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The Critical Geopolitics of Water Conflicts in School Textbooks: The Case of Germany

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ABSTRACT: A considerable body of critical literature has analysed how scientific discussions on water-conflict links are picked up in the political, academic, economic, civil society and media domains. By contrast, there are almost no such studies for the domain of education. This void is crucial as school attendance rates and the prevalence of environmental education are on the rise, while school education has privileged access to young people during their political socialisation. We address this void by analysing the depiction of water conflicts in school textbooks from a critical geopolitics perspective. More specifically, we use a combination of quantitative and qualitative methods to analyse the visual and textual content of German geography textbooks published between 2000 and 2017. Our findings reveal that the analysed school textbooks securitise water and overstate the risk of water conflicts, which could yield a range of negative societal effects. The textbooks further reproduce Orientalist stereotypes about the Global South, and about the Middle East in particular, and often promote an uncritical green economy stance towards the privatisation of water. Water conflicts are hence discussed in the context of a crisis discourse and reproduce powerful knowledge that privileges certain political interests at the expense of others.

KEYWORDS: Conflict, education, geopolitics, textbooks, water, Germany

INTRODUCTION

In the late 1980s and early 1990s, a number of scholars and decision-makers predicted water wars to be a key component of the global conflict landscape in the 21st century (Gleick, 1993; Starr, 1991). Egyptian diplomat Boutros Boutros-Ghali, for instance, stated in 1988 that "the next war in our region will be over the waters of the Nile" (Vasagar, 2004). With interstate waters being at the extreme end of the spectrum of conflicts predicted, water-conflict discourses are also concerned about the impact of water scarcity on low-level conflicts and civil violence (Detges, 2016; Homer-Dixon, 1994). Recently, for example, a number of authors have linked drought to the onset of civil war in Syria (e.g. Gleick, 2014; Kelley et al., 2015).

This discourse of water-related conflict has clearly made an impact beyond the academic realm. Picking up scholarly debates around the issue, the US Intelligence Community Assessment (ICA, 2012: iii) highlights that "many countries important to the United States will experience water problems [...] that will risk instability and state failure". Former US president Barack Obama claimed in 2015 that

"severe drought helped to create the instability in Nigeria that was exploited by the terrorist group Boko Haram [and] helped fuel the early unrest in Syria" (The White House, 2015). Similar statements were issued by UN Secretary General Antonio Guterres (Farand, 2017) and Germany's then Foreign Minister Frank-Walter Steinmeier (Auswärtiges Amt, 2015), among others. Recently, BBC News (2018) warned about a water war between Egypt and Ethiopia over the Nile.

So far, the empirical basis for such claims is at best equivocal (see section 2). What is more, critical voices in the debate are increasingly concerned about the potential negative consequences of the water conflicts discourse itself. The water conflict discourse has been criticised, for instance, for backing up hydro-hegemony (Zeitoun and Warner, 2006), for stigmatising people in the Global South in an Orientalist way as incapable and dangerous (Ide, 2016), for promoting neoliberal ideas of water management in the context of a 'green economy' approach (Leese and Meisch, 2015), and for placing water in the security and even military domain through securitisation (Barnett, 2009) (see section Critical Geopolitics and Water Conflict Discourses for an in-depth discussion).

Consequentially, the relevant literature has examined and criticised water conflict discourses in a number of domains. In a comprehensive review, Katz (2011) distinguishes between five kinds of relevant actors: politicians and policy-makers, academics, mass media (e.g. newspapers, TV), NGOs, and the private sector (mostly for-profit companies). For each domain associated with these five kinds of actors, analyses of water conflict discourses are available (e.g. Fischhendler, 2015; Leese and Meisch, 2015; Weinthal et al., 2015). However, these studies as well as the overview of Katz (2011) remain remarkably silent regarding the realm of education. Indeed, with the exception of the recent paper of Hussein (2017) on Jordan, we are not aware of any study on water conflict discourses in educational media or educational practices.

This is all the more surprising as the critical geographies and critical security studies literatures are increasingly focussing on education (Nguyen et al., 2017). Education is key for the transmission and (re-) production of "powerful knowledge" (Stoltman et al., 2015). Various studies have emphasised that "education plays a key role in shaping how individuals and communities make sense of water" (Sammel et al., 2018: 18). But recent research on university education, school curricula and school textbooks show that water education is frequently not in line with academic recommendations, and at times even contains deeply problematic notions (Sammel et al., 2018; Schmidt, 2017; Ide et al., 2018).

In this study, we shed light on the so far under-researched (re-)production of the water conflict discourse in educational contexts. Specifically, the guiding question of our study is: How are water-conflict links discussed in German school textbooks? To structure our answer to this question, we draw on three main categories: the securitisation of water, Orientalism, and the nexus between water, technical fixes and the neoliberalisation of nature in the context of a green economy approach (see below).

A focus on school textbooks is important for a number of intertwined reasons. First, public school textbooks reach a wide audience as they are often mandatory readings and "remain the preferred teaching medium in most countries of the world" (Lässig, 2009: 9). Worldwide, school attendance rates are on the rise (Roser and Ortiz-Ospina, 2016) while the environmental content in school textbooks has significantly increased in the past decades (Bromley et al., 2011), hence exposing more and more young people to water-related education. Second, school textbooks have privileged access to children and young people during a crucial phase of their political socialisation. Several recent studies find an impact of school textbooks on students' opinions and worldview, including on topics related to environmental resources and to peace and conflict (Ide et al., 2017; Voigtländer and Voth, 2016), although contrary evidence exists as well (Fukuoka, 2011).

Third, school textbooks have often been considered a key instrument to consolidate and sustain political power via (hard or soft forms of) indoctrination (Fuchs, 2010). In other words, "schoolbooks are part of a much greater legitimation process through which each society's ruling elites win the largely

uncritical acceptance of the existing political, social, and economic system, together with the cultural attributes that reflect its hegemony" (Ingrao, 2009: 181). However (and fourth), especially in democratic societies with private textbook publishing systems (like in Germany), school textbooks draw on and are hence indicative of wider societal discourses, which include elements of politics, science and popular culture (Ide, 2016; Klerides, 2010).

We focus on Germany for several reasons. Germany is a highly influential player in global environmental and increasingly also in global security politics. For instance, Germany makes the biggest contribution to UNEP's Environment Fund (UNEP, 2017) and contributes military personnel to UN missions in Mali, Lebanon, South Sudan, Sudan and Western Sahara (ZIF, 2018). Further, issues of environmental conflicts, including water-related conflicts, play a comparatively big role in German discourses (Schäfer et al., 2015), and school textbooks are particularly widely used in German classrooms (Fuchs, 2011). Finally, discourses and practices of water management have historically been intertwined with state and nation-building processes in Germany, thus further illustrating their political relevance in this context (Blackbourn, 2016).

This article proceeds as follows: in the next section, we provide a brief introduction to the literature on water, peace and conflict. Then, we discuss the theoretical background of our study together with debates around water-conflict discourses. The subsequent section details the methods of our study before we present our key results along three categories: securitisation, Orientalism, and green economy and technological fixes. By way of conclusion, we summarise and reflect upon key results and outline some pathways for future scholarly activities.

WATER, CONFLICT AND PEACE

As already mentioned above, several scholars and policy-makers have predicted water wars or at least very severe conflicts over water between states since the 1990s (Gleick, 1993; Starr, 1991). But scientific evidence for such claims is very limited. Yoffe et al. (2003) find that on the international level, cooperation over water is twice as likely as conflict, while the use of violence over water is extremely rare. Of the 37 incidents of international water-related violence recorded, "none were more recent than 1970, none were all-out wars, and in none was water the central cause of conflict" (Katz, 2011 15f.). Environmental peacemaking research even argues that cooperation in the face of shared water problems can improve relations between rival states (Ide and Detges, 2018). After all, water-related violent conflict between states is considered highly unlikely by most researchers (Petersen-Perlman et al., 2017). This is in line with theoretical expectation as (i) basins usually extend over considerable areas and are hard to control militarily and (ii) it is much cheaper to invest in more efficient water use systems, desalination and the import of virtual water than to fight over water.

On the intrastate level, the picture is less clear. Strategically, it might well make sense for agriculturally dependent groups in remote areas to fight over water resources (Schilling et al., 2012; Weiss, 2015). Similarly, water scarcity can fuel grievances and hence contribute indirectly to conflict, for instance when resulting in higher food prices (Smith, 2014). The opportunity costs for joining an armed group also decline when livelihoods and employment are lost due to a drought striking an agricultural society (Barnett and Adger, 2007).

Indeed, some studies find that various forms of water scarcity increase the risk of violent conflict within states (von Uexkull et al., 2016; Detges, 2016). In line with the arguments of early environmental security scholars, results are usually more robust for local and low-intensity conflicts. But other authors contend these findings as they are unable to detect any link between water scarcity and conflict (O'Loughlin et al., 2014). Violent conflict can also be less likely under conditions of water stress as armed actors face logistical constraints (Salehyan and Hendrix, 2014) and social groups might cooperate to cope with the situation (Böhmelt et al., 2014). And while the acquisition of local water resources by powerful business interests ('water grabbing') and national dam projects may well fuel (violent) local

tensions, these conflicts are usually attributed to political marginalisation and economic inequality rather than to water (scarcity) itself (Kirchherr et al., 2016; Mehta et al., 2012). These doubts about water-conflict links have been an important input for a critical engagement with water-conflict discourses.

CRITICAL GEOPOLITICS AND WATER CONFLICT DISCOURSES

The ongoing trend of coupling water, geopolitics and conflicts together has flourished since the early 1990s (Gleick, 1993). Around the same time, the critical geopolitics literature has emerged. According to this theoretical perspective, geopolitics is a set of discursive practices which "spatialise international politics and represent it as a world characterised by particular types of places, peoples and dramas" (Ó Tuathail and Agnew, 1992: 192). Discursive practices refer to a number of actions, including oral and written speech acts, dressing in a certain way or erecting walls, but in this paper, we focus on written and visual statements. Further, discursive practices construct geographical knowledge (about the characteristics of, and spatial relations between, different places) and geospatial identities (referring to the characteristics of, and relations between, the people inhabiting certain places), both of which can be summarised under the term geopolitical imaginations (Dalby, 2010; Müller, 2008).

Geopolitical imaginations reduce complex political, economic and cultural realities into convenient and more understandable 'facts'. Such simplification is necessary given the complexity of the world and the limited capabilities of humans to deal with this complexity. However, geopolitical imaginations can have undesired or dangerous implications, for instance when they reproduce enemy images, legitimise violence, or justify inequality (Mamadouh and Dijkink, 2006). Other critical scholars argue that geopolitical imaginations provide the discursive context for a grand strategy to be created (Dalby, 2010) by allowing powerful actors to continue "serving the interests of particular groups in society and helping to sustain and legitimate certain perspectives and interpretations" (Hepple, 1992: 139).

The aim of the critical geopolitics perspective is hence to question the knowledge taken for granted and to expose the biases it contains and the power relations it sustains (Squire, 2015). By doing so, critical geopolitics aligns with (and has actually been inspired by) Foucault's call to dismantle taken-for-granted knowledge in order to make the web of power that is simultaneously produced by, and constitutive of, this knowledge visible (Foucault, 1995).

In line with this, the critical geopolitics perspective itself is not free of criticism. Steinberg and Peters (2015), for instance, diagnose that much geopolitics research focuses on borders, places and territories, and hence cannot account for 'wet ontologies' that highlight fluidity and temporality. Similarly, according to Squire (2015), the focus on representations makes critical geopolitics partially insensitive for material factors, including material inequalities. We acknowledge these criticisms, but still consider the critical geopolitics perspective suitable to address our specific research question. The perspective has also been criticised for paying too much attention to the geopolitical imaginations of high-ranking policy actors and for being vague about its methods (Müller, 2008). We address these points by analysing an everyday (though still political and influential) medium and by explaining our methods in detail.

Following such a critical geopolitics stance, four critiques of water conflict discourses are frequently voiced: first, predicting water-related conflicts and water wars ahead of solid scientific evidence could undermine the credibility of the supposedly 'alarmist' environmental movement and environmental research (Manzo, 2012). Second, a focus on water may serve to obscure the political and economic causes of a violent conflict, such as inequalities, marginalisation and repression, and hence depoliticises the conflict (Selby and Hoffmann, 2014). Third, the frequent discussion of water-related violent conflicts in the Global South might reproduce (Orientalist) images of non-White people as naturally violent and unable to manage their own environments (Ide, 2016).

Fourth, and relatedly, the water conflicts discourse can legitimise a number of maladaptive responses to (perceived) water scarcity and pollution. These include technocratic measures (e.g. erecting dams) to increase water availability (Mehta, 2005), a neoliberal commodification of water in the context of a 'green economy' (Leese and Meisch, 2015), a divestment in water-scarce and hence potentially unstable regions (Adams et al., 2018), higher military budgets to deal with additional (water-related) civil unrest (Barnett, 2009), and a tighter protection of national borders to deal with an increasing number of environmental migrants (Hartmann, 2010).

For sure, there are also voices which are less sceptical towards water conflict discourses. To mention just two examples: Karafoulidis (2012) argues that framing the environment in terms of security and conflict raises attention and support for environmental protection measures. And a recent study found that students who read texts linking climate change and water scarcity to violence were more ready to implement and accept climate protection measures (Ide et al., 2017). But most of the scholars are still more concerned with the (potential) negative consequences of water conflict discourses, and particularly of claims about looming international water wars.

METHODS

In order to uncover the geopolitical imaginations implicit in the water conflicts discourse as portrayed in German school textbooks, we employed a six-staged procedure for the empirical analysis. First, we read through the curricula of all 16 federal states of Germany to determine in which books issues related to water and conflict are most likely to be found. Second, as water- and environment-related conflict and security issues were most often mentioned in the curricula for higher secondary geography education (grades 10 to 12 or 11 to 13, depending on the federal state), we restricted our study to the respective textbooks (corresponding to the ISCED¹ level 3, with students usually being between 15 and 19 years of age). Third, we compiled the sample of all recently (2000-2017) published textbooks for all 16 federal states of Germany (n = 175). Fourth, based on the tables of contents and the registers, we identified whether and which sections of the textbooks in the sample were relevant for our analysis. Overall, 69 text units (i.e., chapters, sub-chapters, text boxes) with 276 figures (diagrams, photos, tables) from 26 books dealt with the links between water and conflict.

Fifth, we conducted a quantitative content analysis largely following the guidelines of Krippendorff (2004). We developed relevant categories (e.g. location, type of conflict) and their respective dimensions (e.g. intra-state conflict, inter-state conflict) and coded each text unit accordingly.

The relevant categories and dimensions were first derived from the existing literature on environmental security and water conflict discourses (e.g. Petersen-Perlman et al., 2017; Ide, 2016; Selby and Hoffmann, 2014; Leese and Meisch, 2015). They were then refined, complemented or dropped based on a first reading of the empirical material. This process was iterative in nature. The categories of whether, and for which regions, a link between water and violent conflict is claimed, for example, are dominant issues in much of the water security literature. But when reading through the textbooks, we found, among others, the types of information provided by a diagram or table to be a relevant (and not previously identified) category, and then drew on the existing literature to develop it (e.g. Schneider, 2016; Heck and Schlag, 2013). Two persons worked independent of each other to code the 69 text units and the accompanying visuals. In case of disagreement, decisions were openly discussed among the coders and the authors until consensus on all coding decisions was reached.²

¹ The International Standard Classification of Education has been developed by UNESCO (2017) to compare educational developments across different countries.

² In a few cases, we consulted colleagues before making the final decision.

Table 1 (for text units) and Table 2 (for visuals) contain information on the final list of codes and dimensions used.

Sixth, we used a qualitative analysis inspired by the Grounded Theory procedure (Corbin and Strauss, 2008) to delve deeper into the implicit geopolitical imaginations the textbooks contain. Specifically, we employed the coding technique, that is, we read the text units carefully and allocated codes to them which summarise the units' content on a conceptual level. Codes were accompanied by memos, which reflect upon the allocated codes and their interrelations, and were later synthesised to more robust categories structuring the final analysis. Following the recommendations of Rose (2005) as well as Janko and Knecht (2014), visuals were also included in the Grounded Theory-inspired qualitative content analysis. In contrast to the standard Ground Theory approach, we not only developed the codes inductively from the material, but also deduced relevant codes from the existing literature and the quantitative analysis conducted before. The key advantage of this approach is that it is easier to relate the results of the literature review, of the quantitative content analysis and of the qualitative analysis to each other.

RESULTS

In this section, we present our results along three core categories that emerged from the quantitative and qualitative analyses of the textual and visual content. As indicated above, more than one-third of the textbooks analysed discuss the issue of water and conflict. The average book devotes 2.7 text units and 10.6 figures to this topic. Hence, it seems that water-society relationships employ a more prominent place in German formal education than in, for example, Australia or Canada (Sammel et al., 2018).

Table 1 summarises the results of the quantitative content analysis for the 69 text units, while Table 2 does the same for the 276 visuals. For reasons of space, it is not possible to discuss the results of the qualitative analysis for all text units and figures in detail, so we have to focus on selected pieces. We start the discussion of each of the three core categories with a figure from the textbooks and the related analysis.

Securitisation

Figure 1 shows a photo used on a textbook page on resources and sustainable development, accompanied by the caption 'Military protection of an irrigation channel'. While no location is stated in the accompanying text, the place is visually constructed as water scarce: there is no vegetation, the ground looks arid, the dominance of the colours yellow and brown suggests decay (Monmonier, 1996: 170), there are no clouds indicating forthcoming rain, and the protected irrigation channel appears to be rather small. Despite its apparently small size, the channel and the water it contains are visually constructed as highly important given that three armed soldiers guard it. The soldiers appear rather large in the central part of the picture and their grey and yellow silhouettes (particularly of the soldier on the very left) contrast with the blue sky, hence making them highly visible. The military presence is therefore highlighted. Further, the photo suggests that the military protection of the irrigation channel is considered very important: Rather than just standing or sitting around, the soldiers mistrustfully watch a civilian passing by (right edge of the photo), with one of them (the left one) apparently having his rifle ready to use.

Figure 1. Photo illustrating a textbook page on resources and sustainable development (Haberlag et al., 2011: 226).



Figure 1 is an example of securitisation, that is, a referent object (water) is portrayed as valuable and threatened, hence making extraordinary measures (such as military protection) necessary. German school textbooks frequently securitise water via a three-staged argumentative chain. First, water is conceived as highly important. It is a "lifeline" (Claaßen et al., 2002: 177) and "necessary for survival" (Englert et al., 2009: 182). Second, water is considered to be naturally scarce in some regions and this scarcity is predicted to intensify in the future. The vast majority of diagrams and tables (65%) and graphics (67%) in our sample show geographical, physical and demographical information, most of which indicate increasing demand, decreasing availability, and hence a reduction of water availability per capita (Table 2). This is accompanied by pieces of text stating, for example, that "80 percent of all states suffer from acute water stress [...] An increasing proportion of humanity has no access to clean water" (Claaßen et al., 2002: 171).

Third, water scarcity, in turn, is considered as a trigger of political instability and violent conflict. Of the 69 text units analysed, 28% depict such water conflicts as already happening, and another 17% state that they are likely in the future. 56% are ambivalent about whether water conflicts are a serious threat or not, but no single text unit clearly denies this possibility (Table 1). The large majority of the text units discuss either only international water conflicts (62%) or both inter- and intra-national conflicts (16%) (Table 1), which is surprising given that the scientific literature considers violent interstate disputes about water unlikely (while being ambivalent about such disputes within states) (Petersen-Perlman et al., 2017). By contrast, many text units do not mention any form of water cooperation (45%), and not a single textbook discusses the possibility that water-related problems could provide a common entry point for peacemaking (Ide and Detges, 2018).

Table 1. Results of the quantitative content analysis of text units (n=69).

Category	Dimension	%
Location	none mentioned	4
	MENA Region	4
	Middle East	6
	Israel	8
	Palestine	8
	Jordan	6
	Turkey	9
	Syria	8
	Iraq	9
	Egypt	7
	Libya	6
	Ethiopia	3
	Sudan	3
	Saudi-Arabia	3
China	4	
other	11	
Water-conflict link?	no clear statement	56
	yes	28
	likely (in the future)	17
	no	0
Type of conflict	not specified	9
	intra-state	13
	inter-state	62
	both	16
Water cooperation	not mentioned	45
	technical solutions	17
	treaties (existing)	25
	call for treaties	13
Causes of water problems	not specified	6
	natural causes	30
	anthropogenic causes	64

Table 2. Results of the quantitative content analysis of figures (n=276).

Category	Dimension	%
Map location	world map	34
	regional map	66
Map information	basic map	51
	geographic, physical and technical	33
	socioeconomic	16
Photo location	global north	11
	global north	79
	unclear	11
Photo information	resources, landscape, infrastructure	56
	military personal/equipment	4
	active people	23
	passive people	8
	other	10
Table/diagram information	geographic and physical	55
	socioeconomic	17
	demographic	10
	other	17
Graphic information	geographic, physical and technical	52
	socioeconomic	11
	demographic	15
	Other	23

In line with this, the qualitative analysis reveals that there are various strong statements about (international) water conflicts in German school textbooks. Some of them are rather abstract, explaining that "since the turn of the millennium alone, there were more than 50 violent conflicts over the use of water worldwide" (Brodengeier et al., 2016: 138). In line with this, a frequently reprinted map shows 15 'selected conflicts over water' from all continents except Australia, hence giving the impression that water conflicts are an ubiquitous phenomenon (e.g. Haberlag et al., 2011: 227).³ But the textbooks also provide concrete examples, informing students for example that "Egypt's former Prime Minister Mohamed Morsi has threatened Ethiopia indirectly with an armed conflict in 2013 [...] The cause of the dispute was a giant dam on the Nile" (Korby et al., 2015: 74).

In summary, German school textbooks are certainly correct in pointing out the high relevance of water and the (at least in some regions) worrisome depletion trends. But the geographical knowledge they contain also overemphasises the risk of violent conflicts over water, especially in the international realm, while paying less attention to water-related cooperation and especially peacemaking dynamics.

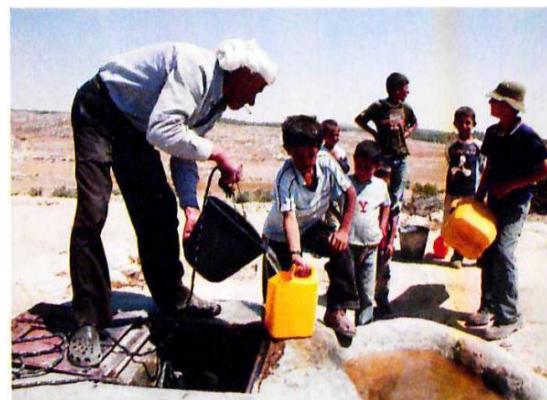
Orientalism

An illustrative example of the Orientalism implicit in the discussion of water conflicts in German school textbooks is provided in Figure 2. The respective textbook page contrasts two photographs from the Middle East. On the left, a golf court in Dubai is shown. The large and deep green lawn area suggests that a lot of water is used to sustain the golf court in a desert (parts of which are also visible). The panoramic view on the large and modern skyscrapers of downtown Dubai conveys an impression of luxury. In the lower picture, by contrast, poverty and backwardness in Gaza are the dominant themes: the landscape is bare of vegetation and signs of a sophisticated human settlement, a vulnerable group (young kids) has to obtain water in containers (presumably because they have no running water at home), and the only infrastructure shown is an old-fashioned well run by another member of a supposedly vulnerable group (an elderly man). Taken together, the two photos convey a classical Orientalist image of the Middle East, that is, the dualism of abundance and extravagance on the one and of backwardness and hardship on the other, with ruling elites and societal institutions unable or unwilling to mediate between these two extremes (Said, 1978).

Figure 2. Photos illustrating a textbook page on water as a resource with conflict potential.



M6: Golfplatz in Dubai



M7: Wasserstelle in Gaza

Translations: M6: Golf course in Dubai; M7: Watering place in Gaza (Grindt, Escher and Zimmermann, 2014: 39).⁴

³ See Ide (2016: 66) for further discussion of this map.

⁴ The figure has been slightly modified so the two photographs are horizontally (rather than vertically) ordered.

These photographs provide one example of the negative framing of the Global South in general and of the Middle East in particular in German school textbook's discussions of water conflicts. To start with, only 4% of the text units discuss water problems and the associated conflicts in the Global North (although there are relevant cases, for instance in Spain and California or along the Rhine), while 96% focus solely on countries in the Global South. The Middle East – either as a region or in the form of individual countries – is by far the most frequently mentioned place (70%) (Table 1).

The Global South and particularly the Middle East are conceived of as places where water problems and (violent) conflicts concur, and where people are not motivated and/or not capable of addressing these issues on their own. For instance, none of the nine photographs of places in the Global North shows passive persons and military infrastructure or personal, while 15% of the 67 photographs depicting the Global South show such motifs, hence representing people in the Global South as passive and naturally violent (Ide, 2016; Methmann and Rothe, 2014). Respective elements can also be found on the textual level, for instance when violence is portrayed as an everlasting and hence 'natural' characteristic of the Middle East, despite water cooperation being more prevalent than conflict there (Böhmelt et al., 2014): "The states of North Africa and the Middle East have always engaged in numerous wars and conflicts with each other" (Escher and Zimmermann, 2009: 69).

In line with the impression conveyed by the photograph shown in Figure 2, the people of the Middle East (and of some other regions, especially Africa, India and, to a limited degree, Central Asia and China) are portrayed in further negative ways. They tend to be extravagant: "The rich oil states Saudi Arabia, the Emirates along the Persian Gulf and Libya [...] waste their water for luxurious water parks and golf courses" (Boss et al., 2002: 236). The corruptness of the Global South is also highlighted: "Some people [displaced by a dam project in China] complain that officials have kept money designated for resettlement to use it for themselves" (Bauske et al., 2009: 92). Finally, the local infrastructure is portrayed as insufficient and locals as not capable of managing it properly, especially in the face of rapid population growth: "Water has become more and more scarce [in the MENA region] due to rapid population growth, but also due to changed consumption patterns, wrong strategic planning, outdated infrastructure and insufficient irrigation methods" (Zimmermann and Grindt, 2016: 38). Such depictions connect well to narratives of people in the Global South — and especially in the Middle East and North Africa (MENA region) — as responsible for desertification, which tend to support projects of colonial and capitalist expansion (Davis, 2016).

If positive developments are mentioned, such as the rising water level of the North Aral Sea between 2005 and 2007, the positive contribution of international actors is clearly emphasised, for instance the "financial and technical support by the World Bank" (Götz et al., 2010: 217). With a few exceptions, other reasons for water scarcity and water-related conflicts such as consumption patterns in the Global North, water grabbing and colonial histories, are almost completely absent from the school textbooks (Mehta et al., 2012; Rammelt et al., 2018).

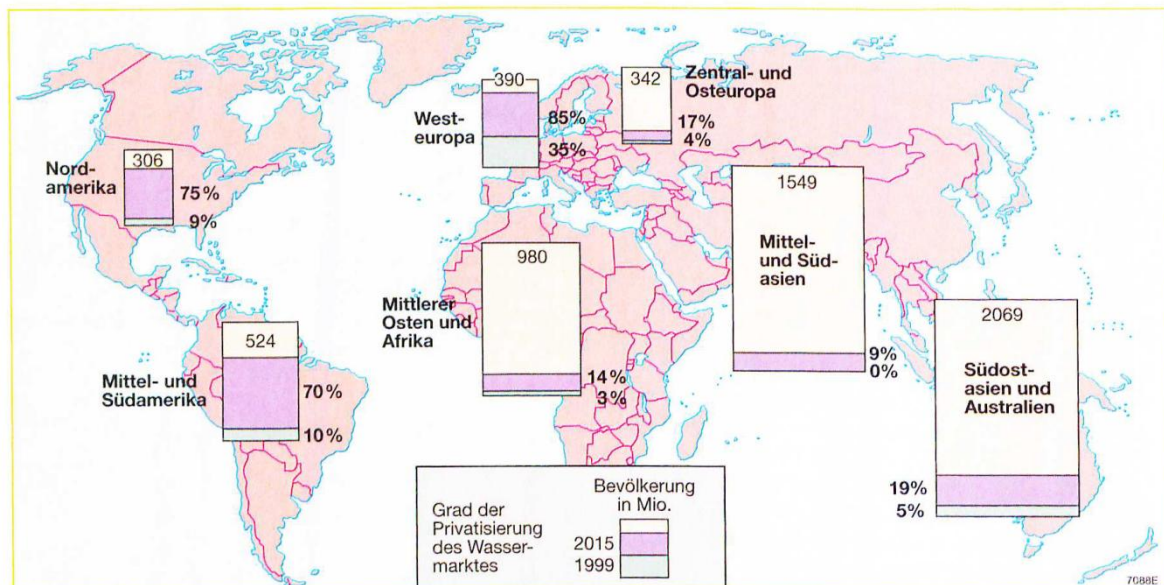
In sum then, German school textbooks tend to portray the Middle East as well as other regions in the Global South as backward, naturally violent, extravagant, corrupt and incapable when discussing water conflicts.

Water, the green economy and technological fixes

Figure 3 quotes a graphic on water privatisation in different world regions. Towards the end of a chapter containing various references to water conflicts, the relevant page focuses on "Ways out of the water crisis" (Claaßen et al., 2002: 176). In this context, the prominence of the graphic, which covers more than one-third of the page, implicitly suggests that privatisation of the water sector is indeed a viable solution, especially as no other solutions are mentioned on the page. Accordingly, the accompanying text states that "the capital and know-how of world-wide water providers is increasingly used. Internationally, there are enough large private companies that can yield a return by providing

freshwater and disposing wastewater" (Claaßen et al., 2002: 176). This suggests that private actors are able to manage water in a cost-efficient and economically viable way, while states are not. The accompanying text further specifies that "many developing countries are unable to make the necessary investments to supply their population with water and dispose their wastewater" (Claaßen et al., 2002: 176). This again highlights Orientalist geospatial identities of incapable Southerners and connects them with a need for capitalist expansion in the form of water privatisation (see Davis, 2016 for similar results).

Figure 3. Graphic illustrating a textbook page on solutions to the water crisis.



The lower (greenish) bars in the boxes indicate the degree of privatisation of the water market in a region in 1999, the red (middle) bars indicate the degree of privatisation in 2015, and the white (upper) bars indicate the share of the market not privatised. The numbers in the upper part of the boxes state the number of inhabitants of the region in millions (Claaßen et al., 2002: 176).

In a recent article, Leese and Meisch (2015: 701) argue that discussing water in terms of security "is strongly linked to a presupposed 'green economy'". This is the case because the privatisation and economisation of water can be legitimised by referring to potential water-related conflicts, which have to be avoided by an economically and technologically efficient utilisation of the resource. As indicated in Figure 3 and the related text, such a link indeed exists in several German school textbooks. For instance, of the 32 text units which discuss ways to address the water crisis and avoid water-related conflicts, 13 refer to technical or economical solutions (41%) (Table 1). Further, 30% of the text units portray natural scarcity (rather than political mismanagement, unequal access, lack of infrastructure or overconsumption) as the cause of water problems, hence silencing more critical voices regarding the interlinkages between neoliberalisation, technological approaches to water management, and water-related problems.

This argument is confirmed by the analysis of visuals used in the textbooks. 65% of the diagrams and tables and 67% of the graphics provide physical, geographical or demographic information (Table 2), hence underlining that water problems have natural causes that should be addressed by technological fixes (Mehta, 2005). In line with this, next to the privatisation of water, groundwater exploitation and large dams are also portrayed in a rather positive way in several books. A text about the Three Gorges Dam, for instances, states:

The highly prestigious project, finished in 2005 [...] should control the infamous floods of China's biggest river [...] and] help to satisfy the energy hunger of the booming Chinese economy. The project also facilitates the development of the fishing industry in the reservoir area, local tourism, and south-to-north water transfers (Bauske et al, 2009: 92).

However, a rather critical and political discourse co-exists with this technocratic and economic discourse, often even in the same books. To give a few examples: International and national treaties are far more frequently mentioned (59%) than technological and economic solutions (41%) for water-related problems, hence highlighting the relevance of political management as a solution for water issues (Table 1). Likewise, 64% of the analysed text units state anthropogenic causes for water-related problems (although sometimes in an Orientalist way, see previous section), such as issues of water distribution and access (Table 1). Even if this is not reflected at the visual level, the acknowledgment of anthropogenic inferences into the hydrological cycle is still remarkable, especially as it is more prominent in German textbooks than in the educational media of other countries (e.g. Hussein, 2017; Sammel et al., 2018). This depiction opens a discursive space for more critical discussions around the role of current political and economic structures as drivers of water scarcity and pollution.

And while water privatisation is still overwhelmingly conceived in positive terms, there are several text units heavily criticising technological solutions based on large-scale infrastructure projects. With regard to the Atatürk Dam, for instance, one book claims that "tens of thousands of people have been relocated, or rather were just expelled [...] without adequate compensation" (Zimmermann and Grindt, 2016: 41). Similarly, the South Egypt Development Project, an attempt to transfer water from Lake Nasser to the nearby desert area via a channel to enable agriculture, "faces a number of problems which are, according to some critics, unsolvable" (Claaßen et al., 2002: 177).

To sum up: there is a clear tendency in German school textbooks to link water conflicts with a green economy approach, hence promoting privatisation and technological fixes. However, an alternative discourse that highlights the role of political and economic structures in causing water problems and is sceptical towards privatisation and infrastructure projects exists in parallel as well.

DISCUSSION AND CONCLUSION

In the light of mounting claims about current and future violent conflicts about water, critical analyses of water conflict and water security discourses are needed and are increasingly available. With a few exceptions (Ide, 2016; Hussein, 2017) this study is the first attempt to identify and unpack the dominant water conflict discourses in the educational realm. The omission of this research angle is crucial given the role of education in transmitting 'powerful knowledge' (Stoltman et al., 2015) to the next generations of citizens, decision-makers and consumers, especially as both school attendance rates and the prevalence of environmental education content are on the rise (Roser and Ortiz-Ospina, 2016; Bromley et al., 2011). In this article, we addressed this gap by conducting the first comprehensive study of the geopolitical imaginations conveyed by the discussion of water conflicts in current school textbooks, using German geography textbooks as a case study.

Our study identified three dominant themes in textbook discussions of water conflicts: the first is the tendency to securitise water, including over-emphasising the risk of (particularly international) violent water conflicts and paying insufficient attention to cooperation and especially peacemaking dynamics. Such water securitisation can raise attention for and the willingness to address water-related problems (Ide et al., 2017; Trombetta, 2008). But it might also mask the socioeconomic injustices and political decisions driving a conflict (Selby and Hoffmann, 2014), prevent decision-makers from investing money and effort in water-related cooperation and peacebuilding initiatives (Bruch et al., 2016), and even provide legitimacy for higher military budgets to cope with an increasing number of

water conflicts (Barnett, 2009). Conveying geographical knowledge to young people that securitises water through a conflict frame can thus have detrimental societal implications down the road.

The second theme is the reproduction of Orientalist geospatial identities of people in the Global South and particularly in the Middle East as violent, extravagant, backwards and incapable, while issues such as colonialism and water grabbing are hardly discussed. Proclaiming such geospatial identities not only reproduces negative stereotypes about the Middle East, but also ignores examples of sustainable water management in the region (Taher et al., 2012) and water mismanagement in the global north (Perry and Praskievicz, 2017). These narratives might rhetorically pave the way for various forms of Western interventions (not only civilian, but also military) to resolve the water problems whereas locals are unable to solve them (Hartmann, 2014; Nguyen, 2014). Furthermore, studies have argued that such Orientalist framings of environmental conflicts could drive maladaptive responses, such as divestment, the liberalisation of the water market, and the securitisation of water politics (Adams et al., 2018; Fischhendler, 2015; Verhoeven, 2014; Swatuk, 2015).

Third, the textbooks take a largely uncritical stance towards the privatisation of water and technological fixes. Such geographical imaginations are problematic given that the liberalisation of the water sector (Assies, 2003), the privatisation of communal water supplies (Mehta et al., 2012), and technological solutions like dams (Kirchherr et al., 2016) are likely to stimulate environmental degradation and social conflicts. They are also often deeply intertwined with Orientalist notions of incapable Southerners that need the help of private Western actors. A focus on natural causes of water-related problems and economic or technical fixes could also divert attention away from excessive consumption patterns of economic elites and people in the Global North, which certainly are a part of the problem (Dalby, 2014).

Overall, the water conflicts discourse as found in German school textbooks can be considered as a crisis discourse. The literature stresses that emergencies and crises are often discursively constructed and have agenda-setting effects in public policy (Boin et al., 2016; van Wijk and Fischhendler, 2017). Crisis discourses are hence inherently political and serve certain interests more than others (Jhagroe and Frantzeskaki, 2016). In case of our analysis, for instance, the promoted water policies (e.g. external interventions, privatisation, large-scale infrastructure, and strengthening security institutions) can crowd out other, competing policies like community-based resource management, small-scale irrigation projects, water demand management and water-related peacebuilding.

Given the environmental and societal importance of water-related knowledge and the impact of education in reproducing (and challenging) it, we advocate further research on the discussion of water in educational media, institutions and processes. Water access and water infrastructure are, for example, deeply intertwined with gender, class, age and 'race' differences (Gaard, 2001). But with the partial exceptions of debates about vulnerable groups and neoliberal as well as technological solutions, neither our analysis nor similar studies have discussed this issue in greater detail yet (Husseini, 2017; Ide, 2016; Sammel et al., 2018). The same is true for the discursive intertwining of water (control), national identity and nationalism (Blackbourn, 2016; Fröhlich, 2012) or the supposed role of water scarcity in amplifying migration flows that threaten the Global North (Methmann and Oels, 2015). In order to deal with these topics, scholars most likely also have to analyse the parts of water-related textbooks not dealing with conflict issues (which are not part of the sample of this study).

Further, it would be promising to go beyond the mere content of educational media and also analyse how such media are produced and used, and how the associated professionals are trained. Schmidt (2017), for instance, argues that North American universities often teach simplified and deeply problematic abundance/scarcity dualities to their students. Using ethnographic research, Ahlrichs et al. (2015) find that textbook contents are frequently challenged, adapted or ignored (for bad or for good) by teachers and students in the classroom. And the production of educational media is often deeply embedded in existing production and power structures, involving numerous (state, business, academic

and civil society) actors. These structures and actors are far from neutral (Ingrao, 2009). They determine which water-related knowledge is silenced, but they also negotiate which discourses are finally reproduced in educational media (Fischhendler, 2015; Stoltman et al., 2015). Little is known about the politics of these inclusion and exclusion processes as yet.

Insights from such research would not only benefit research on education, water, conflict and geopolitics. It could also help to improve education materials and practices, for instance by identifying blind spots, criticising problematic depictions, providing good practice examples, or designing new curricula and textbooks. In the end, water, peace and education are key for a sustainable future, so it is worth to focus scholarly attention to their intersections.

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