CLASH OF THE PROJECTS?

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I Introduction

1.1 Background and Research Question

The last decade we have witnessed an increased interest in the frozen water present on planet Mars. One of the reasons is that water breeds life; something we as human beings on planet Earth are assumed to share with our extraterrestrial counterparts. Since it is far too complex to go into interplanetary water allocation issues, I will stick to more earthly ones and how human beings deal with them in particular. Still, it is illustrative that – when observing other planets – the first thing we look for is water. On planet earth most human beings have always settled near water sources like oceans, rivers, lakes. For others, water dropped from the skies as rain, and hence direct access was provided as well. With this access to water people were able to grow food and drink water to achieve some standard of living.

Then, there are of course all kinds of factors that could potentially threaten the amount of water necessary for the acquired standard of living and their environment; in this case leading to a water scarce situation. Hence, water scarcity can be caused because of natural factors like ones associated with climate change (IPCC, 2007); however, in general scarcity of renewable resources – like freshwater – are caused by the 'degradation and depletion' of those renewable resources, the 'increased demand' for it, 'and/or their unequal distribution' (Homer-Dixon, 1999:177). While some of these types of scarcities can be indeed be caused by natural factors, most scarcities – also the ones on water – are caused by human beings themselves (Achterhuis, 2008). Moreover, water scarcity can be viewed as socially constructed trough a political process on how to deal with the scarcity (Robbins, 2004). Hence, in present day societies this often takes the form of political processes inside and between nation-states on how to treat the problem at hand, and hence making large adjustments to their environments that suit their ideas on economic growth (Blaikie & Brookfield, 1987).

Tough political processes and interstate contestation on water scarcity issues linked with national demands for economic growth can also be found in the countries sharing the river Nile. The river Nile is the longest river in the world and flows downstream through eleven North-East African countries before it enters the Mediterranean Sea. Especially for Egypt and Sudan, their main water source is the river Nile. In fact, Egypt's dependency on the Nile is roughly 96% of

which 86% comes from Ethiopian highlands. Moreover, the Egyptian population lives on 4% on its territory on the shores of the river Nile (NWRP, 2005). Hence, this apparent contrast between having a lot of water in upstream states like Ethiopia and Sudan, and being fully dependent on it in downstream states like Egypt, has always been a murky political reality. Undeniably, Egypt's dependency on the Nile has been a focal point of strive for control of the river throughout history in order to utilize it for economic and financial purposes; before, during, and after British colonization (Tvedt, 2004; Arsano, 2007; Waterbury, 2002).

This strives for control of Nile water in order to promote economic growth has been central point in many of the discussions on the allocation of water for irrigation. This makes a lot of sense, since most Nile riparians are large semi-agricultural countries (Waterbury, 1983:4) dependent on environmental resources for large part of their economic production and employment (Homer-Dixon, 1999:178). Moreover, in arid regions – like Egypt - nearly 90% of all the available Nile water is embedded in food; which make it an extremely valuable resource (Allan, 2002). Every riparian in the Nile basin wants its equal share of Nile water for their development, which often takes the form of agricultural water schemes to produce crops, or dams to generate electricity. In modern history, it is vital political economical interest that plays a major role in the Nile basin water conflict. Nonetheless, equal shares of Nile water have never been achieved and are currently still held hostage by two colonial water treaties between Egypt, Sudan, and the British Empire in 1929 en 1959 respectively; providing Egypt with 75% (55.5 km3) of the Nile water annually. These treaties appear to be of vital importance to Egypt, since it has threatened upstream riparians, most notably Ethiopia, that it would be willing to go to war if the flows of the Nile were to be disrupted (Arsano, 2007:91). Consequently, if e.g. Ethiopia were to increase the utilization of *their* Nile water, Egypt is going to receive less; which is a scarcity position Egypt definitely does not want to be in.

Additionally, another large issue is perceived to be the massive population growth in the region which negatively impacts the per capita availability of water. To illustrate its importance, the Egyptian population nearly tripled from roughly 29 million people in 1961 to 79 million people in 2009 (FAO Statistics), limiting the water availability in Egypt per capita/yr from 1.948 cubic meters in 1962 to 718.8 cubic meters in 2009 (FAO Statistics; Aquastat). On top of that, the projected water availability is going to decrease in the future with an increasing population in

the Nile region; sliding under the minimum water requirement of 1000 cubic meters per capita/yr even further (Gleick, 1993:101; Allan, 2002).

As a result, several authors started to formulate concerns about imminent *water wars* that could occur in increasingly water-scarce regions, like the Middle-East and Africa (Starr, 1991; Homer-Dixon, 1991; Gleick, 1993). The Nile basin certainly being one of the options, the argument combined population growth, lack of foreign funding, and the mutual water dependencies of the respective countries, and hence forecasted interstate conflicts (or water wars) in the future. However, they failed to materialize up to today. In fact, only in the most severe and direct forms of water scarcity, conflict rather than cooperation, seems to be a possible option in a transboundary river setting (Dinar *et al.*, 2011).

In addition, the *water war* thesis has been refuted because of the lack of any historical data supporting it (Wolf, 1998). Indeed, wars over water between states have not occurred throughout history for about 4.500 years (Postel & Wolf, 2001). Moreover, wars over water tend to be too expensive for interstate wars to occur between relatively poor states sharing the river Nile (Homer-Dixon, 1999:179). Others argue that 'water is simply too critical a resource to fight over' (Dellapenna, 1996:220) by referring to the willingness of riparians to cooperate and solve their difference through water treaties (Wolf, 1998; Yoffe & Ward, 2009; Dellapenna, 1996).

Defiantly, the water war thesis is something which cannot be dismissed entirely. Scarcity of renewable resources like freshwater 'can contribute to civil violence, including insurgencies and ethnic clashes'; yet, more often on a domestic level (Homer-Dixon, 1999:179-182). Moreover, on an interstate level, cooperation and the signing of water treaties do not necessarily mean that respective states solve their differences with regard to water allocation. On the contrary, it has been shown that water treaties between e.g. Israel and Palestine in the nineteen nineties have left Palestinians with substantially less water than Israelis (Selby, 2003; Zeitoun, 2008). Furthermore, it should be noted that *water wars*, in which water is the main incentive for going to war, are never occurring, because water *per se* is never the main reason for war. Most of the times, water scarcity's role is 'obscure and indirect' because it interacts with political and economic factors that produce social effects that help produce violence (Homer-Dixon, 1999:179). Then, water wars

between states does not seem a viable option; yet, the connection between water, political stability, and conflicts is certainly not contested (Wolf, 1998:261; Zeitoun, 2008).

Hence, the indirect role of water scarcity is important, because it would be erroneous to assume that water is merely allocated by means of formal agreements. Up to today, in the Nile basin no formal agreement has been reached reallocating Nile water. Throughout the last six decades there have been multiple forms of limited cooperation, whether on technical levels before 1990 or on more political levels after 1990 (Howell & Allan, 1994; Cascao, 2009). Nonetheless, Nile riparians are still very busy trying to hammer out a legal framework for nearly two decades in which water allocation and cooperation can take place in the Nile basin; however, without much success (Cascao, 2009)

Still, it would be incorrect to assume that nothing fundamental has changed concerning water allocation and cooperation. Admittedly, the population growth is a constant factor plaguing Nile riparians. However, when you look at the political and economic factors on a national level quite a lot has changed after the Cold War. One of the biggest changes took place between the two largest adversaries – water wise – in the Nile basin, Egypt and Ethiopia. Increased foreign investments by countries like China, India, Saudi Arabia in Ethiopia to build dams on the Nile and large agricultural irrigation schemes to increase food production have drastically changed the status quo on water allocation, albeit without legal frameworks and new treaties in place (Cascao, 2009; Alan & Cascao, 2011). Additionally, Egyptian politicians and engineers have likewise worked towards new development plans creating new cities and agricultural schemes for decades; yet, they continue to do so, despite increased water related projects entering the Nile Basin from all directions (Howell & Allan, 1994; Waterbury, 2002; NWRP, 2005). Consequently, policies and foreign investments with regard to the national political economy might cunningly interfere with Nile water allocation.

Hence, large adversaries in the Nile Basin tend to turn their backs on each other and try to develop as much as possible in a more national/international relationship, instead of a national/regional/(international) one. In the process of doing so, the water allocation issue is indirectly challenged by developments that are not inherently linked with water. For instance, proposed new cities and industries Egypt wants to develop with their horizontal expansion plan

are worked out under the guise of *rural development* (NWRP, 2005). Additionally, there is the increasing appearance of 25 to 100 year *land-lease* deals under the pretext of *food security*[1] between the Ethiopian government and Indian, Saudi Arabian, and Chinese investors wanting to use the land for growing rice, sugar, cotton, or bio-fuels because of skyrocketing food prices since 2002 (World Bank, 2011; Zoomers, 2010; Mackenzie, 2011; GRAIN, 2011).

These new concepts and events called *rural development, land-leases,* and *food security* might play a major role in the Nile Basin with regard to their indirect water usage. Admittedly, there are probably many reasons for their existence on domestic as well as the international levels; which seem to be legitimate if you observe their sole purpose. Yet, one should also look beyond the sole purpose and try to assess its effects on problems typical for the region, in this case: Nile water. Therefore, it is important to look at these new and shifting patterns in the respective *political economies* of Nile riparians in order to reveal the 'obscure and indirect' role of water scarcity (Homer-Dixon, 1999:179).

In this regard, one useful concept that illustrates this obscure and indirect role of water scarcity is that of *virtual water*; which will be discussed in later chapters some more. The idea of virtual water is that many countries dealing with water scarcity have been alleviating it by importing water through food imports (Howell & Allan, 1994; Allan, 2002). In fact, many Middle Eastern and North African countries ran out of water roughly 40 years ago, and have been using virtual water to compensate for the lack of it (Allan, 2002). It is the focus on the political economy and global (food) markets that makes the virtual water concept so insightful, and hence is a proper starting point for further exploration of new – more global – concepts such as *food security, rural development,* and *land-leases*. In fact, political and economical oriented inquiries might proof to be more promising in trying to explain why unfair water allocations in river basins have continued to exist, despite the physical deterioration of shared water resources (Allan, 2005:183).

However, while the virtual water concept has been proven to help alleviate water scarcity by means of global food markets, it might very well be the case that the same global (food)

[1] In 1996, the World Food Summit defined food security as: 'Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and preferences for an active and healthy life (WFP, 2009:17).

market is affecting water allocation at the same time through the aforementioned national/international binary and its associated concepts. For this thesis I set out the following research question that tries to capture these dynamics: *how do globally and domestically emerging concepts like food security and its associated rural development and land-leases, interfere and change the dynamics with regard to the water allocation issue in the Nile Basin?*

In order to effectively assess the dynamics on a domestic level, I will be looking more closely at the Egyptian political economy to explain the domestic side of the dynamics of the concepts. There are various reasons for picking Egypt as a case in the Nile Basin. First of all, Egypt is one the three major players, together with Sudan en Ethiopia, and hence is one of three logical places to start. Secondly, it becomes all the more logical to pick Egypt over the other two because of access to historical data and statistics. The river Nile and its associated Basin have been well documented; however, because of the military junta – or Dergue – in Ethiopia, quite a lot of financial and economical data is missing from primary statistical databases provided by e.g. the FAO, World Bank, United Nations, and IMF. Nonetheless, to properly assess the dynamics of these aforementioned concepts I will be making reference to Ethiopia as well. This is possible because food security and land-leases are relatively new, and serviceable facts about these matters started to appear only a few years back.

1.2 Relevance, Argument, and Contents

My main aim of this thesis is to enrich the thoughts and understanding about water-related scarcity issues in the Nile Basin, and hence to contribute to an increasing number of studies that tries to understand more clearly how and why things are the way they are in 'conflicts' that appear to be non-existent; but are clearly there on the background. Often they take the form of political and socioeconomic events which makes the focus on water somewhat redundant. However, with new investment projects entering the region in the past decade reality has changed. Hence, the main argument of this thesis is that the sole purpose of these concepts like food security, land-leases, and rural development may sound attractive on paper and from an economic point of view; yet, political reality is not always that flexible to cope with the large changes they cause. Consequently, what is initially about seeking economic growth through nice projects and investments, reality might turn darker when water stops flowing or become

significantly less because of it. Moreover, the number of stakeholders (whether private or public) are increasingly rapidly through these processes as well; which makes future institutional oversight essential; notwithstanding its extreme complexity.

Chapter 2 deals with a theoretical and conceptual approaches and starts by focussing on the relation between water and food. This is an important step to link water with the economy, and hence understand how global economic forces contribute to water scarcity. Moreover, this chapter deals with political geography and political ecology approaches to make a wider set of players visible and part of the analyses on the Nile Basin.

Chapter 3 discusses the origins and global dynamics of food security, land-lease, rural development and their connection to the Nile Basin, and hence they are linked to Homer-Dixon's (1999) theory on environmental scarcity and violence. Specific aspects of this theory are insightful to understand the possible implication with regard to a new (larger) number of stakeholders in the Nile Basin and how less visible and indirect socioeconomic and political events (like the concepts) might establish a gap between inter-basin development and environmental scarcity.

Chapter 4 takes on a domestic perspective of these political and socioeconomic developments in Egypt that are related to, and determined by, the amount of water flowing through the country. From this domestic picture, it should become clear that these new concepts have potentially different speeds in which they can make a difference, and are determined by their respective political developments.

Lastly, the conclusion argues whether these multiple speeds within a basin, caused by new events associated with the concepts discussed, create a situation in which the respective states run out of technical and economic ingenuity to cope with the scarcities that are created. Thus, I argue that future institutional settings should be taking into account these new, more global dynamics, by utilizing a political geography en ecology perspective. Opting for an uncontrolled situation in which no one is held accountable and untraceable is a clash of the projects nobody wants.

II Theoretical and Conceptual Considerations

2.1 From water to food

In the introduction I referred to Homer-Dixon (1999) in the sense that scarcity is an important underlying theme that can cause violence. Also, the role that scarcity plays in relation to violence is an 'obscure and indirect' one which interacts with political and economical factors (ibid: 179). Then, while this thesis is actually about the effects on water allocation through global concepts partially derived from domestic needs for them, it cannot be *just* about water. Indeed, water should first of all be assessed on what it is utilized for, and through which political and economical processes it is governed. Secondly, the effects of this utilization can of course be discussed and analysed in a technical manner by looking at what specific effects certain political and economical processes have on water availability; yet, this is not the direction I want to head into. On the contrary, the effects of utilization of water through economical and political processes can (and should) also be assessed by looking at its effects on societies and how they change over time. In particular, trying to make an analysis of its consequences might proof to be more useful than solely focussing on water and its concomitant engineering and water management vocabulary.

For a long time, water scarcity issues were dealt with inside the realm of water management, in which engineers dealt with water related policies. Having a long history of dealing with water in a predominantly technological way, led to what is often termed as the 'hydraulic mission' (Moore, 2011; Molle *et al*, 2009; Allan, 2002; 2005). The hydraulic mission stems from the idea of the domination of nature (Worster, 1992) and is 'inspired by colonial hydraulic feats, and fuelled by technological improvements in high dam constructions, power generation and transmission, [and] large-scale water resource development' (Molle *et al*, 2009:328). Generally, development goals were looked for through the incorporation of the idea that 'progressively larger withdrawals of water' were a good thing; closely related to the idea of 'certainty' of 'industrial modernity' (Allan, 2005:189). And hence, these developments were entrusted to professionals and civil engineers into a form of state-level bureaucracy Molle *et al.* (2009).

Therefore, in order to get to a more crisp understanding of how certain political and economical dynamics are interfering with river basins facing water scarcity, it is necessary to step out of the 'hydraulic trap' that caused a 'drive for technological dominance over nature [that] became an obstacle to new possibilities, to creativity' (Worster, 1992:329). Indeed, most of the proposed solutions for societies facing water scarcity are based on a 'hydro-centric view of societies' problems' (Brichieri-Colombi, 2004:318); which are 'not a safe starting point' for new inquiries on the topic (Allan, 2005:181). Additionally, increasingly critical notions can be found inside the field of study arguing that 'you cannot understand water issues until you understand the politics' (Warner & Zeitoun, 2008). Light heartedly, this was also mentioned earlier by Tony Allan (2001) that many of the answers lie in the *problemshed* instead of the watershed.

Then, if water should not be the initial focus of inquiries, what should we look for instead? The main task it to observe strongly connected activities that are associated with the three concepts that are central to this thesis. In the introduction there was a short explanation of the role water plays with regard to rural development, food security, and land-leases. However, they are not entirely equal to each other. While food security is more like a normative goal, rural development and land-leases are practical implementations guided by more global norms such as food security. Moreover, land-leases and food security are more strongly connected than food security and rural development. Then again, land-lease can also be a form of rural development. Yet, to make it more complicated (or simpler), on a secondary level they all indirectly claim water in a particular way, and hence the denominator stays the same. Therefore, taking the concepts together, rural development and land-leases - guided by i.e. food security – are all taking place in the most important part of the Nile riparian (political) economies, namely: agriculture.

However, looking at previous research, agriculture is a something that looks like a double-edged sword. On the one hand, agriculture – on a global food market level – can help deal with water scarcity through the concept of virtual water (importing water through food) (Allan, 2002). On the other hand, agriculture – on a domestic level – can make water even scarcer through the adoption of certain agricultural policies that limit the farmer's choices with regard to crops and where they can be grown (Mitchell, 2002). This becomes all the more problematic when water is flowing through multiple countries, as is the case in the Nile Basin (Waterbury, 2002). Hence, with agriculture you can *either* alleviate water scarcity effects *or* you can make it worse. The

question then becomes who determines the direction, and how? Noticeably, there are domestic factors making the more global ones necessary; however, they also tend to frustrate one another. When dealing with water scarcity is possible through large amounts of food imports, then it is going to increase when water is increasingly becoming scarce; making plans that foster economic growth more pressing simply to pay for the food you import.

Moreover, the connection between water and food has been is an important one that needs some further explanation. It was initially – and still is – a simple question to ask why many countries import so much food, especially Middle Eastern and North African countries. Tony Allan (1994) found that the food that was imported or attained through foreign food assistance was a representation of a 'food gap' that neatly fitted into what the authors call the 'national water gap' (Howell & Allan, 1994: 9). This is what led to the aforementioned concept of *virtual water*, through which large amount of water embedded in food, is imported to compensate for the lack of it inside your own territory (Allen, 2002). Hence, in water scarce regions it has been found through multiple statistical analyses that international trade in food plays a critical role in achieving food security and generating economic growth (Yang & Zehnder, 2002: 1426). In fact, a decline in water resource availability 'is an important factor in explaining the increase in the import of cereal, vegetable oil and sugar' (Yang, Wang & Zehnder, 2007: 602); which are the main sources for energy, and staple goods in general (Gutner, 2002; Alderman & Braun, 1986). Hence, the link between water and food is an intimate one.

The idea of virtual water that allows countries to effectively deal with water scarcity is indeed a useful concept that is now widely utilized inside the epistemic community and inside international water forums (Allen, 2003). However, dealing with water scarcity by means of importing food through global food markets is not exactly a cheap endeavour. For instance, when I observe more closely the domestic picture of food security and rural development in Egypt in upcoming chapters, the real cost of importing your food, and hence dealing with water scarcity, is only possible through large food subsidy schemes that keep staple goods affordable for a predominantly poor population (Gutner, 2002). Another way to make it a useful concept is to rapidly change your economy into one that provides for more employment and a higher national income, and hence seeking foreign investments to develop rural parts of your country into

prosperous new cities. This idea is well reflected by Egypt's National Water Resource Plan which entails detailed plans for rural development (NWRP, 2005).

Hence, while virtual water is successfully compensating for water scarcity, the idea that – in theory – this could solve all water scarcity problems seems a logical conclusion; yet, unlikely in practice. Especially if upstream Ethiopian development through land-lease contracts by large foreign investors is taking up more water for producing rice, cotton and sugar, the rate in which water becomes scarcer in downstream Egypt could potentially outstrip Egypt's process of rural development needed to transform the economy in order to increase national income, and hence adopt the virtual water concept to obtain sufficient food supplies. Therefore, while virtual water is promising and has been utilized for about three to four decades (Allan, 2002), one cannot neglect the ongoing conflicts about water scarcity and its associated projects between Nile riparians that have been in place for centuries (Tvedt, 2004; Arsano, 2007).

To conclude, the connection between water and food is important not just for dealing with water scarcity. It also shifts the debate from one that is predominantly dealing with water to one that takes into account a wider perspective, most notably the national political economy and its position in the global economy. In other words, this wider perspective allows one to look at water scarcity problems in the Nile region through a lens that shifts the object of inquiry from a Nile Basin to a more dynamic and less demarcated reality of global finance and political economies. For our concepts on food security, rural development, and land-leases this is important, because it is primarily from the latter perspective that they start to make sense. Additionally, to make sense of its political consequences a wider perspective is necessary as well. In the next few paragraphs I will discuss some approaches and concepts that help understand its implications and dynamics better.

2.2 Political Geography and Political Ecology

The previous paragraph ended with the notion that a wider perspective is necessary to understand the dynamics of our concepts that are partially global as well as local. However, the problem with concepts like food security and land-leases is that they do not fit the taken for granted confines of the Nile Basin or the State. They are often part of a wider – more global – set of policies and ideas that do not easily fit a standard picture of a political map of the world. With

this is meant that the world is becoming increasingly complex, and more players – whether financial institutions and all kinds of non-state actors – are dealing in state-affairs that influence its conduct (Cox, Low & Robinson, 2008: ix). Throughout the years it has been increasingly difficult to explain power and politics just by looking at concepts very useful during the Cold War, such as hegemonic stability theory. Yet, it are the more subtle ways of power and politics that are present in situations where no immediate violent conflict is looming, or to stay in character, a nuclear apocalypse. Hence, while the state and its associated territory are no less important than during the Cold War, it increasingly limits the explanation of contemporary power and politics (Painter, 2008: 66; Agnew, 1994). In fact, it has become 'grossly misleading in understanding the origins and course of many real world conflicts' (Agnew, 2011: 472).

Therefore, dealing with this idea of the state being an insufficient focal point of inquiry, it is argued that a more holistic analysis of politics of river basins demands a more geographical approach (Furlong, 2006). Hence, there is a need to incorporate a more diverse picture of reality in socio-political science and, in this case, the Nile Basin. This idea of a geographical approach belongs in a field of study called political geography, which is concerned with what they call 'spatial organisation' (Cox, Low & Robinson, 2008: iv). For political geographers, the state, region, and the Nile Basin, are just forms of spaces which are neither 'natural, universal or pre-given' (Painter, 2008: 66). While this might sound rather vague, it is meant as a critique to a narrow understanding of how only the state (with is associated politics) is ruling over a specific territory (Agnew, 1994). For instance, with increasing numbers of land-lease deals in Ethiopia and Egypt by foreign investments from China, Saudi Arabia, and India, the 'geographical scope for political action beyond the confines of the national state' is changing (Agnew, 2011: 472). Hence, the demand for a more geographical approach in river basins is necessary to pinpoint the new players on the scene, and analyse its political consequences accordingly; which was something thought of in entirely territorial terms before (ibid.)

Nonetheless, it are the questions political geography asks at more mundane level that are important for this thesis. Generally, political geography is concerned with many question; however, they are predominantly about the relations between society and spaces like (e.g.) cities, states, and river basins (Cox, Low & Robinson, 2008: 6). Of the large agricultural societies in the Nile Basin, this is mainly about people's relation with their agricultural surroundings. Hence,

making large changes to this environment in order to fulfil certain rural development goals that fit the long-term strategy of the political economy in e.g. Egypt (NWRP, 2005) is inherently linked with how societies deal with their environment. In an interview about land-leases in Ethiopia, Anuak leader Mr. Okok Ojulu hits the nail right on the head. He states that: "land is political. Land is very emotional. And land is our identity" (PBS Newshour, Feb. 28 2012; Oakland Institute, 2011). Although this is illustrative for a space/society relation discussed before, it are these specific human-nature relationships that demanded a 're-naturing of political geography' (Robinson, 2008: 185-186). In this regard, political geography has often discussed the relationship with nature through cases like the politics of water use, the regulation of the seas, conflict of resource use, or the politics of famine; most notably, in regions where food or water scarcity has offered a significant opportunity for regional conflict (ibid.). However, while these are rather broad themes, there is an increasing mutual interest between political geography and political ecology (Cox, Low & Robinson, 2008); which I will discuss next.

The mutual interest between political geography and political ecology stems from their focus on how states, or other particular scales, interfere with society. Political ecology in this sense looks more at the 'intertwining of politics of environmental regulation' (Robinson, 2008:186). For instance, Egyptian elite government officials have shaped and bend their environment through large agricultural schemes in the past to meet certain strategies that benefitted their political economy (Tvedt, 2004). In other words, human beings have always used and shaped nature to their own ends (Greenberg, 2006: 216). Then, closely associated to this process is that the state shows itself through many distinct images (Robbins, 2008). With this is meant that, in order to explain the politics surrounding the environment and their interaction with society (or ecology), the state is increasingly a 'network state' which can be co-operative as well as porous (ibid.: 209). For instance, states can co-operate with local farmers by providing them with necessary capital and tax cuts to buy e.g. machinery; however, the state can also 'retreat[.] from its position between international capital and local labor' when large firms directly contract with local farmers (ibid. 210). Hence, these different images of the state – these questions of scale –is what creates the mutual interest and connection between political geography and political ecology.

Nonetheless, how does political ecology get to abstract theorization about states and scales? While the previous paragraph about the connection between the two approaches seem rather abstract, political ecology tends to be active at a more mundane level. During the nineteen eighties and nineties, the idea that large changes to the environment, the depletion of and degradation of soil, and climate change in general, were caused by apolitical things like population growth, poor management of natural resources, and the wrong use of economic principles, demanded a new perspective[2] (Robbins, 2004). Hence, the 'relationship between policy, politics or political economy in general and the environment [needed] to be explicitly addressed (Greenberg & Park, 1994: 8). Initially, political ecology inquiries dealing with these latter relationships have been strongly influenced by a Marxist analyses, exposing how power relations mediate human-environment relations (Biersack, 2006: 9). While Karl Marx himself was never dealing with political ecology *per se*, he came close with his 'dialectic between individuals, their productive activity in human society, and nature' (Greenberg & Park, 1994: 1).

Hence, the relation between nature, politics, society, and economics has not always been an easy one. On the contrary, it is argued that in 20th century state-management, according to the principles of the previous discussed hydraulic mission, detached all things natural from those things social (Robbins, 2008: 208). Moreover, a similar 'unacceptable' separation took place between economics and politics, going against the 'shared acceptance' that they do belong together; even for modern economists like Adam Smith and David Ricardo (Greenberg & Park, 1994: 8). Also more contemporary political economy specialists like Robert Gilpin, state that 'social and political affairs cannot be reduced to a subfield of economics' (Gilpin, 2001: 31). The detachments between nature/society and politics/economics are bound together with political ecology, and hence was defined by Blaikie and Brookfield (1987) as:

> '[...] political ecology combines the concerns of ecology and a broadly defined political economy. Together, this encompasses the constantly shifting dialectic between societies and land-based resources, and also within classes and groups within society itself' (Blaikie & Brookfield, 1987: 17).

[2] The first use of the term *political ecology* dates back to 1972 (Biersack, 2006: 6); however, for the purpose of this thesis I will not discuss its entire development here. For more information see Greenberg & Park, 1994. Or the online accessible Journal of Political Ecology: http://jpe.library.arizona.edu/

Blaikie and Brookfield (1987) were the first to connect political ecology with political economy in this way. Additionally, they also adopted a more political geography perspective to come up with this definition in the first place, in order to capture the complexity of human-environment relations. They state that 'the contribution of different geographical scales and hierarchies of socioeconomic organizations (eg[*sic*], person, household, village, region, state, world)' is necessary to encompass these complexities (ibid.: 17; Neumann, 2009: 398). Yet, while trying to capture the human-environment complexities through different scales, they ended up with predominantly Marxist explanations; stating that land degradation and depletion was taking place on a local level (scale) because of powerful capitalist forces on the highest level (scale) (Robbins, 2008:216). Consequently, there are lively discussions about which scale should be on top; yet, as mentioned before, reality looks more like a 'networked state' which does not allow one scale to be more important than the other, and hence *scale* itself should be abandoned (ibid.; Robbins, 2004). The latter idea also seems to be the case in the Nile Basin. While there is clearly global capital and large investments in the region, there also a more domestic necessity for certain concepts like food security or rural development; which make it hard to argue which one is more important than the other.

2.3 Conclusions

Both political geography and political ecology are approaches that help understand and uncover the specific dynamics of concepts that are part of this thesis. Whether one discusses how states adapt their surroundings through large megaprojects on the Nile a political economy strategy, or how Foreign Investments are making future Nile institutional design more complex in the process, insights from both approaches discussed could foresee in an alternative focus on deadlocked Nile Basin cooperation. Clearly, both approaches are not theories that help predict future water scarcity issue; yet, they provide a theoretical understanding about – in this case – the Nile Basin. For instance, if one were to stay just within the confines of technocratic and apolitical solutions to massive changes in people's environment, one might miss out on other dynamics that might be important for future solutions. Subsequently, I agree with Robbins' (2004) normative statement about political ecology's overall theme that '...there are likely better, less coercive, less exploitative, and more sustainable ways of doing things' (ibid.: 12).

The approaches discussed in this chapter will be helpful when drawing conclusion from what is being researched in this thesis. It helps to put the concept in the right perspective and tries to find ways to better organize our complex surroundings. A real theory will be discussed in next chapter, since the concepts at hand need be explained first to make it useful.

III A Global Picture of Concepts

3.1 Introduction

In previous parts of this thesis I discussed and described the existence of the concepts that are of importance for this thesis, namely: food security, rural development, and land-leases. Additionally, I started to make small connections between these concepts and the situation in the Nile Basin and the associated water scarcity issues. In the second chapter I tried to make clear that when looking at water scarcity issues in water-scarce regions in the world, their food supply and their political economy are interesting starting points for further exploration of the concept dynamics. Hence, my aim was to enhance this widened perspective by arguing that political ecology and political geography provide a more solid understanding of these concept dynamics; which could be useful when drawing conclusions about the political implications as well.

With this chapter I want to make clear what these concepts actually are about, and most importantly, why they are of interest to the situation in the Nile Basin. I argued before that most of these concepts have global as well as domestic origins, and are more general concepts not dealing with river basins *per se*; or at least, indirectly. Therefore, in order to fit both global and domestic origins and dynamics together, both need to be present; I start with the global.

Lastly, in previous chapter there was no real theory explained because I would have had to link it to the thesis topic as well. Hence to be less repetitive I will include it in this chapter. Especially parts of Homer-Dixon's (1999) theory on how environmental scarcity leads to conflict are still relevant, despite the fact it is sometimes made redundant because of its alleged environmental determinism (Allan, 2005). Homer-Dixon (1999) talks about environmental scarcity which is derived from a complex interaction between political, economical, and social factors (1999: 178). Hence, that *what* constitutes environmental scarcity that might lead to conflicts becomes a focal point. Probably, this question was not sufficiently addressed before, making the theory less complete and vulnerable to critical scrutiny; which is fine. This chapter tries to link the concepts and some aspects of Homer-Dixon's (1999) theory. The concepts and their concomitant political, economical, and social dynamics can be linked to what leads to environmental scarcity. Hence, the implications of this, with regard to the two approaches discussed in the previous chapter, will be examined at a later stage.

3.2 Food Security

How do you feed 9 billion people? This is the basic question food security is all about. It can be found at the intersection between population growth rates and limited agricultural production resources to make it all possible. Together, it is argued that our planet could support around 9 billion people (Charles & Godfray *et al*, 2010). This logic can be traced all the way back to Thomas Malthus' 1798 *An Essay on the Principles of Population*, in which it is argued that population growth will outstrip agricultural production. Although there is an interesting debate about the possible solutions to this problem, the major 'solution' tends to be strongly in favour of increased food production (ibid.).

While it is possible to provide a long overview of what food security actually is and where it came from, I will stick to the basics and hence argue about the importance for the Nile Basin. Food security has always been present in societies, since it is merely a state-of-being. This becomes clear when you look at the definition for food security, set up during the World Food Summit in 1996. There, they stated that 'food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and preferences for an active and healthy life (WFP, 2009: 17). Consequently, this definition is not clear about specific regions or states, or whether 'dietary needs' are the same across the globe; yet, it becomes immediately clear, albeit indirectly, that this has to be the case for the non-western world, most notably large parts of Africa. Admittedly, the definition speaks about 'all people, at all times', so that would define it as a definition with global reach; yet, this seems misplaced since most Westerners are not faced with food *in*security. However, most important are the semantics of *food security* itself. The definition does not adequately speak about *who* can provide *food security,* and this is important.

Hence, there are two possible answers to *who* can provide food security; yet, there might be more. On the one hand, through a process called *securitization*, food *security* implies that a serious reality about food shortages around the world is being put on the political agenda and made attractive to large audiences to be successfully addressed by states and concomitant international organisations (Buzan, Wæver & De Wilde, 1998). Accordingly, it are predominantly states that need to safeguard the food security state-of-being inside a society

(ibid.). For instance, elsewhere there is spoken of how water scarce states '[link] *its* food security with the international market and its own diverse economy' (Zeitoun, Allan & Mohieldeen, 2010: 230. Emphasis added). Apparently, this is something done and secured (guarantied) by states.

However, on the other hand, in order to achieve food security, an increasing appeal is made on science and technology to solve our problems, opting for a new 'green*er* revolution' (Beddington, 2010. Original emphasis). This is the world of 'crop improvement; smarter use of water and fertilizers [...] non-chemical approaches to crop protection; reduction of post-harvest losses' (ibid.: 61). Additionally, this is also the world of increasing food production by 'closing the yield gap' through 'sustainable intensification' of food production processes (Charles & Godfray *et al*, 2010: 813). Besides the economical and technological terminology, it are – but they are not mentioned – large agricultural food producing multinationals that have the capabilities and knowledge able to realize a '70 to 100%' increase in food needed by 2050 (ibid.). Admittedly, politics and states could promote such policies; yet, the production itself is left to agricultural and food producing companies.

In 2006, food security became an increasingly prominent feature because of a massive increase in world food prices. Staple goods, like wheat, maize, and rice nearly quadrupled in three years time leading to a severe increase in price people had to pay for food; which in turn lead to strikes and social unrest in Italy and Haiti (Beddington, 2010: 61). Likewise, high food prices are considered to be one of the final nails on the coffin during the 2011 Egyptian revolution as well (Economist, 2012: March 17th). Consequently, this led to revitalized debates in African capitals about food self-sufficiency (GRAIN, 2011); which has always been a central discussion and a matter of national security for Nile Basin countries like Egypt as well (Howell & Allan, 1994:9). Having enough (affordable) food for your population is absolutely essential to many governments, as I will show in next chapter as well.

Then, because of the large increase in world food prices, leading to civil unrest and nervous governments, there is a need for increasing food production. Hence, real focal points of increased food production are land and water (Beddington, 2010). However, on a global level, discussions and facts about the amount water and land available, and estimate projections for the

future miss out on the political feasibility of it all. For instance, the Food and Agricultural Organisation (FAO) estimates that the amount of land suitable for crop cultivation could be raised from 1600 to 2400 million hectares (FAO Statistics, 2012). Additionally, there are estimates about water demand that is projected to rise by 35-60% between 2000 and 2025 (de Fraiture & Wichelns, 2007) that should for large part be extracted from what are considered 'poorly managed irrigation schemes' (Beddington, 2010: 63). It is this global language and proposed engineering solutions that assume that 'political will and organizational infrastructure exist' (Charles & Godfray, 2010: 814). Does this *political will* also mean that Nile Basin countries are going to resolve their differences in the coming decade and put together a basin wide agricultural project to achieve their food security altogether?

Yet, the increased focus on water and land because of the food *in*security that became more visible after the volatile world food price rise in 2006 are important for different reasons as well. First of all, there is an increased interest in farmland leading to large plots of agricultural land to be developed by large investor, especially in Africa (World Bank, 2011). This increased interest in farmland is considered to be a direct consequence of to what is called *food insecurity* over the last decade (FAO, 2011). And so, it is argued that large investments 'could help generate employment, improve food security, and foster technology transfer and local development' when 'governments [...] help to promote this agenda by indentifying strategic priorities to assess ways to bring productivity closer to potential' (World Bank, 2011: 43-44). Increasingly, this takes the form of land-lease deals between e.g. the Ethiopian government and global agricultural companies which has received large amounts of criticism; which I will discuss in upcoming sections.

Secondly, another problem closely associated to the food (in)security concept are one of its causes. Hence, a World Food Programme (WFP) report in 2009 states that 'not only must enough food be produced to meet consumption needs, but this food must also be *accessible*' (WFP, 2009: 9.Emphasis added). Accordingly, food access has to be distributed through a proper infrastructure. The same report argues that governments should promote not just physical rural infrastructure, such as roads, bridges and irrigation canals, it also suggests a better institutional infrastructure with strong legal and regulatory frameworks (ibid.: 11). Put like this, food security becomes much more like a development discourse through which entire economies are to be promoted and build up. Then, the focus is not just on food production, however, also

increasingly about making the 'market [...] work for the poor' through concomitant rural development (ibid.: 193). In the Nile Basin, this often takes the form of (sustainable) rural development projects that are targeted at making it possible for food to get from A to B; yet, they are much more than that. For instance, Egypt's National Water Resources Plan 2017 (NWRP) is primarily about rural development in order to change the economy and divert from a primarily agricultural to a more industrial one (NWRP, 2005). Hence, national income is to be increased by focussing on export of high-value goods and crops; which is 'a more reliable approach to food security than self-sufficiency' (NWRP, 2005: 2.32).

To conclude, food security is a concept that appears to be a catch-all term for socio-economic development of the poorest regions in the world. Although it tries to address a legitimate question about sufficient food supply for many poor people around the world, it is also incorporates a wider belief of neo-liberal market solutions for it as well that come with foreign intervention and foreign investments. In this regard it are these neo-liberal market solutions that could potentially be very harmful. Karen Bakker (1999) has shown how an increase in private capital in the Mekong river basin transformed it into – what she calls – a 'corridor of commerce', leading to a more diffuse, less transparent, and less accountable form of governance (Bakker, 1999: 228); which has led to multiple strikes and social unrest in the same region for the same reasons (Goldman, 2001). This increase in the number of private players is increasingly visible in the Nile Basin as well, indirectly claiming Nile water in the process. Additionally, the rapid speed in which these events are taking place is reason for concern, since they take claims on water indirectly through ownership (or 100 year leases), and hence allocate water uncontrollably. In the next paragraphs I will discuss the two concepts I deduced through the concept of food security examined above to see whether they could potentially harm water allocation issues in the Nile Basin. Either through physical withdrawal of water, or through their new ownership position

3.3 Land-Lease

As a result of skyrocketing world food prices in 2006, the phenomenon of a land-leases became more visible and prominent throughout the world. Commonly, these land-lease deals are referred to as 'land grabs', a loaded term that tries to explain the a process of large transnational corporations and foreign governments leasing large plots of agricultural land from countries that

have large plots of uncultivated land at their disposal (Zoomers, 2010). Additionally, together with the fact that most land deals blatantly violate the rights of rural populations being relocated, the increased employment promises failing to materialize, and the dodgy quality of most of the deals, the term 'neo-colonialism' has been mentioned for some years (Economist, 2009: May 21st; Oakland Institute, 2012; World Bank, 2011). However, Zoomers (2010) rightfully points out that land-leases are – what she calls – 'the 'foreignisation' of space or land' (ibid.: 430. Original quotes). Zoomers (2010) shows that through a larger process of globalisation, market liberalisation, and the liberalisation of land markets during the nineteen nineties, a 'worldwide boom in [Foreign Direct Investments] FDI' led to land acquisition for multiple causes; such as, food, bio-fuels, tourism, infrastructure, and services (ibid.: 430). Hence, land-leases should be perceived as a broader concept taking place since the end of the Cold War.

For the Nile Basin countries, these 25 to 100 year land-leases are largely concentrated around food, bio-fuels, and infrastructure (World Bank, 2011). Moreover, the rate in which large plots of farmland were leased by States like Ethiopia, Sudan, and Mozambique can quite confidently be linked to the massive rise in world food prices between 2006-08 (World Bank, 2011). Consequently, many food importing countries started to get nervous and searched for new fertile lands to secure their food security. Hence, transnational companies based in Saudi Arabia (Saudi Star) and India (Karuturi Global, Shapoorji, and BHO) have found their ways to fertile lands in Africa remarkably easy (Reuters, 2012). This is not surprising, Ethiopia is often considered to be the 'water tower' of Africa, and hence has favourable conditions for agricultural investments to be attracted (Arsano & Tamrat, 2005: 19). In contrast, states like Egypt have nothing to offer since their water withdrawal for agriculture is already at its limits (Aquastat, 2005).

One of the countries that found Ethiopia rather quickly was Saudi Arabia; a country that faces water scarcity issues itself. Saudi Arabia shows that food security can also met by outsourcing much of your own food production. In 2010, the Islamic Development Bank (IDB) made public a strategy called 'King Abdullah's initiative for Saudi Agricultural Investment Abroad: A Way of Enhancing Saudi Food Security' (IDB, 2010; Economist, 2009: May 21st) in which agricultural production is outsourced to countries like Ethiopia. While Kings Abdullah's strategy is talking about raising food supply and setting a proper example for the rest of the world, the principles

that guide the investments indicate something else. For instance, the Saudi Arabian investor can choose what to grow, the right to export the produce to Saudi Arabia, and are primarily concerned with staple food products; like rice. Consequently, a large Saudi Arabian company called Saudi Star already has large plots of cultivated, fully automated, rice fields in Ethiopia, and they are planning to lease an additional 500,000 hectares of land in Ethiopia in the coming years (Oakland Institute, 2011).

With these large agricultural investments in the Nile Basin, most notably Ethiopia, the question raises how this will affect Nile water availability in the future, or whether it matters at all. With most of these land-lease deals, water is a taken for granted thing. Although big investments, employment, and food security sound like promising things, the biggest concern for the Ethiopian president Meles Zenawi is that 'fertile and unutilized' land is not cultivated (Reuters, 2012). However, since the focus is so much on an increasing food security worldwide, the water issue is pushed to the background. In this regard, Nestlé chairman Peter Brabeck-Lethmathe describes in the Economist (May 21st 2009) that 'the purchases weren't about land, but water. For with the land comes the right to withdraw the water linked to it, in most countries essentially a freebie increasingly could be the most valuable part of the deal' (Economist, May 21st 2009).

Indeed, when you look more closely at an actual 25 year contract between the Ethiopian Ministry of Agriculture and Rural Development and e.g. Whitefield Cotton Farm PLC, article 3 on the rights of the lessee, the water issue becomes evident. There it is argued that the lessee is allowed to develop the land in accordance with the agreement, and hence is allowed to 'build infrastructure such as dams, water boreholes, power houses, irrigation systems, roads, bridges, offices…at the discretion of Lessee upon consultation and submission of permit request[s]…whenever it deems appropriate' (Whitefield Agreement, 2010: Article 3.2). This indicates that many of the large land-lease deals present in the Nile Basin, notably Ethiopia, privatize water by giving private investors a claim on water. Whether this is enough to influence the Nile flow to Egypt is unknown; however, when land the size of Denmark are being leased, this is going to be a massive intensification of agricultural water withdrawals.

To conclude, land-lease deals should be assessed in a wider context of market liberalisation and is as such not just about food production. Yet, in the Nile Basin – most notably Ethiopia – large plots of land are being leased for 25 to 100 years by transnational companies to reach food security for themselves or for the world or to grow bio-fuels; sometimes even as part of a national food security strategy having nothing to do with the Nile Basin geography itself. Additionally, land-lease deals embed large portion of water and the rights to use as much as needed to grow what they want properly. While it is not known how much water all these leased plots of land are utilizing, the sheer fact that an increased amount of private parties in the Nile Basin are claiming water governance is going to be hard when future institutional oversight is considered. Moreover, the speed of it all is phenomenal and worrisome, since the focus is primarily on the investment and not at the rate at which water is withdrawn by those projects. Subsequently, recall from the previous paragraph that this could lead to diffuse, less transparent, and less accountable forms of government in a political situation which is already fragile (Bakker, 1999).

3.4 Rural Development

Globally defined concepts like food security also appear in areas perceived as unrelated to the Nile Basin problems. As I explained in the food security paragraph, making food security work needs a proper infrastructure as well. Moreover, rural development is less directly related to the food security concept and surging world food prices in 2006-08 than land-lease deals are. One important difference between land-leases and rural development is the rate at which it happens. For instance, in Ethiopia leased land can be cultivated rapidly while in Egypt certain rural development is more about making irrigation more efficient and adapting industries accordingly; which are slow and difficult processes. While the domestics case on Egypt will highlight this some more, on a global level it can be found in many water related international organisations and scientific forums dealing with important aspects of rural development as well. In the case of the Nile Basin, and Egypt in particular, an illustrative example is the relation between the International Committee on Irrigation and Drainage (ICID) and their domestic counterpart the Egyptian National Committee on Irrigation and Drainage (ENCID).

According to the ICID 'constitution' , the ICID is 'established as a Scientific, Technical, Professional, and Voluntary Not-for-profit Non-Governmental International Organization (NGO-ONG), dedicated, inter alia, to enhance the world-wide supply of food and fiber for all people by improving water and land management, and the productivity of irrigated and drained lands through the appropriate management of water, environment and the application of irrigation, drainage and flood control techniques' (ICID Constitution). It seems a bit awkward for an international committee that was set up in 1950 to be fully aware of world-wide food shortages; especially since the Club of Rome's 1972 *Limits to Growth* ,concerned with the future of human civilization, is considered to be the starting point for much of the greener and sustainable growth mindset.

Hence, the ICID together with the ENCID, which – according to their website – is a 'semi-governmental entity affiliated to the Ministry of Water Resources and Irrigation', join the large international gatherings like the World Water Forums (ICID, 2012). This World Water Forum takes place every three years since 1997 and wants to bring 'water high on all political agendas' because sustainable development cannot takes place while 'the water issues' remain unsolved (WWF, 2012). However, water issues are wide-ranging and very complex, and hence one could also argue that one cannot deal with water issues when you do not solve the development issues first. This immediately becomes clear at what actually is discussed and put on paper as an outcome of the gathering. For instance, specific themes (theme 2.2) are discussed, one of which is concerned with the contribution to food security by optimal use of water. There they argue that 'Water for Food' solutions 'need to be derived from crop improvement and water management strategies […] on the farm level all the way through national and basin level' (IWC 6th, 2012).

Additionally, these large international gatherings are more about generating discussion without really implementing anything. However, these broad concepts are not just developed at large gathering, but more specifically as well. For example, in 2000 the ICID established so-called Country Papers with detailed and clear strategies for implementing, what they call 'the sector vision of water for food and rural development' (ICID, 2000: 432). It is quite remarkable how highly politicized discussions are taking place inside organizations perceived to be working on technical issues, like e.g. recycling waste water and increasing water efficiency.

Still, does it matter at all that these organizations and long term global forums talk about food security and rural development for national policies and decision-making? Already in 1976, a project called The Advisory Panel Project (APP) started between the Egyptian and Dutch government, dealing with land drainage. According to the ENCID website, the panel 'widened its scope' and now much of the work is 'based on information generated from the field in general and from Dutch-financed projects in particular' (ENCID, 2012). This scope-widening also entails 'recommendations towards improved policy and management of water resources' (ibid.). At a later stage, these relations seem to have formalized even further in 2002, when ICID launched their Country Policy Support Program (CPSP) – funded by the Dutch Sustainable Economic Development Department - to 'contribute to develop effective options for water resources development and management to achieve an acceptable food security level and sustainable rural development' (CPSP, 2005).

Then, it should not come as a surprise that the National Water Resource Plan 2017 (NWRP 2017) was written with support of the Government of the Netherlands, with as main objective to describe 'how Egypt will safeguard its water resources in the future, both with respect to quantity and quality and how it will use these resources in the best way from a socio-economic point of view' (NWRP, 2005). Overall, the NWRP 2017 is mainly about horizontal urban expansion and two mega water projects in Toshka and the Sinai, increasing the agricultural area by 35%. Moreover, they already constructed 16 new cities in the desert and are planning 41 more for the next few years which are all connected to a fixed amount of water supply from the Nile (NWRP, 2005).

To conclude, (sustainable) rural development does not fit as well as food security and land-leases do; however, it is the part of the food security concept that particularly deals with making it possible to achieve a food secure situation. It has been shown that concepts like food security can also be found on locations that have – for the eye of the public – no real interest in working with food security concepts. Still, it is found that international organizations, like ICID, quite effectively find their way into national water policy strategies, through country policy support programs (CPSP), and hence determine the dynamics. Yet, the bulky irrigation and drainage schemes that are part of the international and national discussions are part of larger

endeavour to change the economy towards a more profitable one; which – as I will show in the next chapter – is extremely hard and bound to take a while.

3.5 Theorizing the food security paradigm

What are the theoretical implications of the above discussed and illustrated concepts for an increasingly water scarce reality in the Nile Basin? In order to give it some theoretical volume, I will look more closely at the aforementioned theory on environmental scarcity and violence by Homer-Dixon (1999). According to Homer-Dixon (1999) environmental scarcity – scarcity of renewable resources – can be distinguished in three types of scarcities. Firstly, supply scarcity because of depletion and degradation. With this is meant the available resource pie shrinks. Secondly, demand scarcity induced by population growth and changes in consumption behaviour. Generally, this entails that through actual population size and the techniques they use determine demand for the resource. Thirdly, structural scarcity caused by a severe imbalance in the distribution of wealth and power. This means that not all people get a fair share of the pie, which leads to unequal distribution of wealth and power (ibid.: 15).

Together, they lead to environmental scarcity, which in turn leads to certain social effects such as migration, exclusion, constrained economic productivity, and elite rent-seeking. The next step is that through a process of social segmentation and weakened institutions the door stands open to violent conflicts, such as: group-identity conflicts, coups d'états, and insurgencies (ibid.: chapter 7). Whether certain types of violence will occur because of environmental scarcity is a big assertion; however, Homer-Dixon never denied that scarcity's role in it is an obscured and indirect one, embedded in political and socio-economic interactions (ibid.: 179).

Then, Homer-Dixon (1999) argues that the three types of scarcities interact and reinforce each other. He finds that two forms of interaction are extremely important, namely: resource capture and ecological marginalization. Firstly, according to Homer-Dixon (1999) resource capture 'occurs when a fall in the quality and quantity of a renewable resource interacts with population growth to encourage powerful group within a society to shift resource distribution in their favour' (ibid.: 73). Secondly, ecological marginalization occurs when 'unequal resource access joins with population growth to cause migrations to regions that are ecologically fragile'

(ibid.). While Homer-Dixon links those two interactions with various cases in multiple instances, they could be expanded with the concepts above.

First of all, the idea of resource capture in the way it was discussed and illustrated in this chapter increases the scale of what is considered the powerful groups inside a society. Clearly, the definition of resource capture set by Homer-Dixon (1999) does not specify which society. While his cases suggest it are primarily groups within a certain domestic society, in the case of land-lease deals the society is scaled-up in absolute terms. Hence, in the case of land-lease deals it are increasingly powerful groups *outside* a domestic society that deal with their scarcity issues thousands of miles away. While the *outside* society might not even face scarcities the same way *inside* societies in the Nile Basin do, they are becoming the owners of large part of the resources available; in this case Nile Basin water. Hence, the rural populations which were initially close to the resource are forced to become distanced from it.

The second interaction, ecological marginalization, is more or less in line with the first one. Because of land-lease deals, rural populations are often 'forced to either endure enclosure or move to more isolated, marginal locations' (Zoomers, 2010: 430; Oakland Institute, 2012). Likewise with rural development, targeted at diverting the economy towards a more industrialized and export-orientated one, forces rural people to live in urbanized areas or just outside it. However, Homer-Dixon (1999) shows that the effects of marginalization of rural populations to ecologically fragile environments leads to degradation and depletion of those marginal areas; making scarcity even worse. In the case of the Nile Basin, this means that in the new marginal areas, land and water might be utilized inefficiently; degrading land and water resources outside the confines of the leased and cultivated lands.

The process of increased land-leases and sustainable rural development, together with a food security state of mind, lead to situations that could be easily linked to Homer-Dixon's (1999) ideas on resource capture and ecological marginalization. Additionally, some forms of migration and expulsion of people is already taking place, as well as constrained economic productivity for rural populations to be part of a wider economy (Oakland Institute, 2012; Mackenzie, 2008; Zoomers, 2010). Though, according to Homer-Dixon's theory the next step before serious violent (domestic) conflict breaks out are weakened institutions (ibid.: 134). Yet,

this is not *just* another step leading to violence. On the contrary, according to Elinor Ostrom (1993) the 'next several decades the most important question in water resources management is that of institutional design rather than engineering design' (Ostrom, 1993: 1907).

Hence, societies should adapt to scarcity situations and use their ability to solve problems. Homer-Dixon (1999) calls this *ingenuity*, which are 'ideas for new technologies and new reformed institutions' (ibid.: 180). In other words, ingenuity is a way of dealing with scarcity through adaptation and ingenuity. However, when the ingenuity and adaptation cannot keep up with the process of a renewable resource becoming scarcer, a so-called *ingenuity gap* starts to appear; which, when large enough, could spur violent conflict (Homer-Dixon, 1999). But what happens when this ingenuity gap is created by both private and public parties from all over the world in several countries? The problem in the Nile Basin with these new events taking place under the pretext of food security and rural development is that they do not happen equally, and most worrisome; uncontrollably. In other words, while rural development in Egypt might take another two or three decades, the massive increase of land-leases makes it possible to cultivate massive amounts of land within just of couple of years. Then, the ingenuity gap is created by multiple stakeholders, both private and public, making it impossible for Egypt to deal with their economic change. Hence, to stay in line with Elinor Ostrom's statement about institutions above, a real focal point for the next decades is to change institutions in the Nile Basin in such a way that they encompass a larger number of (private) stakeholders already active in the region.

3.6 Conclusions

With this chapter I tried to explain three concepts that are of relevance to the Nile Basin problems with regard to water. Admittedly, water is a scarcity that is hard to trace when observing these food security related concepts; however, when delving deep enough, water is always on the background determining what is possible, and what is not. The connection with Homer-Dixon's theory shows that there is a necessity to look at different scales for inherently ecological problems and is illustrative for a possible ingenuity gap created within a wider political geographical reality. With this was meant that the quick pace in which rural development in Ethiopia is taking place through land-leases could outstrip the slower process of rural development to change the economy. In the next chapter I will look at the political reality behind the concepts discussed in

this chapter, to see whether Egypt is going to be able to quickly adjust to this new reality of massive cultivation of their main water source.

IV The Domestic Picture: Egypt

4.1 Introduction

I ended the previous chapter with linking food security, land-leases, and rural development to Homer-Dixon's (1999) theory and explained the possible ingenuity gap between land-lease in Ethiopia and less rapid changes with regard to rural development in Egypt. In chapter two I wrote that the rapid leasing and cultivation of water-rich land in Ethiopia could outstrip rural development in Egypt, and hence be unable to use the concept of virtual water (importing water through food). In other words, the rural development plans in Egypt are merely plans and happen over long periods of time and the process of changing the economy into one more focussed on services and industries. These are processes that do not happen overnight, and might even take decades. However, land-leases and nervous overseas governments and rent-seeking agricultural companies are able to obtain land and water within a couple of years. While I will discuss this latter point in more detail in the last chapter, this one is going to be about the domestic picture of food security and rural development. This will make clear that economic feasibility of land-leases and rural development schemes cannot be cut loose from a political feasibility.

This case on Egypt and food security, rural development, and changing the economy will be in the form of a narrative that shows the infeasibility of rural development and changing the economy into an export-orientated one with high-value commodities, and hence is outstripped – water-wise – by rapid cultivation upstream. Moreover, with this narrative it should become clear that political feasibility determines for large part the pace of development, especially when ingenuity fails. Additionally, I will look more closely at the water-food relation and what happens when this changes. To do this, I will look more specifically at the period leading up to contemporary concepts discussed in previous chapters, that is, between 1952 and the nineteen nineties.

4.2 Historical Background

On the 22nd and 23rd of July 1952, Gamal Abdel Nasser's led Revolutionary Command Council (RCC) took over power in Egypt. While Egypt has a extremely long history with regard

to the Nile which dates back thousands of years (Said, 1994; Evans, 1993), the process of nationalisation that brought Nasser's regime to the for is an important factor that explains the way in which food security was tried to achieve, namely: through food self-sufficiency.

The British colonizers – granting Egypt its independence in 1922- left its scars on the country with regard to the river Nile. For many decades the British utilized the much of its resources to cultivate cotton and determine certain modes of production the Egyptian population got accustomed to. However, despite the fact that the British granted Egypt its independence in 1922, they remained powerful and visibly present in Egypt with regard to defence, foreign interest, minorities, government communications, and most importantly, the Sudan (Tvedt, 2004: 99). After the 1922 independence from the British, Nile water dependency remained unchanged. Hence, the British controlled the Nile upstream and therefore they controlled Egypt. During the decades that followed this partial independence with a constitutional monarchy is considered by Jankowski (2002) as Egypt's liberal period. Still, fuelled by British presence, the Great Depression, and the Second World War, a clear tipping point was reached when on January 26th 1952 numerous Egyptians were killed by a British attack on a policy post near the Suez Canal (Jankowski, 2002: 14). In just a few months, a *coup d'état* ended the liberal order and Gamal Abdel Nasser took over power.

This was a tipping point in Egyptian history, as for many countries in Africa that strived for an independent nation-state after the Second World War. In this period, political leaders such as Nasser had to create their own way of doing politics. Hence, it is considered by Jankowski (2002: 180) that the character and initial Nasserist incursion created a political field in which politics were going to take place in the decades to come; the modern territorial state. Consequently, the 'conception of the nation [became] the field and the model in terms of which to think of' (ibid.). Moreover, through this process of territorialisation, natural resources and people were linked to the concept of national territory and sovereignty (Moore, 2011: 40). As a result of this, future Nile water allocation and management problems were to become increasingly difficult because many developing countries – like Egypt – deepened permanent sovereignty over natural resources (Schrijver, 1997: 251). Deepening in the sense that they claimed as many rights as possible, based on the 'principle of permanent sovereignty[;] thereby 'nationalizing resource management' (ibid.). This became more explicit when Nasser stated that 'we [the Egyptian

people] must advance for the sake of Egypt, glorious Egypt, independent Egypt', after nationalising the Suez Canal in 1956 (Jankowski, 2002: 34). Yet, not just the Suez Canal, but also the nationalisation of large parts of the economy and land reform guided by the principle of economic independence, were applauded by apparent independent thinkers like Tariq al-Bishri; appointed in 2011 to head a committee to set up and propose constitutional changes after the January 25 revolution (Gorman 2003: 136; Reuters, February 15th 2011).

This turbulent period in the beginning the nineteen fifties set the stage for a much tougher task for the new leaders that took over power for an independent and prosperous Egypt. How were the newly acquired rights over the economy and natural resources going to be put to work for a 'glorious and independent Egypt'?

4.2 Food Security in Egypt. Economic or Political?

By gaining power over Egypt's economy, Nasser could not have gone passed its massive rural population living on the shore of the Nile and being completely dependent on it. Thus, the agrarian reforms adopted by Nasser's regime marked the beginning of intense government involvement in the production, marketing and distribution of most agricultural products; which lasted until agricultural liberalization in 1987 (Gutner, 2002:461). Not surprisingly, after Nasser and his fellow RCC officers took power they did so with two fundamental goals to proof their legitimacy, the independence and prosperity for Egypt (Collins, 1994:119). To do this, they 'needed a spectacular and visible symbol to demonstrate their intentions to the Egyptian people and the world' (ibid.). In fact, after just six weeks of being in power they announced to go ahead with the post-war proposal to build a second, much larger, dam on the Nile at Aswan, as the 'centrepiece of post-independence state building' (Mitchell, 2002:43). Despite the fact of many cold-war related financial hick-ups during its construction period (Waterbury, 1983), and in spite of intense international controversy, bitter environmental and technical criticism, and the 1956 Suez Crisis (Collins, 1994:119), the High Dam at Aswan was finally delivered on January 15th 1971. As a result, a massive change to the environment was made because of purely political reasons and scarcely thought through ecological consequences for the rural population; that lost large parts of the sediment the annual floods brought in to keep their soils fertile (Howell & Allan, 1994; Mitchell, 2002: 44).

By the same token, these large projects were something every future president dealt with in their own disastrous way. For instance, Nasser's predecessor, Anwar Sadat, shrewdly utilized the Nile water during the Camp David Accords between Egypt and Israel in 1978 by saying he would divert Nile water to Gaza through his Peace Canal flowing through the Sinai desert. Additionally, Hosni Mubarak's New Valley Project diverts water from Lake Nasser at Aswan into the desert west of the Nile; often referred to as 'Mubarak's pyramid' (Cooperman, 1997). For some reason illiberal authoritarian regimes tend to favour grand projects to show off their leadership. For instance, in Libya, late Muammar Qadhafi depleted a finite groundwater resource to build what he called the 'Great Man-Made River' (Ibid.: 34).

However, these large projects are not all about politics. On the contrary, they also try to capture water to increase agricultural production and achieve food security through food self-sufficiency. For many countries in the Middle East and Northern Africa the goal of achieving food self-sufficiency has been, and still is, extremely important (Cooleman, 1997; Allan, 2002). Also for Egypt, this has always been a long standing strategy for reasons of national security (Howell & Allan, 1994:9). In general, food self-sufficiency has always been a much wanted goal, which often took the form of 'national fantasies' roaming over 'virgin lands' (Allan, 1983).

Moreover, many leaders were impressed by the U.S. Tennessee Valley Authority (TVA), which was basin wide development of water-related industries, infrastructure, and hydroelectric dams on the Alabama river in the U.S.. Hence, they were urged by TVA officials to copy it after the Second World War. This TVA, which was first initiated by American industrialist Henry Ford, became the model for 'environmentally sustainable development' and democratic nation-building in general; not just in Egypt, but in many countries which were dependent on a river for their economy (Goldman, 2001: 500; Mitchell, 2002: 44). Nevertheless, this type of development not just needs investments to build something, but also newly written property rights, redesigning of state agencies, new production practices based on new global norms, which 'transform conventional forms of state power, agency, and sovereignty' (Goldman, 2001: 500). Despite this all, it was an attractive option for Egyptian (and other) leaders to fulfil their economic and food self-sufficiency objectives. However, despite large rural development projects like the Aswan dam, Egyptians were growing hungry.

Indeed, already when Nasser took office, Egypt did not have sufficient food supplies to feed itself. Until the nineteen seventies, when they ran out of water to grow food, this lack of supply existed because of underdeveloped agricultural sectors. Consequently, domestic consumption already started to outstrip supply in the 1950's (Waterbury, 1983: 199). In order for the demand to be met, food had to be imported. While some of the food imports in the 1950's were part of the United States (U.S.) food aid program Public Law 480, the food import trend is something that was never turned around (see Figure 1); despite the new high-dam at Aswan that promised to be the centrepiece of Egyptian independence and prosperity. Consequently, figure 1 shows the maize and wheat imports compared to Egypt's production. Wheat is the primary source of bread in Egypt; however, of all the basic grains (wheat and maize) that are massively consumed in Egypt, nearly 50% is imported. During the latest food crisis between that started in 2005 the imports were so expensive that they were cut in half in 2 years; which led to a 40% increase in consumer prices for food (FAO Statistics, 2012).

The entire idea of seeking food self-sufficiency was rather common at the time, and guided by an economic import substitution industrialization policy, which was abandoned in the nineteen seventies and eighties to be replaced with export-led growth (Waterbury, 1983). These changes in economic policy were for large part necessary in Egypt because of the rate in which the population was growing, and hence they needed food for an affordable price. So, a change in economic policy was necessary because remaining food self-sufficient is unattainable when being physically limited by your own water resources (Howell & Allan, 1994: 9). Then, in order to

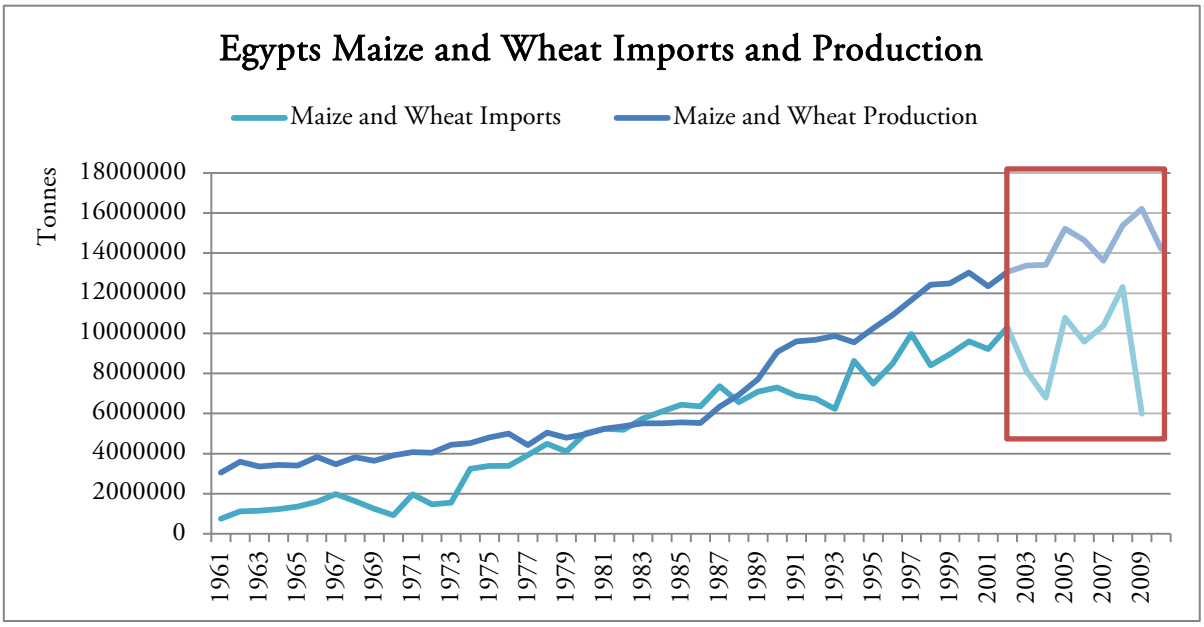

Figure 1 Source: FAO Stat. Red box indicates food crisis of 2005-2008. Graph plotted myself

cover up the fact that you cannot grow sufficient crops due lack of water is to keep food prices low by increasing food subsidies. Also in Egypt, the food subsidy system was expanded in the 1960's and 1970's as part of a broad set of consumer welfare programs (Gutner, 2002: 461), set out by President Anwar Sadat (Waterbury, 1983: 10).

Consequently, food imports and food subsidies became the way to meet Egyptian food security. However, the consequence was that an increasing number of people had to eat, yet they could not afford it themselves; which led to an ever increasing food subsidy program which became unattainable. In the next paragraph I will show that the prelude of these more or less 'logical' follow-ups of political realities makes change slow, and hence make rural development slow.

4.3 The Food Subsidy. A Touchstone of Dissent?

Food subsidies in Egypt were a big concern to government officials in the nineteen eighties. Although they wanted to change the economy rapidly in order to foster economic growth, they could not do. It were several steps and political and economical events that eventually led to food riots in 1977 and a ten year long process of food subsidy reductions.

First of all, food subsidy programs were already present in Egypt when Nasser took office, yet, they were never reduced or abolished. This became a huge problem when in 1973 the Bretton Woods system collapsed and food prices skyrocketed. Hence, the total value of food imports became a massive expense for governments around the globe. For instance, world wheat prices increased from $60 a ton in 1972 to $250 a ton in 1973 (Gutner, 2002: 462). Figure 2 shows that indeed there has been a massive shock making the value of food import turn from a small problem in to a matter of national security.

Consequently, with these increased market prices the amount of subsidies paid for were gradually becoming a serious issue with regard to an economic reform package negotiated between the International Monetary Fund (IMF) and the Egyptian government in 1976 (Gutner, 2002). These announced subsidy cuts, with a total of 225 million Egyptian pounds, generated the 1977 food riots in Cairo, Alexandria, and other places in the Nile Valley, "officially" killing 73 people in Cairo alone; yet, unofficially the estimates are much higher (ibid.: 462; Waterbury,

1983). Generally, these domestic price spikes were of major concern to the Egyptian government, and hence Sadat decided to expand the subsidy program, and promised to go ahead with the salary increases (Gutner, 2002; Waterbury, 1983). Since 1977, it became clear that touching the bread subsidy cannot be done, except when the survival of the regime is at stake (Waterbury, 1983:230).

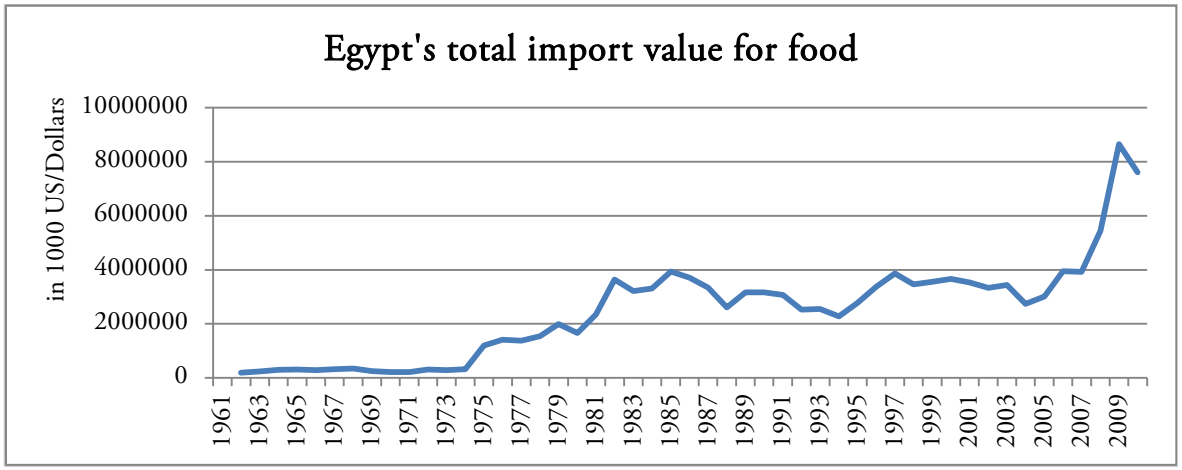

Figure 2 Source: FAO Stat. Graph plotted myself.

Secondly, another large problem that was partially flows from the first, is that increased spending by increasing wages and large food subsidy programs led to large budget deficits which massively indebted the country (Waterbury, 1983). For instance, in 1974, just after the started float the world's currencies and open markets, the total external debt of Egypt was roughly 2.2 billion US$ (in current US$) compared to roughly 46 billion US$ in 1988 (World Bank Data, 2012). Then, many of the subsidies in place were already there when in 1973 the open world market started to appear, which made food subsidies into an ever increasing expense (Alderman & Braun, 1986). Hence, Sadat's predecessor, Hosni Mubarak, was faced with unattainable subsidy programs which caused large budget deficits (Gutner, 2002: 463). Consequently, to avoid political unrest surrounding subsidy reduction encountered before in 1977, Egyptian leaders adopted a gradual strategy that 'would not lead people to believe their living standards were being reduced (ibid.). As a result, in ten years time the real subsidy costs declined from 6.0 billion in 1981 to 2.5 billion Egyptian pounds in 1991 (ibid.: 464).

Then, the incremental reduction of food subsidies in Egypt were the beginning of Hosni Mubarak's liberalization period. In 1987 a new agricultural policy, forced by the IMF's Structural

Adjustment Programs and the U.S. government demanding market prices for their enormous maize and wheat exports to Egypt, liberalized agricultural production. This meant that the government was no longer interfering with farmers' crop choices, areas, quotas, and prices, except for sugar (NWRP, 2005; Mitchell, 2002). This meant a great deal of freedom for farmers and rural populations to grow whatever they wanted. However, it did not coincide with the governments wishes with regard to export revenues.

4.4 Putting Water to Use, a Paradox?

Not surprisingly, the Egyptian rural population and farmers did not start to grow high-value crops to maximize profits. On the contrary, they started to close the food gap between production and import staple goods like wheat, maize, and rice in order to have affordable food yourself (Mitchell, 2002: 252). Figure 3 shows the large increase in production of these staple goods. While this could be considered a victory for the free market, the much expected export revenues lacked significantly (ibid.). However, liberalizing agriculture is not the same as liberalizing water. On the contrary, during the nineteen eighties and nineties, several laws were approved that massively restricted the food producing Egyptians. For instance, Law 48/1982 and Law 12/1984 give the Ministry of Water Resources and Irrigation the right fine and imprison people responsible for too large a discharge from the Nile and its associated canal and irrigation network. Therefore, when the government found out too much of the water was used for low-value production, they intervened. Hence, farmers in the Northern parts of the Nile were

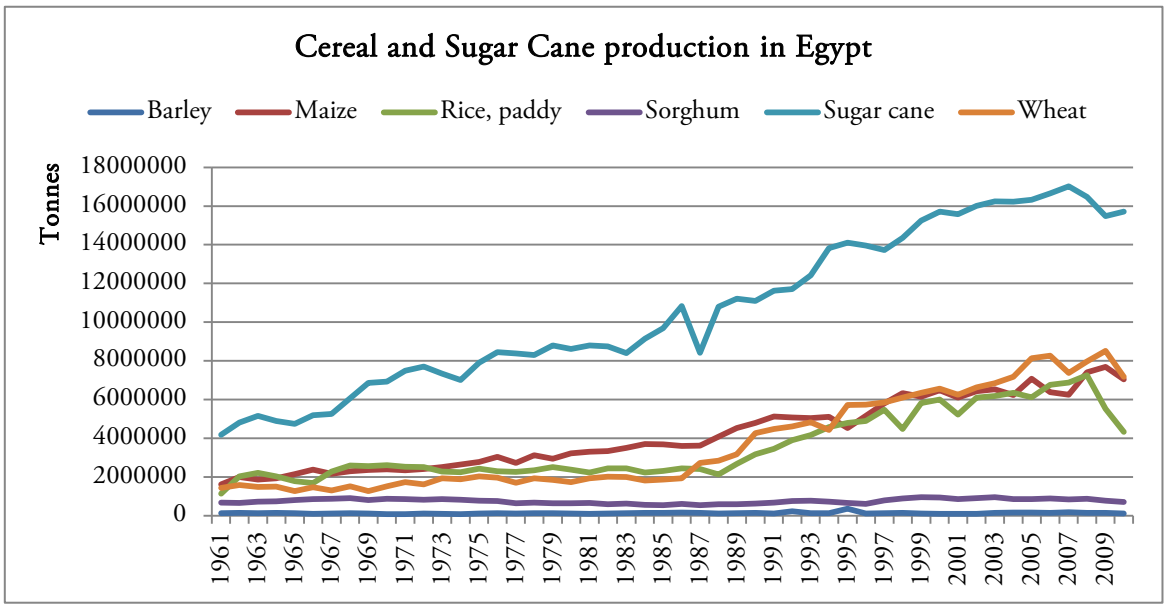

Figure 3 Source: FAO Statistics/USAID Foreign Service. Graph plotted myself.

planting a massive amount of rice, because it became the local staple good (instead of bread in other parts of the country); however, the government 'issued 250,000 fines and threatened farmers with imprisonment in an attempt to conserve water supplies for industrial and export crops' (Mitchell, 2002:252).

The use of water laws in this way in order to exult a neo-liberal belief on market led growth with large high-value agricultural export sectors has been disastrous. On the cover of this thesis there is satellite picture from the suburbs near Cairo that shows parts of new cities and large golf resorts in the middle of the desert. This are remains of a period that Timothy Mitchell (1999) depicts as the neo-liberal success of the political imagination (Mitchell, 1999: 455). In this period large new theme parks like *Dreamland* (near Cairo), new villa's with pools, and a huge amount of Golf courses were built rapidly through financial speculation to meet the 'exuberant dreams of private accumulation' (ibid.; Mitchell, 2002: 272). However, real economic change for the absolute majority of Egyptian did not change at all, food security is still being met through massive food imports, unemployment is staggering, and people have too little money to buy ever increasing prices for food (Economist, March 17th 2012).

To conclude, in a wider context, the way water is been put to use has been a focal point in the above narrative on Egypt. Paradoxically, because of the limited amount of water, Egypt cannot change the economy and put water to other uses that are more profitable and sustain a level of food security (through import of food) that is affordable at the same time. Hence, doing those things at the same time demands social and technical ingenuity. Still, as shown in the Egyptian case above, this can take a long time, and might also be disastrous when not thought through enough; as was the case in the last two decades. Therefore, this situation becomes more and more stringent when upstream development projects in the form of land-lease deals and rural development take place in Ethiopia in an uncontrolled water consuming way.

V Conclusions

How do global concepts like food security and its associated land-leases and rural developments interfere and change the dynamics with regard to water allocation issues in the Nile Basin? In order to answer it, I tried to incorporate a wider perspective that incorporated political, economical and ecological elements at the same time. However, at the intersection of those factors, a lot of complexity emerges which make it difficult to adequately pinpoint the specific relation to water allocation. Still, there are some modest conclusions that can be made.

First of all, moving the attention away from water allocation *per se* has opened new ways of observing the Nile Basin. What was/is a deadlocked cooperation over specific shares of Nile water suddenly comes to life when taking into account large developments that are only possible with the *utilization* of water. Nonetheless, observing a 'conflict' which is not really out in the open becomes hard to understand. With a fixation on water alone, one cannot get ones fingers behind the obscure and indirect role scarcity plays through socioeconomic and political interaction within the region.

The reach of the food security tends to be extremely wide. It is not only present in international organisations investments directly surrounding the Nile Basin discussed in this thesis; yet, it is more like a new development paradigm which indirectly assesses infrastructure, cities, employment and industries. In other words, one might argue that every country that has food security is actually doing rather well, and hence does not need all kinds of structural developments like many Nile Basin countries do. Moreover, the real question becomes who is actually making sure people are living in a food secure world? As I showed, broad food security definitions to not speak directly who has to take care of it. On the one hand, it needs be achieved by the state through clear political economy strategies, while on the other hand, there are clear signs that it are the markets that need to work for the hungry poor. Indeed, besides the fact that this thesis is mainly about the water related issues concerning food security related concepts; it has also indirectly assessed a wider development discussion between how to solve poor countries problems.

Second of all, I have illustrated in the chapter about the concepts that the associated land-lease and rural development events are indirectly and obscurely interacting with the political

economy and the water issues in the Nile Basin. In projects where these concepts are utilized, they often incorporate strong market beliefs that suggest that change *could* and *can* improve; however, they rarely did. Moreover, unlike virtual water and its link with global food markets to alleviate water scarcity, I showed that the same market could aggravate the scarcity when entering the region through land-lease deals and rural development projects under the pretext of food security. Moreover, while the amount of water these projects withdraw from the Nile Basin is unknown, the sheer size of these land-lease deals and rural development schemes presume that they need a lot of water and investments; accompanied by a set of market ideas that are of course not value-free.

It is also clear that rural development and land-lease deals do not fit nicely into each other. This has to do with the fact that rural development is still a very broad and vague concept that could entail many things, while land-lease are much clearer. Hence, the rural development part of the story stood idly by in comparison to the close relation between food security and land-lease deals. However, rural development the way it was assessed here showed that these are slow processes that try to change the economy in order to fit global markets. Nonetheless, rural development can take place through land-leases, which is increasingly the case in upstream Ethiopia; which make rural development a very quick concept in over there. The opposite seems to be the case in Egypt where they try to change the economy to fit world markets through other – much slower – types of rural development. Hence, throughout the thesis, it became clearer that the developments taking up water through land-leases could happen at a rate that is making hard for Egypt to keep up; which could also be called a clash of the projects.

Consequently, I introduced the idea of an ingenuity gap that is created through the multiple speeds of socioeconomic and political developments that take up water; such as land-lease deals. The idea about this ingenuity gap is simple. When a society loses its ability to solve their environmental scarcity through technological and institutional ingenuity this will lead to unwanted social effects, and hence could eventually lead to violence (Homer-Dixon, 1999). I linked this theoretical concept of ingenuity to the events of land-lease deals and rural development. Now, I do not argue that violence will occur, or that significant unwanted social effects (due to scarcity) are already taking place; however, the idea that rapid agricultural cultivation in Ethiopia through land-lease deals is outstripping Egypt's much slower process of

changing their economy is illustrative for the indirect political and socioeconomic interaction with Nile water. Of course, one could also argue that – according to Egypt – Ethiopia is utilizing too much water; however, just calling it water is not specific enough. When it becomes clear that you can pinpoint specific developments in a more holistic way, taking into account all the stakeholders, negotiations could take place much easier.

Then, this idea of large development projects changing water allocation forces one to transcend the fixation on water being the only thing you need to negotiate about. While water is indeed very important for everything that happens in the Nile Basin, by focussing on what you can do with water, the ability to negotiate developments which are indirectly allocating water increases. In other words, one should focus on the projects. For instance, Egypt could negotiate with Ethiopia that the land that they lease to foreign investors can only be land in the parts of the country where agriculture is rain fed, instead of irrigation from the river. Likewise, large dams and specific projects should be negotiated more specifically, because it all depends on how you operate it, or how you facilitate certain land-leases.

On a larger scale, the biggest challenge is of course how to incorporate so many new stakeholders making claims on water through land-leases into one institution, and hence make these private claims controllable. The largest change from a political geography point of view is that the people in society become distanced from a resource they used to be close to, and the new foreign investors are increasingly getting closer to a source they initially had nothing to do with. This challenges simple organisational principles like transparency and accountability when problems arise. It is a real challenge to come up with institutions that could govern local and regional stakeholders, as well as their global counterparts. Although this might sound like a daring and complex task, it is definitely better than a future clash of the projects in which an uncontrolled bunch of private stakeholders cannot be held accountable because no one can find them.

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