

Understanding Water Scarcity in Arid Regions: A Critical Discourse Analysis of Water Scarcity in the Case of Jordan

Hussam Hussein

Water Security Research Centre and Tyndall Centre for Climate Change Research,
School of International Development, University of East Anglia, Norwich, UK

Abstract: Considering Jordan as a case study, this paper is pioneering the social issue of water scarcity, investigating it through a critical discourse analysis. It aims at unpacking the discourse of water scarcity, identifying the actors, interests and ways in which contested framings of the discourse of water scarcity are constructed. Only by understanding the power struggle around and within the discourse, this paper will be capable of investigating the suggested solutions to the issue of water scarcity, showing the interests behind each solution, who benefits and why. In this way, it will show how different framings of the issue of water scarcity drive towards different solutions to what is framed as a problem of water scarcity. What emerges from this analysis is the presence of the competing narratives of physical water scarcity and of socio-economic water scarcity, blaming, respectively the limited water resources and the mismanagement of the water resources. These framings drive towards mega-projects and engineering solutions versus market oriented or conservation oriented solutions. In so doing, with a social sciences approach, this research contributes with empirical findings to the literature on transboundary water management in the Arab region, pushing the boundaries of the literature in social transboundary water management.

Key words: Jordan • Water scarcity • Discourse • Critical discourse analysis

INTRODUCTION

The Arab region is often described as an arid or semi-arid region, with low precipitation. Over two thirds of the renewable surface water in the Arab region is of transboundary nature. Water scarcity is often framed as a matter of national security, underlying the necessity of developing more and new water resources by engineers through mega-projects aiming at increasing the water resources in the country. What emerges, is that the social scientific aspects of social water studies are overlooked and water scarcity issues are rarely addressed from an interdisciplinary perspective. Nevertheless, an interdisciplinary approach would be key in understanding people's perceptions of water scarcity, the suggested solutions and why certain solutions are strongly supported and others are neglected.

This paper examines the discourse of water scarcity in Jordan, its construction and how it impacts policies that the water scarcity discourse suggests for the water sector.

This paper first discusses the theoretical framework adopted for the analysis. Second, it investigates the construction of the dominant mainstream discourse of water scarcity, analysing the different story lines supporting it. Finally, it analyses the overall sanctioned solutions that are currently pursued in Jordan for the water sector and the role of the discourse of water scarcity.

Critical Discourse Analysis Framework:

The epistemological take of this paper is constructivism. This means that what matters is how reality is perceived and interpreted, as it cannot be captured objectively and neutrally [1]. Reality is mediated by people's lenses. Therefore, while a material objective reality exists, it is perceived differently and the understanding of reality is mediated, I argue, mainly through discourses. This paper refrains from accepting facts at face value and questions what is taken for granted. It aims at unpacking the discourse of water scarcity in order to understand the

mechanisms that govern it. The purpose here is to understand the politics underlying such a seemingly apolitical question of water scarcity and its impacts.

In the literature, there is no common definition of what a discourse is. I adopt Fairclough's theoretical framework of critical discourse analysis (CDA) and his understanding of a discourse as "language as a form of social practice" [2]. Discourse is a social practice as it is situated in a social context: it is part of the society rather than an external element influencing it. For Fairclough, therefore, the discourse needs to be analysed to include texts, their productions and interpretations and their impacts on the social practices. As Wodak puts it, critical discourse analysis is about considering "social processes and structures which give rise to the production of a text and of the social structure and processes within which individuals or groups as social historical subjects, create meaning in their interaction with texts [3].

A discourse is therefore the whole process of social interaction, which includes the text (final product) and the processes of text production and interpretation (in the latter the text is a resource) [4]. All these processes are social and need to be considered within the social conditions and contexts – economic, political and institutional settings - of production and interpretation¹. These social conditions or structures mutually shape the way people produce and interpret discourses [4]. Therefore, for Fairclough a discourse is not only the final result, but rather the whole dynamic process which constructs, reproduces and transforms the social reality through agents' actions, events, declarations, reports, etc. This understanding of discourse is useful for this paper as it looks at discourse as a process of construction of the text and therefore it allows to consider a report or declaration exploring who constructed it and how, on which previous texts it is based and how that discourse is legitimizing or challenging prior texts, existing norms and structures. It results that, for Fairclough, a discourse is constructed not through a single declaration, but rather through a number of actions, declarations, publications and events that support and constitute the construction and reproduction of a discourse. As noted by Zeitoun (2008), in the phase of constructing a discourse coalition, people are consciously aware, while if some one arrives when a discourse coalition is already in place, they would accept it unconsciously and therefore this discursive

power would act partly subconsciously as ideational power [5].

Concerning discourse, there are sanctioned, dominant and hegemonic discourses. The term "sanctioned discourse" was first understood as constraining people thinking differently than the dominant discourse [6]², while Jägerskog (2002: 1) defined it as "the prevailing dominant opinion and views, which have been legitimized by the discursive and political elite" [7]. For Zeitoun, the powerful actor makes its discourse be heard and have impact also outside its political domain, while the weaker does not have the ability to be heard by a wide audience [5].

My understanding of the difference between sanctioned and dominant discourse is that a dominant discourse is the prevailing opinion and views, which have not necessarily been legitimized and supported by anyone in particular, while the sanctioned discourse has and is being sanctioned and legitimized by someone. I understand the hegemonic discourse as a dominant discourse that has reached the subconscious level of the majority of people and therefore is accepted at the subconscious level, so the hegemonic discourse is always dominant. However, a hegemonic discourse is not necessarily a sanctioned discourse. Nor is a sanctioned discourse always hegemonic, even if it is usually dominant. The dominant discourse may or may not be sanctioned or hegemonic.

The Dominant Discourse: Physical water scarcity: In this section, I unpack the dominant discourse of water scarcity in Jordan, to highlight what the story lines constructing the discourse are, which ones are dominant, who is constructing them, who the story lines blame and why. In order to unpack the discourse of water scarcity, the power struggle and the interests of the actors involved, I opted for a combination of different methods as well as intensive ten months field work spread during different seasons. This study makes use of qualitative methods of data collection, with a particular focus on interviews as the main method of inquiry. The methods deployed are: documentation, semi-structured interviews, official statistics and observation. I interviewed 89 interviewees involved in the construction or reproduction of the discourse and the story lines constructing the discourse that emerged are:

¹Fairclough identifies three social contexts to consider: the immediate social environment where the discourse takes place; the social institution; the society as a whole.

² In Allan's book "The Middle East Water Question" it emerges (through personal communication between Allan and Tripp) that the term was first introduced by Tripp, in 1997. The term was developed by Allan, and largely used in hydro-politics.

- The story line of population growth, immigration and refugees
- The story line of unfair sharing with neighbouring countries
- The story line of climate change as an additional pressure
- The story line of Jordan as an arid and semi-arid region with low precipitation
- The story line of Non-Revenue Water: leakages and physical losses
- The story line of Non-Revenue Water: illegal wells and illegal uses
- The story line of the unsustainable agricultural water use

These story lines are represented in the Figure 1. The size of an oval indicates the dominance of the sub-discourse in comparison to the other oval. The size of a circle inside the ovals indicates the dominance of the story line in comparison to the other circles in the same oval. However, the size of the circles in the left-hand oval does not relate to the one of the circles in the right-hand oval. Dominance of a story line has been measured by looking at how prominent they were in reports, newspaper articles and in the interviews.

As suggested by the size of the ovals, the sub-discourse of “Physical water scarcity” is more dominant than the sub-discourse of “socio-economic water scarcity,” and the four story lines of the dominant sub-discourse are the dominant story lines. For this reason, the focus of this paper and of this section is on the physical water scarcity sub-discourse.

This sub-discourse identifies the reasons for the problem of water scarcity in the limited supply, namely the limited or decreasing water resources and the factors

increasing the demand side [8]. There are four story lines comprising this sub-discourse. The first story line considers population growth, in particular waves of immigration and refugees, as the cause for water scarcity. The second story line identifies the unfair sharing over the transboundary water resources with neighbouring countries as the reason for water scarcity. The third argues that climate change is putting an additional pressure and intensifying the water scarcity in the country. The fourth story line describes water scarcity as due to Jordan’s natural condition of semi-aridity and aridity and to the low precipitation.

For each story line, this section examines how they are constructed, the role of structures, norms and discourses, who each story line blames and why. Overall, the structure of the shadow state as understood by Yorke (2016) influences the construction of the physical water scarcity sub-discourse to maintain the status quo and to preserve the current water use[9]. This is to maintain and protect the interests of the shadow state’s members, blaming external factors like immigrants, refugees and nature and environmental conditions rather than the unsustainable agricultural practices of the members of the shadow state.

The Story Line of Population Growth, Immigration and Refugees: The first story line sees the problem of water scarcity as due to the rapidly increasing population, immigration and waves of refugees. Academics, governmental employees, donors and international organisations mentioned in all the interviews that a very important reason for water scarcity is population growth, which is not linear but stepped due to waves of immigrants (e.g. interviews to governmental personnel 8, 14, 17, 18, 22, 25 and 42, to donors interviews

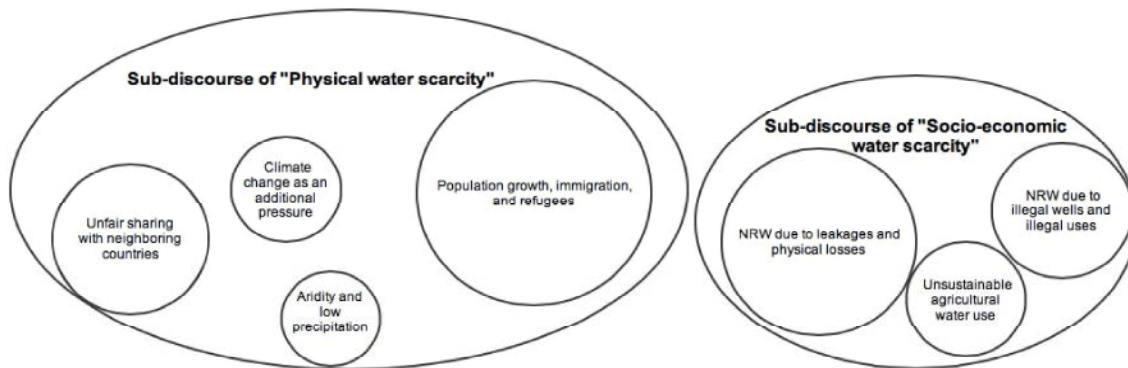


Fig. 1: Sub-discourses and story lines

Table 1: Demography of Jordan over time

Year	Population of Jordan ³	Major political event
1922	225,000	Emirate of Transjordan founded in 1921
1947	473,200	One year before the establishment of Israel
1952	586,200	After the 1948-1949 war with Israel
1970	1,508,200	Three years after the six days war with Israel and the Israeli occupied the East Jerusalem and the West Bank.
1989	3,144,000	One year before the Iraq-Kuwait war
1993	3,993,000	Two years after the Iraq-Kuwait war
2002	5,098,000	One year before the war against Iraq
2004	5,350,000	One year after the war against Iraq
2010	6,113,000	One year before the Syrian crisis
2012	6,388,000	One year after the start of the Syrian crisis
2014	7,500,000	Three years after the start of the Syrian crisis

Source: Author's presentation of data from Department of Statistics of Jordan Yearbook 2013 [12] and Haddadin (2006: 7)

28, 39 and 45 and to academics interviews 3, 4, 7, 11). This reason was not simply mentioned, but emphasised by the interviewees, in reports and articles as the biggest issue when it comes to why there is water scarcity in Jordan. Former minister of the Ministry of Water and irrigation (MWI) Munther Haddadin dedicates the first chapter of his book "Water Resources in Jordan" to the population issue, chapter co-authored with the geologist Elias Salameh⁴. As summarised in Table 1, in this chapter they say that "Jordan's population grew 11.5 times in 66 years, from 0.3 million in 1938 to 5.35 million in 2004, because of the abrupt influx of population in the wake of the turbulence that has been affecting the Middle East" [10: 25, 25]. These facts related to the discourse of water scarcity are not new, as this story line was mentioned also more than 20 years ago as one of the key reasons for water scarcity by Salameh and Bannayan (1993), who wrote among the different reasons, "population pressure as a result of natural multiplication and refugee waves coming to Jordan [11].

This story line emphasises the refugees and waves of immigration from neighbouring countries rather than the natural fertility rate of Jordanians, which was never mentioned. Currently, the main focus of this story line is on the Syrian refugees' impact on the Jordanian water resources. The MWI is updating the National Water Strategy "Water for Life" to include the impact of the Syrian refugees in Jordan on the water sector (interviews 8, 14, 17, 18, 22, 25). The MWI has also published the "Cost of hosting Syrian refugees on water sector of Jordan" report published in 2013 on the impact of the Syrian refugees on water resources both in the short term and in the long term, considering direct and indirect costs

[13: 19-22]. This text is often cited as a text supporting this story line by other governmental personnel, academics and the media. Hana Namrouqa, environmental journalist for The Jordan Times, uncritically reproduces this aspect from the MWI in many articles, stressing the role of the Syrian refugees in increasing the water scarcity in Jordan:

"The deteriorating regional conditions and turmoil have led to waves of hundreds of thousands of refugees flowing into Jordan, pushing it over time from being one of the world's 10 water-poorest countries in the world, to the fourth and now the second, according to ranking by the United Nations, Ministry of Water and Irrigation Spokesperson Omar Salameh told The Jordan Times. [...]. The main challenge to the water sector, according to [the government coordinator for human rights report on challenges the water sector is facing], is the increasing demand for water due to the ongoing influx of Syria refugees into the country" [14].

In a different article, Namrouqa [15] underlines this aspect again in the opening sentences of the article: "Jordan's climate and its growing population place enormous pressures on water, leaving the sector struggling with a severe supply-demand imbalance, according to officials. They added that the situation is only aggravated by the ongoing influx of Syrian refugees. Al Rawashed [16] emphasises in the newspaper in Arabic Al Rai how the Syrian refugees are putting an additional pressure on the already limited water resources in Jordan. Also the newspaper in Arabic Ad-Dustour underlines that the Syrian refugees in Jordan are causing a serious reduction of the water resources in the country [17]. A recent meeting in which the Jordanian Prime Minister Nsour declared to his Swedish counterpart that the

³(estimated)

⁴Salameh is the founder of the Centre of Water of the University of Jordan, member of the Royal Water Committee, and academic at the University of Jordan.

refugees' crisis is aggravating the water scarcity issue in the country received high coverage in the Jordanian media [18].

Population growth, immigration and refugees are reasons that are mentioned by donors and international organisations when discussing water scarcity. They acknowledge that population growth is putting a pressure on the water resources. This emerged in interviews 28, 39, 45 and also in several reports including a Japanese International Cooperation Agency [19] reported that the rapidly increasing population is putting heavy pressure on the limited water resources. However, international organizations and donors recognise that this is adding pressure on water resources in Jordan, but its impact is limited compared to the story lines comprising the socio-economic sub-discourse [20].

Overall, the story line of population growth, immigration and refugees is constructed through texts from the MWI, including the report on Syrian refugees and declarations from governmental personnel, mainly from the MWI and the Ministry of Planning and International Cooperation (MoPIC). It is reproduced by The Jordan Times and backed by academics, whose thoughts in the interviews often coincide with those of the government. This story line is partly supported and reproduced by donors and the international community, but behind closed doors they tend to be critical of over-emphasizing this aspect as a natural one, rather than as a managerial or governance one (interview 59).

This story line finds as a reason of water scarcity the population growth, blaming the waves of refugees and currently the Syrian one and the immigrants from neighbouring countries, therefore an external cause to Jordan or the Jordanian government. In so doing, it protects the current use made by Jordanians in other sectors, supporting the interests of the shadow state, which remains untouched, overlooked and free of blame. The structure of the shadow state, which aims at protecting the status quo and their current water use, is linked to this story line; it blames the refugees and immigrants and in so doing it shows that water scarcity is not caused by Jordanians or by the members of the shadow state overusing water, for instance in an unsustainable agriculture, but rather by the immigrants and refugees. Unsurprisingly, in none of the interviews or reports the population growth mentioned the natural demographic rate growth of Jordanians as an issue; no one has ever questioned the fertility rate of an average of four children; no one has ever called for birth rate control.

This is partly because of the shadow state structure, shaping and influencing the construction of this story line.

It results that this story line is constructed by the government and is generally accepted, reproduced and reinforced by all major actors in the water sector. The shadow state structure strongly influences backing this story line to protect the water uses of the shadow state. The government and the most of the Jordanian actors blame refugees and immigrants, while the high fertility rate is overlooked and never mentioned. This story line, as presented in Figure 1, strongly informs the sub-discourse physical water scarcity sub-discourse.

The Story Line of Unfair Sharing with Neighbouring Countries:

The second story line under the physical water scarcity sub-discourse considers the problem of water scarcity as linked to the unfair sharing with neighbouring countries of most of the surface water resources of Jordan, claiming that the Jordanian right to an equitable and reasonable use of all transboundary flows is not respected. The story line ranges between those who blame Israel and those that blame Syria. On the one hand, from the interviews it emerged that current senior government personnel from the MWI, MoPIC and the Ministry of Foreign Affairs (MFA) see the problem as lying in the relations with Syria over the Yarmouk River. Instead, those at the Ministry of Agriculture (MoA) were more sceptical with seeing Israel as respecting the equitable and reasonable share of Jordan and saw in both Israel and Syria most of the reason for water scarcity in Jordan. On the other hand, low-ranking governmental employees, individuals, political parties, Members of the Parliament (MPs), former ministries, farmers associations and NGOs consider Israel as the main obstacle to having an equitable and reasonable share of the transboundary water flow. This emerged in the interviews, including those with MWI staff (interviews 18 and 42), former MWI ministers (interviews 52 and 63) and NGOs (interview 4 (1)). Mohammad Najjarin 2010 stated that when he was minister of the MWI that "Jordan receives its allocated water shares in full under the Jordan-Israel Peace Treaty's second annex" [25]. The current MWI, MFA and MoPIC senior staff stressed that the problem lies in the relations with Syria, which is not respecting the 1987 bilateral treaty. This is also reported in articles in the newspaper in Arabic Al Rai, which underline that Syria is not giving the right share of the Yarmouk to Jordan, undermining agriculture on the Jordanian side while supporting farmers

on the Syrian side [16; 21; 22]. Instead, a former MWI minister (interview 63), as well as a Jordanian NGO (interview 4 (1)) argued that the major problem is the 1994 agreement that does not ensure an equitable and reasonable allocation to Jordan. Adnan Khaddam, head of the Jordan Valley Farmers' Union, argues that Israel is not respecting the 1994 agreement, as "Israel's excessive pumping contravenes the Israel-Jordan peace treaty signed in 1994" and considered therefore taking legal actions against Israel [23]. Several academics also believe that the 1994 agreement is a cause of water scarcity and they reproduce this discourse in their articles. This is the case for instance with Hadadin⁵, Qaqish, Akawwi and Bdour from Balqa Applied University and Hashemite University both in Jordan. While describing the water scarcity situation in Jordan, they underline that "the situation has been intensified by the fact that Jordan shares most of its surface water resources with neighbouring countries; their control on water has partially disallowed Jordan of its fair share of water" [24: 197]. This story line is reproduced also in the textbooks⁶. A geography teacher from the ministry of education underlined that in grade twelve they speak about political transboundary water governance (TWG) relations: they mention the quotas and allocations. They also said that Syria is not always respecting the agreement, as well as Israel in the past. They only give the facts and data on these issues, without judgements and they are provided with these "objective data" from the Institute of Geography, the MWI and the Department of Statistics (interview 24, person 2).

Only one donor emphasised in an interview (28) this element as a cause for water scarcity, while the other donors I interviewed overlooked this aspect. Nimry (2013) from the Jordan reported that shortages in Jordan are worsened by the fact that we share most of the surface water with neighbouring countries," seeing it as contributing, but not as sole cause, to the water scarcity in Jordan [26]. Al Hamidi (2012) writes in the newspaper in Arabic Al Rai that an important aspect of water scarcity is the fact that 90% of the surface water resources are shared with neighbouring countries [27]. He underlines that the water of the Jordan River cannot be used for agricultural or industrial purposes by Jordan due to the continued pollution and violations from the Israeli side.

As presented in Figure 1, this story line is relatively less powerful than the population growth, immigration and refugees' one as it is not often mentioned by donors and international organisations compared to the previous story line. Concerning the texts that are the source of interpretation for this element, the 1987 and 1994 treaties between Jordan and Syria and between Jordan and Israel are the main sources. In a comparative way, also the Johnston Plan is a source of interpretation for this element.

The senior governmental officials reflect the governmental current position of defending the 1994 agreement per se and of stating that the agreement is overall being respected by both sides, not questioning the quality of the agreement. They also argue that the 1987 agreement with Syria is not being implemented and therefore respected by Syria. Those that criticise Israel, instead, do so not on the basis of whether the agreement is respected or not, but they challenge the 1994 treaty as they see it as a bad agreement that does not guarantee an equitable and reasonable allocation of the flow to Jordan. This is why certain groups blame Israel and other blame Syria. Lastly, some groups like the farmers blame both as they see that both on the Syrian and on the Israeli borders the other side is having a larger allocation of the shared water than the Jordanian side. Overall, I argue that most of the people and sources of this story line attribute the unfair water sharing to asymmetries in power. The blame is on the riparian countries, which are not giving a fair share of water resources to Jordan. The shadow state structure influences by supporting this story line as it has an interest in moving the attention and the blame from internal to Jordan, in particular from the members of the shadow state like farmers and their unsustainable agricultural practices, towards outside of Jordan, in this case also geographically.

Overall, this story line is constructed and strongly emphasised by the government and is generally accepted and is aligned with the thoughts of academics, MPs, political parties, media and NGOs. Donors and international organizations are more lukewarm about it. The shadow state structure strongly influences backing this story line to protect the current water uses of its members, often unsustainable. The government and most of the Jordanian actors blame either Syria or Israel or both, externalising the blame towards the neighbouring

⁵Nidal Hadadin from the Hashemite University, Jordan, and not Munther Haddadin, former minister of the MWI.

⁶I focused on national curricula for primary and middle school from grade one until grade ten currently in use in Jordan. I analysed the textbooks of: science for grade one till eight; geography from grade six until grade ten; and earth and environmental science for grade nine and ten. Science is taught until grade eight, then it becomes earth and environmental science. Geography is taught since grade six.

countries. This story line, as shown in Figure 1, strongly informs the sub-discourse physical water scarcity sub-discourse.

The Story Line of Climate Change as an Additional Pressure: The third story line under the physical water scarcity sub-discourse sees water scarcity as due to the impacts of climate change and climate variability to the water sector. Those are identified in temperature increases, decrease in precipitation, droughts and increase in evaporation. These are resulting in a reduced recharge of aquifers and surface water and in a decrease in the quality of surface and groundwater resources [28].

In the interviews and reports, climate change was mentioned as one of the causes of water scarcity, although not as the major one, but it still emerged as a relevant story line: climate change was seen as adding a pressure to water scarcity. This aspect emerged during the interviews with academics, ministerial employees, donors and NGOs (for instance interviews with academics 3, 4, 7, 11, 30, interviews 8, 14, 17, 18, 22 and 42 with the MWI staff, with donors interviews 16, 28 and 45 and with NGOs interview 48) (Earle et al., 2015: 55). In the interviews, no one challenged or denied the impacts of climate change in Jordan. The Ministry of Environment (MoE) and the UN Development Programme (UNDP) backed and voiced this story line through key texts and reports, within and in line with the global discourse of climate change produced by the UN Framework Convention on Climate Change (UNFCCC). Texts mentioned as sources for this information are the Jordan National Communication to the UNFCCC (MoE and UNDP, 2009, MoE and UNDP, 2014), the 2013-2020 Jordan Climate Change Policy (MoE and UNDP, 2013) and the national water budget reports of the MWI. In light of the second and third national communication to the UNFCCC, the MWI is updating the National Water Strategy to include the impacts of climate change, which were overlooked in the 2008 edition.

The former minister of environment Khalid Irani stated that “at the adaptation front Jordan is facing a severe challenge in water scarcity to be magnified by the impacts of Climate Change,” seeing climate change as magnifying and putting an additional pressure to water

scarcity [28]. The Jordan Times reproduces several times the governmental position also on this storyline: for instance, journalist Hana Nimry underlines that “this stress is a result of several factors, including [...] impact of prolonged dry climatic conditions and a high population growth, of 2.8 per cent per year. All these factors have aggravated an already critical situation” [26]. Namrouqa went even further claiming that “climate change has already caused a 30 per cent reduction in the Kingdom's surface water resources,” not providing any source apart from “experts believe” (Namrouqa, 2009). Also Al Rawashdeh (2011) mentioned in the newspaper in Arabic Al Rai climate change as contributing to the decrease of the water resources in northern Jordan. The environmentalist Batir Wardam describing the initial findings of the mentioned reports on the impact of climate change on the Jordanian water resources, underlines that “the reality check of the expected water situation in the Kingdom is alarming. This is common knowledge, even to schoolchildren in the country, but the exact nature of the combined impact of climate change on the already exhausted water supply has barely been studied” [29]. Jordanian academics' thoughts are also aligned and coincide with the governmental position of seeing climate change as adding a pressure on water scarcity, backing this story line, as emerges for instance in the words of Al Omari et al (2014) from the University of Jordan indicated that the impact of climate change on water resources and demands in arid and semiarid regions like Jordan is projected to be severe [...] challenges that complicate the water situation in Jordan, especially when coupled with the projected negative impacts of climate change [30]. Donors also reproduce this element in their conferences, reports and declarations. For instance the German donor agency GIZ⁷ in their “Management of Water Resources” section, state that “with less than 150 cubic metres of water available per capita each year, Jordan ranks among the world's most water-poor countries. This situation is exacerbated by the impacts of climate change” (GIZ website⁸). Also USAID emphasises repeatedly the climate change aspect, for instance stating on their website that “Jordan is among the driest countries in the world and climate change trends threaten an even more arid future” (USAID website⁹).

⁷The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH was formed on 1 January 2011. It brings together the long-standing expertise of the Deutscher Entwicklungsdienst (DED) gGmbH (German development service), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH (German technical cooperation) and InWent - Capacity Building International, Germany. For further information, please visit <http://www.giz.de/>

⁸<https://www.giz.de/en/worldwide/17213.html> consulted on the 15th of February 2015

⁹<http://www.usaid.gov/jordan/water-resources-management> visited on the 22nd of May 2015

This story line finds in climate change an additional pressure on water scarcity, blaming nature and the environment. The causes of climate change are seen as for the most part external to Jordan and therefore not particularly Jordan's fault. This means that the reasons for water scarcity are considered external to the Jordanian government and the blame is externalised. The shadow state structure influences by supporting this story line as it has an interest in moving the attention and the blame from internal to Jordan, in particular from the members of the shadow state like farmers and their unsustainable agricultural practices, towards outside of Jordan, in this case towards the nature and the environment.

In summary, the MoE and UNDP back this story line in line with the global discourse of climate change. It is reproduced by governmental institutions, media, NGOs, academics and donors. The structure of the shadow state supports this story line as it externalises the blame of water scarcity to the nature and the environment, as Jordan does not contribute a lot to the causes of climate change. Overall, climate change is seen as adding pressure to water scarcity, but not as a central cause of the problem.

The Story Line of Jordan as an Arid and Semi-arid Region with Low Precipitation: The fourth story line under the physical water scarcity sub-discourse sees the issue of water scarcity as due to the arid and semi-arid territory with low precipitation in which Jordan lies; territory where the precipitation rate is less than 200 mm in around 90% of the country. This story line emerged several times in interviews with academics (interviews 3, 4, 7, 11) and employees of managers and directors at the MWI and MoA when asked why there is water scarcity in Jordan (interviews 8, 9, 14, 17, 18, 22, 25 and 42).

Academics, NGOs, governmental reports and donors contribute to reinforce this story line. For instance, the first paragraph of an academic article of Ghanem, (2013) from the University of Jordan stated that a large part of Jordan is arid and semi-arid, about 90% of its area has an annual rainfall totally less than 200 mm on average, most of it evaporates back to the atmosphere. MuntherHaddadin, former minister of the MWI, when describing the Middle East and North Africa (MENA) region, also emphasises that the "MENA has the most desert and arid areas per capita" [31: 461]. The governmental voice through The Jordan Times voices that "Jordan, the world's second water poorest country [...] relies mainly on rainwater, but only 1.1 per cent of its total area receives an average of 400-600 mm of rain a year,

according to official figures. Approximately 91 per cent of Jordan's total area of 97,000 square kilometres is situated in arid areas with an annual rainfall average of 50-200 mm, while 2.9 per cent of the country's land is categorised as semi-arid" [32]. Jordan is defined in the MWI reports as a "resource-starved" country and "is classified as semi-arid to arid region with annual rainfall of less than 200 mm over 90% of the land" (MWI, 2014: 3). Also, Abdel-Khaleq and Dziegielewski, reported that Jordan is a semi-arid country with very limited freshwater resources" and went on emphasising the aridity of the country as a cause for its water scarcity [33]. Limited precipitation and the arid nature of Jordan were also mentioned as causes of water scarcity in two interviews with donors (interviews 28 and 45), but the interviews with donors generally did not focus or even mention aridity as a main cause of water scarcity.

Concerning the texts that are a source of interpretation for this element, the water budget reports of the MWI and the reports of the water research studies unit in the ministry were mentioned by several governmental interviewees in order to show and prove the low precipitation rate in Jordan. This story line is backed by the government, mainly the MWI and its reports and coincides with the thoughts of different ministries, academics and a few donors. The cause for water scarcity in this story line is identified in the low precipitation and the semi-aridity and aridity of the country, blaming therefore nature and natural conditions of the environment in which Jordan is located. This means that water scarcity is understood as due to the low precipitation in the country, which has made of Jordan a semi-arid and arid territory. It results that, as for the previous story lines examined for this sub-discourse of physical water scarcity, the blame is externalised towards nature and the environment. Unsurprisingly, also for this story line the shadow state structure plays a role by supporting this story line as it has an interest in moving the attention and the blame from internal to Jordan, in particular from the members of the shadow state like farmers and their unsustainable agricultural practices, towards outside of Jordan, in this case towards the nature and the environment.

Overall, the government, in particular the MWI, backs this story line. It is reproduced and aligned with the thoughts of academics and governmental institutions, while donors do not particularly mention it. This story line externalises the blame of water scarcity to the nature and the environment, in this specific case on aridity and low precipitation.

Discussion and Concluding Remarks: The physical water scarcity sub-discourse is composed of four story lines: population growth, immigration and refugees; the unfair sharing over the transboundary water resources with neighbouring countries; climate change as an additional pressure; aridity and low precipitation. I argue that this sub-discourse is shaped and backed by the structure of the shadow state, which aims at externalising the causes and the blame for water scarcity to external actors: the nature, immigrants and refugees and neighbouring countries. This sub-discourse is sanctioned by the government and by the shadow state and is a dominant sub-discourse as it reaches and coincides with the thoughts of academics, media and NGOs. Also donors and international organisations mention, even if with lower emphasis, these story lines.

The first story line describes water scarcity as due to population growth, immigration and refugees, emphasising the immigration and refugees aspect and overlooking the high fertility rate of Jordanians. This story line is constructed by the government and is generally accepted, reproduced and reinforced by all major actors in the water sector. The second story line considers the problem of water scarcity as linked to the unfair sharing with neighbouring countries of most of the surface water resources of Jordan, claiming that the Jordanian right to an equitable and reasonable use of all transboundary flows is not respected. This story line is: constructed and strongly emphasised by the government; generally accepted and aligned with the thoughts of academics, MPs, political parties and NGOs; not backed by donors and international organisations, which are more lukewarm about it. The third story line sees climate change as adding a pressure to the scarce water resources. The MoE and UNDP back this story line in line with the global discourse of climate change. Governmental institutions, NGOs, academics and donors reproduce it as their positions coincide with it. The fourth story line believes that the issue of water scarcity is due to the arid and semi-arid territory with low precipitation in which Jordan lies; territory where the precipitation rate is less than 200 mm in around 90% of the country. The government, in particular the MWI, backs this story line. It is reproduced and aligned with the thoughts of academics and governmental institutions, while donors do not particularly mention it.

The government and the MWI in particular, through the interpretation of key texts, which are MWI and MoE publications and reports and bilateral treaties signed in 1987 and 1994, construct and strongly inform the story lines and this sub-discourse. This sub-discourse is

reproduced by academics and local NGOs, which are mainly, aligned with the governmental and shadow state structure positions. The Jordan Times, which is not representative of the media, is a governmental mouthpiece and uncritically reproduces the governmental positions, meaning all the four story lines. Donors and international organisations mention these story lines, but not with high emphasis and often result to be lukewarm or they overlook some of the mentioned story lines.

The physical water scarcity sub-discourse blames factors external to the government or Jordan's circle of influence and responsibilities: immigration and refugees influx; external countries and regional political situation; climate change; and nature and environmental conditions. Being the causes identified as external, the blame is also on external elements: nature, refugees and neighbouring countries. This implies that the blame is not within the country, for instance the government, the big water consumers, or influential elites. In a nutshell, the shadow state remains untouched and free of blame.

Unsurprisingly, the structure of the shadow state influences the construction of the physical water scarcity sub-discourse to maintain the status quo and to preserve the current water use. This is to maintain and protect the interests of the shadow state's members, blaming external factors like immigrants, refugees and nature and environmental conditions rather than the unsustainable agricultural practices of the members of the shadow state. Chapter 7 analyses how this sub-discourse drives certain solutions, which are in line with the interests of the members of the shadow state.

Consequently, the solutions identified by the actors constructing this sub-discourse, are in line with the interests of the shadow state. They frame the issue of water scarcity as due to the limited water resources, which are due to factors external to the responsibilities of the government or of Jordan: immigrants and refugees, nature and the environment and neighbouring countries. Therefore, this framing drives towards solutions on the supply side, aiming at increasing the water resources through the exploitation of new water resources. These solutions are namely: the Disi project, the Red Sea – Dead Sea project, desalination, reuse of treated wastewater and dams' construction.

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