sumerians, Acadians, Babylonians and Assyrians lived in the area and created key inventions that have been vital in modern civilization (Collon, 2011; Edzard, Frye, von Soden, Rizollo, 2013). The Euphrates and Tigris fed those civilizations as their silt made agriculture possible and consequently the creation of cities (Collon, 2011). For thousands of years the region was far more advanced than other regions and a center of science, culture and arts. Laws, philosophy, mathematics, and astronomy were highly developed (Edzard et al., 2013).

4.1.1 Tigris River

Figure 4.2 Greater Zab (brightened) and Tigris River basin. The river course followed throughout the thesis added in red



(UN-ESCWA & BGR, 2013)

[11]Turkey considers the two rivers as one basin since they join in the south of Iraq, at the Shat al Arab, but Syria and Iraq refers to them as two separate basins (UN-ESCWA & BGR 2013, pp. 101, 121; Turan, 2011, p. 190). For Turkey it is more profitable to see them as one basin as they would have more flexibility in the amount of water they release to the downstream neighbors.

Contrarily to the Euphrates River, the Tigris consists of many tributaries. 40% of the flow comes from Turkey, 51% from Iraq and 9% from Iran (Kibaroglu & Scheumann, 2011, p. 280). The river is 1800 km long and runs through diverse climate zones. The upper part of the Tigris is very mountainous and semi-humid and is part of the great Taurus and Zagros mountain ranges that lay in Turkey, Northern Iraq and Iran (UN-ESCWA & BGR, 2013, p. 110). After flowing along the border of Syria and Iraq towards the city of Mosul, the geography becomes increasingly flat and dry and in Baghdad the height may reach only several meters.

23.4 million people live in the Tigris basin and the river is crucial for their subsistence (UN-ESCWA & BGR 2013, p. 101). Turkey, Iraq, Iran and till lesser extend Syria all share part of its watershed. The upper part of the Tigris is largely inhabited by Turks and Kurds, the South by (Shia and Sunni) Arabs (Gibson et al., 2012). Other minorities include Christians, Jews, Turkmen and Yazidi (Ibid.). The sectarian violence in Iraq is largely played out along those ethnic lines and instrumental in both dividing and unifying groups.

4.2 Water issues, dams and water distribution in Mesopotamia.

The Middle East is one of the most water scarce regions in the world. Turkey and Iraq also have little water resources in comparison to the rest of the world, but relatively much for Middle Eastern standards (Strategic Foresight Group, 2011, p. 4). The two rivers could provide sufficient amounts of water if used properly, but this is not the case (Ibid.). This is especially applicable for Iraq. Agriculture is practiced through water intensive methods such as flood irrigation, and the rivers are polluted by industrial waste, open sewage and remains of war (IOM Iraq 2012; Strategic Foresight Group, 2011, pp. 4-5). The water infrastructure has been neglected for decades, moreover people have little awareness on sustainable water usage (IOM Iraq, 2012, p.1).

A key problem is that the general water supply is decreasing (Lorenz, 2008, p. 275). The Tigris volume is slowly diminishing, especially due to dams and other water structures (UN-ESCWA & BGR, 2013, p.111). Droughts and desertification are becoming more common (IOM Iraq, 2012, p 1.) and especially the South of Iraq shows the consequences of water scarcity. Some areas are covered with a salty crust and agriculture became impossible in some areas. Both nature and people are harmed through the lack of, or salinized, water.

4.2.1 Planned and existing dams

Dozens of dams have been built in the region. Never in history the upstream flows have been controlled to the present extend, and this will only increase with the future dams (Partow, 2001, p.

10; UN Integrated Water Task Force for Iraq, 2011, p. 28). In comparison to the Euphrates River the Tigris River has been dammed till much lesser extent. The largest dam is the Mosul dam in Iraq, but both Turkey, Iran and Iraq plan to construct many large and smaller dams in the Tigris Basin. The exact scope and number of dams remains unclear at present, especially in Iraq.

Especially the Southeastern Anatolia Project (GAP) in Turkey is illustrative to understand the issues at stake. GAP is one of the most comprehensive dam projects in the world and estimated at around 32 billion US dollars (Gap 2013a, 2013b). The dams are located on the Euphrates and Tigris, and should provide 7500 MW of electricity and irrigate around 1.7 million hectares of land (Ilisu Engineering Group, 2001, section 2, p. 2). Turkey portrays it as an effort to develop the impoverished Southeast (Jongerden, 2010a, p.139) and indeed the GAP project includes many other infrastructural developments such as airports and roads (Gap 2013a).

The dams on the Tigris river are still under construction, especially the Ilisu dam is big. The dam should be completed in 2015 and generate 1200 MW. The dam is highly controversial as it will displace around 75.000 people and inundate millennia of archeological history of Hasankeyf village (Neel, 2013; Ronayne, 2005, p. 38). Foreign financial banks and institutions pulled out their investments since it fails to comply with their national regulations and the World Bank guidelines, especially regarding the downstream impacts. (Tait, 2008; Brown, 2001; Allan, 2002, p. 255). Despite all the criticism the Turkish state pursues its plans and now the dam is primarily financed from state resources (Tait, 2008).

The large reservoir[12] of the Ilisu also allows Turkey to control the flow to Iraq. Other dams of the GAP project have already led to regional tensions. During the filling of the Ataturk dam in the nineties Iraq threatened to bomb the dam as the Euphrates flow was diminished by 75% (Jongerden, 2010a, p. 137). Iraq and Syria lie downstream and rely on the two rivers, thus they bear the consequences of an adapted and decreased flow (Jones et al., 2008; Jongerden, 2010a, p. 138; KHRP, 2002).

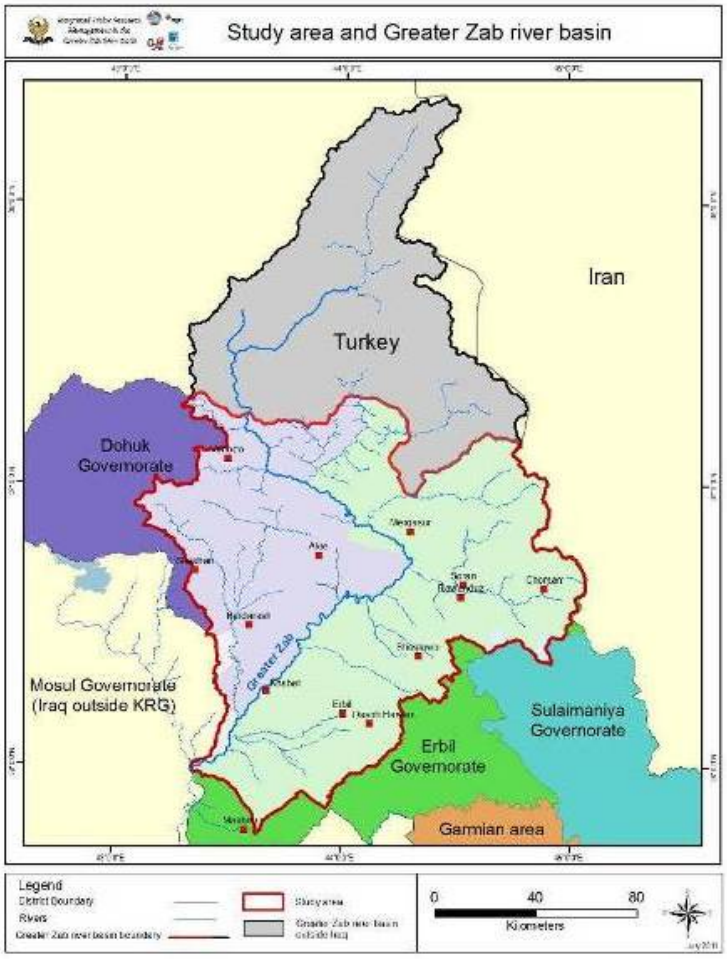
Water has always been a source of tension in the region. Supposedly, the first water war took place 4500 years ago between the city states of Lagash and Umma[13] in present day Iraq (Dinar et al., 2012). Presently numerous cases regarding water distribution can be found in the region. In Khanaqin, Iraq, people bear the consequences of Iranian diversions that have stopped one of the Tigris tributaries, the Alwand river, from flowing into Iraq (IOM Iraq 2012, p. 5). Within Iraq the distribution of water around Kirkuk has led to tensions between Arabic and Kurdish communities (Ibid.).

[12] 10.7 Billion Cubic Meters (BCM)

[13] Lagash and Umma were situated along the Tigris banks in Southern Iraq. When Lagash diverted the water flow the two states went to war, which was eventually ended by an agreement.

4.3 The Greater Zab

Figure 4.3 The Greater Zab basin



(MoAWR KRG, et al. 2011, activity 1, p. 8)

The Greater Zab River originates in the mountains of Southeastern Turkey. Before joining the Tigris it runs 462 km through Turkish and Iraqi Kurdistan. This undammed river flows through areas that have been little developed. People generally live traditional and nature is little touched by human activities. The Greater Zab constitutes the most significant tributary to the Tigris river within Iraq and contributes about one quarter[14] to the Tigris river. 36% of the river originates in Turkey, while the rest comes from Iraq. Also, the Turkish dams on the Greater Zab may not affect Iraq

[14] 12,7 BCM – (UN-ESCWA & BGR 2013, pp. 107, 136).

significantly as there are no irrigation projects (UN-ESCWA & BGR, 2013, p. 136; MoAWR KRG, et al. 2011, activity 1, p. 6).

The Greater Zab River is considered especially suitable for hydro power, as it flows fast and through mountainous valleys. According hydrological research the river could provide over 5000 MW of electricity. 1100 MW would be generated in Turkey and 4000 MW in the Kurdish Iraq. This would cover the whole electricity need of Iraqi Kurdistan and also significantly contribute to the electricity demand of Turkey. In the lower, flatter, parts of the Greater Zab in Iraq, several irrigation plans exist that could contribute to Iraq's water demand for agriculture.

For states and companies the Greater Zab is an economic opportunity, but NGOs like International Rivers lobby for a protected status of free flowing rivers. Many of the world's rivers are dammed, but increasingly people argue that some rivers should be no go zones for dams. In the US, Canada and Australia laws have been adopted to protect rivers. The US Wild and Scenic Rivers Act, Canadian Heritage Rivers System and the Australian Wild Rivers Bill, aim at conserving the function of rivers both for present and future generations (Dandekar, n.d.). In Turkey and Iraq such laws do not exist.

4.3.1 Kurdistan

Figure 4.4 Predominantly Kurdish areas

(CIA, 1992)

The Greater Zab flows through the heart of Kurdistan. An estimated 30 million[15] Kurds are spread over Turkey, Iran, Iraq and Syria. They are the largest nation without a country. In the beginning of the 20th century there was a brief possibility for an Kurdish state (McDowall, 1996, p. 3). The Treaty of Sèvres of 1920 would have divided Turkey by colonial powers, but on the other hand held the promise for an independent Kurdistan for the Kurds. However, under the leadership of Kemal Ataturk this treaty was refuted. Kurdistan was not mentioned anymore and the present Turkish borders were drawn under the Treaty of Lausanne in 1923 (Zürcher, 2003, pp. 160-162).

As the map shows the Kurds are positioned at the crossroads of several states, in a rugged mountainous terrain. The Kurds are far from homogenous, as they consist of many tribes and have four major languages and numerous dialects (Kreyenbroek, 1992). Nowadays the Kurds in Iraq exercise considerable autonomy, but both in Turkey and Iran they remain a repressed minority. In Syria the Democratic Union Party[16] lately established a small autonomous region during the civil war; Rojava. Generally Kurdish history has been characterized by conflict. According a Kurdish saying the Kurds have no friends but the mountains, and indeed the mountains (and the Kalashnikov as some add to the saying) have often provided shelter and hide outs in times of turmoil (McDowall, 1996, pp. 2-3)

In Turkey the conflict has mostly been characterized by the PKK and the war has cost over 40.000 lives of thousands of civilians, militants and (often conscript) soldiers. The PKK was established in 1978 and took up the armed struggle in 1984 (McDowall, 1996, p. 420). It is designated as terrorist organization by Turkey, USA and the EU, but for many Kurds they are freedom fighters. The unprecedented ceasefire of 2013 may finally put an end to decades of violence and lead to more autonomy and minority rights for the Kurds.

In Iraq the Kurds have suffered tremendously during Saddam's Hussein regime. During the genocide around 180.000 people were killed and 4000 villages destroyed (Dabrowska & Geoff, 2008, p. 182). Presently the Kurds in Iraq and the Baghdad central government are conflicting over territorial and oil issues. Particularly Kirkuk - the most oil rich city of Iraq - is claimed by both the Federal Iraqi state and the Iraqi Kurdistan region. Also, the tightening relation between Turkey and Iraqi Kurdistan, as shown by the latest oil deals have problematized the relation between Baghdad and Erbil.

[15] The exact number is contested - ranging between 25 and 40 million, however, the majority of the Kurds live in Turkey.

[16] Considered a branch of the PKK.

Chapter 5. The Source of the Greater Zab: Hakkâri

Image 2. Beyyurdu dam, in Şemdinli municipality, Hakkari, Turkey, by Alex Kemman

5. The Source of the Greater Zab: Hakkâri

Figure 5.1 Hakkâri province in Turkey, Istanbul and Ankara added

(TUBS, 2011).

5.1 The Greater Zab River in Turkey

The Greater Zab River originates in the glaciers of the Ararat mountains just above the Hakkâri province. This remote and rugged province lies in the most southeastern tip of Turkey and borders with Iran and Iraq. Some of the summits of the local Cilo-Sat Mountains reach over 4000 meters and the province is renowned for its natural beauty. In summer the region is green and full of flowers, while winter is harsh and snowy (Richardson, 2009; Lim, 2009, p. 504). The Greater Zab valley is one of the most dramatic of the country (Ibid). The river is also one of the fastest flowing rivers of Turkey (Eken et al., 2006, p. 418). Until Deniz Geçmiş and others built the Bridge of Peace and Youth in 1969[17], the speed and raging current of the Greater Zab took the lives of many local villagers trying to cross (Radikal, 2010).

Historically, the region has been inhabited by diverse groups of people. Assyrians fleeing from Nineveh (in present day Iraq) around 612 BC inhabited the region for centuries and in the 5th century they became Nestorian Christians whom lived here up till the Assyrian genocide of the 20th century (Lim, 2009, p. 503). Now it is primarily inhabited by Kurds.

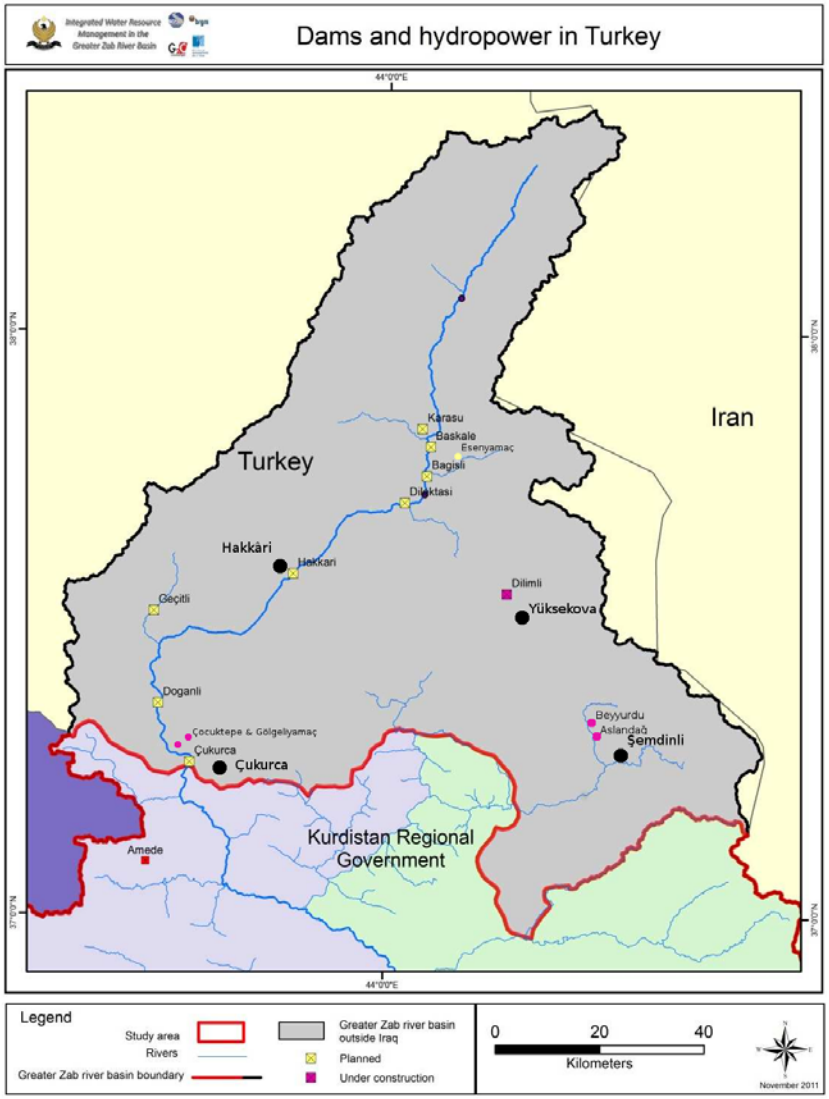
The Hakkâri province is one of the poorest in Turkey and has the third highest unemployment rate of the country (Yıldız & Alaeddinoğlu, 2011; Turksat, 2013). According to statistics of 2008

[17] Deniz Geçmiş, considered the Turkish equivalent Che Guevara, was a young revolutionary student who was hanged at the age of 25. The Bridge of Peace and Youth was built to protest the Turkish national policy. While the second bridge over the Bosphorus in Istanbul was built, costing over 200 million dollars, other parts of Turkey lacked basic infrastructure. In Hakkari people often died when trying to cross the Greater Zab. (Radikal, 2010)

people in Istanbul tend to earn four times more on average than in Hakkâri (Turksat in Unicef, 2008). Generally people live from pasture and some small scale agriculture (Lim, 2009, p. 504; Eken, Bozdoğan, İsfendiyaroğlu, Kılıç, Lise, 2006, p. 418). Smuggling is also common and local shops are filled with untaxed cigarettes, gasoline and tea. Yüksekova in particular, close to the Iranian border, is a key town for heroin smuggling from Afghanistan towards Europe (Bovenkerk & Yesilgoz,1998, p. 80). Hakkâri is one of the regions with much fighting between the PKK and the Turkish army and people have suffered much through displacement and violence.

5.1.1 Planned dams on the Greater Zab

Figure 5.2 Planned dams in Hakkâri province. Town names and some names of dams added



(MoAWR KRG, et al. 2011)

Until now, only a few relatively small dams on tributaries close to the Iraqi border have been under construction, and those may be for military aims (Jongerden 2010a, p. 142). Around eight more dams have been planned in the basin, which are much larger in its scope, both in budget and size. In comparison to mega dams such as the Ilisu or Mosul dam, the dam reservoirs are small and deep due to the steep valleys (Ronayne, 2005, p. 91). Four dams are planned directly on the Greater Zab River; the Hakkâri , the Doğanlı 1,2,3, and Çukurca dams. Those dams would give the major share of the projected 1100 MW electricity generation. They are also by far the most expensive and projected to cost over one billion US dollars (Dc Hidro Enerji Üretim A.Ş. , 2013a; Dc Hidro Enerji Üretim A.Ş. , 2013b).

5.2. Dams, National Policy and Regulations

5.2.1 State corporate players

The dam plans are induced from the central government in Ankara; either by the General Directorate of Renewable Energy or by the General Directorate of State Hydraulic Works (DSI). The DSI has always played a key role in the promotion and construction of dams, but plays a more supportive role nowadays (Scheumann, Kibaroglu, Kramer, 2011, p. XIV).

Most projects are planned through Build Operate Transfer (BOT) schemes (Ibid.). These schemes are part of the liberalization and privatization of the water sectors and allow private companies to do most stages of planning and constructions although eventually the state will buy the facility (Kibaroglu & Baskan, 2011, p. 11). The company may own parts of a river, i.e. *acquire user rights,* for 49 years (Islar, 2012, pp. 317-318). This course was initiated in the eighties after the military coup. Since then Turkey has been transforming from a state-led to a neoliberal economy under the influence of multilateral institutions (Tigrek & Kibaroglu 2011, p. 29).

In the Greater Zab valley the companies are both Turkish and international, often forming partnerships to divide tasks. For instance, the Doğanlı and Çukurca dams are part of a bilateral agreement between Austria and Turkey and also involves multinational corporations such as Andritz, Vatech, Alstom, Voith and Pöyry (Göçay, n.d.). These companies are key players in the global hydro industry and involved in numerous hydro projects both in Turkey and around the world.

5.2.2 Dams in Turkey

Figure 5.3 Key Biodiversity Areas (in pink) and planned and existing dams (in green)

(Doga Dernegi, n.d.)

Dams, both in the Greater Zab basin and throughout Turkey, are a key asset in the Vision 2023. According to this plan, in 2023 Turkey should become the tenth largest economy in the world in the slipstream of the BRIC economies (Gibbons & Moore 2011, Melikoglu, 2013, p. 504). Amongst other development projects dams should be constructed where ever possible: "No rivers should run in vain any longer" (Prime minister Erdogan in Gibbons & Moore, 2011).

Turkey's economy is rapidly expanding. Its energy demand almost doubled between 2000 and 2010 (Ibid.). After China it has the second fastest growing energy demand worldwide (Arango & Krauss 2013). Most of this energy is imported as Turkey has little fossil resources, but relatively much water (Melikoglu 2013, p. 504). Turkey already has over 600 large dams (Countercurrent, 2011, p. 8) and 22% of the national energy demand are generated through hydropower. From this governmental perspective the Greater Zab is yet another river that needs exploitation.

This far reaching exploitation of nature has not been without controversies. Traditional communities and nature are often subordinated in relation to mega projects (Islar, 2012). Numerous examples of communities resisting to the government's policies exist. For instance, in the 'long march of Anatolia' in 2011, villagers from all five regions of Turkey walked to the capital to oppose the dam policies (Gibbons & Moore, 2011).

5.2.3 National Regulations

Since 1993 the key regulation for mega projects such as dams is the EIA (Kibargolu & Baskan 2011, p. 6. Those EIA regulations are mostly in line with the EU directives and include text on environmental, social and cultural impact and mitigation measures, however, sections regarding downstream impact are not included (Scheumann et al., 2011, p. 143; Sumer & Muluk , 2011, p. 50).

A key requirement of the EIA regards public participation and consultation (Coskun & Turker 2010, p. 216; Sumer & Muluk, 2011, p. 50). Moreover, the Law on the Right of Access for Information of 2003 should provide insights in the decision making process (Sumer & Muluk, 2011, p. 50).

The investor of the project is responsible for creating the EIA and the Ministry of Environment and Forestry is responsible for the proper implementation of EIAs (Coskun & Turker, 2010, p. 215 & Yilmaz, 2013, p. 26). Local governorate offices are often delegated to decide if procedures are followed correctly (Ibid.). Many EIAs are conducted at the final stages of planning, and WWF Turkey criticized that therefore there is no room to change plans and include mitigation measures. (WWF in Scheumann et al., 2011, p. 151).

On paper the EIA complies with many strict regulations and seems to give ample of consideration for the environment and the affected people. However, many legal loopholes exist and experts have pointed out weaknesses and systematic transgressions regarding EIAs (Scheumann et al., 2011, pp. 143–145). In practice EIAs never give reason to decline of a project. The vast majority of projects are judged "EIA unnecessary" (Yilmaz 2013, p. 25). In the cases where an EIA was found necessary only 5 out of 1602 applications was evaluated as negative between 1993 and 2009 (Coskun & Turker, 2010, p. 128).

EIAs in Turkey are often adapted according the project or in other cases court orders regarding EIAs are simply not followed (Yilmaz, 2013, p. 26). For instance, the Ilisu dam remained under construction even while the court decided it should be suspended till a proper EIA was made (Neel, 2013). In other cases laws that seem to protect the environment, such as the proposed Nature and Biodiversity Law, essentially open up the protected natural areas for industrial and infrastructural development (Birdlife Europe, 2011).

5.3 Procedures on the Greater Zab

The application of laws and regulations regarding the dams in the Greater Zab basin were researched during the fact finding mission by a committee of the Kurdish Human Right Project (KHRP) led by Ronayne (2005). The KHRP research suggest several controversial impacts and

breaches of laws with regard to the dam projects in Hakkâri province (Ronayne, 2005, pp. 91-105). This is in line with my own experiences.

The regional office of the DSI in Van city, the local DSI office in Hakkâri city and the environmental board of the Hakkâri governorate are responsible for the correct application of regulations and procedures. I managed to speak to those officials, although speaking to state representatives and acquiring documentation such as EIAs posed problems.

For instance, the governor of Çukurca refused to meet me as soon as dams were mentioned. In other occasions officials sent me from pillar to post. Officials told me I needed permission higher up for information (Environmental board Governorate of Hakkâri , personal communication, June 6, 2013; DSI Hakkâri , personal communication, June 11, 2013) When I went higher up, -the regional DSI office in Van- I was directed towards the central office in Ankara (DSI Van, personal communication, June 18, 2013), about 1200 km further.

Indeed, contrarily to the information law of 2003 that ensures open access to information, none of the officials would give information regarding the plans. At one visit with officials I was allowed to look at the cd with the EIAs, but only if I would not tell anyone. The fact-finding mission of the KHRP describes a similar situation. Documents and plans were not provided by officials (Ronayne, 2005, p. 101).

Eventually I found much information through the internet and some preliminary EIAs were put online after my visit in Hakkâri: the EIAs of the Çukurca and Doğanlı dams (see Dc Hidro Enerji Üretim A.Ş. , 2013a; Dc Hidro Enerji Üretim A.Ş. , 2013b). Those documents describe the area and show where the dams are placed, how big it is and what it costs, however, these do not discuss any of the negative impacts the dams may have. Sustainable practices during construction work and noise pollution are mentioned, but effects on the flora and fauna are left out (Dc Hidro Enerji Üretim A.Ş. , 2013b, pp. 37, 45). The EIA does not mention that villages will be flooded, although they do claim the villagers in the area will be enabled to participate (Dc Hidro Enerji Üretim A.Ş. , 2013b, p. 50).

5.3.1 Procedures on the ground

During interviews with local state officials, both from the DSI and Environmental Board, claimed that all necessary procedures are followed (personal communication, June 6, 2013; personal communication, June 11, 2013). When I went to the villages it became clear that the laws regarding informing, consultation and compensation of communities seem not or very loosely respected.

I visited Beyyurdu in the Şemdinli district. This is one of the places were a dam is already under construction and therefore gives insights in what to expect at other locations. In Beyyurdu no houses are flooded, but around 20-30 families lost land in the valley. According to a villager the

dam company started constructing without asking for permission, but promised that they would be compensated. The villagers initially welcomed the idea of earning some money, as they are generally quite poor, but the money never came (personal communication, villagers Beyyurdu, June 7, 2013).

As no money was offered the villagers went to court, consequently, the DSI took their demands more serious and offered some compensation. According to one villager the offered compensation would leave them with no other choice to move to Iraqi Kurdistan as the money would not substitute what they normally earn from their orchards (personal communication, villagers Beyyurdu, June 7, 2013). Also, when some houses were damaged due to the vibrations of the dam construction, no compensation was received to repair the cracked walls (personal communication, villagers Beyyurdu, June 7, 2013).

Another point regarding regulations regards corruption in construction. According to one of the workers of the dam in Beyyurdu the concrete has been mixed with stones (personal communication, June 7, 2013). This is quite common throughout Turkey as it is cheaper (Green, 2005). Safety procedures regarding dam construction in this earthquake prone region seem to be ignored.

Besides visiting Beyyurdu I went to several villages along the Greater Zab that will be flooded due to the Hakkâri, Doganli and Çukurca dams[18]. I spoke with two village heads[19] whom both claimed not to have been informed (Özmes, personal communication, June 12, 2013; Artan, personal communication, June 12, 2013). In one village they realized something will happen when they started building a tunnel, in another when the electricity poles were moved up the mountain. The villagers only learned about the dams shortly before my visit as a local company owner heard about the plans in Ankara (Artan, personal communication, June 12, 2013).

The potentially displaced people in the Greater Zab valley are mostly village guards, because else they would not have been allowed to live in the area[20]. They explained how they were forced to leave their former villages during the nineties and did not want to leave again. One villager shouted: "Even if they give me a million I won't leave my house" (Artan, personal communication, June 12, 2013). Others agreed that they would do everything possible in order not to leave. They do not want to lose their lands and houses and said they would file a petition, apply to court and do whatever possible (Artan, personal communication, June 12, 2013).

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[18] I did not visit all villages, but the according local officials the following villages will be flooded: Kırıdağ, Çanaklı, Olgunlar, Taşbaşı, Üzümcü, Köprülü, Geçimli, Çimenli, Sariyer (Environmental Board Hakkari, personal communication, June 6, 2013; Özmes, personal communication, June 12, 2013).

[19] *Muhtars*: locally elected village leaders that represent small villagers.

[20] Village guards are paramilitaries that are supposed to fight the PKK for which they get a monthly allowance of the state (Balta, 2004, Jongerden, 2010, p. 81).

5.4 Harms

The available EIAs do not mention the negative impacts of the dams on local environment and people, but severe harms can be expected. Some of those concern violations of human rights since democratic practices are not followed. Others harms, particularly environmental harms may have regional consequences.

5.4.1 Social Harms

According to a local official of the environmental directorate and the KHRP fact-finding mission the dams along the Greater Zab will displace between 5.000 and 10.000 people (Environmental board Hakkâri, personal communication, June 6, 2013; Ronayne, 2005, p. 21, 93). Also, previously inhabited villages would be flooded and therefore make repatriation of earlier displaced villagers impossible (Ronayne, 2005, p. 93). Livelihoods may also be affected as pastures and plots of agricultural lands will be flooded. These lands are essential for the subsistence of locals and alternative arable land is scarce due to the mountains (BDP Çukurca, personal communication, June 12, 2013; Özmes, personal communication, June 12, 2013).

According to a local village head the dams mean longer traveling and higher transportation costs (Özmes, personal communication, June 12, 2013). The Çukurca dam will prolong the road between some of the villages and the town of Çukurca. Now the road between the Köprülü village and Çukurca is 16 km long, but it will become 60 km (Ibid.) Many smaller villages depend on the town of Çukurca for business or education and go there daily or several times a week.

Several respondents also expressed concerns regarding the possible loss of unknown heritage. The precise historical treasures in the region are unknown, but traces of Assyrian heritage and Nestorian churches are scattered along the countryside (Ronayne, 2005, pp. 95-96, 101). The PKK-Turkish military conflict has made research on cultural and archeological heritage largely impossible.

5.4.2 Environmental harms

The dams will change the Greater Zab valley into a set of lakes and affect the local biodiversity. Five Key Biodiversity Areas (KBA) are located in Hakkâri. KBAs point out internationally important areas through standardized indicators in order to conserve global diversity (IUCN, n.d.; Doğa Dernegi). Especially the Zab River Valley and Şemdinli Valley KBA are relevant as the dam projects are situated there, the majority being in the Zab River Valley. Many vulnerable and endangered

species live in the valley, for instance a large local variety of butterflies and many rare flowers (Eken et al. 2006, p. 419; Karaçetin & Welch, 2011).

Another harm may relate to evaporation. Both an anonymous official and a representative of Cilo Doga Dernegi, a local environmentalist NGO, pointed out evaporation resulting from the reservoirs may have unpredictable negative impacts. Some of the most important glaciers of Turkey are situated in the mountains of Hakkâri province (Çiner, 2004, p. 419). The local ecosystems are connected to this permanent ice and may be irreversibly changed if those thousands years old glaciers melt. Evaporation of dams and its effects on the climate – especially glaciers – is largely ignored in academic circles, although there is an increasing body that acknowledges how dams affect rainfall (Banafa, 2012, p. 13; Degu et al. 2011, p. 1).

Another issue is that large dams can increase the chance of earthquakes (Gupta, 2002). Since the dams in Hakkâri are relatively small, those chances are small, however the dams are in an earthquake prone region and close to major fault lines (Ronayne, 2005, p. 101, Hull et al. 2002, p. 66). Consequently, the danger lies in the breaking of the dam. There has been a research regarding the Hakkâri dam which concluded the dams will be sufficiently strong (Hull et al., 2002). However, as the previous notes on corruption in construction practices show, the dams may not be as strong as planned.

5.5 Perspectives: contested territory

As explained in the theory, dams are politicized environments that become an arena of conflicting interests. This becomes especially clear in the Hakkâri province. Everything seems politicized here, as the state and the PKK fight to rule the region. When asking opinions on dams this political context shaped the perspectives of locals; the Kurdish identity and the conflict kept coming up.

5.5.1 Laws, injustice and the state

One official opened up and expressed his personal opinion regarding the dam projects. He said “The next generation will swear on us” (Anonymous official Hakkâri , personal communication, n.d) and under the guarantee of anonymity I learned how he believed the dams are a pressing issue that need public discussion. According him the construction will provide jobs and electricity, but the untouched nature of Hakkâri may be irreversibly impacted. He was especially concerned about the issue of evaporation.

On the other hand, when I asked about facts he and other officials claimed all procedures are followed; EIAs are assessed on propriety, people informed and compensated for loss of land and

houses. It was as he spoke with a double tong. For instance, at the same meeting when the official stated all procedures are followed, I confronted him with the fact that village heads told me they were not informed. He proclaimed:

> The difference between the west of Turkey and the east of Turkey is between the golden age and the stone age. Different rules apply here. If they say that they [the villagers] aren't informed, in any case they will learn it when the dam is there. (Ibid.)

My translator (a local teacher and therefore also a state employee) explained the situation. On the one hand our respondent had to follow the official line, but at the same time he disgusts it and does not agree. Nevertheless, he needs the money and all he can do is try to make the negative effects as little as possible. Both the anonymous official and my translator are Kurds.

The interpretation of laws as different between West and East Turkey[21] often came forward. According a local lawyer that works on a court case regarding dam compensation for the dams in Çukurca:

> It is in the main constitution - the state should guarantee the good of the public. But if you look around you can see the bad situation yourself. Which public good? There are not enough public services here, it's not the fault of the local administration, but of 80 years of neglect. The main issue is the law that public good goes above the laws. But this law mainly counts for the east. And in the end the public good only means the government's good (Demiroğlu, personal communication, June 14, 2013)

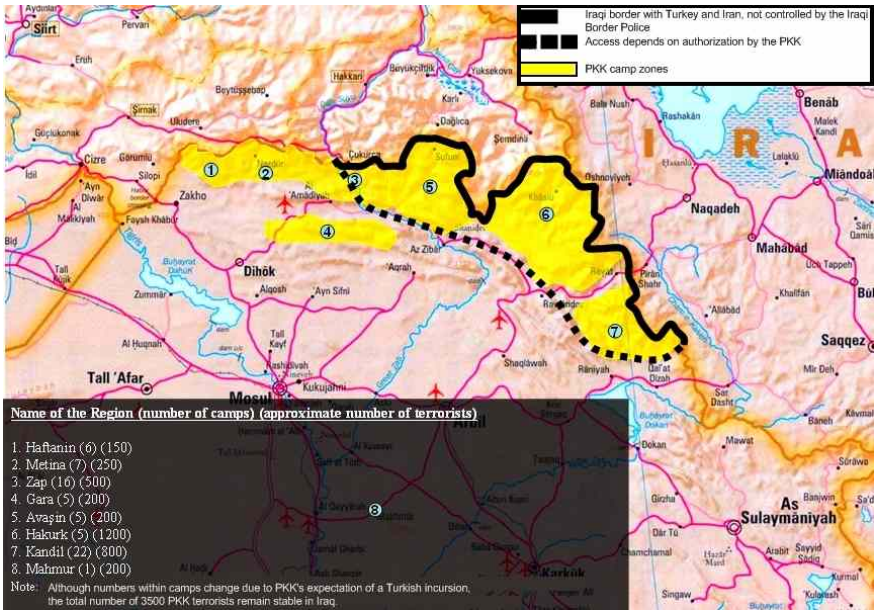
I spoke with two members of the Human Rights Association (IHD) of Hakkâri who expressed similar concerns. When I asked about legal possibilities and court cases they explained that demonstrations are more effective. "Laws are only in the interest of the government" (IHD Hakkâri , personal communication, June 11 & June 12, 2013) .

As those statements exemplify, in Hakkâri province the state and its laws are highly distrusted. Most people's experience with the state is shaped by violence and repression. This repression is constantly felt as military bases and checkpoints are along the larger roads and the police patrols undercover. A local friend of mine once joked during my travels in 2011; "You see, even Turkey agrees we aren´t in Turkey, we have to show our passports all the time!"

[21] East, or Southeastern Turkey can be seen as the equivalent of Kurdistan.

5.5.2 Hakkâri , the PKK and security dams

Figure 5.4 PKK camps in Iraq, close to the Turkish border and Hakkâri province



(Washington Institute, 2008)

The PKK camps are very close at the Turkish-Iraqi border at Hakkâri. The province is "where we are the strongest" Abdullah Öcalan said[22] (Çandar, 2012, p. 47). This popularity is also reflected in the elections. The pro-Kurdish Peace and Democracy Party (BDP) is extremely popular in the Hakkâri province and received 73,7% of the votes during the last elections of 2009 (Hurriyet Secim, 2009). Although the BDP and PKK are not the same, it can largely be seen as the political branch of the PKK. For instance, I saw posters of Abdullah Öcalan and PKK flags in the municipality office in Yüksekova and according to Jongerden, an expert on Kurdish affairs and the PKK, in many occasions the BDP follows the same political course as the PKK (Jongerden, personal communication, February 2013). In the Hakkâri region I often experienced how civil society, and PKK seem intertwined. When I met members of the local human rights NGO, the IHD, the respondents just came back from the burial of a killed PKK fighter.

This strong local support of the PKK and the context of contested territory shape people's view on dams. People believe the dams are made to harm the PKK and not without reason. The supposedly *security dams*[23] that were initiated in 2009 the dams are part of a larger chain of dams in

[22] The imprisoned leader of the pkk

[23] Beyyurdu, Aslandağ, Çocuktepe and Gölgeliyamaç in the Hakkâri province, while others are located in Şirnak also along the Iraqi-Turkish border.

Southeast Turkey to block the PKK activities in the border areas of Iraq and Turkey. Their lakes would form a physical barrier and flood the caves that are used to hide militants and weapons (Altunsoy, 2012; DHA, 2012; Jongerden, 2010a, p. 142; Yavuz, 2009) Initially the state and the DSI itself also portrayed the dams as primarily against the PKK, however, nowadays this has been denied in several occasions (Şahan, 2013; Enerji Enstitüsü, 2013).

In Hakkâri, all four security dams have been suspended. According to local politicians and the DSI office in Van this is due to the conflict; the PKK supposedly set fire to dam equipment in Semdinli (Yüksekova Haber, 2012; DHA, 2012) and kidnapped dam construction employees in Çukurca. Several BDP members spoke with certain pride of this and felt that the PKK would protect the region against dam projects (Kılınç, personal communication, June 6, 2013; BDP Çukurca, personal communication, June 12, 2013).

Often the dams were equated with military posts and many people do not believe the dams are for electricity. One of the workers of the Beyyurdu dam explained to me that even though the dam is in an advanced stage of construction, the necessary equipment to generate electricity is not installed (Beyyurdu villagers, personal communication, June 7, 2013). And a BDP member in Semdinli kept speaking about military posts when I asked about dams (Yılmaz, personal communication, June 6, 2013). People believe the dams are not to benefit them, but to harm them as Kurds and to exercise control over them.

This perspective also came forward when I spoke to PKK representatives. It seems applicable for many of the dams in Kurdish region. When I spoke about water and dams with a PKK fighter in Iraqi Kurdistan she expressed the following[24]:

> They want to own the root of civilization. They try to erase the history of the Kurds, and say that they [Turkey and Iran] are the historical people of Mesopotamia. Dams are one of the methods to destroy the Kurdish culture. They use it to flood the history, to divide communities, and use it to make them leave our mountains. The people get forced to live a modern life and forget their roots. They also use it to grab the water, and use the dams to flood the roads of the PKK. They divided us over the countries when they drew their borders and they want to divide us through those dams as well (PKK member 1, personal communication, May 17, 2013).

Another PKK member expressed how according her it is all about taking the water:

> The root of the water is the mountain and the mountain is where the Kurds and the PKK are, it's where the rivers come from and that is why they want to push us of the mountains. The capitalists want our water, our mountains, and our resources. The large rivers originate in

[24] I met her and another female PKK member in Khanaqin, Iraqi Kurdistan, but their views apply to the issues of dams in Turkish Kurdistan. One of them already fought for 23 years in the PKK. Every now and then the fighters would go to the city for the `fight over minds´ to teach people the ideas of the PKK and their leader Abdullah Ocalan.

Kurdistan and the big powers want this water." (PKK member 2, personal communication, May 17, 2013).

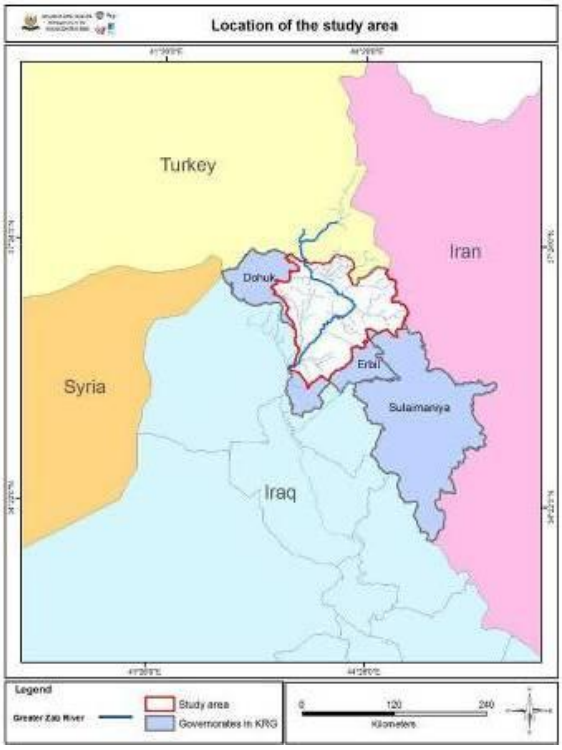
In Hakkâri people see it as unfair that the Turkish state exploits the nature in their area. This seems part of a greater discourse amongst the Kurds and the PKK in particular. During interviews not only the dams in Hakkâri were mentioned, but also the Ilisu dam and other dams in Turkish Kurdistan. Those dams area opposed for various reasons, some emphasize the nature, others the anti-terrorism aims, while others see it as push to lose traditional life and culture.

Chapter 6. Downstream the Greater Zab: Iraqi Kurdistan

Image 3. Rawanduz River, a key tributary of the Greater Zab. Iraqi Kurdistan, by Alex Kemman.

6. Downstream the Greater Zab: Iraqi Kurdistan

Figure 6.1 The Greater Zab and Iraqi Kurdistan



(MoAWR KRG, et al. 2011, activity 1, p. 8)

6.1 The Greater Zab River in Iraq

The next stretch of the river leads us into Iraqi Kurdistan, the north of Iraq which is largely ruled by the Kurdish Regional Government (KRG). This region has enjoyed increasing autonomy since the establishment of the safe haven in 1991 (Declerq, 2003, p. 31). Now it almost resembles an official state as it has its own army, own visa regulations, flag, and in many ways follows its own political and economic course (Arango & Krauss, 2013).

Iraqi Kurdistan is essentially ruled by two political parties, the Kurdistan Democratic Party (KDP) and the Patriotic Union of Kurdistan (PUK). Those parties have been the primary powers for the last decades as they were also the former guerrilla armies that fought Saddam Hussein (and each other). The KDP headed by Massoud Barzani rules the provinces of Duhok and Erbil, while the PUK,

headed by Jalal Talibani, primarily rules Suleymaniyah (Vanden Baviere, 2003, pp. 80-81) [25]. Both parties have their own militias and spheres of influence.

Indeed, we enter Iraq, but not the sort of Iraq a layman may think. This is the 'Other Iraq' as the tourist office of the KRG promotes it[26]. Green mountains and sheep dominate the views in Iraqi Kurdistan, and the terrors that have tormented the rest of Iraq for the last decade are not present here.

6.1.1 The Greater Zab in Iraqi Kurdistan

The Greater Zab River flows through Iraq for almost 300 km and its basin covers one third of the autonomous Kurdish region (MoAWR et al, 2011, activity 1, p. 7). The volume of the river increases about 3 times due to the many tributaries[27] and the river flows through three geographical zones (MoAWR et al, 2011, activity 1, pp. 10, 18-20). The wetter upper zone is mountainous and looks similar to the Turkish side of the basin. Steep, rocky gorges dominate the view and trees are sparsely dotted on green lower stretches of the mountains. The middle part of the basin is more hilly, and the dryer southern part is rather flat with an average height of 200 m (MoAWR et al, 2011, activity 1, p. 7).

The region has been inhabited for millennia and may be the first area were humans first domesticated animals (MoAWR et al, 2011, activity 1, pp.: 24). The upper part of the basin largely collides with the history of Hakkâri in Turkey. At several times the regions were under the same command, most notably during the Kurdish Emirate of Badinan (Encyclopaedia Iranica, n.d.).

Presently, 1.7 million people live in the Greater Zab basin, of which about one million in the city Erbil (MoAWR et al, 2011, activity 1, p. 24). Unemployment in the region is high, and is estimated between 38% and 68% (IBP, 2011, p. 20). Nevertheless, employment opportunities are better than in the rest of Iraq (MoAWR et al, 2011, activity 1, p. 27). Villagers in the Greater Zab basin generally live without much modern facilities and many people rely on pasture and small scale farming (Mustafa, 2012).

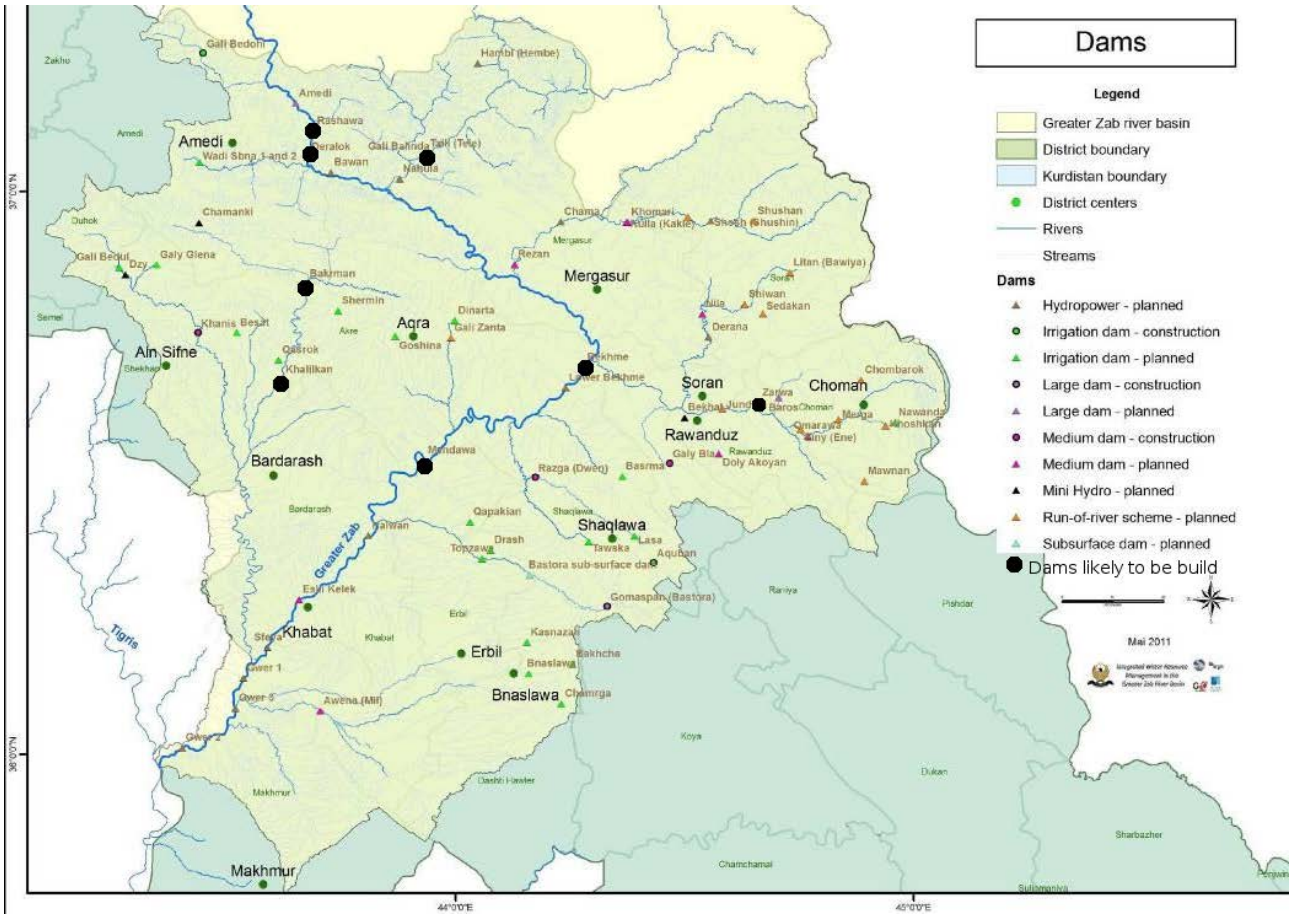
[25] Since several years the PUK dominance has been contested by the *Gorran* (change) party

[26] http://www.theotheriraq.com/

[27] The four largest tributaries are the Cheen, Chama, Rawanduz and Khazir rivers (UN-ESCWA & BGR 2013, p. 136)

6.1.2 Planned dams

Figure 6.2 Dams and the Greater Zab in Iraqi Kurdistan. Dams that are likely to be built soon have been added as black dots on the map



(MoAWR et al, 2011, activity 1, p. 43)

Full usage of the hydropower potential in the basin would either result in 27 (USAID, 2006) or 37 dams (MoAWR et al, 2011, activity 1, p. 42) that would supply the entire electricity demand of Iraqi Kurdistan (Kareem, 2012). Most dams are for hydro power purposes, but some irrigation projects are planned in the lower flatter areas of the basin. Both directly on the Greater Zab itself and on three of its key tributaries dams are planned. The specific number of dams is unclear and it remains unsure if all those dams will be built.

The Bekhme dam is the most notable project and in its largest form[28] it would be one of the largest dams in the Middle East (Mustafa, 2012, p. 1). It is also the only dam on the Greater Zab that is in a far stage of construction, as the works are completed for about 20%, but since the uprising of 1991 it has been suspended (MoAWR et al, 2011, activity 1, p. 12; Mustafa, 2012, p. 15; Solecki, 2005). Other smaller planned dams are the Deraluk and Deraluk-Rashawa dams, just after the Turkish border. About 50 km below Bekhme, the Mandawa dam is planned. The Mandawa dam is one of the largest projects and is expected to be constructed soon and should generate 560-637 MW of energy and 7000 hectare irrigated land (HMR, 2011, p. 7; IK consulting engineers Ltd, 2010, p. 7; Waisi Saeed Abdullah, personal communication, 20th of May, 2013). The costs of the projects range from several millions to several billions of US dollars[29].

6.2 Dams, National Policy and Regulations

6.2.1 State corporate players

The dams are initiated by the Ministry of Agriculture and Water Resources (MoAWR) of the KRG, the Ministry of Electricity (MoE) of the KRG, or the Ministry of Water Resources of Baghdad and planned through BOT schemes.

These ministries generally cooperate with foreign development programs and companies. The United States funded the Strategy for Water and Land Resources of Iraq (SWLRI), which analyzed the hydro potential in coordination with three Italian companies, and the French consulate in cooperation with several French companies did a similar project specified to the Greater Zab (see MoAWR et al, 2011). Those programs help to understand the water issues better, and provide rigorous information, but above all provide economic opportunities for companies. For instance the Italian company HMR, is both involved in research of the SWLRI and the planning of dams.

[28] Its original plan would create a lake of 17.100 million m3, while the alternatives mean either 8.105 million m3 or 4.365 million m3. Its hydropower generation would either be 1500 mw, 840mw or 380 mw respectively. Moreover, its irrigated area would be 565.000, 448.800, or zero hectares (JV of ITSC LTD - UK & STUCKY - SWISS, 2007)

[29] The Bekhme dam is again most notable as it is projected between 2.387 and 4.921 billion Us dollars depending its final design (JV of ITSC LTD - UK & STUCKY - SWISS, 2007)Other mega projects include the Khazer-Gomel irrigation project which is situated on a tributary and estimated at 655 million Us dollars, and the Mandawa project should cost 632 million US dollars (HMR, 2011). The Deraluk Rashawa project will cost around 170 million US dollars and the Rawanduz dam is projected at 40 million US $ (HMR, n.d.). For the other projects cost estimations are unavailable.

Consequently, the rivers are mostly seen in terms of economic potential. For instance, the French program encourages the KRG to be more involved in international networks such as the World Water Forum and increase its role in the water industry (MoAWR et al, 2011, activity 4, p. 54).

Those hydro plans should be seen in the economical context of Iraqi Kurdistan. The region is rapidly developing. Erbil, the capital, is sometimes referred to as *the new Dubai*[30] to emphasize the booming foreign investment and construction in the region. Iraqi Kurdistan is stable and safe for companies to work and since 2006 the KRG has some of the most investor friendly laws of the Middle East (Fettah, 2009).

Both foreign and domestic companies wish to access these new and expanding markets. The Kurdish economy has been growing rapidly with an average of 8% per year and although largely based on its oil revenues many other sectors are also developing (Shepodd-Bhuiyan, Hill, del Rio, 2013). 20 years of stability have given relative prosperity to the region, however, electricity and water supply remain unstable and unequally distributed. This electricity and water demand is only growing more, while the present supply is already insufficient (Kareem, 2012).

Dams are supposed to play a key role in order to address those needs. The many rivers that flow through Iraqi Kurdistan offer great potential from a hydropower and irrigation perspective. The dam master plan is still in progress, but the regional government wishes to use the hydro potential and dozens of dams are being planned all over the region (MoWR KRG several meetings, personal communication, 20 May, 2013).

For dam and water companies this means new market opportunities (MEED, 2012 p.2). Especially foreign companies can offer expertise that is presently unavailable in Iraqi Kurdistan. Altogether, around 30 billion US dollar worth of contracts are expected to become available in the energy and water sector between 2016 and 2030 (MEED, 2012, p. 2).

Contrarily to Turkey the negative consequences of this rapid economic growth and extractive industries have met little resistance by the local people. The environment seems to receive little attention among the local population. This may increase in the next years as harms may become more severe. For example Exxon Mobil is facing opposition by some affected villages (CPT, 2013) and in the hallways of the Ministry of Water in the KRG I heard of a community in Garmiyan (an area in Iraqi Kurdistan) opposing a local dam project.

[30] Erbil is often referred to as the new or next Dubai, emphasizing the economic opportunities and oil driven growth and as a gateway to the rest of Iraq.

6.2.2 National Regulations

Two laws are applicable to industrial and infrastructural projects such as dam construction. On the federal level the 2009 law for the Improvement and Protection of Environment is relevant and the KRG already signed a similar law in 2008. Both of these laws include directives on sanctions and the obligation to conduct an EIA on large projects such as dams (MoAWR et al, 2011, report environmental aspects, 2011, pp. 6, 14).

The Ministry of Environment and the local environmental boards are responsible for the proper supervision of those laws and procedures. The EIA laws include paragraphs on consultation, informing, and compensation, however, according the Integrated Water Resource Management analysis of the French consortium of companies and the Ministry of Agriculture and Water Resources (MoAWR) the enforcement and application of environmental laws is insufficient.

> There is a lack of enforcement of main existing laws and regulations, as far as water uses and water pollutions are concerned; for instance, a certain number of gravel mines are currently operating, damaging rivers and even irrigation perimeters, without any permits. In the same way, some polluting activities seem to be operating without any previous Environmental Impact Assessment. (MoAWR et al, 2011, activity 2, p. 11)

Others, such as environmental expert Anna Bachmann from Nature Iraq expressed similar concerns. Apparently laws are hardly enforced and several dams are being built without an EIA (Bachmann, personal communication, April 23, 2013). Moreover, in the cases where EIAs are made they are generally not publicly available and therefore they cannot be checked by third parties (Ibid.). According Bachmann professors are often paid to use their credibility for false EIA documents and the only companies that do serious EIAs assessments are foreign oil companies whom fear corporate liability (April 23, 2013).

6.3 Procedures on the Greater Zab

Acquiring a clear view about the status of dams in Iraqi Kurdistan was not easy. Documents often contradict each other or no specific information at all is available and websites that are supposed to provide information do not work. However, contrarily to my experience in Turkey the officials of the KRG were easily accessible and the subject of dams did not seem sensitive. At the Ministry of Agriculture and Water of the KRG I met many officials and the General Directorate of Dams and Water Reservoirs provided me many useful documents, such as plans and EIAs.

Mohammed Amin Faris is the director of the General Directorate of Dams and Water Reservoirs therefore plays a key role in the Ministry of Agriculture and Water. Besides, he is also part of the

negotiation committee on trans-boundary water issues. When I asked about procedures explained: "This is not Saddam's time. People cannot just be pushed away, you need to negotiate with them." And he went on to say that de Bekhme dam will only be built if local people agree (Faris, personal communication, 20 May, 2013). Other officials such as Waisi Saeed Abdullah who has been working on dams since 1983 told me that the affected people of the Mandawa dam were consulted and agreed with the plans (Waisi, personal communication, 20 May, 2013).

I acquired the Deraluk and Mandawa EIAs. For the Bekhme dam I received a cd with some plans. The Deraluk project EIA, which was most extensive EIA states;

> No endangered habitat is expected. Endemic habitats are not affected by the project activities. No rare species were encountered. No endangered species of flora/ fauna was encountered. None of forest lands are affected by the project. The project site has no impacts on the (expected) migratory path for wild birds. (Mapcom, 2008, p. 3)

The EIA does not mentions any negative impacts for the environment.

The Mandawa project EIA describes some flora and fauna but fails to describe how the dam will affect those (HMR, 2011, pp. 27-35). Regarding social impacts, displacement is acknowledged, and "All affected persons will be compensated and resettled in a timely and adequate manner, in accordance with the resettlement plans" (HMR, 2011, p. 61), however, it is not specified what that means. In any case the 60 pages of EIA hardly mentions the effects and the language that describes the impacts speaks volumes; the thousands of people that will be displaced are summed up as *a few families* (HMR, 2011, p. 66).

With regard to the Bekhme dam the positive approach towards dams became particularly clear in the promotion video: "The implementation of the project will contribute greatly to the social and economic development of the republic of Iraq" (Zivadinovic 2006, 10.02). "And the lives of displaced people will improve" (Zivadinovic 2006, 10.14).

6.3.1 Procedures on the ground

Especially since most dams are in a very preliminary phase the procedures in practice are hard to assess. Unfortunately I did not manage to visit the villages that will be affected by the Bekhme dam and the Mandawa dam, but I did speak to the villagers at Deraluk.

The master thesis of Halat Mustafa, who did a research on the social impacts of the Bekhme dam (2012), provides several insights in the procedures for the affected Bekhme dam villagers. According to her many affected villagers have not been officially informed or consulted (Mustafa 2012, pp. 100, 108). Especially more away from the Bekhme construction site people do not know they might be displaced. Little information on compensation and resettlement exists (Mustafa, 2012, p. 107), but according to one budget estimation each household would receive 10.600 US dollars (JV of ITSC

LTD – UK & STUCKY - SWISS 2007). Mustafa concludes in her study that the impacts of the dam have been studied insufficiently and people need to be informed and included in the decision making processes (Mustafa, 2012, pp. 107–110).

Another affected village is Deraluk, a small town with some small scale farming and pastures like other villages. Although construction has not started, Deraluk is one of the places where the new dams seem in the most serious stage. It can be seen as a pilot project for other plans in Iraqi Kurdistan (Chiodi, Corna, Inverrnizzi, Locatelli, Mignone, 2013, p. 459) Also the village is very close to Turkey, to Çukurca, and therefore offers some insights in the influence of the national context on the plans and people's perspectives.

In Deraluk people will lose land due to the dam. I spoke to a committee of around ten men who represent around 100 affected families. Despite the claims in the EIA that the villagers would be sufficiently compensated (Mapcom, 2008, pp. 7, 97), it became clear the demands of the villagers for compensation and the offer of the government lay far apart (Deraluk villagers, personal communication June 30, 2013). Despite being positive about the dam, the villagers explained that ground belonged to their forefathers and that it is crucial for their livelihood and therefore need sufficient compensation (Ibid.).

I also asked whether the village was consulted with regard to the dam, but according the villager it was just the owners of the lands who negotiated. In any case people were positive about the dam. As my translator said; "Of course they don't need to ask permission if they do something good!"

6.4 Harms

The EIAs nor the description of plans of the company and state officials elaborate significant on the negative impacts. In reality those impacts may be serious and the future plan may irreversibly alter the face of the Greater Zab basin and nature and people.

6.4.1 Social Harms

The dams would displace at minimum 10.000 and at maximum almost 70.000 people. For the Bekhme dam, the number of displaced people depends on the final height of the dam. The proposal as made by the KRG, in which the dam will be 55 meters high, leads to around 7000 displaced people. The proposal preferred by the Iraqi government supposedly leads to the resettlement of around 65.000 people (Mustafa, 2012, p. 14). The Mandawa dam would displace between 2300 and 3700 people (HMR, 2011, pp. 51–52). The Rawanduz dam, on the Rawanduz tributary river would flood the small village of Rayat (HMR, n.d.), of which the precise number of inhabitants is unknown .

Another issue is the loss of livelihoods. In the northern mountainous part of the KRG the already scarce agricultural lands and valleys will be flooded (Mustafa, 2012, p. 21). Moreover, the reservoirs may block the access to trade centers leaving the farmers without a market to sell their goods (Fouad, personal communication, 13 May, 2013). Pastoral land and the routes of shepherds would also be affected and communities divided. The Bekhme dam for instance, would divide Sorani and Badini tribes (Numan, personal communication, June 29, 2013).

Archeological sites may also be lost. Solecki (2005) has written an excellent description of the archeological sites and local people in the Sipna valley. According him, the plans of the Bekhme dam do not discuss the loss of archeological heritage and presently unknown sites would be lost. Also some major archeological places such as the Shanidar cave, with traces of humans living 9800 BC, would be flooded or difficultly accessible (MoAWR et al, 2011, activity 1, 2011, p. 24). This cave is particularly significant for the Barzani tribe since they regard it as their ancestral home (Solecki, 2005).

6.4.2 Environmental harms

The Bekhme dam would flood several deep valleys. Namely, the Sipna valley the Rawanduz valley. Presently, Nature Iraq is still working on documentation of KBA sites in Iraq. According them many special species live in Iraqi Kurdistan as the high number of proposed KBA sites shows (MoAWR et al, 2011, Report Environmental Aspects, pp. 18-21). Several of those proposed KBA sites would be flooded by the Bekhme lake. For instance, the Bekhme and the Bardosht site, which are both largely uninfluenced by human activities (Ibid.).

In its large form the dam reservoir would also flood the Barzan & Shanidar site, and area often proposed as national park due to the high number of mountain goats and other wildlife (Nature Iraq, n.d.). Another much smaller dam; the Gali Belinda dam, would be built directly in a proposed KBA area; the Gali Balinda site. The Mandawa, the Deraluk and Deraluk-Rashawa dams are close to proposed KBA sites but not directly inside.[31]

Nazar Numan, who is the Dean of the Faculty of Engineering and Applied sciences of Duhok University, emphasized the loss of water due to the evaporation of large dam reservoirs. The Bekhme lake in its largest form would evaporate 480 million m3 of water on a yearly basis. In comparison, the three biggest cities in Kurdistan; Duhok, Suleymaniyah, and Erbil use around 280 million m^3 yearly (Mustafa, 2012, p. 24). Instead of providing storage and security with regard to drinking water, the dams may actually amplify the water shortage.

[31] Bahrkam Dure, Garagu, Benavi and Ser Amadi KBA sites.

Another often ignored problem is the increased chance of earthquakes. Nazar Numan, who is also an expert on the issues of seismic activity and dams, explained how specifically the Bekhme dam can be problematic. Contradictory to the Tigris river, the Greater Zab river runs through steep valleys. This means that the reservoir would be very deep, concentrating the weight of the water more to one point, instead of being spread over the area. The Bekhme reservoir in its largest design would lead to 15 billion tons of weight, and may increase the change on earthquakes in the region (Numan, personal communication, June 29, 2013).

6.5 Perspectives : autonomous territory

The dams are also politicized in Iraqi Kurdistan, however in different ways than in Turkey. For instance, the Deraluk dam which is located close to PKK areas is not seen as an anti-terrorism dam. The general tendency seemed that people saw the building of dams as necessary and positive, besides, most people are unaware of the far reaching plans in the region. Turkish and Iranian dams, however, are often mentioned and opposed.

For instance, the Civil Development Organization (CDO) is a humanitarian organization which also raises awareness on dam issues and the access to water as a human right, however, CDO seems to know little about the domestic plans. When I asked Atta Mohammed, the director of CDO, he mentioned that only small and medium sized dam are planned in Iraqi Kurdistan (personal communication, April 24, 2013). Ararat Rahim from the environmental NGO Green Kurdistan Association (GKA) is not against dams in general but against the dams in Iran because those take the water of Iraqi Kurdistan (personal communication, May 8, 2013).

State officials were all very positive about dams and see the dams as providing development for the region. Faris explained that according him the KRG should build more dams, especially for hydropower, but unfortunately the present budget is too small. Similarly, Akram Rasul, the head of the General Directorate of Dams and Water Reservoirs, supports the construction of dams. According to him the dams will provide water security for the Kurdish region, which is especially necessary in the context of diminishing foreign flows (personal communication, 20 May, 2013). Other lower officials also seemed to believe that the dams will develop Kurdistan. At some interviews I mentioned the criticism on dams, such as the evaporation and that some civil engineering academics[32] oppose the construction of dams. Rasul mentioned how he never heard of that and

[32] Both Jowhar Rasheed Mohammed, whom is the head of the department of Water Resources of the Civil engineering faculty of Duhok University, and Nazar Numan criticize the construction of dams (Rasheed, personal communication, 22 May, 2013).

another official expressed that if those academics would be such experts they would not work at the university but the ministry.

In Deraluk village people believed the village would improve as a whole and the locals preferred to sell their lands to the municipality for the aim of dams than to other actors. They expected the dam would benefit them in many ways, by bringing in tourism, electricity, work, water (Deraluk villagers, personal communication, June 30, 2013). Already when I got in to the taxi I met a student of civil engineering whom explained to me how great it was that a dam would be built there (personal communication, June 30, 2013). When I told one respondent that in Hakkâri they have very ideas about dams he said that the local people probably accept those dams, because their own leaders plan it. If it would be the Baghdad government they might be suspicious, but now they agree since it is done by 'our people' (Ibid.). Enforcing this idea, the portrait of Barzani, the KDP leader, was hanging in the house where the interview was conducted.

6.5.1 Bekhme dam & political aims

The Bekhme dam especially illustrates the tension between 'our people' and the Baghdad government. Just as many Kurds in Turkey believe the dams are specifically directed against them, many Iraqi Kurds believe that the Bekhme dam is against them. Supposedly, the Bekhme dam is aimed to weaken Barzani and his tribe and divide Sorani and Badini Kurds. The dam was initiated in the late 80s, when Mullah Mustafa Barzani was a strong opponent of the Iraqi government (Solecki, 2005) and its lake would flood many of the villages of the Barzani tribe. Today, many people still believe Baghdad wants the dam because of that; to weaken and divide the Iraqi Kurds (MoWRA several meetings; Numan, personal communication, June 29, 2013).

On the other hand, others contest this position and see the dam purely in technical terms. At the Kurdish Ministry of Water Resources, all of the respondents believed the Bekhme is specifically located due to its technical potential. Accordingly, the first time that a dam at this location was suggested is as far back as 1937 and as the analysis of IK engineering shows, the Bekhme is most financially profitable in its largest size (JV of ITSC LTD – UK & STUCKY - SWISS 2007).

Essentially the politics regarding the Bekhme project remain surrounded by mist. Clearly the stakeholders have conflicting interests and this seems the prime reason that the Bekhme dam project is still suspended. In some occasions I heard how the KRG prefers a large design, while in other cases Baghdad supposedly pushes for the largest version. The KRG may not want the high number of people displaced, while according the other mode of thinking Baghdad does not want the Kurdish region to control its primary river. The Bekhme dam shows the power play between Baghdad, but also between the warring Kurdish factions. According Numan KDP opposes the dam, while the PUK supports it (personal communication, 30th June).

In any case many believe that as long as Barzani lives, this status quo shall be kept, as Azzam Alwash the former CEO and founder of Nature Iraq expressed: “His tribe plants in this valley. As long as Barzani is alive, this dam won’t come, so let’s hope he lives long.” (personal communication, May 6, 2013). Putting aside whether Bekhme will be built or not, the Greater Zab River in Iraq will be dammed.

Chapter 7. The rivers converge: the Tigris River.

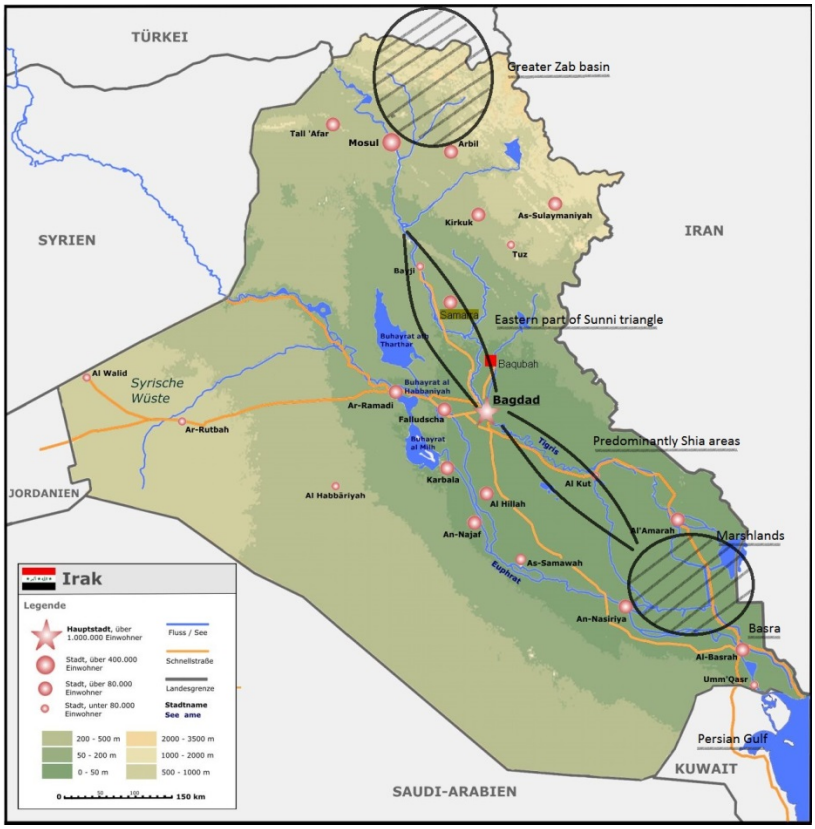
Image 4 Iraqi Marshlands, by Hassan Janali, U.S. Army Corps of Engineers

7. Rivers converge: the Greater Zab joins the Tigris.

The Greater Zab concludes around 80 km below Mosul city as it joins the Tigris River. Here, just beyond the administrative border of Iraqi Kurdistan the river enters federal Iraq that is administrated by the Baghdad government. As explained in the methodology I could not visit those parts of Iraq. This chapter is completely based on secondary sources, and primarily functions to give some limited insights in the effects of upstream dams, the legal aspects and some of the politics involved.

7.1 Iraq

Figure 7.1 Iraq, names of discussed areas added



(World of Maps n.d.)

By entering the Tigris river the context drastically changes. We enter the predominantly Arabic Iraq, with different stakeholders and power dynamics. The Tigris forms a 1000 km long artery until joining with the Shat al Arab where after it reaches the sea. The River passes different stake holders, of competing groups, powers and communities.

Iraq faces many problems. Although the American troops departed in 2013, this year has been one of the most violent since the invasion. Many fear that Iraq may enter full civil war as the Sunnis

feel disenfranchised by the new dictatorship of Al-Maliki and as tensions between Baghdad and the KRG are running high (ICG, 2013).

In the context of water, it is those predominantly Arabic parts of Iraq where many water problems are felt. The area is dry, flat, and no rivers originate here. Decades of inappropriate water management and wars in combination with polluting upstream activities have deteriorated the water resources and made water management in Iraq ineffective and outdated (IOM, 2012, p. 2; Strategic Foresight Group, 2011, pp. 110, 114). Those issues are exacerbated by the ecological withdrawals of upstream dams.

Together with foreign help Iraqi ministries are trying to solve the water related problems. From Italy, to Canada, from the World Bank to USAID, from NGOs to the UN. Dozens of programs, generally in collaboration with the national government are researching the problems and possible solutions regarding water in Iraq (see Amar Foundation, n.d.; CIMI, 2010; IOM, 2012; Italian Ministry for Environment and Territory & Iraq Foundation, 2006; Partow, 2001; Strategic Foresight Group, 2011; UN-ESCWA & BGR, 2013; United Nations Integrated Water Task Force for Iraq, 2011; USAID, 2006; Worldbank, 2006). These reports and programs often give particular attention the marshlands due to their uniqueness.

7.1.1 National policy, regulations and water issues

Just as in Iraqi Kurdistan, investing in medium and large dams is a key policy throughout Iraq. The dams that are planned on the Greater Zab in the Kurdish region, such as the Bekhme and Mandawa, are partly in collaboration with the federal Baghdad government. These efforts should provide water storage, flood protection, amongst other purposes (Ministry of Water Resources Iraq, 2005, p. 14).

The same law that covers Iraqi Kurdistan; the environmental law of 2009, should regulate dams. Other laws also include directives on environmentally disruptive activities, however, according to the Ministry of Environment (MoE) in Iraq this legislation is insufficient (MoE Iraq, 2010, p.9). In particular, biodiversity is not sufficiently protected and the downstream impacts of upstream activities are not covered adequately.

The Canada Iraq Marshland Initiative (CIMI) argues legislation should be adopted to guarantee a sufficient flow downstream and that EIAs for dams should be made (CIMI, 2010, p. 29). As the chapter on Iraqi Kurdistan discussed, EIAs generally not sufficient or not conducted at all. Similarly, the downstream consequences are generally not treated. Indeed none of the plans seem to take the downstream impacts in account (HMR, 2011; Mapcom, 2008).

The Iraqi constitution of 2005 includes clauses on the just distribution of water (Murthy 2010, p. 751), but those do not seem to be applied in the planning of dams. The Iraqi dams may actually breach the Ramsar wetland agreement of 2008 (Ramsar, 2012). This international convention should

protect special wetlands, such as the Hawizah marsh in Southern Iraq, and contains directives for protection of the wetland such as a sufficient water flow (Ibid.).

The latest issue is the establishment of a national park in the Marshes. This is the first national park in the country and according Azzam Alwash it is not only a symbolic step but should also legally oblige Iraq to reserve a certain amount of water (in Pearce, 2013). In comparison to the situation before 2003 this is may be seen as giant leap and provide protection to the biodiversity of Southern Iraq (Sorokonich, 2013).

Protection of the environment and people is crucial, as the dams have already led to many issues, and the newly planned dams are expected to further damage life downstream (MoE Iraq, 2010, p 51). The water issues downstream cannot be attributed to one factor or one dam, but some activities have stronger effects than others. For instance, the Bekhme would decrease the flow much more due to the size of the reservoir and the irrigation practices, nevertheless, a dam like the Deraluk also impacts the river for instance by holding the sediments that feed the downstream lands.

These sediments form the base for flora, fauna and agriculture downstream. Moreover, especially large dams stop the seasonal floods. This flood control is often portrayed as a positive effect of dams, and indeed downstream cities may be protected from dangerous floods, but the floods are crucial to clean lands from salinization and pollution (UN Integrated Water Task Force for Iraq, 2011, p. 27).

The decreasing water supply has also forced many people to move. 11% of the Internally Displaced People (IDP) in Iraq have been displaced due to droughts (IOM, 2012, p. 6). In the two southern provinces of Muthanna and Thi Qar this number has been as high as 94% and 81% respectively.

Especially agriculture and the social harms that relate to it are severe. As Azzam Alwash from Nature Iraq summarizes:

> Agriculture is going to die in the land where it was born. That is the real crime, and the culprit is everyone. The farmers themselves, with their unsustainable water use, and Turkey, Iraq, Iran, with their subsidies for water intensive crops. They should subsidize modernization of irrigation methods, and they should encourage the quality of the rivers. The dams stopped the fertilization of the soil, especially since they stopped the flooding, it took years to feel it, but now the harms are felt (personal communication, 6 May, 2013)

7.2. Down the Tigris: Harms along the river in North and Central Iraq

7.2.1 Sunni triangle

After the conjunction of the Greater Zab and the Tigris Rivers the predominately Sunni areas start. First the river passes the borders of the Nineveh Province and Kirkuk Province, which are both disputed territories between the KRG and Baghdad central government. Soon after we enter Salah Al-Din Province of which Tikrit is the capital. Most of this area covers the eastern part of what often is referred to as the Sunni triangle.

The stretch from Mosul till Baghdad is one of the most violent and dangerous regions of Iraq. Little information can be found regarding water issues in these areas, as the news is dominated by reports on terrorist attacks and conflict. Tensions between the central state and these areas run high. For instance in 2011, the Salah Al-Din province claimed autonomy (Hammoudi, 2011), and during 2013 several cities were taken over by Sunni insurgencies (ICG, 2013).

Water related health issues, such as malnutrition, dehydration, diarrhea and skin diseases, are higher in the Salah Al-Din province than the rest of Iraq (IOM, 2012, p.12). Livestock is also harmed, many animal diseases are caused by polluted water (Ibid.).

7.2.2 Baghdad

The next major location is Baghdad. The Tigris river flows through the city which was once called the city of peace. Conversely, Baghdad's history has been marked by conflict. Regarding the Tigris, the flow in Baghdad has diminished. According Jamal Fouad, former agriculture minister of the KRG, nowadays the river can be waded by foot in summer. Previously even swimming to the other side was impossible due to the strong and deep water (personal communication, 13 May, 2013).

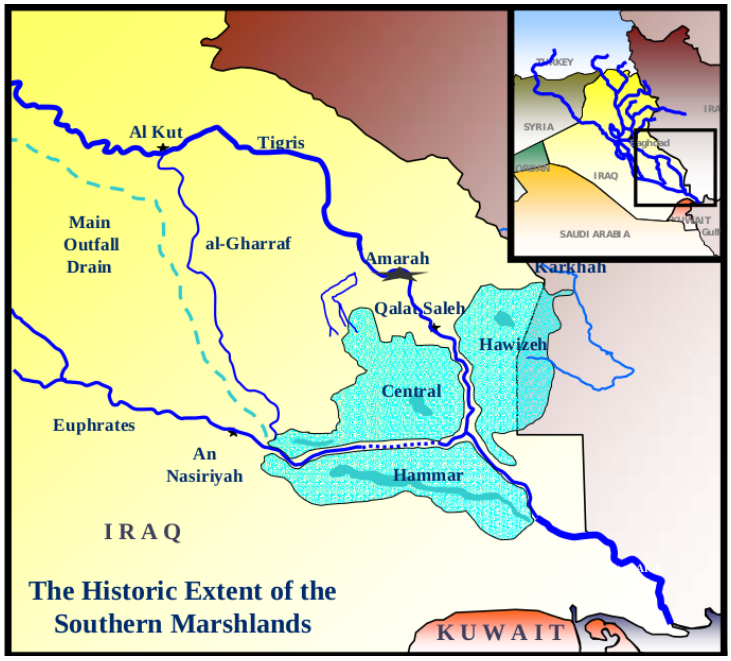
Little information on the precise water issues and harms are exists, however, the UN reports that in Baghdad itself "almost daily incidents of tension or verbal arguments related to water access were reported in 38 different locations"(UN Iraq Joint Analysis and Policy Unit, 2013, p. 2).

7.3 Down the Tigris: Harms along the river in Southern Iraq

After Baghdad the predominantly Shia areas begin, the focus of this chapter. In these places the water scarcity have already left its mark. Particularly Euphrates dependent communities have been affected, as the Tigris is not yet dammed very extensively. The water related problems in the marshes and in the region of Basra give insights in both present and potential harms of new dams.

7.3.1 The marshes

Figure 7.2 The Mesopotamian marshlands



(USAID 2004)

Once the largest wetlands of West Asia the "Iraqi Marshlands are a microcosm of all Iraq's challenges, and the way in which they are addressed has the potential to demonstrate, on a broader level, strategies to move forward Iraq's development agenda" (UN Integrated Water Task Force for Iraq, 2011, p. 9).The complexities and issues in the marshes are interrelated to the rest of Iraq and even the whole basin.

If Mesopotamia is the root of modern civilization, then the Marshes are its cradle. William Thesiger lived for many years among the Marsh Arabs and describes:

> It was on the edge of the Marshes that human history in Iraq began. Far back in the darkness of time a people, already socially and culturally advanced, moved down from the plateau of Iran and settled in the Euphrates delta, where, in the fifth millennium B.C. They built reed houses, made boats, and harpooned and netted fish. They lived there as men do today, in an environment that has changed but little. (Thesiger, 1967, p. 95)

The marshes once covered a vast area of impenetrable reeds and waterways that fluctuated between 15.000 and 20.000 square kilometers and presumably the biblical garden of Eden was in the Iraqi marshes (IMftEaT & Iraq Foundation, 2006; Partow, 2001, p. ix).

During the regime of Saddam Hussein the marshes were largely destroyed. The Iran-Iraq war of the 80s damaged the marshes and the traditional dwellers decreased from around 400.000 to 250.000 people (Hammer, 2006). Dams also played a role in the slow destruction of the ecosystem, however, after the uprising of 1991 the Ba'ath regime initiated their ecocidal project to purposefully drain the marshes (Schwabab, 2004, p. 3). Many Shia rebels went hiding in the marshes after the unsuccessful uprising. Just as the Kurds have their mountains to hide, the marshes have historically been the hide out place for the Shia Arabs and other rebellious groups (HRW, 2003, p. 4; Thesiger, 1967, p. 99).

To avenge the rebellion Saddam Hussein waged a war on the Shia population, and destroyed the marsh environment on which the rebels relied (Schwabab, 2004, p. 3). A complex system of dykes and canals was constructed to dry out the marshlands (Hammer, 2006; IMftEaT & Iraq Foundation, 2006, p.1, UN Integrated Water Task Force for Iraq, 2011, p. 27). The prime aim was to destruct a whole ecosystem; an ecocide in its most narrow definition (Zierler, 2011, p. 19). The marshlands diminished to only 10% of its original size, and only the Hawizah marsh mostly remained as it largely depends on Iranian rivers (IMftEaT & Iraq Foundation, 2006, p. 1; UN Integrated Water Task Force for Iraq, 2011, p. 27)

Figure 7.3 Size of Mesopotamian marshlands in 2000

Mesopotamian Marshlands: Land Cover 2000

(Partow, 2001, p. 31)

After the invasion of 2003 the marshes rejuvenated remarkably well. Despite warnings of scientists that called for controlled release of water, the remaining inhabitants of the marshlands broke down the barriers (Economist, 2005, p. 77). International organizations and national ministries also have been putting money, effort and research in the marshes (Warner, Douabul, Abaychi, 2011, pp 211-212).

In many ways the rejuvenation of the marshes was an unexpected miracle. Azzam Alwash from Nature Iraq received the prestigious Goldman prize[33] for his role in the restoration. Now, Iraq's goal is to restore the marshlands to at least 75% of its original size, however, these efforts may be in vain due to the dams upstream (UN Integrated Water Task Force for Iraq, 2011, pp. 19,33).

7.3.2 Harms in the Marshes

The dams would again drain the marshes, therefore the history and already existing harms help to sketch the future situation and potential harm. People are forced to move, and cultural traditions disappear (Amar foundation, n.d.), and the ecosystem of the marshes may this time be truly lost.

Water, of which ironically there was and still is so much in the marshes, is not drinkable anymore. Many Marsh Arabs now move around in a continuous search for water or need to travel several kilometers for clean drinking water (Al-Asadi, personal communication, 13 May; Harte & Ozbek, 2013). Often they enter lands of other groups and tribes which has already led to conflict and even deaths often killing (Harte & Ozbek, 2013).

The projects in the marshes have led the flora and fauna to slowly recover and return, but the biodiversity is still under treat. At least 18 globally threatened and several endemic species are dependent on the marshes (UN Integrated Water Task Force for Iraq, 2011, p. 21), 278 bird species live in it (Pearce, 2013) and many KBA sites are located in the marshes. Harms to the marshes do not only regard the local ecosystem itself, but are intrinsically connected with the rest of Iraq and even the world. After draining the marshes the average temperature of Iraq increased with five degrees Celsius and the associated desertification led to many sandstorms (IMftEa & Iraq Foundation, 2006). Evidently, in this case the evaporation that cooled the area is a natural necessity.

Especially in the marshes the remains of the traditional life show the intrinsic common interests of humans and their flora and fauna. The marsh Arabs depend on the fresh water, the reeds, the fish and the water buffaloes for their subsistence. Some say that the water buffaloes are for the marsh Arabs, what camels are for Bedouins (Partow, 2001, p. 16). Now the water buffaloes are getting

[33]http://www.goldmanprize.org/recipient/azzam-alwash

sick, the fish population is decreasing and the plants that used to grow in the marshes slowly disappear (Al-Asadi, personal communication, may 7, 2013; Partow, 2001, p. 20 UN Integrated Water Task Force for Iraq, 2011).

7.3.3 Basra

After the marshes, at the last stretch of the Tigris and Euphrates join to become the Shat Al Arab. Basra was once the primary date producer of the world (Gibson et al., 2012) and called the Venice of the Middle East (Myers, 2010).

The water problems that Iraq is suffering of are particularly severe in and around Basra. Not only did the flows from the Tigris and the Euphrates diminish and pollute. Iran also builds many dams that make the water flow too little, too polluted and too salty. Another issue related to the diminishing flow is that seawater of the Persian gulf goes much higher up Shat al Arab during high tide. Most of Basra has become unsuitable for agriculture and the region exemplifies the social harms due to water pollution and scarcity.

The farmers, which already are among the most poor in Iraq are suffering greatly from the water scarcity (World bank 2006, p. 33). Already in 2009 the local water directorate declared that the area would become a disaster zone (Al-Wazzan, 2009). Health issues are increasing, plants die livestock gets sick, and farmers are forced to migrate as they lose their livelihoods (Myers, 2010, Al-Wazzan 2009). Moreover, people's cultural practices are also affected here. For example the Mandeans only temple in Basra is not flooded anymore, which is necessary to baptize their followers (Myers, 2010).

In order to solve some water issues a 700 million dollar desalinization project was initiated in May 2013, partly financed by loan of the Japanese development bank - ironically the same that also finances the Deraluk dam upstream (Al Taie, 2013). Other technical solutions include the construction of an artificial dam that would keep the sweet -albeit polluted- water in and the salty seawater out (Alwash, personal communication, May 6 2013; Al-Asadi, personal communication, May 7 2013).

7.3.4 Persian Gulf

Figure 7.4 Persian gulf

(Stevergito, 2005)

The last stop is the sea itself. The Persian gulf is a semi-enclosed, shallow sea with an average depth of 36 meters. Both the temperature and evaporation rate of the sea are high and although the marginal sea has harsh conditions for flora and fauna, it is rich in biodiversity (Sale et al., 2010).

The Shat al Arab, and its changing characteristics due to dams has already severe consequences for the Persian gulf. The sea became saltier due to the salinized and decreased flow of the Shat al Arab. This fresh river water used to substitute the loss of water due to the evaporation in the Gulf. Some species that rely on this lesser salinity have already tremendously declined (Sheppard et al., 2009). The marshes also used to filter the water before entering the sea, and prevented degradation of the Gulf coast (UN Integrated Water Task Force for Iraq, 2011, p. 27).

A key issue is the blocking of silt by dams. Especially the northwestern mud beds at the little strip of the Iraqi coast and Kuwait contain many shrimp, oyster and microorganisms such as plankton. As explained in the theory, through the lack of silt the base of the marine food chain is threatened (Sale et al., 2010; Stretesky et al., 2013, pp. 39-49).

7.4 Perspectives

To understand larger perspectives I asked experts, officials and NGOs for their opinions on the situation. Just as in Iraqi Kurdistan especially foreign dams seem emphasized.

Talib Murad Elam, who is advisor for Agriculture and food security for the KRG calls Iraq the "lamb in the camel market" and "the wife with two husbands" to explain how Iraqi is subjected to its more powerful neighbors: Turkey and Iran (personal communication, 9 May, 2013). According to him and many others those countries are taking Iraq's water. In similar fashion the Baghdad government also tends to emphasize Turkey as responsible for the water issues in Iraq, while the KRG often points at Iran. The NGOs I spoke to also focus on foreign dams and awareness campaigns, of for instance the Iraq Civil Society Solidarity Initiative (ICSSI) and CDO, primarily focus on the consequences of foreign dams for the Iraqi people.

It seems that such efforts have given their fruits as local people seem to express similar opinions. According to Julia Harte, a journalist who researched water issues in Iraq extensively, local Marsh Arabs see Turkish dams as main cause for their problems and to a lesser extend Iran (Harte, personal communication, 26 April, 2013). The discontent of many actors often focused to the 'foreign' state and at times rightfully. In reality the harms come from both foreign and domestic actors.

8. Damming Mesopotamia: the Greater Zab, dams and criminology

This chapter analyzes how the findings can be understood from a (green) criminology. The harms and transgressions are summarized, the victims are described and the perspectives on those harms. Dams, which at first sight may seem local projects with local consequences, lead to transnational harm and are part of a global system that slowly but persistently alters nature and harms marginalized communities.

8.1 Plans and (potential) harms along the Greater Zab and Tigris

The Tigris river and its tributaries, in particularly the Greater Zab, will be dammed, diverted and controlled. Each of the states through which the rivers flow have plans to use the potential opportunities for hydropower and irrigation. As we have seen the consequences of dams on the Greater Zab and its tributaries are beyond the basin itself. People and nature in the southern parts of Iraq that have already suffered tremendously due to improper water policies are expect to only be harmed more.

8.1.1 National, international legislation and transnational harm

In order to build these dams, companies and states have elaborated laws and regulations to follow. Both Turkey and Iraq have environmental laws that cover social and environmental impacts and guarantee the rights of people and protection of environmental areas. These procedures are not respected. If EIAs are made, these are more like a formality instead of an objective assessment that may lead to cancellation or adaptation of a proposed project (Yilmaz, 2013; MoAWR et al, 2011, activity 2, p. 11).

The dams are planned top-down, the public is mostly not informed or allowed to participate in the decision making process. Compensation often insufficient and monitoring for compliance with laws and procedures is lacking. In the Iraqi Kurdistan the environmental boards do not enforce the laws, and in Turkey EIAs are virtually always accepted despite of being insufficient. Also, while laws that ensure public access to information exist, most EIAs are inaccessible for public review (Personal experiences; Ronayne, 2005, p. 101; Anna Bachmann, personal communication, April 23, 2013).

In Turkey some examples of court cases regarding EIAs exist, but those have been ignored or the laws have been adapted in order to make projects possible (Neel, 2013; Yilmaz, 2013, p. 26). In Iraq no relevant court cases have been made, but other instances show that the justice system here is

similarly insufficient (Woolf, 2010). In accordance with the theoretical outsets, we see how laws serve the interests of the powerful; the states and corporations. Laws do not result in preventing harm but primarily to serve, promote and legitimize the interests of political and economic elites (Chambliss 1972, p. 251; Stretesky et al., 2013, p. 6; Hillyard & Tombs, 2007).

Especially the downstream impacts are completely ignored in the projects. The EIAs that were made did not mention such consequences (see HMR, 2011; Mapcom, 2008) and Turkey has not included the EU directives on downstream impacts. Other international laws also provide no protection for the harms of dams. Both the Tigris and the Greater Zab are trans boundary rivers, but no treaties that consider the effects of upstream country policies for downstream countries have been made (Jongerden, 2010a).

The Treaty of Friendship and Neighborly relations between Iraq and Turkey of 1946 includes notes on water practices, but fails to give clear directives on how the water is shared (KHRP, 2002, p. 40). Other possible applicable laws or good practices come from the UN, financiers such as the World Bank, international guidelines such as the WCD and the regulations of the industry itself (KHRP 2002, p. 27). Turkey only made unilateral agreements regarding river flows, but those do not guarantee a steady flow and both Syria and Iraq see this as insufficient (Jongerden, 2010a, p. 137, Warner, 2012).

Iraq renders the Turkish dams illegal (Warner, 2012, p. 7). This perspective may comply with international standards as even the World Bank for instance, opposes the Ilisu dam due to lack of consultation with the downstream neighbors, however Turkey claims national sovereignty of its 'Turkish' rivers (Warner, 2012, p. 8).

The UN has made several attempts to cover downstream impacts and issues of water distribution on an international level such as the Convention on the Law Non-navigational Uses of International Watercourses of 1997. This convention includes clear directives regarding shared rivers between countries, however, this convention has yet to come into force and Turkey and Iran will probably not ratify the treaty. Another option is the extension human rights by including the Right to Water, several states have signed this agreement, but Turkey, Iraq and Iran are not among those (UN general assembly, 2013).

Since no dams have been built on the Greater Zab yet providing hard facts on the consequences is difficult. However, harms will occur and earlier dam projects show what to expect. Some harms are illegal according the relevant laws, such as insufficient compensation, while other harms are not covered by the laws. This counts particularly for transnational harms.

8.2 Environmental victimization and perspectives

The effects for non-human victims are highly problematic and important, however, as many green criminologists, this research focuses on the sociopolitical aspects. Such an approach tries to understand who benefits and who is harmed, and why this is the case (White, 2011, pp. 28-35). It also includes the perspectives of victims on the harms and projects since victimization is a social process that is perpetuated by power relations (Brisman & South, 2013, p. 11; Gaarder, 2013, p. 273; Hall, 2011, p. 382; White, 2011, p. 116; Williams, 1996, p. 314).

Several overlapping socio economic characteristics become clear when comparing the environmental human victims. The communities in the Turkish Hakkâri province, the villages in Iraqi Kurdistan and the farmers and Marsh Arabs in the Southern parts in Iraq are mostly subsistence based and with little economic resources. Indeed in line with Rob White claims (2011): "It is the social, economic, and political characteristics of the victim populations that make them vulnerable to victimization in the first place"(p. 111). Rural populations and the economically disadvantaged are harmed through the dam projects while the cities and industries are reaping the fruits. On the long term, everyone will be harmed as the whole ecosystem is affected, but on the short term primarily the marginalized and poor need to cope with the consequences.

8.2.1 Political aims: dams, ethnicity and power

Dams and their location largely depend on the river, but still convey political choices and are *politicized environments* that are contested by different stakeholders. The findings demonstrate how respondents often see dams as political instruments. Both in Turkey, Kurdistan and Iraq dams are believed to have political aims. This was manifested in several manners. Some believe the dams serve capitalism and the inclusion of work force, others think dams are made to harm specific ethnic groups. In the larger, geopolitical context, dams are believed to function to control flows and exercise power. Those three perspectives are interwoven with powerful interests.

The first idea, that dams function to force people out of their villages and become cheap labor force, is quite popular in Hakkâri, Turkey. People are highly critical towards the dam projects in their area and believe that they will push people to be included in the global economy. This perspective came forward during interviews with the PKK as well, and previous Turkish policies have indeed focused of putting rural populations in cities in order to control them better (Jongerden, 2010b; Etten et al., 2008). Besides being an effort to assimilate Kurds into Turks, these efforts can also be seen as attempts to push people in the dominant economy. The PKK opposes the Turkish

state and its economy and dams therefore may function to discipline movements that "oppose the neoliberal agenda within individual states" (Harvey, 2005, p. 70).

Some dams are also seen as tools to harm a specific ethnic group. The dams in Hakkâri are believed to harm the Turkish Kurds and the PKK. On the other side on the Turkish-Iraqi border the Bekhme dam is believed to be built in order to harm the Iraqi Kurds. In specific by inundating the homeland of the powerful Barzani clan (KDP) and dividing the Sorani and Badini Kurds.

Given the regional history of destruction of nature for political aims this ethnic framing of the dams is not completely unexpected. Even the Ilisu dam in Turkey may be partly build in order to hinder militants as the dam site is located at 'Hell's Valley'; an area that the PKK uses to cross from Iraq and Syria (Warner, 2012, p. 9). Other examples include the *security dams* along the Turkish-Iraqi border and the ecocide in the Iraqi marshes. The Bekhme dam could indeed harm the Kurds and give political benefits as it would weaken the Kurdish region. Others argue the dams are singularly technical affairs, but those two perspectives do not necessarily exclude another.

Putting aside whether the projects are made for that goal or not, they do reflect some of the power relations between key stakeholders of the region. To be specific, between Turkey and the PKK on the one hand, and the KRG and the Iraqi national government on the other. These stakeholders have been clashing for decades and many Turkish Kurds feel represented by the PKK (and BDP) and Iraqi Kurds by the KRG (KDP and PUK), respectively.

On a more geopolitical level similar findings become clear. Turkey, as an upstream state, may exercise considerable control over the flows downstream and use that as leverage (Jongerden, 2010a; Warner, 2012; World bank, 2006, p. 14). Iraq emphasizes this, and besides, claims Turkey as responsible for the water issues in the country. Those ideas are also popular amongst NGOs and locally affected victims.

Surely, Iraq is partly victimized by the Turkish water policy, but the Iraqi government seems to have little sincere interest in protecting its marshlands as it supports the Bekhme dam and other upstream dams. Also, investments in less water intensive irrigation practices amongst other solutions for the water scarcity remain low on the political agenda. The KRG on the other hand, which can be seen as a state too, seems primarily focused on the dams in Iran. Derbendikhan and Khanaqin are examples of places where people are victimized by Iranian dams and seen as bad, while domestic dams seem to be interpreted as positive and development.

Essentially, water becomes yet another contested resource just as oil or other valuable assets. Geopolitical stakeholders all try to own and control this resource, as it is crucial for food, people, and modern needs such as electricity. Therefore, who builds the dams partly defines the view on the dams. In Hakkâri all state policies may be opposed as people distrust the state. Conversely, Iraqi Kurds such as in Deraluk may feel that as long as the KDP and Barzani build the dams it must be for their benefits as well.

The regional powers play a role in shaping the perspectives and are contesting water, but military conflict seems not in their interest. Water conflict between communities, however, seems likely. Many examples along the river exist of communities that compete over water. For instance, in Baghdad, in Kirkuk, in the Marshes and as scarcity may increase we may expect more of such conflict and related *spin-off crimes* in the future.

8.2.2 Concealment, framing and legitimization of harm

As partially becomes clear in the findings, nationality and ethnicity seem to shape the perspectives on dams of communities, civil society and states. Such perspectives ignore that dams are built everywhere and people are harmed regardless of ethnicity. The analysis of harm has shown the harms are transnational and multi-sited along the river. Both Kurds and Arabs (Sunni and Shia) are harmed. Instead of defining the harms by ethnicity, an emphasis on the division between rich/urban and poor/rural seems more accurate.

Consequently, in some ways the findings are applicable to what Gaarder and others have identified as the diversion of attention by emphasizing ethnic or other socio-political characteristics (2013). Race class and gender are exploited to conceal harm (Brisman & South, 2013, p. 11). For instance, instead of defining the Turks, the Arabs or whatever label responsible, the reality is that companies come from all countries.

Framing harm and putting responsibility on a foreign actor or another ethnicity may therefore be an example of: "Powerful groups [that] manipulate and use race, class, gender and the environment to preserve the basis of their power" (Lynch, 1990, p. 3 in Stretesky et al., 2013, p. 129). Ethnicity and identity have proven powerful tools to unite and divide people. To interpret this as a conscious or strategic tactic may be far sought, but it cannot be ignored that for states and companies the emphasis on ethnicity and nationality is convenient. In the larger geopolitical context the emphasis on nationalist interests diverts attention from the real issue: all dams lead to social and environmental harms.

In another sense, dams are often portrayed as serving the national interest and harms as necessary sacrifices. As Turkish Prime minister Erdogan said at the groundbreaking ceremony of the Ilisu dam in 2006: "We are placing one of the cornerstones of civilization in the Southeast." (Ishikawa, n.d.). Especially concepts such as development hold the ability to exercise power and define if a project is 'good' or 'bad' (Escobar, 1995, p. 9, Kemman, 2010).

During the research it became clear that a substantial number of people, especially in Iraqi Kurdistan believe that dams will indeed help them and benefit the Kurdish nation state. Dams do give tangible benefits, as mentioned previously, however they benefit sectional parts of society instead of the whole country. Traditional communities and nature are sacrificed for this 'greater

common good', which in reality just serves a few. Victims may even believe they will be better off. Indeed both in Turkey and Iraq communities initially welcomed the dams as positive development.

In line with Green & Ward note: "If the hegemonic process is successful, the specific interests of the dominant class will appear as universal interests: thus the subordinate classes see their own interests embedded in those of the ruling elite." (2004, p. 4). Especially for the dams in Iraqi Kurdistan this becomes clear, even when people may be victimized by the planned dams in the KRG people believe it is good for them.

8.3 Perpetrators, the privileged and the political economy

Using the criminological label perpetrator helps to understand who is responsible and who benefits from perpetrating the harm. As White notes, harm and crime and subsequent victimization can result both from conscious and neglectful acts (White, 2011, p. 105). Placing responsibility is particularly difficult do to the complex nature of the (transnational) harm.

8.3.1 Colluding interests, discourse & the *iron triangle* in Turkey and Iraq

From an economical perspective the group that benefits most is the dam industry. In order to build all the planned dams in the Greater Zab basin alone, between 5 and 7.5[34] billion US Dollars would need to be invested. The BOT mechanisms allow for much corporate involvement and as such Turkey and Iraq constitute profitable new markets and for private dam construction companies from all over the world.

The Ministries of Water also have an intrinsic interest in constructing dams. For instance the DSI in Turkey has 25.000 employees, and the largest percentage (around ¼) of public investments go into water projects of the DSI (Kibaroglu & Baskan, 2011, p. 11). As a consequence such officials would probably not oppose dams.

Politicians may also be interested in planning dams. Constructing dams can lead to support from the economically powerful sections in society. For instance heavy users of electricity and the agro industry may profit from dams (Mccully, 2001, pp. xv–xvi; Moral, 2007, pp. 44–45). Even more so, those economic interests may actually be situated within the politic sphere as Michalowski and Kramer have convincingly argued that the division between politics and economic interests is artificial (Michalowski & Kramer, 2006). In countries like Turkey and Iraq this is particularly clear as

[34]The continuum of 2.5 billion USD is due to the final design of the Bekhme dam. At minimum it will cost, 2,4 billion USD, while at maximum 4.9 billion USD.

corruption and nepotism are thriving, politicians are easily bought and projects are often given to acquaintances (Woolf, 2010; Doig, 2010).

Turkey and Iraq are no exception and the political, bureaucratic and corporate interests have been identified as the previously explained *Iron triangle.* Those colluding interests of engineers, politicians and finance also become clear in the documents that discuss the water issues in Iraq. Projects researching water issues in Iraq have often been in cooperation with water and dam companies. Consequently rivers are intrinsically seen as manageable resources and in terms of potential. To let a river run without adaption or to call for more public control instead of privatization would not serve those companies. Indeed as mentioned, the French companies that researched the Greater Zab called for increasing participation in international fora such as the World Water Council (WWC).

The WWC and other organizations such as the IHA and international free market institutions such as the World Bank and the IMF play a crucial role in propagating dams. Indeed the local interests political and economic interests to build dams but cannot be isolated from the global context. Vested interests lead powerful actors to put dams in a positive light and as development. Negative harms are often downplayed and benefits overstated (see Baghel & Nüsser, 2010; Klingensmith, 2007; Mcully, 2001; Morimoto, 2007; Shiva, 2002; Shiva, 2006; Singh, 2002).

This global alliance is highly influential in shaping ideas on water and legitimizing the construction of dams. Ironically, the organizations, states and companies involved tend to portray their efforts as serving humanitarian aims. The WWC claims "to facilitate the efficient conservation, protection, development, planning, management and use of water in all its dimensions on an environmentally sustainable basis for the benefit of all life on earth. "(World Water Council Strategy 2012-2015, n.d.). Conversely, the proposed solutions for pressing water issues can hardly be seen as 'for the benefit of all life on earth'. They mostly serve corporate interests of more privatization, construction projects, and large dams that actually harm many spheres of life (Mcully, 2003).

These efforts may fall under the term *green washing.* The companies portray themselves as environmentally friendly and sustainable, and propose 'green' solutions, but in reality those solutions only profit the companies themselves. Similarly, water issues in Iraqi Kurdistan supposedly should be solved by building more dams, while this leads to more water scarcity downstream, and consequently is not real solution. Just as the Japanese development bank on the one hand finances a dam upstream, and at the same time a desalination plant in Basra (Al Taie, 2013).

8.3.2 Political economy

The construction of dams is not only due to the transnational organizations and alliance that lead people to believe dams are positive, but also legitimized by the dominant political economy. Dam

builders themselves and water ministries may truly believe their projects are beneficial and serving the people as became clear during conversations with local officials. Indeed, dams may contribute to a nation's economic growth, however this may be at great social and environmental costs.

Dams and its resulting ecological withdrawals are examples of a system that is based on accumulation and the commodification of all aspects of both society and nature. This mode of production is not limited to capitalism and neoliberalism but is particularly evident in these. As explained in the theoretical framework, ecological withdrawals and ecological additions lead to ecological disorganization; they harm the environment and often marginalized populations.

The environmental and social harms in Turkey and Iraq along the Greater Zab and Tigris therefore are necessary consequences of systematic pressures. Especially since both countries are fast growing economies the environmental damage is also accelerated. If all those hundreds of dams are built in Turkey and Iraq the ecosystems of those countries will be destroyed and eventually affect the planet as whole. On the short term specific groups, wealthy and powerful elites are profiting from those processes of accumulation and commodification and even on the long term scarcity may ironically lead to more financial profit.

The dams that supposedly will push Turkey and Iraq (Iraqi Kurdistan) forward in the great train of civilization essentially serve the interests of few as the economic growth is unequally divided and allows money and power to be concentrated among a small group of people. Consequently the system enforces itself, those that profit the most, are also the most influential. Even more so, the wealthy and powerful will be the last to be harmed by global environmental problems such as global warming as they have resources and mobility to protect themselves.

The capitalist development model that is based on accumulation and exploitation leads to many social and environmental harms. Since this system is dominant, laws within the same system cannot inhibit these harms from taking place (Stretesky et al., 2013). The discourses and powers that portray this system as rightfully distort the reality and conceal, dispute and legitimize the harms. Indeed, the green criminological theories and analysis expose who actually benefits and how this relates to powerful interests and the global political economy. As such this research forms yet another example in line with other critiques of capitalism that shows how through the commodification and exploitation of the natural resources, the interests of the vast majority are sacrificed for the interests of a few (White, 2011: 88).

This thesis tried to answer the following research question: *What harms can be identified as a consequence or in relation to dams in Mesopotamia, specifically when assessing the Greater Zab River?* Accordingly, I showed how to interpret water issues from a critical (green) criminological perspective. In addition to describing the laws, transgressions and harms, I discussed how dams and harms are portrayed and what powers play a role. Through this focus we have come to understand that dams and issues of water distributions are key political questions that lead to both harms and conflict.

In order to do so an entire river, the Greater Zab that flows through Turkey and Iraq, and its future plans have been studied and described. As the previous chapters have shown this presently free flowing river will be fundamentally altered if all future plans are executed. This will have negative impacts along the river; from the high mountains of Kurdistan, to the flat and dry lands of Southern Iraq, all down to the Persian Gulf, biodiversity is threatened, health issues are increasing and people displaced. States and corporations profit from those same plans and downplay the negative impacts. As such, the dams in the Greater Zab basin exemplify the collusion of state-corporate interests and how these interests relate to global dynamics and power relations.

Through the use of criminological labels such as victims and perpetrators several issues become clear. The victims, besides nature in general, constitute mostly the poorer and rural populations. On the other hand, the perpetrators and beneficiaries consist of global and localized economic and political elite. National stakeholders such as the central Turkish government, Kurdish regional government and the Iraqi federal government do not necessarily represent the interest of the whole country but of a privileged few. Both through global for a and local state representatives dams are dams are propagated. Building dams is for the 'greater common good' and national development. Indeed dams provide tangible benefits, but the harms that result from the dams are both trivialized and justified by the perpetrators of harms through development discourses.

Another issue is the role of nationalism and ethnicity. In the regional context ethnic and nationalistic lines shape the perspectives on dams. Instead of opposing dams as a whole (potential) victims tend to focus on 'foreign' dams. Even more so, partly due to the violent history of the region, many believe the infrastructural projects are constructed to oppress and weaken specific populations. Those findings suit with green criminological theories regarding the diversion of harms. Through ethnicity, and other competing interests, the attention towards the responsible actors is diverted.

In line with insights of critical criminology it seems that the laws are primarily to benefit the blessed and rich few. Moreover, existing laws are hardly followed or sufficiently monitored. Both in

Iraq and Turkey the existing regulations are breached, but this has not led to any change or repercussions. Consequently even by narrow criminological definitions those transgressions fall under the label of state-corporate crime. Moving beyond narrow criminological definitions the severe harms of dams become even clearer. Through the literature we have seen that especially the downstream harms are stark and convey many spheres and locations. Farmers and marsh Arabs in Southern Iraq are harmed by the diminishing and salinized flows.

Eventually, thousands of people will be displaced, not only by the future Greater Zab dams, but by all the upstream dams in Mesopotamia. Nature is distorted, people's livelihoods destroyed and unpredictable regional impacts may result of the water policies. This is all under the approving eye of global neoliberal players and the ideas in the global political economy of capitalism. Short term economic growth and industrial development are placed above nature and the planet's wellbeing and its species. Crimes are committed in the process and harms downplayed. Dams exemplify those systematic crimes and harms, however, whether the construction of dams per se should constitute a crime or not, I will leave up to the reader.

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Annex I List of interviews

List of interviewees and short description. This list only includes interviews that were used throughout the thesis. Sorted by date. Some interviews have been anonymized, or names have been omitted in order to protect respondents.

Name	Position	Location	Date	Comments
Jongerden, Joost	Assistant Prof. Soc. & Anthropology of Development. Wageningen University.	Wageningen, the Netherlands	February 2013	Rather informal meeting to acquire ideas and advice for research. Expert on Kurds and development issues.
Bachmann, Anna Sophia	Environmental expert. Nature Iraq	Ahmed Awa, Iraq	23 April 2013	Informal conversation during fieldtrip, and many other informal conversation.
Harte, Julia	Journalist for National Geopgraphic	Suleymaniyah, Iraq	26April 2013	Travelled along the Tigris to assess the effects of Turkish dams on communities in Iraq.
Alwash, Azzam	Former CEO Nature Iraq	Suleymaniyah, Iraq	6 May 2013	Winner of Goldman prize. Key figure in protection of Marshes and founder of Nature Iraq
Al-Asadi, Jassim	Nature Iraq,	Suleymaniyah, Iraqs	7 May 2013	Born in and expert on Marshes. Previously CIMI, and other waterpolicy positions within Iraq. Recorded.
Rahim, Ararat	Acting president of Green Kurdistan Association	Suleymaniyah, Iraq	8 May 2013	Kurdish Environmental organisation
Elam, Talib Murad Ali	Advisor for Agriculture & Food Security KRG.	Erbil, Iraq	9 May 2013	Part of Blue Peace. Previously Food and Agriculture Organization (FAO) Recorded.
Fouad, Jamal	Ex agriculture minister for the KRG	Close to Suleymaniyah, Iraq	13 May 2013	Previously in key position regarding water policy and also worked for the UN Recorded.
Mohammed, Atta	Director of CDO	Suleymaniyah, Iraq	24 April, 14 May 2013	Works on humanitarian issues, including water security and the right to water. Recorded.
PKK member 1	23 years in the organization. Campaigning for freedom of Abdullah Ocalan	Khanaqin, Iraq	17 May 2013	Translated. Coincidentally I met two PKK members in Iraqi Kurdistan. We spoke about water. Generally they stay in the mountains, but several months per year they do nonviolent struggle.

PKK member 2	Unknown position. Campaigning for freedom of Abdullah Ocalan	Khanaqin, Iraq	17 May 2013	Translated. Both members seemed to have a relatively high position within the organization and informed about the issues at stake.
Faris, Muhammed Amin	Director of the General Directorate of Water Resources. Ministry of Agriculture and Water Resources (MoAWR) of KRG	Erbil, Iraq	20 May 2013	Also part of negotiations between Turkey and Iraq, regarding water.
Waisi, Saeed Abdullah	Consultant and adviser within General Directorate of Dams and Water reservoirs of MoAWR KRG	Erbil, Iraq	20 May 2013	Senior adviser, much experience in the field. Participated in design of Mandawa dam.
Rasul, Akram	Head of GDDWR of MoAWR KRG	Erbil, Iraq	20 May 2013	Key person regarding dams in the KRG
Rasheed, J	Head of the department of Water Resources of the Civil engineering faculty Duhok University	Duhok, Iraq	22 May2013	Expert on water and technical aspects of dams.
Kılınç, Abdullah	Interim mayor Hakkâri Municipality (BDP)	Hakkâri , Turkey	6 June 2013	Translated. Seemed to have a relatively high position in the local BDP branch.
Environmental board Hakkâri governate.	Deputy city manager & agricultural policies.	Hakkâri , Turkey	6 June 2013	Translated. Supervise the EIA process and other regulations (name omitted)
Representative of Cilo Doga Dernegi	Local environmental NGO.	Yüksekova & Hakkâri , Turkey	3 June 2013, 6 June 2013	Translated. Two meetings with two members, one in Hakkâri , one in Yüksekova.
Yılmaz, Abdulkerim	Şemdinli Municipality, deputy chairman BDP	Şemdinli, Turkey	7 June 2013	Translated. Not perfect setting, as we went with around five persons to the office.
Villagers Beyyurdu	Affected by Beyyurdu dam.	Beyyurdu, Şemdinli, Turkey	7 June 2013	Translated. Visited house and looked at cracked walls. Spoke with two local villagers. (names omitted)
IHD Hakkâri	National Human Rights Association, Hakkâri branch	Hakkâri & Çukurca, Turkey	11 June 2013, 12 June 2013	Translated. I spoke with two members, one in Hakkâri , one in Çukurca
Official, DSI Hakkâri	DSI	Hakkâri , Turkey	11 June 2013	Translated. Short meeting that did not provide much information. (name omitted)

BDP, Çukurca	BDP municipality representative	Çukurca, Turkey	12 June 2013	Translated.
Özmes, Kemal	Muhtar (local village leader)	Köprülü, Hakkâri, Turkey	12June 2013	Translated. Represents 320 households, (5 villages). Several other people were present
Artan, Michael	Muhtar (local village leader)	Geçimli / Sarıye, Hakkâri Turkey	12 June 2013	Translated. Represents 5 villages. Around 20 people were present during the meeting.
Demiroğlu, Michael	Lawyer	Hakkâri , Turkey	14 June 2013	Translated. Works on court case regarding Çocuktepe or Gölgeliyamaç dam in Çukurca
Official, DSI Van.	DSI Van regional office. Manager of Hakkâri projects	Van, Turkey	18 June 2013	Translated. Short meeting. (name omitted)
Numan, Nazar	Dean of faculty engineering and applied sciences. Duhok University	Duhok	29 June 2013, 30 June, 2013	Expert on dams, specifically earthquakes and dams.
Directorate of Electricity Duhok	KRG Directorate of Electricity	Duhok, Iraq	30 June 2013	Spoke to the engineer of the Deraluk dam project.
Deraluk villagers	Committee that owns future inundated land	Deraluk, Iraq	30 June 2013	Some in Dutch, some Translated. Around 10 men that represented many families. Besides the meeting we also went to the dam site.
Anonymous official	Crucial position in the construction and planning of dams.	Hakkâri , Turkey	Omitted	Translated. Several meetings, was very concerned about anonymity.

Annex II Summary of other relevant meetings and activities

Besides the previously listed interviews I met many people and participated in several activities that have not specifically been used in the thesis. Already in the Netherlands I met with several experts. Jeroen Warner, whom is an expert on water issues in the Middle East. Egid Korkmaz from Fedkom, (Federatie Koerden in Nederland), an organization that represents Kurds in the Netherlands. Miriam Geerse, who did much research about Kurds and displacement.

In Istanbul I met with several journalists and experts; Agatha Skorownek whom often travelled to the marshes. Bram Vermeulen, who made a documentary on dams in Turkey, Akgun Ilhan who works on water rights in Turkey.

In Kurdish Turkey I participated in the Hasankeyf Ingathering. A gathering to celebrate the beauty of Hasankeyf and indirectly to criticize the construction of the Ilisu dam. During the meeting I met many journalists, locals and activists that work on the Ilisu dam.

In Kurdish Iraq I participated in many activities of Nature Iraq. Some very joyful, such as a rafting trip on the Rawanduz river, others more relevant such as the ground-truthing trip to the Tigris river. I spend much time at the office of Nature Iraq. Here I spoke to environmental experts such as Mudhafer Salim who wrote a book on birds in Iraq and spend much time with Jantine van Herwijnen whom was organizing an awareness campaign of the Tigris water issues. Similarly, I often met with Johanna la Riviera who works for the ICSSI and the Save the Tigris campaign. In Kurdish Iraq I also visited Khanaqin and met with a local activist to understand the issus with Iranian dams.

In Hakkâri I visited the local newspaper office, Yüksekova Haber and I met BDP representatives from all four departments (Hakkâri , Çukurca, Yüksekova and Şemdinli). Besides, I met Kurdish activists whom provided insights in the local dynamics regarding the conflict of the PKK and the Turkish army.

Annex III Information regarding companies and planned dams in Greater Zab basin

Some of the following web sources may help to acquire information regarding companies and planned dams in the Greater Zab basin.

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