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*Infrastructure and War in Donbas:
cross-frontline water supply from a perspective of sociology and anthropology of
infrastructure*

Abstract

My current research looks at cross-frontline water infrastructure management and operations through a case study, the company Voda Donbasu which has been providing drinking water and heating to almost 4 million people in both Kyiv-governed areas and in those under separatist control throughout the conflict. Local water infrastructure networks straddle the frontline. My research investigates from an actors' perspective how the conflict has affected the way water infrastructure is operated in the present context of geographical, military and political ruptures, as social ties, networks, strategies, practices, networks of transform and new actors appear under the pressure to adapt to new circumstance. This paper presents some preliminary thoughts on water infrastructure in Donbas from the perspective of sociology of infrastructure: the goal is to throw a different light on social relations in Donbas to better understand how deeply the conflict in eastern Ukraine has affected social relationships. I argue that the re-configuration of networks and strategies at Voda Donbasu highlight the political and social role of critical infrastructure as a symbol of modernity, and as an expression of belonging as a form of "hydraulic citizenship".

Introduction:

The local headquarters of KP Voda Donbasu, the water utilities company that supplies water on both sides of the front line to close to 3.8 million people in Donbas are housed in a 19th century railroad administration building in Avdiivka, just a few hundred meters from enemy fire.. The second floor windows are covered with a special film to keep shards out in case of shelling. This is the office, staffed by women, where VD accountants collect and calculate actual water consumption fees. The women are also in charge of reading the meters throughout the district in apartment buildings, as well as companies and administrations. Some trips involve heading out to the eastern outskirts of the town where shelling, though now rare, occurred throughout the war. VD's director, seeking to reassure: "Of course, they go out when the risk isn't too great". "Why do you bother going there at all, is revenue from those consumers really worth the risk?", I ask, a bit bewildered that meter readings take place in a war zone. "Though money also counts, it's a matter of principle", he answers. Behind him, a few of the women nod. "How

would it look if we stopped collecting revenue? It would be *like everything's lost*¹. Prompted to explain, he added: "this is the correct way of running things, that's how it always was." In other words, maintaining the banal circuit of measurement-payment- and delivery of services somehow conveyed a message of survival and normality. Indeed, people in war or other situations severely disrupting their lives "negotiate normality" by creating a sense of everyday lives in abnormal situations (Maček: 39). But the director of the water utilities company was also establishing a direct connection between water supply to the consumer, the underlying processes that sustain operations of water infrastructure, and with the established order of public service as reflecting the order established in the past. His response also expresses the potentially symbolic and social significance of keeping this system holistically intact: stopping the mundane action of measuring water consumption and collecting payments would break the social link between infrastructure, operator, and consumer that is the result of a long process of development.

My research investigates the reconfigurations of economic relations across the front line in particular how it has affected the way Voda Donbasu's employees – managers and technical personnel – have adapted to the new context of supplying water in the context of geographical, military and political ruptures. In this paper, I look at the effect of critical infrastructure on local social cohesion. This example highlights the powerful ontology of infrastructure: the system of substrates that lie invisible until they break down are part of human organization and embedded in social relations (Star 1999 : 380). Indeed, infrastructure such as the water supply network is analyzed as two systems – a material pipes&facilities network and as a social network. The goal is to understand how infrastructure in a context of conflict affects social relations using concepts and methods from relatively new scholarship in the sociology and ethnography of infrastructure. Indeed, from this disciplinary perspective, critical infrastructure such as roads, electricity or water reflects social interactions that say things about sovereignty, citizenship and professional identification. These are particularly relevant to understanding how deeply the conflict in eastern Ukraine has affected social relationships. I argue that the re-configuration of networks and strategies at Voda Donbasu highlight the political and social role of critical infrastructure as a symbol of "civilization". In a first section analyses the concept of infrastructure as embedded in complex social relations that reflect representations of modernity. A second part presents the situation around the water infrastructure in Donbas, contextualized historically and geographically. A third part analyzes the transformations of strategies and networks in water supply in Donbas to explain how citizenship and critical infrastructure interrelate and how challenge state power and sovereignty.

II. The social role and meaning of infrastructure: theoretical and methodological approaches

A: Infrastructure as invisible, relational and civilizational

¹ "... brosat' ljudej, budto vse propalo."

Infrastructure are the physical networks through which goods, ideas, waste power people, and finance are trafficked, the circulatory networks of modern society (Larkin 2013). A classic definition of infrastructure focuses on its "invisibility" : we say "switch on the light" and not "connect to the electricity grid", and we don't think about the system of water pipes, pumping stations, purification processes that the water travels through to get to the faucet. A "system of substrates"(Starr 1999 : 380) fading into the background of everyday economics and life, its explanatory power for social relations and politics is released through historical, sociological and anthropological analysis. Following anthropologist Susan Starr, we look at infrastructure as being a social system and that it beyond its material structure is essentially relational. Infrastructure are "things and the relation between things", and operates at different levels (Larkin : 329-330). For a plumber, reconnecting a broken pipe is an occupational task; for a consumer drinking water is a service; for an ill-minded officer a pumping facility may be a strategic target; for an elected city administration running water and central heating are critical aspects of its responsibilities and a benchmark for municipal governance.

German historian Dirk van Laak, equates civilization with infrastructure as "lifelines of civilization", in the introduction to his history of infrastructure (Van Laak 2018), noting that over time infrastructure has been internalized by modern society as both banal and inescapably improving over time. "Development" evoked, since the times of the Enlightenment, better roads, railways, electricity, cable networks, and digital penetration. It is this "circulatory bedrock" that modern society builds upon but one that it has taken, at least until recently, for granted as self-evident (Van Laak 2018: 7-9). Tour guides in Pompei never fail to show off the running water and sewage system of the ruins as a marker of technical and social advancement. Indeed, infrastructure is equal to progress, more efficient economics and comfortable everyday lives. Not coincidentally, the founder of the Soviet state Vladimir Lenin, clearly grasped its infrastructural power when he defined the communist ideal in infrastructural terms, setting "the electrification of the whole country" as a priority of both the ideological and industrial project, making it into a ditty narrating Soviet progress: "before there was the stove and candle, now there is Ilich's lamp"². Consequently, the post-Soviet dismantling and decay of centrally-managed systems of communal services are coined as examples of "de-modernization": the destruction of urban infrastructure in the West bank after 1967 is weaponized de-modernization (Edensor) and the decay of postsocialist networks in Mongolia (Colliers 2011). This civilizational dimension of infrastructure also explains, why in the post-Soviet context, debates around the transfer of the management of communal services from the state to autonomous or private entities has become so stark. In addition to consumers' obvious concerns about the rising cost of water and electricity, the transfer of utilities service providers (ZhKKh) from the centralized state to the market creates social anxieties about past representations of Soviet modernity of low-quality but stable services and the contemporary risk of being "cut off" from civilization for non-payment. In essence, the decay of these material structures or their haphazard

² "Byla koptilka da sveča – teper' lampa Ilich'a"

management is reflection of the social de-modernization process of postsocialist societies as described by political philosopher Mikhail Minakov (2018).

Thus the state of networks also purports to say something about the polis. Smoothly operating networks imply more than good construction but a complex system of human cooperation, from organizing, to financing, repairing, planning... In studying the water supply system in Mumbai, anthropologist Nikhil Anand distinguishes between two systems that interact to make infrastructure work: the "politics of technology" that are the system of pipes, plumbers, engineers, and administration on the one hand, and the "technologies of politics", "enabled by laws, politicians and patrons" as well as consumers creating a kind of "hydraulic citizenship" (Anand 2011 : 545). Together they lay claims to politics, spaces, and identities that shape a "hydraulic citizenship": "a form of belonging to the city enabled by social and material claims" borne out of the interactions between the technological and political actors.

Here the political dimension of infrastructure comes to life: it is the result of deliberate and coordinated interactions in the interests of a community, of the distinct political rationality that is needed to develop and operate large networks. Consequently, the power of the state can be measured to an extent by the way in which infrastructure is developed and managed: the establishment of control over new territories through infrastructure as a claim of sovereignty, the welfare state's responsibility to provide equal access to critical infrastructure and, a retreat of the state, an eventually of its sovereignty when it cuts itself off ("Abkopplung") from the responsibility for infrastructure maintenance (Barlösius xxx). Looking at how the management of water infrastructure in Donetsk region operates from the perspective of technological relations and political relations throw a light on issues of state sovereignty.

B: Methodology

To use Ervin Goffman's image of social life having a frontstage and a backstage, studying infrastructure as social interactions implies going backstage. Drawing on fieldwork conducted on two successive trips near the contact line in government-controlled areas of Donetsk oblast' Mariupol, Pokrovsk, Avdiivka and Toretsk the last two located within the 5-kilometer perimeter of the Line of contact, loosely described as the grey zone. The interviews were partially structured: six local VD managers³, some of them interviewed repeatedly in an office, "official" setting: of Voda Donbasu, 5 in GCA (Mariupol, Pokrovsk, Avdiivka, Toretsk) and one based in Donetsk (NGCA), in addition to four employees in Toretsk (pumping station), and in Avdiivka (technician and office personnel). Additional interviews were done by telephone. Interviews were structured according to a general principle of "conceptual openness" where no hypotheses or preconceptions are tested, giving way instead to the dynamic flow generated by the subject. This approach - Biographic-Narrative Interpretive Method (BNIM) (Wengraf 2004) – implies that the interviewer is accompanying the interviewed person in his

³ One deputy-general director; the local directors of Avdiivka, Toretsk, Mariupol, Pokrovsk subdivisions, the general engineer of Povrovsk subdivision.

narrative as a listener: the interviewer sets aside his preconceptions. This method echoes field reporting when a journalist opts for an open-ended question, i.e. “what happened?”, where the interview is done over three sub-sessions, starting with an open-ended question (“tell me about your work, I won’t interrupt”), and then following up by focusing on specific episodes, and a third sequences devoted to non-narrative questions. Gabriele Rosenthal’s (1993) methodological principles – a briefly defined theme on which the subject is asked to narrate (main narrative), followed by a “period of questioning” . In my case, the interview was framed as focusing on “what is it like to be working at Voda Donbasu” in particular with regard to before-after, lifestyle, practices, and skills. I used elements of thematic field analysis, in particular Owen’s three constitutive elements of a theme - recurrence, repetition and forcefulness (Owen 1984) to understand the salient points (for example, the insistence of "splochennyi kollektiv"). I also conducted short interviews with inhabitants of Avdiivka (on main the shopping street) and Toretsk (at the bus station), as well as with representatives of local authorities – the civil-military administration, and the OSCE in Kyiv.

Limitations:

The limitations of such interviews are those of life-stories as a social construct: a human tendency to seek to project a self-identity consistent with the one "one is desperate to have confirmed by others" (Laing 1961, quoted in Moeninger 2000, 67), or in, other words the difference between the lived life and the told life. My research looks at their everyday routines, and focuses on minute practices of interaction and communication: how they communicate (mobile phone, skype video conferences), what does the border represent (an administrative hurdle?), how they interact with other actors of the frontline: consumers, border guards, local authorities, military and security officers, representatives of the OSCE, communicating with the Joint Coordination and control center, responsible under the Minsk agreement for overseeing and implementing the ceasefire.

Looking for opportunities of participant-observation in order to mitigate the interview bias, I attended a routine monthly board of directors meeting at the Pokrovsk office of Voda Donbasu on Kyiv-controlled territory (which is used "mirror" headquarters to the one in Donetsk) in August 2018. Limited observation of daily work routine (with questions to local employees about "what they are doing") was also possible at the Avdiivka office and pumping station, as well as Toretsk pumping station. During these last periods, note-taking was limited to short tags and then reconstructed as field notes in the car or at the end of the day (in order not to interrupt the flow of work and conversation).

A clear limitation of my work is the impossibility (so far) to do fieldwork on the NGCA side. Consequently, it was impossible to observe first-hand how Voda Donbasu's employees adapted to the rule of the secessionist authorities. The fact that the company is Ukrainian but based in Donetsk implies that it operates in a liminal space that would have a lot "to tell" but can, for now, be reconstructed only on the basis of second-hand accounts. Another limitation is the difficulty in understanding pre-conflict realities and processes.

The complex technical, economic and political context means that this research relies heavily on technical data about hydraulic engineering, documents from Voda Donbasa, and the rich corpus of analytical material and maps produced by non-government organizations. This implied a steep (and still ascending) learning curve in terms of technical knowledge about water control and engineering.

II: Water infrastructure in Donetsk region : a Soviet industrial legacy caught in postsocialist and geopolitical turmoil.

In order to understand the implications of everyday water distribution in the Donbas, it is essential to understand both the historical context of Donbas and the hydraulic technological system embedded in geography.

A: Historical context:

Industrialized Donbas as born out of the "wild fields", a no-man's land that the tsarist empire attempted to control by integrating the unruly Cossack communities. With the second half of the 19th century came the discovery of its mineral riches. During the Stalin years, "an attractive haven for freedom seekers", a harsh frontier-land open to POWs, kulaks, and socially disenfranchised from all over the USSR to a region always in need of more workers.

The social, ethnic and political violence in Donbas (Holodomor, 1930s repressions, German occupation, miners' revolts and social tensions) was commensurate with the economic and ideological value it had in the eyes of the Soviet leadership, (Kuromiya 2002). The industrialist John Hughes who gave his name to Yuzivka (Donetsk's pre-Soviet name) was quoted by a Soviet novelist as having described the Donbas coal basin in the following terms: "it is not Russia, it is a factory" (Il'chenko et al., 2018: 10), or as H. Kuromiya writes "an ethnically diverse border area united by economic factors" (Kuromiya 2002:14). Indeed, not only the industrial but also the political and social history of Donbas is constructed in the context of this "factory" past with identifications revolving around socio-professional rather than ethnic values (Kuromiya 2002, Kuzina 2012). Demographic and political upheavals were counterbalanced by one constant – the ascribed role of Donbas in the social construct of socialist ideology and of its economy. In 1974, over half of the working population and of capital was invested either in energy or metals sectors (Il'chenko et al. 2018: 10) – the main consumers of industrial water. This industrial grounding goes back to the 19th century when industrial towns built around an extraction facility were named after the owners and founders of the factory: Yuzivka, Horlivka, Yenakieve (2018: 11). Social infrastructure was equally tied to the founding capital, creating the Russian and then Soviet equivalent of "company towns" (or "monomisto") dominated by various forms and degrees of corporate paternalism (. he development of industrial towns before internalized by many

workers in Donbas. A narrative of modernization that is closely tied to the history of industrialization and a marker of development and modernization⁴.

B: A hydraulic technological system embedded in the geography of war

The Severskiy Donets, in the north of Donetsk and Luhansk oblasts, is the largest river in eastern Ukraine and the main source of fresh water in the region, a tributary to the Don river that, ultimately crossing into Russia flows into the Azov sea. The territories directly affected by the conflict rely on the Severskiy Donets river as the primary source of drinking water. This small river – a few meters in width - also constitutes the front line between Kyiv-controlled Luhansk oblast to the north and the separatist-controlled LPR on the southern bank. Due to the urbanization in Donetsk region, homes are reliant on communal water rather than on wells, as would be the case in more rural areas.

The Second Donetsk waterway taps into the Severskiy Donets river. Water flows further south through a system of closed pipes and open canals, marked by pumping and lifting stations, and to Severskiy- Donets-Donbas channel (SDD channel), feeding water to the city of Donetsk and many localities on both sides of the Contact Line. Further south, the SDD channel becomes the Southern Donets waterway down to Mariupol (500.000 inhabitants). Most of the hydraulic engineering system built around the Severskiy Donets river providing fresh drinking water and the "technical" water for industry and agriculture is managed by the one company, Voda Donbasu. Voda Donbasu is a municipal enterprise registered in 2008 in Donetsk. It is the successor of the initial Stalin-era Donbasvodtrust (est. 1930) renamed Ukrvodpromchermet after Ukraine's independence. An ageing system developed in the late 1950s to serve the Soviet metallurgical and energy plants and their company towns, it was passed up for capital investment and modernization during the post-Soviet decades when profit-oriented business groups controlled the region.

The water is treated in 16 filter stations situated near bigger localities. The largest filter station is the Donetsk filter station north of the city of Donetsk. It supplies water to a total of 37898 people on both sides of the Line of Contact: Avdiivka, Kruta Balka, Vasylivka, Mineralne, Yakovlivka, Verkhniotoretske, part of Yasynuvata and western areas of Donetsk city¹⁵. According to data from 2015, the whole Voda Donbasu system services about 4 million people plus in part the city of Mariupol (but that also has an independent reservoir)¹⁶. In addition to canals, pumping stations and filter stations, Voda Donbasu also manages several workshops for repairs, laboratories for testing, as well as reservoirs of chlorine for purification and other chemicals needed in the process. The main system consists of 10000 kilometers of pipes, according to Voda Donbasu website.

The central feature of the Voda Donbasu hydraulic complex is that it straddles the allegedly demilitarized "buffer zone" – stretching 15 km on either side of the Line of Contact - that separates the belligerents according to the principles of the Minsk II ceasefire agreement concluded in February 2015, banning small and heavy arms from this strip. In reality, ceasefire violations – monitored by the OSCE are an almost daily occurrence exposing what is informally called the "grey zone" – 5-10 km wide area

⁴ The museum in Kramatorsk devotes two rooms to the pre-Revolutionary industrial history of the region.

on each side of the front line where villages are regularly exposed to shelling, where woods and fields are off limits due to mines, shops and schools, administrative, transport and commercial services are rare, and water, electricity and gas contingent to fighting and weather conditions – and have directly impacted the Voda Donbasu system.

This trans-border localization constitutes the main challenge to Voda Donbasu's work (in addition to the ageing infrastructure, an aspect addressed only peripherally in this research). These challenges can be broken down into several components centered around the breakdowns caused by the war and the reactions to maintain or adapt continuities.

The other challenge resides in its complex legal and administrative situation. The main headquarters and many facilities are based in secessionist Donetsk. However, it is a fully Ukrainian incorporated company and works according to Ukrainian legislation, filing and paying taxes in Ukraine. Also, the General director of the company – living in Donetsk - is temporarily appointed by the governor of government-controlled Donetsk oblast' in Kramatorsk. It is one of very few Ukrainian-owned companies whose ownership and management structure hasn't been broken up by the nationalization – "placement under external management" in DPR parlance - of companies under Ukrainian jurisdiction in the DPR in 2017¹⁷. There are 28 other regional subdivisions situated on both sides of the frontline, initially managed from Donetsk out of which some core missions are run: management, the dispatcher with 24/24 technicians on call in case of problems, a workshop specialized in repairing unique parts of the pumping system. Consequently, 7500 employees continue to work on separatist territory.

C: Material consequences of the conflict:

Damage to the Donetsk Filter installations – including power lines – affect both Yasynovata in NGCA and Avdiivka (GCA) immediately and ultimately affects water supply to 380000 people. From this epicenter of violence, water flows through two 1.4 meter pipes of the South Donbass Waterway to Mariupol that supplies clean water to 800 000 people, hugging the contact line along the way. At present there is only one surviving pipeline – the second parallel pipe having been destroyed in 2017 . Many crucial facilities are located near active battlegrounds and are damaged, sometimes repeatedly after repairs – over half of these facilities have been shelled over the war, killing 9 employees and sending many – sometimes on a weekly basis – into makeshift bunkers.

When facilities are damaged on or near the frontline, repairs require ceasefires and demining crews before technicians can go in. In 2017, it took close to 8 months to negotiate a "window of silence" to repair a pipeline that leaked 2 million tons of water daily into the environment. To give one recent example, mid-April, the surviving pipeline of the SDWW suffered bad leakage in a section located in a battle zone, requiring urgent repairs: the four pumps supplying water were stopped for repairs, demining brigades went in to clear the way for Voda Donbasu engineers but came under small arms fire despite a negotiated truce (a Window of Silence), suspending repairs for several days until a new truce was organized. As a result, the pipeline was stopped, leaving some localities to depend back-up reservoirs

and 89241 people in Volnovakha, Vuhledar, Novotriotske, Dokuchaivsk, Stepne, Berezove completely without water⁵. In mid-January, three Voda Donbasu workers were injured by small-arms fire in a shootout as they were clearing snow from the road leading to their facility in Kruta Balka. The Donetsk Filter Station is within small arms fire range of the advance positions of both Ukrainian armed forces and the armed formations of L/DPR. In Donetsk region, further south, the water system runs 327 km south to Mariupol, supplying water to about 4 million people.

Maintenance and repairs require the mediation by the OSCE's Special Monitoring Mission as the warring sides suspect one another of using ceasefires as cover for military operations and agree to windows of silence only under strict conditions. Throughout 2017-18, the SMM organized 1450 windows of silence for repairs and operated 2100 patrols for water security alone in Donetsk and Luhansk regions⁶.

Other consequences include environmental risks. Many filter stations stock chlorine that, if hit by shelling could release the highly toxic agent into the air and environment.

III. The re-configuration of water infrastructure operations in Donbas: transnational hydraulic citizenship in a context of weakened state sovereignty?

Looking at the transformation of water infrastructure from the perspective of political and technological actors brings to light how the invisible operations of water distribution is being redrawn through a "hydraulic citizenship" – a sense of membership centered around the wartime operations of the infrastructure - by highlighting new actors and their claims, through practices, on institutions, polities, and people (Bloemraad 2017). Here we observe the overlapping systems of "politics of technology" that are the system of pipes, plumbers, engineers, and administration on the one hand, and the "technologies of politics", "enabled by laws, politicians and patrons" identified by Anand in the Mumbai case and applied to the operating of water supply in Donetsk region.

A: The politics of technologies: pipes, plumbers, engineers and administration in war:

In this section, we break down the processes of transformation relating to making "hardware" operate in conditions of conflict. We show that in addition to logistical re-organizations, the interactions within the company, and the attitude towards work changed dramatically in terms of economic, technical and political claims.

Adapting infrastructure and organizational features of the company

The risk to employees and infrastructure demanded specific adaptations and reframing of existing structures to fit the context of war. The headquarters of Voda Donbasu in Avdiivka are located in a three-story building. The first floor was built "before the 1917 revolution", the director tells me with visible satisfaction. The main office on the ground floor is used by the "dispatchers": working in shifts,

⁵ UNICEF WASH cluster Alert #181. April 14, 2019.

⁶ Organization for Security and Co-operation in Europe. "SMM Facilitation and Monitoring of Infrastructure Repair in Eastern Ukraine - January 2017-August 2018," December 6, 2018.

they coordinate by phone the communication with all the facilities. They are all women (as are the bookkeepers, cashiers, water meter controllers and many of the technicians). The director knock on an inner wall about half a meter thick: "see, an ideal bomb shelter. it survived the Great Patriotic war", he says with satisfaction. "When the building was shot at in 2014, our colleagues just had to lie down. They were safe here". Three women present in the room nod in consent. "We were safer here than in our homes", one observed. One story higher are two large offices for the bookkeepers, financial controllers, and water meter controllers. Each office as renovated (but with mismatched wall paper). Here (higher up) some shattered window panes are taped up, and others covered with a special film to protect against shelling.

Renegotiating the border: increased mobility, management and communication tactics to make the hardware operate

Donetsk as the central agent was made impossible by the war. As a result, the local Voda Donbasu branch office in Pokrovsk (formerly Krasnoarmeysk) in government-controlled Ukraine, developed into a second headquarters office, and the Mariupol office is the official postal recipient. Pokrovsk is located just an hour's drive km from Donetsk which represents a six to twelve-hour journey across today.

Before the war, managers, engineers, technicians and other personnel were "constantly on the road" – distances were short and the roads between sites in relatively good condition. The same way as Mariupol's Azov sea promenade was "Donetsk's weak-end beach destination" just two hours away, moving between HQ in Donetsk and various facilities belonged to the work-day geography of many VD employees. This mobility was a daily work routine for many VD employees but it was simple and straightforward. Now mobility means increased time, risk, and complications.

Employees from Donetsk arrive Mondays – leaving at six AM and arriving in early afternoon – to work directly with their Pokrovsk colleagues. The goal of these visits is to improve communication and work on a sense of professional belonging. Employees are lodged at a special VD-owned hotel and entertained in the evenings. Pokrovsk and Donetsk management teams communicate via skype conferences held once a month and a system of shifting one week visits from Donetsk to Pokrovsk.

Communication takes place via mobile phone, more reliable than the land lines. Production facilities – pumping and filtration stations – communicate problems and accidents by mobile phone to the dispatcher in Donetsk who centralizes information and then managers and on-call engineers. But also more routine interactions between various sites take place via mobile phone. For a long time both sides could rely on the MTS/Vodafone GCA-controlled Ukrainian operator controlled by influential businessman Rinat Akhmetov. However, when suddenly MTS ceased to work in DPR (possibly as a means to pressure the owner into sharing revenue with the Donetsk authorities), VD employees had to adapt quickly. To some extent they applied the same solutions as other DPR inhabitants – they traveled to nearby LNR to make phone calls according to pre-arranged schedules. Within DPR mobile phone communication continued via the local Phoenix network – most people in occupied territories have at

least two SIM cards – one for Phoenix, and another for Vodafone, as well as a new operator that appeared in DPR in spring.

Reframing professional identification as a claim on water infrastructure maintenance as a critical mission

"Water is life" proclaims a banner at a VD directors' meeting: ostentatiously non-political it projects a connection between profane plumbing and human survival. However, in interviews, VD managers and technicians reflect a more mundane attitude to their job. VD employees like to describe in minute detail their work. The manager of Voda Donbasu's local subdivision in Avdiivka, described in detail photos at hand of technicians working on a cracked pipeline (but only described when prompted that the repairs were done on a section in a grey zone protected by an OSCE mirror patrol). Their accounts appear to reflect an attempt at rationalizing the risks and discomforts of their work and home lives as an integrated element of their job. VD employees do not get few financial benefits from going under fire. "A small bonus, an extra-day off, basically nothing", a VD manager shrugged when asked about incentives to go out on a risky mission. In interviews, respondents tend to describe their colleagues as selflessly "just doing their job" and claim that "few refuse to go." One VD manager said that while working in Donetsk in the summer of 2014, he went "to the office" but "slept in the bathtub" (because a windowless room was the safest place to be. The structure and operations of the company means that occupational risk is not generalized but variable over time and job description. Just like in police work, exposure to risk is not generalized but specific to missions, locations etc. However, the shared exceptionality of their situation near the frontline appears in places like Toretsk and Avdiivka to create a sense of professional community. In some aspects, it is framed in paternalistic terms. "I sometimes wonder what will become of my daughter... She is 19 and studying to become a water engineer in (secessionist) Makiivka. No one in Ukraine will recognize her diploma! Except Voda Donbasu... I know I can count on the company for that... we try to help each other." Thus materially uncompensated risk and danger on the job is reframed as part of the shared professional community "repaid" by paternalistic care.

At this stage in my research I haven't analyzed how professional legitimacy was framed at VD before the war, so comparisons are not possible. However, exceptional circumstances create "intense solidarity" and "a deep sense of fulfilment" among workers involved in operating critical infrastructure (Larkin : 333). While references made by interviewees to the "kollektiv" may appear reminiscent of socialist legacies and paternalistic models characteristic of the company and miner towns of Donbas, these expressions of corporate solidarity also echo social processes that are characteristic of dangerous jobs where collective engagement is an important "glue" (irrespective of the socialist past.) Also at the difference of socialist professional ethos of collective obligation, this occupational community is specifically grounded in the local exceptionalism of living "almost in the grey zone."

These expressions of corporate solidarity also echo social processes that are characteristic of dangerous jobs where collective engagement is an important "glue" (irrespective of the socialist past.) Also at the difference of socialist professional ethos of collective obligation, this occupational community is specifically grounded in the local exceptionalism of living "almost in the grey zone." Thus, working in a risky environment – risk meaning here not only physical but also economic and in terms of life expectations – is reframed as rational behavior: to remain with a company that "will look out" for you is presented as rational choice within the enviroing chaos. Sociologist E.C Hughes noted in his observations of occupations that physical danger can make an occupation that is experienced as unfulfilling into a socially significant mission, invested with a public mandate, that in the conditions of war has gained in urgency. Put differently, occupational danger and risk can add status to a job that previously may have had little social or professional prestige: Voda Donbasu employees were providing a community service with low pay in small localities suffering from the effects of des-industrialization but now perceive themselves as providers of a life-saving service.

De-politicization as a strong feature of corporate communication

Overall it appears that locally on Kyiv-controlled territory there is little framing of VD's work as "political", especially close to the frontline: within the company depoliticized discourse is the norm, translated by some employees as "order from the director" (although no formal directive appears to exist to this end). When asked how they handled to divide created by the war the managers of VD in their interviews first all clearly stated that "we keep out of politics", "it would be unprofessional to discuss political issues", "our role is to focus on getting the job done". Several claimed that after the conflict started the General director of the time imposed a rule of "not speaking about politics" at the office.

Political arguments are described as "unprofessional behavior", and should be settled "behind the fence" [i.e.privately in a fistfight]. At one point, a local manager working in GCA showed a Ukrainian flag hanging on the wall and asked not to be photographed ("Better not to have a photo of me with the flag, the separatists might see it"). Also, some attention seems to be given to preserving a sort of public neutrality. This is also reflected on the company website, <http://www.voda.dn.ua>. The website is in Russian and doesn't divide the client zone into military/political areas. On the website, Donbas is still a single integrated region (despite the news section that reports on shelling, damages, and repairs without identifying the locations in political terms). Privately, however, some managers claim to test the "patriotism" of some employees and admit that the "propaganda" on separatist-controlled territories creates underlying tensions, "all the more reason to stay away from politics".

Interviewees all insisted on the commonality with "those over there" (s temi, kotorye tam): "they are like us", "we're all tired of this [war]." While this could be interpreted at first glance as political avoidance, the social context of these networks demonstrates that, in many cases, these are long-established family, friends- and professional networks that were "one" and separated by the front line. One employee of Voda Donbasu works in government-controlled Donbass but commutes home to his family that continues to live 20 kilometers away on the "other side". "When I talk to my wife over the

phone while [they] 're shooting [vo vremya obstrela], we hear the same blasts". Another manager from VD invited half a dozen colleagues from Yenakieve in DPR to his birthday party on government-controlled territory. "They always came to my birthday. Why should it change now?"

This fits general analyses and surveys of public opinion and trends in Kyiv-controlled Donbas as generally less polarized than in Ukraine at large (Sasse 2017). Field observations and polling (Sasse 2017) also suggest a strong, locally anchored social identity as "people from Donbas".

However, the situation in VD offices in GCA is beyond the scope of this research. The de-politicization of the professional space at Voda Donbasu as a strategy to operate peacefully echoes similar strategies of political avoidance in other conflicts. For example, the reframing of cultural practices as "non-political" traditions was noted in post-war Bosnia-Herzegovina as a peace-building strategy between communities (Marijan 2015).

Limited agency of consumers?

A missing actor in this technological nexus are the consumers. Families and companies should, in principle be the revenue-generating consumers of water and, through their actions – payments, non-payment, complaints or demands – formulate new claims to political and technological actors. In principle, they are a key actors in terms of claim-making towards the system of water supply. In terms of revenue, Voda Donbasu lost significantly to the new "border" and autonomous self-government in DPR. The new Donetsk administration had established new tariffs that were significantly lower. In Kyiv-controlled territory, water payments also decreased due to the general economic crisis spurred by the conflict. In Avdiivka, for instance, 30% of the local population can't or won't pay. In interviews motivations appeared to depend on individual interpretation as a expression of solidarity ("out of principle") or service-based ("if I get water I pay, if I don't – I don't. I know it's not the company's fault. But it's not mine either. And I need to money to buy bottled water" [although there are water trucks compensating the supply]). Certainly more important is the fact that 70% of consumers do pay. Interviews with passerbys near Avdiivka's main shopping street mention VD in positive, even laudatory, terms, as "our people on the frontline."⁷ An initiative to collect 40000 signatures on a "right to water" petition published on the website of the presidential administration together only some 440 supporters⁸. Another gap is vertical – with authorities in Kyiv – whose little positivist engagement to resolve legal and political aspects of trans-frontline water supply issues constitutes a retreat from exercising state power over efficient operation of a critical service that is generally considered to be an expression of control and sovereignty (Barlösius 2011). Separatist authorities attempting to impose legal claims on the Ukrainian company are pushing to broaden their own power. Overall, the companies are better

⁷ "naši na peredovoj". Vox-pop interviews on the theme "what do you know about Voda Donbasu?". Avdiivka, August 2018.

⁸ The signing of the petition required internet access making it not very user-friendly for those most directly affected by the problem: poor and (not IT savvy) elderly populations in towns with bad internet connections near the line of contact. As a result, the petition has received only 440 signatures. The coalition *included* Mama 86, ADRA Ukraine, People in Need, Polish Humanitarian Action, Première Urgence Internationale, Terre des Hommes, and Proliska.

clients: 90% of companies pay, "mostly because we are allowed to cut them off"⁹ which is not allowed for ordinary consumers for "humanitarian reasons".

B: Politics of infrastructure disrupted: new and old actors in a broadening network of horizontal and vertical interactions:

In this section, we look at the actors involved in making infrastructure operate but that are outside the realm of the technological space: political, economic, military and international actors. They contribute to shaping a new hydraulic citizenship that is internationalized to include NGO and security stakeholders. The conflict completely overturned the economic and management model of Voda Donbasu, in particular because intervention by new actors, political, military and international, were a condition for its survival. This broadening of horizontal and vertical interactions constitutes the main feature of wartime politics of infrastructure.

Internationalization of actors:

The conflict completely overturned the economic and management model of Voda Donbasu, in particular because intervention by new actors were a condition for its survival. As a result, Voda Donbasu became "largely dependent" for capital investment, spare parts, and chemicals on international NGOs and other donors. These provide only "in kind" support through delivery of hardware and chemicals directly to the facilities, circumventing government-institutions in Kyiv. This dependency rationale of the company thereby shifted from a domestic economic-tariff based model to an external, aid-based, one.

While the company had originally functioned strictly on a local level, its managers now communicate with the Minsk contact group, international donors (western governments and international organizations providing chemicals, and spare parts), authorities in Kyiv and Donetsk, OSCE peace-keeping and armed forces providing security. Indeed, setting up a "window of silence" to organize repairs, can involve months of negotiations at geopolitical level, overseen by OSCE monitors who shuttle between representatives of Kyiv, Moscow, and the authorities in Donetsk with variable success. To negotiate "windows of silence" the general director of VD also communicates directly with the Minsk contact group, in other words, crossing administrative and political hierarchies. The "windows of silence" or localized truces "work" best when representatives of both sides of the conflict are on the ground. This became apparent when the Joint Center for Cooperation and Control (JCCC), an informal body set up by presidents V. Putin and P. Poroshenko in 2014 to implement the Minsk ceasefire, was rendered less effective after the Russian side pulled out in December, 2017. At present, the JCCC is staffed by Ukrainian officers that communicate, through the OSCE, with representatives of the secessionist authorities. In October, a political agreement to establish a "window of silence" to repair 8

⁹ Interview with a local manager of a VD facility, May 2018.

meters of a leaking pipe on the main waterway just behind Avdiivka took 19 months to organize but was violated by shelling after just a few days.

Tense vertical interactions

The complex organizational structure of the company and the disruption of its municipal status by war disorganized existing interactions with other state bodies in GCA. By charter, *KP Voda Donbasu/Donbas Water* is under the authority of the Donetsk regional council making it as municipal company with, in principle, little communication with the government in Kyiv. However, the Donetsk council, an elected body in Donetsk, has not convened since secessionist forces took over Donetsk. In interim, it is the regional governor in Kramatorsk –himself appointed by the president of Ukraine - who appoints the director. The company is currently under the indirect executive subordination of the Kyiv government's Ministry of occupied territories (Min TOT).

The absence of a legal framework for trans-frontline cooperation

There isn't any law organizing actual cooperation across the frontline. This means that the necessity of trans-frontline work is not recognized or defined. As a result, KP Voda Donbasu/Donbas Water employees and company operations fall under the general legislation commanding trans-frontline activities. For example, there is no special permit system allowing quicker processing at check-points and crossing points, nor is there a system of exceptions to the general ban on carrying metal spare parts and chemicals across. VD employees carry bolts and small valves in their pockets, de facto engaged in "smuggling". Consequently, there is also no official way of managing the double/divided financial circuit of the company: revenue collected in GCA where water tariffs are three times higher, can't be transferred by the company to NGCA where wage arrears reach months. A draft law establishing a special legal regime for water utilities companies has been drawn up but appears to be hitting against political resistance in Kyiv. The financial issues create vulnerabilities that exposes the company to precarious working conditions and legal liabilities in NGCA. For example, NGCA authorities use the wage arrears to motivate a takeover of the company¹⁰.

Cooperation or collaboration: limitations on public legitimacy of cross-frontline infrastructure

The political charge contained in water supply issues is present in both GCA and NGCA. In GCA the pre-electoral context ahead of presidential, parliamentary and local elections this year has heightened tensions over the concept of cooperation. Ahead of presidential elections March 31, the candidates that have economic ties to Russia frame their programs as being "pro-peace", most notably Yurii Boyko, an energy minister under president V. Yanukovych, Alexander Vilkul running under the "peace and

¹⁰ ostro.org 29.01.2019. V ORDO podgotovoili "dorožnuu kartu" po otzimu časti KP "Voda Donbassa" and my dolžny obespečit' sotrudnikov KP "Voda Donbassa" stabil'noj zarplatoj"

development" slogan. Talk of peace or peace-building tends thus to be discredited in public discourse as "collaborationist" or manipulated by "pro-Russian oligarchs"¹¹.

New claims of sovereignty: managing relations with DPR authorities

Operational management of cross-border water supply necessitates interaction at a political level, i.e. communicating with those authorities that have de facto political and security control over the territories where the water supply facilities are located. There is little public information available about how VD managers in Donetsk communicate day to day with local powers in DPR. Water management is placed under the authority of the DPR "Minister for construction, housing and utilities", Sergei Naumets since 2018¹². But the legal organization regarding water supply in DNR is rendered increasingly unclear by a series of administrative measures creating a parallel structure. In 2017 the DPR created a "state company" "GP Voda Donbassa" with the same name as the "communal company" KP Voda Donbassa/Donbas Water¹³. The website of the DPR's GP Voda Donbassa has a Russian domain name (<http://www.vodadonbassa.ru>) and posts news and information that creates the impression that it is in charge of water supply when in fact the supply network is still under actual KP Voda Donbassa/Donbas Water control. While the KP Voda Donbassa/Donbas Water is directed by Alexander Evdokimov, a hydro-engineer with many years in the company appointed by the Donetsk oblast' governor in Kramatorsk (GCA), the DNR GP Voda Donbassa head is Maksim Leshchenko, a close associate of A. Zakharchenko the commander of DNR who was killed in a bomb explosion in August 2018. Pressure from the side of DNR to take over the KP appears to be mounting, presumably making communication even more difficult: increasingly the OSCE, Red Cross and Minsk Tri-lateral group appear to be the platform for communication on water issues in DPR, illustrating the geopolitization of water management issues.

In NGCA, water issues appear to be managed at a high level – in Donetsk and Moscow – as reflected by the appointment of Maksim Leshchenko, reputed to be both a direct agent of the "curators" of L/DPR in Moscow¹⁴ and a former Zakharchenko strongman to the position of director of GP Voda Donbassa. Leshchenko, a pre-war low-level manager at a coal mine, sided with the secessionist forces, and became "military commander" of Khartysk and Ilovaisk at the height of the fighting in 2014. He was then promoted chief of staff to Zakharchenko. Also, the new head of DPR Denis Pushilin, used a public question and answer session with "citizens" to announce a "transfer" of the Ukrainian company under DPR control. These statements were echoed by DPR "Minister for construction, housing and utilities", Naumets who claimed to justify the seizure by the existence of unpaid wages¹⁵. He announced the creation of a "state company which will bring together all water ducts and have all personnel registered

¹¹ see for example the statements by former president V. Yushchenko (who is not a candidate in the election). Mir' Mnogih Kandidatov Označae Kollaboracionizm - Ūsenko". 28.02.2019. <https://observer.net.ua/politics/46230/>.

¹² Decree by DPR head 15.10.2018 http://www.vodadonbassa.ru/wp-content/uploads/2018/10/Ukaz_N32_15.10.2018.pdf

¹³ Decree by DPR head "On the creation of the State company "Voda Donbassa"", Decree N329, 30.11.2017. <http://www.vodadonbassa.ru/wp-content/uploads/2019/01/Приказ-о-созд.с-ред.-установными.pdf>

¹⁴ "“Otžavšie” Doneck. Kto rukovodit v ‘DNR’ — OstroB.” <https://www.ostro.org/general/politics/articles/496569/>.

¹⁵ "DPR Ministry Draws ‘Road Map’ to Transfer Part of Voda Donbassa Company under State Control | DAN." 209.01.2019 <https://dan-news.info/en/economy/dpr-ministry-draws-road-map-to-transfer-part-of-voda-donbassa-company-under-state-control.html>. (DPR news site)

as its employees" Claims that water supply is at risk of sabotage by the enemy - in January DPR claimed that Ukrainian forces had laid mines at a water reservoir in LNR¹⁶ - also appear to feed their argument in favor of a takeover.

CONCLUSION

The social relations and practices that "make" infrastructure transformed under the effect of the conflict: technological relations are re-organized around the material management of new barriers that despite the complexity are maintained operational for immediate humanitarian reason but, also, reflecting the civilizational power of functioning infrastructure.

New political claims developed, centered on a de-politization of social interactions both within and outside the company, while professional claims are framed as life-saving missions to the community. New international actors can impede or improve operations and thus become key new claimants on the water supply system. At the same time political authorities in both GCA and NGCA cast doubt on the legal and professional legitimacy of cross-frontline operations. The example of Voda Donbasu illustrates the deep transformations of social interactions and the redrawing of citizenship to include international actors but tending to exclude political authorities both in Kyiv and on the separatist-controlled territories. Fading from these interactions is the ordinary consumer, whose financial – and thus political - role is replaced by international funding. Indeed, even attempts by civil society organizations to provoke public and civic engagement on trans-border water issues has garnered little support so far.

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¹⁶ <https://russian.rt.com/ussr/news/592903-lnr-minirovanie-vodohranilische> RT 16.01.2019 V LNR soobšili o minirovanii VSU vodohraniliša v Donbasse

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