

Thirst Revolution: Practices of contestation and mobilisation in rural Egypt

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Abstract

Between 2007 and 2018, water-based protests in Egypt received extensive visibility in media headlines. These protests were first sparked by events in a village in the Nile Delta in 2007; since this demonstration, water-based protests, known as Thawrat Al-‘Atash or the Thirst Revolution, have become widespread. Nevertheless, the vast majority of academic research looking at social movements in Egypt has focused on urban protests. This paper investigates the dynamics of water-focused protests in rural Egypt. We use a political ecology approach to understand ecological distribution conflicts and perceived unjust distribution of water that was behind the social unrest. The article includes a classification of local-scale water-based protests in rural Egypt, which breaks down their causes and shows how the protest movement is embedded within biophysical, water management and agriculture development politics.

Keywords: Rural Egypt; Political ecology; water policies; social movements; Nile River

1 INTRODUCTION

This article identifies and examines three distinct waves of water-focused protests that occurred in rural Egypt between 2007 and 2018. This period was a particularly transformative and politically unstable time for Egypt, marked by revolution, regime change and increased silencing of social movements—including those that organised around water issues—and government critics.

To date, most research on water protests in Egypt—and social unrest more broadly—has focused on protests that have taken place in the urban sphere, while rural areas have been largely overlooked (Abu-Lughod, 2012; Abdelrahman, 2014; Saad, 2016). With few exceptions, environmental and ecological questions are the least studied aspects of rural Egypt, as researchers have tended to focus on social and economic domains (e.g. Ayeb and Saad, 2014). However, environmental and ecological factors—particularly pollution and the unequal distribution and access largely linked to privatisation—have been shown to be key causes of social unrest around water, closely linked to both social and economic circumstances. Our research provides an analysis of the causes, underlying logic and responses to such rural water protests through a political ecology lens.

Egypt's current rural water crisis is rooted in the colonial and post-colonial legacy, manifested through public policy adopted during the second half of the 20th century and early part of the 21st, which has exacerbated injustice in water allocation between

communities and social classes. Protests around water issues also developed during this era, spurred largely by state agricultural and water allocation policies which marked not only a decisive shift in the arenas of politics, economy and society, but a fundamental reorganisation of rural ecology. Pressure from international actors and neoliberal reforms have also played a large underlying role in the factors leading to unrest. Degradation of natural resources, trade-focused state policy and the privatisation and commoditisation of natural resources have limited access and increased inequality in water distribution, catalysing the occurrence of water protests by people in Egypt's rural areas.

In this paper, we argue that ecological distribution conflicts are not only conflicts of interest but also conflicts of values. In Egypt, people living in rural areas understand water as a right provided through both citizenship and religion. Protests over access to water are based around struggle for the material, such as livelihoods and food production, and struggle for the symbolic, such as dignity in death. This paper does not seek to document all water-focused protests that have occurred in rural Egypt, but rather to shed light on the phenomenon of rural water protests and their dynamics, which do not currently occupy a sufficient space of discussion within research on social movements in Egypt.

2 POLITICAL ECOLOGY OF WATER

In this article, we use a political ecology of water framework to focus on the 'unequal distribution of benefits and burdens, access to and control over water, winners and losers, and disputed water rights, knowledge, and culture' (Boelens, et al., 2018: 4) in the Nile basin in Egypt. The political ecology of water has a hybrid character whereby

biophysical and societal explanations are deeply intertwined (Zwarteveen, and Boelens, 2014; Rodríguez-Labajos and Martínez-Alier, 2015). Conflicts of access to natural resources and services and of the burdens of pollution or other environmental impacts that arise because of unequal property rights and inequalities of power and income among people are central to this framework (Martinez-Alier, 2002). Analysis of water availability patterns is a useful tool within political ecology, as it brings focus to the historical and social-ecological factors that give rise to changes while maintaining awareness of the complex interactions between environment and society that are always embedded in history and locally specific ecologies (Blaikie, 1995).

Closely linked to political ecology, an environmental justice approach promotes the application of justice to environmental problems that impact and highlight inequalities experienced by people. Environmental justice is composed of three clear dimensions: distributive, procedural, and recognition-based justice (Martin, 2017). Thus, environmental justice seeks the equitable distribution of environmental risks and benefits, fair and meaningful participation in environmental decision-making and governance, and recognition of community ways of life, local knowledge, and cultural difference (Schlosberg, 2007).

The concept of environmentalism of the poor, introduced by Guha (1997) and Martinez-Alier (2003) underpins our understanding of how water-based protests in rural Egypt relate to ecological distribution conflicts and environmental justice. Environmentalism of the poor refers to environmental struggles that have occurred in affected communities that do not necessarily hold an environmentalist ideology. Despite this, these communities undertake defensive action regarding environmental

conditions, access to natural resources, and their egalitarian distribution (Martinez-Alier, 2003). This concept is highly relevant to water-focused movements in rural Egypt, as those actors fighting against such environmental injustices are motivated by values that are environmental, cultural, or economic, and largely related to subsistence.

3 METHODOLOGY

This research is based on data gathered through textual analysis and ethnographic research. Document review, particularly using news articles, has proven useful in protest event analysis as it facilitates the mapping and description of movements, including reasons for protest, demands, and actions taken (Tarrow 1989; Tilly 1978; Oliver et al., 2003; Hutter, 2014). For this work, textual data was collected from newspaper archives, non-governmental organisation (NGO) reports, press releases, and government publications, all covering the period 2007-2018. Newspapers consulted include Masress newspaper archive, *Youm 7* newspaper, *Al-Badil* newspaper, *Al-Akhbar* newspaper, *Al-Masry Al-Youm*, *El-Watan News*, *Masr Al-Arabia* newspaper. NGO reports from the Egyptian Centre for Economic and Social Rights, Habi Centre for Environmental Rights, Democracy Index Association, Egyptian Organization for Human Rights, Land Center for Human Rights and Social Justice Platform were also used.

Ethnographic research, including participatory observation and informal interviews, was conducted by the first co-author over the course of several visits to sites in rural areas of Lower and Upper Egypt between 2008 and 2018. Field research was, however, limited due to the complex political environment and often tense situation faced by researchers at the time of data collection. Participatory observation focused on farming practices, access to water, and conflicts around resources, while 30 informal and semi-

structured interviews conducted with key informants and local actors (including small farmers, agronomic experts, and NGO representatives) shed light on their access to water, water shortages, types of complaints, and mobilisations.

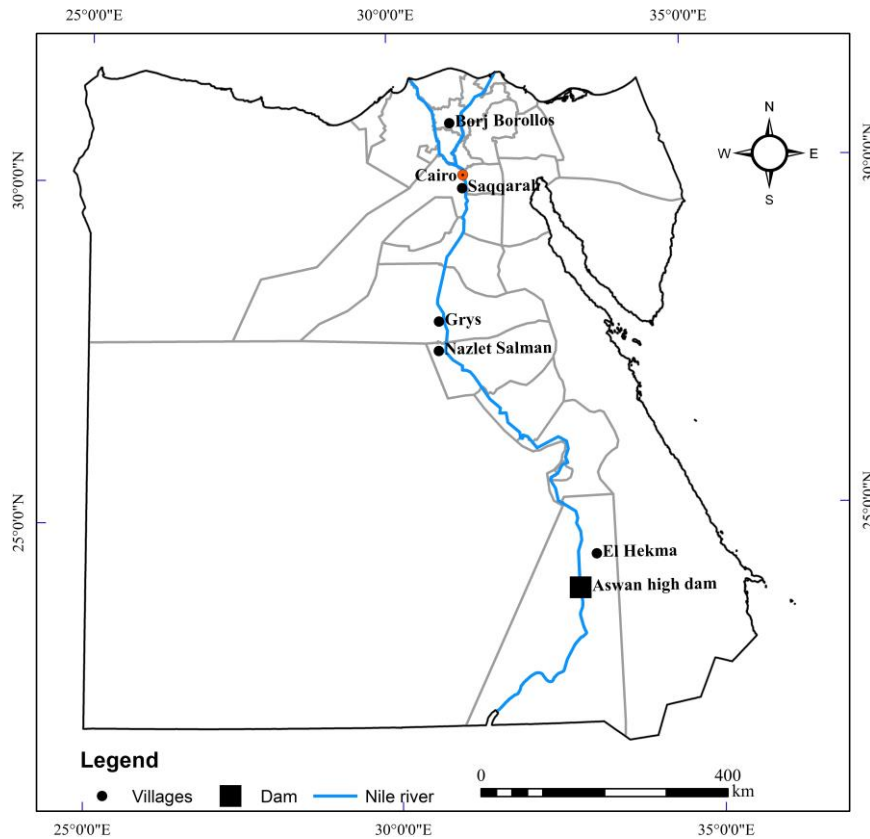


Figure 1 Map of Egypt showing locations of villages where water protests examined in this research occurred. [Original map prepared for this paper.]

Fieldwork was carried out in four villages in the Governorates of Giza, Minya, Asyut, and Aswan over the course of several visits between 2008 and 2018 (see Table 1), which the first co-author initially made for projects unrelated to this research. Villages in Upper Egypt were selected because this area is least covered in terms of social movements, protests and political sociology research, most of which focuses largely on urban areas (Abu-Lughod, 2012; Abdelrahman, 2014; Saad, 2016), while also offering rich empirical study due to the presence both of water shortages and water-focused protests.

Table 1 Types of water-based conflict and social action in four villages in Upper Egypt

Village	Municipal Level / <i>markaz</i>	Governorate	Conflict	Action	Period of Fieldwork
Grys	Abu Qirqas	Minia	Dysfunctional distribution of irrigated water	Collective action from small farmers against the irrigation administration	2008
Nazlet Salman	Qosai	Asyut	Drinking water pollution	Letters of complaint to the water company Demonstration	2009 - 2010
El Hekma	Kom Ombo	Awans	Irrigation water conflicts between large and small farmers	Road blockade Letters of complaint	2013-2015
Saqqara	Badrashin	Giza	Water cuts Poor water quality	Letters of complaint Re-purification and purchase of clean water	2018

4 REFRAMING THE WATER ISSUE

To understand the roots of Egypt's water protests, the broader hydrosocial territory of the Nile River needs to be considered. Boelens et al. (2016) define hydrosocial territories as 'socially, naturally and politically constituted spaces that are (re)created through the interactions amongst human practices, waterflows, hydraulic technologies, biophysical elements, socio-economic structures and cultural-political institutions.' Along the Nile, this hydrosocial territory has been heavily shaped and transformed by the construction of the Aswan High Dam.

The development of the Aswan High Dam emerged in a highly political context immediately after the overthrow of Egypt's monarchy in 1952 and the nationalising of the Suez Canal and the withdrawal of British troops, both in 1956. The dam was built between 1960 and 1970 under Egypt's second president, Gamal Abdel Nasser, whose government was both nationalistic and technocratic, and determined to harness the waters of the Nile for Egypt's benefit. Construction of the massive infrastructure project, at 111m high one of the largest dams in the world, can be considered the beginning of Egypt's hydraulic mission (Allan, 1999). At the time of construction, the Aswan Dam was also a prominent symbol of anti-colonial rule and Arab nationalism and received widespread support within Egypt.

However, the creation of Lake Nasser, which resulted from construction of the dam, destroyed 44 Nubian villages in both Upper Egypt and north Sudan, and displaced and dispossessed an estimated 50,000 Nubians, most of whom were resettled near Kom Ombo (Serag, 2013; Fernea & Kennedy, 1966). This environmental injustice faced by Nubian communities has remained almost totally unaddressed by the Egyptian government, with a trickle of compensation for losses beginning only in recent years, approved in accordance with Ministerial Decisions No. 478 of 2017 and No. 371 of 2019. While this compensation acknowledges (to some extent) the marginalisation of the Nubian people during multiple displacements which occurred from construction of the Old Aswan Dam in 1902 to construction of the Aswan High Dam in 1960s, the government has continued to ignore demands of a Nubian social movement for the right of return to land along the lake, near their original villages. This Nubian mobilisation around the right to return resulted in the 2014 approval of article 236 of the Egyptian Constitution, which details the state's commitment to developing and

implementing projects to facilitate the return of the Nubian population to their native lands within ten years.

Even since these initial displacements caused by construction of the dam, communities along the Nile have continued to experience different forms of environmental injustices linked to the impact of the dam – particularly around pollution and unequal access to water.

Environmental Impacts

Pollution of water resources is a primary grievance of protesters. This has increased significantly since the construction of the Aswan Dam, which has transformed the ecosystem and natural characteristics of the Nile. Prior to the dam's construction, the yearly flood of the river represented an annual renewal of the Nile waters, a kind of ecosystem resilience process that ensured a minimal level of pollutants in the water. Since the building of the dam, however, the river's flow has slowed, and water turbidity has decreased. Previously, the Nile River carried nearly 124 million tons of sediment to the sea each year, leaving about 10 million tons in the Nile Valley and Delta. Today, with the dam in place, about 90% of that sediment, rich in both potassium and phosphorus, remains behind the dam (Badawy et al., 2017). This has resulted in serious changes to Egypt's floodplain agriculture, including a drop in soil productivity (compounded by an intensified use of synthetic fertilisers) and serious coastal erosion (Mohamed, 2016).

The Aswan Dam has enabled significant growth in industry and industrialised agriculture characterised by the intensive use of synthetic fertilisers and pesticides, which has led to unsustainable and shockingly high levels of industrial, agricultural, and domestic wastewater pollution. From Aswan to the Delta Barrage, the Nile receives

discharges from 43 agricultural drains, only ten of which comply with national regulatory standards (MWRI 2002). This drainage constitutes the primary source of pollution to the Nile (Shamrukh and Abdel-Wahab, 2011).

The Nile's waters are highly contaminated by polychlorinated biphenyls (PCBs), due mainly to the estimated 700 industrial facilities along its banks (Megahed, et al. 2015; Wahaab and Badawy, 2004). A 2015 study showed the total level of PCBs in water samples as being 32 times higher than samples collected in 1995 ($53.44 \mu\text{g/L}$ versus 1637 ng/L) (Megahed, et al. 2015). Pollution also causes eutrophication, an increased concentration of nutrients, which induces excessive algae growth and leads to unpleasant odours, oxygen-poor water, and the formation of hypoxic zones, known as 'dead zones' because crabs and fish suffocate within these areas. This was likely a contributing factor to a mass fish die-off in Rosetta, a city on the Western Nile, caused by ammonia poisoning and lack of oxygen in the water (Ahmed, 2014; Aboul Fadl et al., 2016). The fish species diversity in the dammed portion of the Nile has also dropped dramatically, from 47 species in 1948 to only 17 in the 1980s. Diversity further decreases in the north; in Damietta, for example, only seven varieties of fish were found (Said, 2001; 269).

Unequal development and fragmented protests

The official discourse of Egypt's water situation is one of scarcity. Different actors participate in the production and reproduction of this discourse, including international agencies such as the World Bank and the United States Agency for International Development (USAID), and ministries of the Egyptian government, primarily the Ministry of Water Resources and Irrigation and the Ministry of Agriculture and Land Reclamation (Barnes 2014). Both the state and international organisations have

legitimised agribusiness's control over water resources by presenting high technology irrigation as efficient—with efficiency being the most prized characteristic—and export-led agriculture as the only development model suitable to the country (see for example Government of Egypt, 2014 and World Bank, 2018). Under the state's efficiency objective water has been increasingly diverted to desert agribusiness farms for irrigation of export-oriented agricultural crops. The 'new lands' large-scale exportation-oriented farming model can be understood as an altered hydrosocial territory that has been gradually created and consolidated based on state institution practices under a hegemonic discourse of development (Damonte, and Boelens, 2019; Boelens et al., 2016).

The water scarcity discourse is informed by what Allan (2011) refers to as a 'deep social delusion' that challenges neither societal inequalities in water distribution (both quantity and quality) nor the strict delineation of the water cycle (Martinez-Alier, 2009). In fact, water crises and the failure to provide sufficient water for rural livelihoods is in large part the result of neoliberal policies that produce injustice in water distribution across the country. The recent emergence of water protests is directly related to a broader socio-environmental crisis in Egypt, characterised by both increasing pollution and increasing inequalities in access to water, and by the environmentalism of the poor.

Our analysis sheds light on the dynamics of the water-focused protests that took place in rural Egypt following the initial Kafr el Borollos village protest. Crucially, our results show a marked difference between protests around drinking water and those around agricultural water, particularly around state response. In many of the cases that we observed of interruption or contamination of drinking water, the state-run

responsible agencies responded rapidly through such actions as cleaning reservoirs or delivering clean water to villages.

The spontaneity of the protests and the focus of protesters on specific local demands has in many cases led to the achievement of some goals. However, rural water-focused protests in Egypt are decidedly fragmented due largely to the authoritarian regime, which limits networking and thus the convergence of struggles between local protests, impeding the building of a national social movement around rural water justice.

5 CHANGES IN ACCESS TO IRRIGATION AND DRINKING WATER

The vast majority of Egypt's water resources are used in the agricultural sector (81.2%), followed by domestic use (13.9%) and industry (1.56), with a portion lost to evaporation (3.25%) (CAPMAS 2019). In this section, we provide a brief description of the mechanisms that shape processes of control of, access to, and use of water and related infrastructure in rural Egypt, with notable differences between access to irrigation water and to drinking water.

5.1 Access to irrigation water

Farmers play a large role both in use of the waters of the Nile, and in the operation and maintenance of much of the infrastructure that the waters of the Nile pass through. Irrigation water in Egypt is delivered primarily through an extensive canal network that is supplied by several pumping stations and eight diversion barrages situated on the Nile River. These eight barrages provide water for about 80% of the irrigated area, while the remaining 20% is pumped directly from the Nile. From the main or primary canals, the water flows consecutively through lower-order canals (branch or secondary canals) until it reaches the *mesqas* (field canals or tertiary canals), and eventually to the

on-farm ditches, or *marwas*. All canals upstream of the *mesqas* are part of the main system (Allam et al., 1994; Sowers 2012; Rap, et al., 2019). *Mesqas* and *marwas* are owned, operated, and maintained by farmers, with *mesqas* often shared by several farmers. Water is directed to the *mesqas* in rotations (*monawbaa*) every 10-15 days depending on the season. Farmers know the schedules and organise themselves and their agricultural calendars accordingly.

Prior to the 1990s, water management was based on social-collaborative relations, with the waterwheel (*saqyaa*) as the main tool that transported water to farmers' lands. Water amounts were allocated for irrigation based on land size, season and crop pattern, and the cost of water distribution depended on the quantity of water allocated. Groups of farmers would work together to irrigate lands within a community, sharing the intensive work that could take days to irrigate the land of just one farmer (Ayeb, 2010; El Nour, 2013).

Gradually, individual water pumps (the kind used for oil) began to replace *saqyaa*, which all but disappeared from the Nile Delta and Valley by the 1990s. This transformation, which was funded by remittances from rural Egyptian migrants in the Gulf countries, began in the 1970s at the time of the Egyptian economic crisis and of market liberalisation reforms. Collective management of water started to disappear while conflicts between farmers increasingly arose, signs of a shift toward individualisation within the agrarian community (Ayeb, 2010). However, farmers who shared the same field canals (*mesqas*) succeeded in finding ways to ensure equitable access to water at least at the level of individual pumps. Irrigation is now done individually, reflecting a reorganisation of the social management of water, with

farmers each allocated a certain number of hours to irrigate depending on the size of the land they cultivate (Field note, 2009).

In the 1990s, the Egyptian government—pressured by international organisations and development agencies—began to apply an integrated water resources management (IWRM) toolbox. This paradigm proposed to fight the water crisis by combining three sets of beliefs: in markets, in participatory management, and in hydro-engineering (Sneddon & Fox, 2007). IWRM was presented as a break with the technocratic, supply-driven and large-scale infrastructure-oriented paradigm of the past, signalling a new era in which economic, social and environmental concerns were to be addressed simultaneously and in their mutual interactions. Consequently, the state began to support and establish Water Users Associations (WUA) at *mesqas* level. WUAs operated in limited areas as a pilot phase.

In his analysis of a WUA pilot case in Upper Egypt, Ayeb (2010) showed that although the stated objective of IWRM is sustainability and integrated participatory management, it is also often used to hide or sanction processes of dispossession and accumulation of water—processes that are far from democratic or participatory. Ayeb found that in practice, state water engineers control these associations. The same was shown by Rap, et al., (2019) who identified serious limitations to the implementation of participatory irrigation management policy regarding branch canal water user associations (BCWUAs) in the irrigated Central Delta of Egypt. The BCWUAs analysed in their study were financially, representationally, and institutionally weak organisations. These BCWUAs did not play a significant role in the operation and maintenance of water branches, or in financial administration and conflict resolution. In other words, these studies demonstrated that the way IWRM was implemented in Egypt

hid ‘techno-political’ power relations, which is the interrelationship between power, technical/bureaucratic and expertise irrigation (Mitchell, 2002), dominated by the Ministry of Water Resources and Irrigation.

Over the past three decades, policies have favoured large-scale agribusiness. While farmers in the Nile Valley and the Delta face water shortages to the extent that they were prevented from growing rice in some regions, the state remains committed to providing water 24 hours a day throughout the year to agribusiness projects in the desert. For example, the contract for the sale of 100,000 acres to the Kingdom Agricultural Development Company, owned by Saudi Prince Waleed bin Talal, for the Toshka Project, signed in 1997, states:

The first party (the General Authority for Reconstruction and Agricultural Development Projects) grants the second party (Kingdom Agricultural Development Company) an absolute and unrestricted right to access water from...24 hours a day for 365 days a year...This supply of water should not be interrupted at any time, for any reason whatsoever, unless there is a prior written consent of the second party obtained at least two months before the occurrence of the interruption or suspension of the water supply¹.

In its national plan, the Ministry of Water Resources and Irrigation (MERI) argues that privatisation of water management is beneficial, claiming that:

¹ Article 5 of the contract between the General Authority for Reconstruction and Agricultural Development projects and the Kingdom Company, this contract was signed on Wednesday, September 16, 1998. The Egyptian Center for Economic and Social Rights published [the](https://ecesr.org/?p=1785) contract in the following link: <https://ecesr.org/?p=1785> [last accessed?]

The new policy will elaborate further the institutional reform policy in water management that aims at an improvement of the performance of the irrigation and drainage system by transforming public responsibilities to the private sector (MERI, 2005; 3).

The 2005 Ministry of Agriculture and Land Reclamation's (MALR) strategy clarifies that the Ministry aims to undertake projects to improve field irrigation in the Valley and the Delta and to reduce the cultivated areas of rice, while at the same time the Ministry commits to providing an estimated 12.4 billion cubic meters of water for use in the reclamation of 3.1 million acres of new land by 2030 (MALR, 2009; 38). The forced reduction in rice cultivation has been devastating to peasants, and penalties for continuing to cultivate in contravention to restrictions, including fines and imprisonment under a 1966 amendment to the Agriculture Law, have increased since 2014 (Official Gazette, 2018a).

State water efficiency discourses and the allocations they suggest create rankings of water uses and users based on efficiency considerations, with the most efficient uses and users awarded the premium of modernity and water citizenship. 'Modern' users – such as agribusiness firms in the West Delta desert, are held up as the example to follow, representing the ideals of water use efficiency and water market rationality that science preaches. In contrast, Delta and Valley farmers who use traditional irrigation systems to grow their own food crops are portrayed as 'backward' (Ayeb and Bush 2019).

In recent years there have been repeated interruptions and delays to irrigation schedules in the Valley and Delta without explanation from the irrigation departments. Because of these problems, farmers have adopted different strategies, including the use of

untreated drainage water, causing a debate in local media. Some farmers switched to groundwater for irrigation, which may have increased rural inequality as those farmers who constructed wells were then able to sell water to their poorer neighbours (field note, 2010). In this way, the right of landowners to water from the state was threatened or withdrawn, ending the historic relationship between access to land that guarantees access to water. This has resulted in the existence of a ‘waterless farmers’ phenomenon in Egypt (El Nour, 2013).

While the Egyptian state has claimed that the new policies offer the optimal mechanism for allocating presumably scarce water resources in a way that furthers farmer welfare, these policies also result in a retreat of the state from providing water to all small farmers. Consequently, these policies and practices generated unrest and protests.

5.2 Access to drinking water

Most Egyptians purchase piped drinking water from the Holding Company for Water Supply and Sanitation. The public water service network reaches about 96.8% of Egypt’s total population, while approximately 93.6% of people have a water tap inside their homes (CAPMAS, 2019). However, these numbers depicting people with access to drinking water need to be unpacked. Access to drinking water is comprised of three elements: connection to the water network, arrival of water through the network without interruption, and water quality (Ayeb, 2004). In rural Egypt, the problem of low continuity of water supply is common. For example, a survey conducted in Fayoum Governorate in 2007 revealed that 46% of households complained about low water pressure, 30% about frequent water cuts and 22% about water not being available during the daytime. These problems forced villagers to use irrigation canal water for

drinking purposes (Abdel-Gawad, 2007). There are also many reports of poor-quality drinking water. For example in El Minia governorate (Lower Egypt), public health researchers identified the consumption of unsafe water and exposure to pesticides as the main causes of renal diseases for an estimated 72% of patients (Emad and El-Minshawy, 2010). Marwa Yassin (2011) also found that 80% of drinking water in Asyut Governorate in Upper Egypt (with a population of 4 million inhabitants) is unsuitable for human use.

Between 1988 and 2012, the Egyptian government has spent more than 11 billion dollars on water and wastewater plant construction. Despite this, while most urban areas are covered by wastewater treatment services, only 11% of rural areas are connected to this system (USAID, 2013); most daily wastewater production in the countryside is discharged directly into drains and non-drainage canals. This has polluted the irrigation canals and underground water sources used by rural peoples, negatively impacting their health (USAID, 2013).

In 2004, the state adopted a policy to transform drinking water from a service to a commodity through a series of measures initiated through Presidential Decree No. 135 that created the Holding Company for Water and Wastewater (HCWW). According to this Decree, the function of the HCWW is to carry out purification, desalination, transmission, distribution, and sale of drinking water (Official Gazette, 2004). Water is treated here as a commodity, with the explicit term ‘water sale’ used for the first time in a text of the Egyptian legislative framework.

From 2005, the state has formally dealt with drinking water as a commodity. HCWW is also responsible for extending drinking water and wastewater systems to uncovered villages, and maintaining, renovating and replacing drinking and wastewater collection

systems. The government has also created initiatives for private sector participation in Egyptian water and wastewater treatment plant projects on public-private partnership (PPP) terms.

Ten years after the January 25 Uprising in 2011, successive governments have followed the same privatisation plan: in January 2016, the drinking water and sanitation holding company raised drinking water prices by 25% and then by further 30% at the beginning of 2017, while prices in August 2018 increased between 36-44%. From 2016 to 2018, the planned increases in all consumption tiers have resulted in an increase of more than 100% (Habashi, 2016; *Official Gazette*, 2017; *Official Gazette*, 2018b). In February 2016, during an official speech, the Egyptian president Abdelfatah El-Sisi declared that the 'state cannot afford drinking water at its actual price anymore' (Khaled, 2016).

Household- and local community-based solutions to secure drinking water access have emerged in response to these developments. These solutions vary according to the economic capacities of individuals, and according to the level of community solidarity in providing water access for its population. Wealthier families buy filters or bottled water. Some families buy water from street vendors, a phenomenon that began to spread with the increasing phenomenon of water pollution and repeated water interruptions (field note from Badrashin, Giza governorate, 2018). Some poor people drink directly from the Nile or from irrigation canals, if these sources are near their villages. Other families pump water inside or near their houses; however, this water is highly polluted as the sanitation coverage in rural Egypt was only of 11% as of 2007 (Abdel-Gawad, 2007). Another recently alternative is the development of local water treatment stations, which are increasing in rural Egypt. Local water treatment stations re-purify the water distributed by the state using scientific methods and modern

equipment, and then redistribute it. This solution attracts the interest of private companies and individual businessmen who seek to profit from such initiatives, but also involve local NGOs or community groups able to run these projects for free. As of 2012, there were already 2,000 of these treatment stations in villages across Egypt. We note that this solution is not legal, and the state continues to harass individuals, associations and groups that undertake this activity (Tadamun, 2013).

The everyday occurrences of water injustice, characterised by low quality water and frequent interruptions in service, have pushed affected people from acceptance, compromise and coping strategies to the launch of a ‘thirst revolution’ that has spread throughout the country since 2007.

6 TRAJECTORIES OF WATER-FOCUSED RURAL PROTESTS

This research examines three waves of water-based protests in Egypt, taking place in 2007-2008, 2011-2015 and 2018. The first wave began in 2007, a year marked by increasingly restricted political freedoms and crackdowns against dissent. Newspapers and a number of environmental and human rights organisations documented these protests. Based on media sources and reports from local environmental and human rights organisations, we provide a holistic picture of water-based social movements in the Egyptian countryside over the period of 2007 to 2018.

The first of these waves began in 2007 in the village of Kafr el Borollos, in Kafr el Sheikh governorate in the Delta. After facing 21 days without drinking water, more than 10,000 people gathered to block access to the coastal highway in protest. Protesters accused the government-owned water company of diverting the village’s water to the nearby Baltim holiday resort. One local newspaper described the blockade

as ‘the first event of its kind to be seen in Egypt since hunger demonstrations in January 1977’ (Al Sayd, 2007), referring to the mass popular uprising known as the Bread Riots which followed the lifting of bread subsidies. Kafr el Borollos residents ended their blockade when water was returned to the village.

Water-focused protests became much more widespread after the initial Kafr el Borollos demonstration, a growing movement that came to be known as the ‘thirst revolution’. Demonstrations initially focused on drinking water but protests over inequalities in access to irrigation water gradually increased as well. Between mid-2007 and January 2008, Egypt witnessed a wave of roughly 40 protests around water (Abdel-Mawla, 2008). In 2008, the popular narrative around water inequality began to shift from drinking water to agricultural water, with the media starting to report on ‘thirsty land’ and ‘crop death’ in addition to the thirst of human beings. In 2009, the Egyptian Organization for Human Rights (EOHR) released a report entitled *Water Pollution: A ticking time bomb threatening the life of the Egyptians* (EOHR, 2009). The report asserts that the Ministry of the Environment had indicated that the contamination of drinking water in Egypt has reached a critical stage and become difficult to cope with. The report also outlines 41 cases of violations of the right to water, eight of which involve irrigation water and 33 of which involve drinking water, based on complaints sent to the organisation.

While the first wave of protests was in large part a response to decisions and actions taken by the Mubarak government, protests continued even after Mubarak left power. The second wave of water-focused protests took place between 2011 and 2015.

There is no mechanism to systematically document all protests that take place in Egypt, particularly at the village level. However, in 2012 the Habi Center for Environmental

Rights (HCER) published four quarterly reports (HCER, 2012a, 2012b, 2012c and 2012d) that monitor press coverage of violations of the right to water in Egypt. In these reports, they identified 85 cases of water-based protests in two years. Table 2 illustrates types and numbers of water-focused protests that appeared in newspapers in the years 2011 and 2012.

Table 2: Types and numbers of water-focused protests in rural Egypt in 2011 and 2012 based on national newspapers

Type of protest	Number of protests in 2011	Number of protests in 2012
Demonstrations	15	31
Roadblocks	8	25
Judicial complaints	2	4
Total	25	60

Source: Habi Center for Environmental Rights quarterly reports (HCER, 2012a, 2012b, 2012c and 2012d) (calculated by authors)

A key limitation to the data collected in HCER reports is that it does not distinguish between urban and rural areas, or between drinking water, household supply and irrigation. Nonetheless, the report gives a broad picture of trends in irregularities around access to water that have been monitored in newspapers, including causes that have generated protests.

In 2013 farmers ranked second in social groups that led protests, leading 72 protests overall; protesting against lack of irrigation water was the cause of 41% of these protests (ECSER, 2014). If the drinking water shortage is threatening lives in the countryside, the irrigation water shortage threatens farmers' livelihoods. This is what

drives them to protest. According to one interlocutor: ‘When all the means of coping to access to water failed, we demonstrate and protest in various ways’ (Field note, 2015).

During 2015, the Democracy Index Association counted about 380 socio-economic injustice-based protests. Drinking water – relating to its quantity or quality – accounted for 43 protests (Democracy Index Association, 2016). In addition, the Land Center for Human Rights reported a number of irrigation-based protests in the governorates of Luxor, Bani Suef, Fayoum, and Assiut (El-Watan news, 2015).

The 2019 Social Justice Platform report gives a clearer picture of 2018 protest dynamics, documenting about 165 water-based protests in rural areas. The raw data in the report provides a more detailed description of claims, showing that protests related to drinking water account for about 50% of grievances (35.15% water shortage and 14.12% water pollution). Wastewater-related protests accounted for 40% while irrigation-related protests accounted for 1.2%. Forms of protest included written complaints, which represented the majority with 156 protests, with an additional five sit-ins and one road blockade (Social Justice Platform, 2019).

Table 3: Distribution of protests according to the reasons for the protests 2018

Claims / Complaints	Number of protests	Percentage of protests (%)
Lack / interruption of drinking water	57	35.18
Absence / poor sanitation services	65	40.12
High ground water / street drainage flood	14	8.75
Pollution of drinking water	23	14.38
Lack of irrigation water	2	1.20

High cost of drinking water	1	0.62
Total	162	100

Source: Social Justice Platform's 2018 Social Mobility Monitoring Report (calculations by authors)

The protests were driven not only by inequalities in access to basic resources, but also by the perceived violation of cultural values, including the sanctity of life and death. In describing his grievances over the lack of water, one protester in Kafr el Borollos explained: 'We have to wash the dead with the waters of the irrigation canal' (Elsayed, 2007). This illustrates the symbolic dimension of the water shortage that mobilised villagers in framing their right to water.

The multiple waves of water protests, occurring because of the same grievances but under different governments, are an indication that inequality in access to water is systemic, ingrained in the workings of the state beyond the politics of the day.

7 PROTESTS CLASSIFICATIONS, THEIR CAUSES, AND FORMS OF ACTIONS

Classifying water-focused protests helps shed light on their causes, and enables an analysis of the scale of actions adopted for promoting water justice. We classify all known mobilisations from the el Borollos protest in 2007 to the third wave of protests in 2018. Based on our analysis of reports and newspapers, a general classification of water protests is provided and discussed in this section (see Table 4).

Protests take many forms, from strikes and sit-ins to road blockades, to filing complaints. Road blockades are the most prominent tactic since the first wave of rural water protests began in 2007. However, this form of protest has more recently been

marginalised in favour of filing complaints, according to both our fieldwork observations and the 2018 Social Justice Platform report (Social Justice Platform, 2018). The recent dominance of complaint-filing as a form of protest can be explained by the rapid closing of the public space by Egypt's new authoritarian regime after the 2013 military coup against the Muslim Brotherhood-affiliated President Morsi (Social Justice platform, 2019). This crackdown on physical public space was moreover combined with the development and expansion of cyberspace/virtual space and the democratisation of internet use after 2011 (Ministry of Communication and Information Technology, 2015). In 2009 there were 12.28 million internet users in Egypt, increasing to 49.23 million in 2018, and in 2018 there were 39 million active social media users, representing 40% of the total Egyptian population (Lolwa, 2018).

Table 4 Water focused protests classifications, causes and scale of actions in rural Egypt

Category		Cause of action	Mode of action	Scale
Water Management	Irrigation: - Water distribution - Management	<ul style="list-style-type: none"> - Water cuts - Lack of predictability in timing of water rotations (e.g., water runs once a month instead of every 10 days) - Defense of traditional water use rights - Loss of equity in distribution of water rotations between peasants - Poor water distribution management - Preferential treatment given to large-scale farmers - Corruption of Ministry of Irrigation agents 	<ul style="list-style-type: none"> - Strikes - Sit-ins - Road blockades - Filing of complaints 	<ul style="list-style-type: none"> - Local level: Villages in Delta and upper Egypt

		<ul style="list-style-type: none"> - Pollution of canals - Water loss resulting from lack of maintenance of canals by the Ministry of Irrigation 		
	Drinking water: <ul style="list-style-type: none"> - Privatisation policy 	<ul style="list-style-type: none"> - Water cuts for long periods - Water pollution - Rising cost of water bills 		<ul style="list-style-type: none"> - Local level: Villages in Delta and upper Egypt - Governorate level
Pollution	Drinking water pollution	<ul style="list-style-type: none"> - Change of water color and taste - Presence of impurities or worms in water - Spread of disease in villages 		<ul style="list-style-type: none"> - Local level: Villages in Delta and upper Egypt - Governorate level
	River pollution	<ul style="list-style-type: none"> - Fishermen protests 		<ul style="list-style-type: none"> - Specific locations: Kafr el Shikh, Talkha, Al Buhyra

(Source: the authors)

A key observation of this research is that the struggles and protests associated with drinking water in the countryside are more prominent and visible than those related to irrigation water. To understand and explain this, we interviewed different actors in rural Egypt. According to interviewees, the main reason for this is that farmers use multiple methods of providing irrigation water, including use of drainage water, constructing wells or purchasing water from a neighbour's well. Such coping strategies are a common way to access irrigation water, whereas alternative strategies for accessing drinking water are much more complicated and expensive. Protests usually represent a last resort when all means of accessing irrigation water have proven unsuccessful. One interviewee explained this by saying that he feels the state does not care about small

farmers, and therefore they must firstly try to secure water for themselves, and only if unsuccessful would they resort to complaining to the state.

Our findings show two main targets of water-focused socio-environmental protests: water privatisation and water pollution. Rural protest movements in particular demand more justice in distribution of water and less marginalisation of rural inhabitants and farming activities. But Egyptian water-based protests go beyond the question of distribution to include that of dignity, as we have seen in Kafr el Borollos case. These protests are mainly linked to livelihood, to social and moral commitment and to rural citizenship, and result not only from people's increased awareness of their rights, but of the social and ecological water crises.

8 CONCLUSION

Through an analysis of water-based protests and contestations in the Egyptian countryside during the 2007-2018 period, this article has found that the roots of these protests are in destruction of agricultural livelihoods, environmental degradation, and the gradual privatisation of water resources, caused by neoliberal economic reforms. While many people develop coping strategies, rural citizen resistance also includes several different types of protests. This research also shows that ecological distribution conflicts in rural Egypt are not only conflicts of interest but also conflicts of values, including material struggle, such as livelihoods and food production, and symbolic struggle, such as human dignity. In conclusion, the Egypt's water crisis is not only an issue of biophysical scarcity and declining water quality, but rather a complex mix of social, ecological, cultural, political, and economic issues that are deeply rooted in power relations and in state policies.

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