

### 3 The thermodynamics of the social contract

#### Making infrastructures visible in the case of district heating in two towns in Serbia and Croatia

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##### Introduction

During my ethnographic research in two different post-Yugoslav towns – in the copper-processing town of Bor in Serbia and in the coastal industrial town of Rijeka in Croatia, the provision of district heating was an unavoidable topic of conversation that provoked a lot of affective reactions. For instance, my landlord in Rijeka, Marta,<sup>1</sup> was a woman in her fifties with two children who worked part-time serving food in a kindergarten after losing her job for a railway. She lived in the same skyscraper where I rented her mother's flat. The morning we met, she looked at a bill I had received that day and put on her glasses to better explain to me the complicated and opaque calculations of the heating costs that neither she nor I could decipher. Then she threw the bill on the table and said: 'My darling, don't get into this... these are all *muljavine i pizdarije* (dodgy dealings and annoying things). We used to live well before, and now it's all just an ugly mess. Don't turn your radiator on if you do not have to.'

Unlike in Rijeka where there was an (unsuccessful) attempt to individualize district heating costs, in Bor there was still a flat-rate provision of district heating. Milica was in her seventies and had worked in the kitchen of a socially owned company in Bor. Her late husband had obtained their flat through his work during socialism. She used to tell me that the 'normal' level of heating during winter was when you could walk in your T-shirt in the flat and have to open the windows to cool off the room. For her, the abundant heating was a measure of a good neighbourhood, solidly built flats, and a specificity of the urban character of her town. She continued: 'But, nevertheless, *budalaštine* ("non-senses") are happening to us...the state is cheating us now. We are not being treated fairly. They are just stealing from us.'

While provision of centralized district heating, constructed during the socialist urbanization of Yugoslavia, was relatively similar in both towns during the socialist past, today heating has developed on diverging paths.

Yet despite different policy decisions – one towards individual metering of the heating consumption in Rijeka, and the other keeping the general flat rate provision in Bor – I found that a strikingly similar sense of disenchantment with the promise of heating could be gleaned from both Marta's and Milica's experiences with district provision, and that this was shared with their fellow citizens. More precisely, the promise of modern and comfortable lives, welfare, and care that the Yugoslav state had assured (in the past) Marta and Milica (and their co-citizens) it would deliver in the future were brought into question in both towns. This chapter argues that although the infrastructure has not broken down materially, a sense of post-Yugoslav infrastructural failure emerged through people's experience of a breakdown of the social contract – between the state and the people – that delivered its promises through heating. The encounter with district heating is here studied as a site through which post-Yugoslav transformations of the social contract between citizens and their states are discussed.

The chapter ethnographically illustrates the thermodynamics of the social contract by showing the ways in which infrastructural forms and the provision of heat configured dynamic relations between the states and their citizens. Thus, I show how the interrelation between heat and the political, technological (including material limits of infrastructure and its potentialities), and social aspects formed around the provision of heating were involved in the transformation of the social contract. By illustrating a specific condition upon which visibility of infrastructure was mobilized in everyday life, the chapter joins the anthropological efforts to capture visibility of urban infrastructures (Sneath, 2009), necessary to persistently renew the political effects (Anand, 2017). Unlike the widespread assertion that infrastructures are usually 'taken for granted' (Humphrey, 2003, p. 93), are inflexible and invisible (Furlong, 2010), and that they only become visible upon their physical breakdown (Star, 1999) or when they are repaired and maintained (Graham and Thrift, 2007), the chapter shows how visibility of infrastructures was achieved through the experience of a breakdown of the social contract and people's attempt to make it anew.

So far, infrastructures in this region have been understudied in anthropology, with the exception of Johnson's studies of Belgrade district heating (2016) and housing (2018). Although studies of Yugoslav urban planning are emerging (see also Normand, 2014 for Belgrade; Djurašovic, 2016 for Mostar), there remains a lack of data 'from below'. This chapter also contributes to post-socialist studies by entering into a long overdue dialogue between post-socialist and post-Yugoslav studies (see Gilbert et al., 2008).<sup>2</sup>

My data stem from ethnographic fieldwork and participant observation that I conducted in Bor for 14 months (from August 2012 until September 2013) for the purposes of my PhD research, and in Rijeka for 5 months during my post-doctoral fieldwork (from October 2016 until March 2017). In both locations I used informal and semi-structured interviews, followed the local media, and analysed relevant documents. The daily routines of

living in rented apartments in Bor and Rijeka provided insights into the neighbourhoods, and helped me to share in the common experience of heating provision. In Bor, I spent time in the municipality office (*mesna zajednica*) where I met and established a rapport with Katarina. In Rijeka, I befriended people who self-organized themselves against the local heating provider. Even though I had conversations with many other citizens, in this chapter I will use these examples as paradigmatic because they illustrate shared experiences of the residents of both towns. By taking an anthropological perspective on district heating, ethnography provided in this text is not (and has never been) a mere description; rather, its explanatory use is a theoretical and analytical endeavour (Nader, 2011).

I will first provide a historical account on district heating in Yugoslavia and a brief depiction of the current state in two towns. Then, I will focus on two ethnographic examples from both towns, and end by discussing transformations of the social contract and its relationship with the provision of district heating today.

### **District heating in Yugoslavia**

During the 1960s and 1970s, Bor and Rijeka went through mass housing development projects that included developing district heating networks. The urbanized infrastructure came as a result of rapid industrial expansion, urbanization, and modernization, conjointly promoted by the socialist self-managed system. District heating in both towns consisted of a system of pipes connected to one main source (the heating plant), which then brought heat into homes through radiators. The heating was technically constructed in such a way that the pipes ran vertically through the apartments, linking them successively, rather than in loops (Johnson, 2013), making it almost impossible to provide an individual supply in both towns. Residents could not control the amount of heat brought into their flat, and they could not turn it off whenever they wanted. Heating bills were equal throughout the year, owing to cost distribution, and charges were calculated by square metre.

The municipal heating service in Yugoslavia was provided on the basis of the universal rationale of uniform coverage by a single provider and a network that was part of what Graham and Marvin (2001, p. 43) defined as the ‘modern infrastructural ideal’ of integrated planning of unitary networked cities with social, economic, and political coherence, visible in the modern urban planning of Yugoslav cities. Being the basis of modernist European planning that tried to unify and homogenize urban space and promote cohesive city building, Graham and Marvin (2001) argue that such provision of public services became the foundation upon which European welfare states were constructed and sustained. This ‘modern infrastructural ideal’ regulated by the state was simultaneously integrated into the Yugoslav socialist idea of the provision of a living standard for the workers. Within such arrangements, the workers (and my interlocutors) were allocated,

though not entirely equally (Archer, 2016), the rights to use socially owned flats plugged into a centralized heating provision.

It is necessary to emphasize that socialism in Yugoslavia was different from socialism in other East European countries. As ‘the third way’ between the capitalist United States and communist Soviet Union, it was characterized by a unique mixture of socialist and market-economic principles, self-management, a liberal socialist system of government, and ‘openness’, including borders open to goods, people and ideas from across the world (Greenberg, 2011, p. 88). The heating system was built in a different manner from the centralized provision in the Soviet Union, and the workers themselves were involved in building the city infrastructure through self-management funds, among others.

More than 25 years after the break-up of Yugoslavia, the process of neoliberalization has taken different paths in both countries. Croatia’s accession to the European Union (EU) in 2013 brought increased neo-liberal reforms in comparison to Serbia. Such reforms also reflected the greater degree to which the heating system in Croatia has been transformed compared with that in Serbia. Today in Croatia, different actors pursue policies for individualization of heating costs, while environmental and energy efficiency agendas are affected by the local government and, more crucially, EU initiatives and funds. Serbia recently faced such attempts, but the town of Bor in particular was not on the agenda. In both countries, public policies and political and infrastructural transformations are mostly carried out without public involvement. More recently, however, certain activities against the local heating providers emerged both in Croatia and in Serbia.

At the time I spent in the field, the heating infrastructure in Bor and Rijeka was still a ‘bundle’, or a partial bundle, because both heating providers were still owned by the municipalities and controlled by the state. The transformations of district heating in both towns were not fully carried out owing to material conditions (e.g. inflexible pipes) and the difficulty of privatizing indebted providers. In Rijeka, there was an attempt to individualize heating costs that was introduced only partially, and in Bor such an attempt was on the horizon. Both providers, controlled by the state, tried to ‘responsibilize’ (Collier, 2011, p.8) the users by asking them to demonstrate a particular solidarity with each other through which they would make their (often volatile) provisions work. In Bor, it seemed that the utility provider had still not made up its mind on whether or not its services were a commodity. According to them, the citizens ought to be responsible for making regular payments for utilities; otherwise, the delivery of heating would destabilize. In Rijeka, according to pamphlets distributed by the provider, citizens were encouraged to keep their radiators set to an average temperature, hence to ‘behave equally’ (and not independently) in order to attain ‘optimal’ spending and achieve efficient heating. Further in this text, I will show how this particular context in both towns played out in people’s day-to-day engagements with district heating, and how it reflected on my interlocutors’

apprehensions of the breakdown of the social contract and its promises delivered through heating.

### A desire to disconnect in Bor (Serbia): Katarina's disenchantment

The town of Bor, located in eastern Serbia (350 km south-east from the capital), is a middle-sized town, characterized by a mono-structural economy. The local copper-processing company (RTB)<sup>3</sup> has historically been, and still is, substantially anchored within the town's social and political life, prosperity, and development. After a prosperous period during Yugoslav socialism, there was an economic, social, and symbolic decline of the company, followed by decay of the town and of industry during the 1990s. After 2009, the state made an investment in the so-called mutual revival of the run-down industry and the town. In Bor, RTB played an important role in building the district heating system because it developed from RTB's power plant. The heating network began expanding in 1973, with the rapid urban development of the town, and finished in the 1990s. Compared with other cities in Serbia, Bor has the highest number of households connected to a single plant.<sup>4</sup> This is why one should not be surprised to find radiators even in barns in some villages near the town.

The heating company split with RTB in 2002 and emerged as an independent public utility company, *Toplana Bor* (Heating Power Plant Bor), run by the municipality. Because of its technical, bureaucratic, and material inflexibility, the centralized system did not provide any possibility for disconnecting from it. In this way, urban infrastructure assembled both social and political life (Collier, 2011) while forming tight connections between the company, the municipality, and the citizens. This kind of assemblage was maintained as the party-political responsibilities of the municipality and the company overlapped, affecting everyday life, including the quality of heating. This assemblage will be further depicted through Katarina's story, where the sense of a breakdown of the social contract made the infrastructure and its provision visible.

Katarina was upset when I came to see her in her flat. Yet again, she had received a letter from the public utility company, a final notice before a summons to pay a debt of nearly €1,700. We sat down in the living room of her flat, which her father had obtained through his work in the factory in the late 1980s (this used to be a part of RTB and was privatized under suspicious circumstances, leaving her father without the support he was entitled to). Katarina showed me a list of alleged debts beginning in 1996, including periods in 2002, 2003, 2008, and so on. She was trying to find the receipts for bills that had already been paid, which her father kept in a pile of unsorted documents. She claimed that the debt seemed to be much larger than what the household actually owed, and that she knew that it should be around €1,150. On a piece of paper, she ticked off the bills that her father had already paid. Katarina was 31, born and raised in Bor, in her final year

of law studies, and unemployed. At that time her parents were living in a village, trying to survive after both losing their jobs in a privatized factory, leaving Katarina to deal with the family debts.

The public utility company was threatening to press charges against Katarina's family. The utility company had introduced a measure to allow citizens to set up a payment plan, which was supposed to allow Katarina to pay the debt with interest in instalments. Should Katarina not accept this offer that accompanied the final warning, her father's pension would be suspended for a while. He would be summoned to court, their belongings could be repossessed, and the whole family could be left without any steady income.

Katarina claimed that the state always found something that one had already paid for and sent a bill for it anyway, relying on the possibility that one would not find a receipt for the first payment, or that nobody would check the second bill. 'This only exists in this country!' she said. She claimed that such 'extortion' and quasi-legal theft existed to generate extra money that went straight into the budget of the political parties in charge of the public utility companies and to financing their own political activities. She said: 'These people, politicians in the municipality, only argue over who should become a general director of some public company, while the people are being robbed and they do not even want to know how we live.' She spoke about the state as a 'usury state'. And, because of that, she was forced to go around to various public institutions and queue at the counters. Every time she went there, she became stressed 'just by entering the room'. 'I'm sick of it!' she said.

District heating was also a source of stress for Katarina because of the involved paperwork and bureaucratic procedures. Much checking needed to be done in order to avoid being defrauded. This required time, nerves, collecting and storing old receipts for years, and then finding them when needed, understanding the bills and final notices, consulting a lawyer, arguing, knowing the ways in which institutions worked (preferably through knowing a person who could help and do favours internally), writing appeals, archiving them in the proper way (by making sure they were legitimized by an institution by being notarized), and so on.

Another paper was pulled from the pile. It was Katarina's father's documentation on substandard heating delivery services and his request to disconnect his flat from the district heating system. 'Argh, I'm so looking forward to disconnecting from them!' Katarina commented on the letter that I had started reading. 'Can you really?' I asked. As far as I knew, one could not easily disconnect from district heating. She insisted that it was a service, and argued that they should offer and sell good services. Because the service was poor and unreliable, she hoped to have a chance to disconnect from it. She did not pay attention to the inherent material limits of the heating system, however, and her expectations did not match the infrastructural possibilities at that point.

I looked at the letter again, stamped in the right corner with ‘9 October, 2012’, the date of dispatch. The letter was written in a bureaucratic way, well-explained and bullet-pointed. Two reasons were stated for the family’s request to disconnect. The first was the provision of ‘inadequate heating’, and the second was their ‘difficult financial situation on the verge of poverty’. The problems with the inadequate heating, according to the letter, dated back to the moment the family moved into the flat during the 1980s. The temperature of the flat never rose above 16°C during winter, although the company was required to guarantee 20(± 2)°C by law. This had been confirmed many times by the workers from the Heating Power Plant who came to measure the temperature in the flat. Because of this, Katarina’s father argued in the letter, the family was forced to heat the flat by using other sources of energy, such as electricity, which resulted in extra costs. The letter also elaborated on the financial conditions of the household. Four household members, it said, lived off the father’s pension of 28,000 dinars (€231) only, which equated to 7,000 dinars (€57) per person per month. Until 2009, the father had been able to pay for the heating services even though they were inadequate. But because he and his wife, along with other workers, had been ‘thrown onto the streets’ after the lay-offs in the privatized factory, further payment for district heating would lead the family into a greater ‘depression’. The letter ended in a poetic tone:

By respecting the old saying, ‘The wise person is not the one who distinguishes good from evil, but the one who chooses between the lesser of two evils,’ I judged that the lesser evil for my family would be to disconnect from the district heating system rather than to become evicted from my flat due to enormous debts.

For Katarina, the consequence of not paying her bills was more a moral dilemma between two bad choices that demanded a difficult compromise. The principle of the lesser of two evils was a product of a situation of being a captive (dependent) customer of the centralized provision. In fact, Katarina and her father became morally righteous citizens on the basis of knowing how to distinguish between, and navigate scales of, what they considered to be ‘evils’. Because the family could not be disconnected from the system at that point, the debt became so high that heating began to seem like a ‘bad’ connection that Katarina and her parents had to navigate. Now, let us stop for a moment with Katarina’s story and go to Rijeka where, similarly to Katarina’s case, a good connection turned into a physically and morally bad one.

### **The quest for a fair formula: hot bills and cold radiators in Rijeka (Croatia)**

Rijeka is the principal seaport and third largest city in Croatia located on Kvarner Bay, an inlet of the Adriatic Sea, 131 km south-west of the capital

Zagreb. During the mid-1960s, urbanization in Rijeka intensified when modern buildings, including skyscrapers, were connected to the centralized heating provision. The main socially owned company that provided heating was nationalized to become the state company Energo in 1989. Today, this company is in the town's majority ownership. Between 2011 and 2013, the Environmental Protection and Energy Efficiency Fund (EU funds) and the city of Rijeka introduced a new ecological measure regarding district heating. The idea was to introduce a method of control over energy spending by which energy efficiency would improve. The state officials and the energy providers appealed to the citizens by using a basic market environmentalist argument: they pitched electronic heat cost allocators (which measured consumption of heat calculated by impulses) as the first technological condition for individualization of billing for heat consumption, and as a basic piece of technical equipment for energy efficiency. Energo advertised that 30 per cent of individual consumption would be saved. The new law on thermal energy market envisaged that everyone who lived in a building that had more than 70 flats should have heat cost allocators by 2016, and it prescribed them as obligatory.<sup>5</sup> The citizens could buy the cost allocators themselves from two private companies, and they paid for the refurbishment of their buildings' façades (which was a big expense). The company initially guaranteed smaller bills, so the people who installed the devices (like my interlocutors) no longer paid the flat rate calculated by the square metre throughout the year.

Protests were organized in Rijeka in 2015 after the attempt to individualize the calculations, as a reaction to a sudden increase in prices. People demanded 'normal prices of heating', complaining that the value of their flats had suddenly decreased due to expensive heating. The people I spent time with were active in their own self-organized initiatives against the company and against the 'formula' the company used to calculate individual costs. They actively had meetings with ministries, Energo and municipal bodies. This action was also initiated on the national level, because the capital of Zagreb and other towns in Croatia had similar problems.

My interlocutors explained that the problem was that the formula Energo used to calculate the costs did not reflect the actual consumption – rather, it made their bills higher. According to them, the formula was not precise and it did not take into account the position of specific flats, heating quality in the neighbouring flats, badly kept buildings, the exact amount of heat that the joint vertical pipes produced, and so on. For those who had cost allocators installed, 50 per cent of heating provision was charged based on square metres, and 50 per cent by actual consumption and through a *korektivni faktor* (multiplier), which depended on the overall consumption of the heat of the whole building. If the flat did not have a cost allocator, the price was even higher. Some of my interlocutors longed for a formula that provided a fair and transparent price for individual consumption; some of them thought there was no fair formula at all. Moreover, a lot of people

I had conversations with had their own suggestions for what a ‘fair’ formula could and should look like, but they all emphasized that it was not their job to invent it. Often, their critique was not so much directed towards individualizing and measuring as such (although there were some individuals who fundamentally opposed this), but more towards the technicalities of measuring and counting. Thus, the (thermo)dynamic between the states and the citizens did not *only* relate to the political and economic transformations but also to relations with the heat and the existing material conditions of the network, including the expectations and entitlements formed around the provision of heating.

One day I met my interlocutors in a local pub. Mišo was a man in his fifties, active in a workers’ union and a public servant in the municipality office. He lived with his wife and two children in a skyscraper. Ivana was in her mid-fifties. She lived with her mother and worked in the local high school as a teacher. As soon as we had ordered coffee, Mišo and Ivana started to complain:

People started not to heat any more! We, who do not turn on our radiators, still pay 50 per cent for heat per square metre, and we did not consume anything. My vertical pipe has a volume of  $xy$ , and it is enough to heat one square metre, so they can’t charge me for 40 square metres. You cannot...because I have cost allocators that are imposed onto me. Why should I pay 50 square metres for three pipes, if they cannot heat more than three square metres?! Count per volume, and I’ll pay...I just want to have a choice! I don’t want to pay a flat rate, and I want to pay as much as I consume! So reduce the flat rate...[...].

(Mišo)

Ivana added to this:

The problem with the heat cost allocators is that you cannot control your consumption. You cannot know its value. So let’s say you’ve got five impulses. But, what if that is the only impulse spent in the whole building?! You don’t know if your neighbours are heating or not. The value of an impulse depends on the whole building, that’s how the formula they use works. As everybody closes their radiators, because it’s expensive, you pay 50 per cent of the overall consumption of the building...But one should not pay for everything. They call it a ‘solidary method’, ha! [laughs] People do not use their radiators, and this is why we get high bills. The heat cost allocators are a complete deceit.

Furthermore, they both claimed that the calculations were unjust and socially insensitive. Like Katarina from Bor, they yearned for the calculations of the heating costs to take into account the social and financial situation of the users, and they also wanted to ensure fair charges for consumption. In

addition, my interlocutors claimed that everything about the heating system was a fraud and that the new laws were copied from other EU countries. Allegedly, the private companies that were selling the heat cost allocators were part of *muljavine i pizdarije* (to use my landlord's expression), whereby they made deals with the government to become the official state providers and the subsequent bills became completely non-transparent.

Mišo and Ivana also told me that people had found ways to cheat Energo. For instance, people would take off their radiators with the permission of the head of the building, who was usually bribed. According to Mišo and Ivana, these people no longer paid for heating but still got some heat from the neighbouring flats. Or they would even reinstall the radiators, making the overall building consumption higher, but still pay nothing. 'Why would I pay his heating?' Ivana asked me. She continued:

And why am I paying per square metre on account of joint building consumption, if people around me do not heat themselves?! For achieving the temperature of a bad fridge?! It is not a lot for heating, it's true... but for refrigeration on account of solidarity during temperatures below zero...I think it's too much!

### **The breakdown of the social contract and making it anew: making infrastructures visible**

As we can see from the ethnography above, the heating system provoked anxieties among residents both in Rijeka and in Bor. Their concerns were especially over what role and responsibilities the state towards the citizens should have in both a moral and practical sense. In fact, from its introduction until today, district heating brought my interlocutors into specific relations with the Yugoslav state (and, later, the successive independent states), their towns (the municipalities<sup>6</sup> that provide the heat) and between each other. This 'social contract', as a set of relations, was imbued with liabilities, obligations, and responsibilities. Even though my interlocutors did not speak about this set of relations as a social contract, as we could see, it did leave significant material and immaterial effects in my interlocutors' everyday lives.

I use the notion of the social contract in a different context from that in which Catherine Alexander (2007) or Caroline Humphrey (2007) used it to mark the relationship between citizens and the Soviet state that was redefined after the end of the Soviet Union. They both showed how post-socialist privatization of utility provisions changed the meaning of infrastructures, and how people saw their roles in the new economy. What the examples from Bor and Rijeka show, where privatization had *not* yet (fully) occurred, is that despite the differences the residents have started to perceive themselves as consumers, like they did in Ulan-Ude (Humphrey, 2007) or in Almaty (Alexander, 2007). Yet, in order to fully understand my interlocutors' moral

entitlements as consumers and how they emerged, I will first address the socialist past that initially brought my interlocutors into the social contract through heating and entitled them to promises for the future. I argue that the apprehension surrounding the breakdown of the social contract, which promised to provide care and welfare, contributed to their attempts to make it anew through their emphasis on becoming moral citizens: the consumers. This argument will help us to understand how the thermodynamics of the social contract rendered infrastructures visible.

During socialism in Yugoslavia, district heating (as with other infrastructural services) was never provided as a consumer good in a way in which other goods, services, and experiences were available and consumed.<sup>7</sup> Socially owned flats, allocated to the citizens, were not commercial commodities either. Johnson (2013) argues in her study of Belgrade's district heating that the flats with all the modern conveniences (such as district heating) were offered as the reward for citizens who were 'contributing to the socialist pursuit of modernity' (Johnson 2013, p. 146). She further contends that 'district heating was a system that helped construct such privileged comfort' (Johnson, 2013, pp. 146–147). Even though 'district heating brought a vision of Yugoslav consumerism into the home and made it material' (Johnson, 2013, p. 147), it was also linked to the moral project of the Yugoslav state as urban planning echoed the aspirations of socio-economic development (such as social ownership, equal access to jobs and housing, and a satisfying minimum living standard) (Djurašović, 2016, pp. 107–108). By using their flats, my interlocutors entered into a social contract with the Yugoslav state that ought to provide heat (and welfare and care), and which further contributed to 'the social and economic relationships that would make the system work' (Johnson, 2016, p. 99).

After the decline of socialism, and as ownership transformed, the independent states remained the providers of heating, unable to entirely offer the promises of becoming fully fledged heating consumers (as in the case of flats, which were turned into commodities). This was impossible partly due to the pre-neoliberal material specificity of the heating system, which somewhat constrained the reforms (Collier, 2011). In Rijeka, the reforms were carried out to a larger extent than in Serbia, but, as I showed, the formula used to calculate individual heating consumption was contested by Mišo and Ivana, and many other residents of Rijeka, as (morally) unfair. Yet physical connections tied them to the previous social contract. As neither state could offer the old relationship and provide heating as a social good, and when my interlocutors could not physically disconnect (easily), they found themselves in an ambivalent relationship with their states, yearning for both the (welfare) state, which ought to provide, and for a 'proper' capitalist state.

As they contemplated their expectations of the state and its failure to provide, the contemporary states were seen as corrupted, fraudulent entities that 'extorted' money through heating. My interlocutors' mundane encounters

with district heating were therefore also their mundane encounters ‘with a fragmented state’ (Harvey and Knox, 2012, p. 530). Because of apprehensions over the state as a provider *and* a fraudulent entity from which one needed to protect oneself, they developed different strategies for mitigating what they found ‘harmful’ in their relationship with the state: they tried to monitor it by carefully gathering their bills, interpreting them, studying new formulas for calculations, monitoring their debts, informing themselves on legal issues, filing complaints, inspecting room temperatures, and so on. By doing so, they developed a particular ‘expert’ knowledge around the provision of district heating, whether in its legal, political, economic, or technical domain.

As particular hopes and senses of entitlement were formed around the provision of district heating through the social contract, my interlocutors experienced and expressed disenchantment with such promises. The betrayals of expectations of the social contract and disenchantment with the aspirations of socio-economic development, inscribed in the district heating, were visible in the case of Katarina’s parents being ‘thrown onto the streets’ after (illegally) losing their jobs and in Rijeka, where transformation of heating charges contributed to a decrease in the prices of flats. It was also visible in lowering the living standard, which all my interlocutors experienced. The expectations and subsequent disenchantment came precisely from the enchantment experienced by the generation of Mišo, Ivana, and my landlord, or the generation of Katarina’s parents, when there was investment that structured such expectations. In Katarina’s case, however, there is also a sense of transgenerational consequences of such enchantment. As these enchantments from the past failed to live up to the expectations of the new generations, it became the task of my interlocutors to modify their relationship with the same pipes that my interlocutors or their parents had built through their own work (and the work of their co-citizens).

The thermodynamics of the social contract and its transformation also suggest that my interlocutors’ encounters with district heating, regarded in the past as an ‘ordinary’ provision for the ‘ordinary’ people (the workers), not only rendered moral reasoning and ‘ordinary’ ethics (Lambek, 2010) visible: they also indicated that the ‘ordinary’ provision became less accessible and more unequal, and showed a transformation from, to some extent, a stable social contract to a far more fluid scenario in which the relationship between the people and their states had to be made anew. Mišo’s affective exclamation, ‘I just want to have a choice!’ is paradigmatic for all my interlocutors: the ways with which they attempted to make the social contract anew were precisely to insist on a more liberal doctrine of individual choice. Hence, paying for services guaranteed delineated responsibilities of the social contract: customers were paying the municipality for services, and such payment should have guaranteed the certain, stable, satisfactory, and constant delivery of heating. Therefore, unlike during socialism when socialist morality was inextricably linked to ideologies of labour, and

when the moral ('ordinary') citizen was considered to be the producer, my interlocutors constructed the moral citizen as a consumer. Their entitlements as consumers could further bring a sense of a more individual capacity for decision making, which was seen as a moral entitlement, and which could further offer them a sense of justice. In order to become consumers, whose rights would be guaranteed by the market, they initially needed to become citizens, whose rights would be guaranteed by the state (Simić, 2017, p. 25). Hence, my interlocutors invested their hopes in the framework of the state and not outside it (Jansen, 2015; Simić, 2017).

In both towns, these moral citizens expected a solid, constant service which, if and when it was paid for, was meant to provide value for money using fair calculations of the amount of heat delivered. By reiterating such logic of the individual rational choice, hopes for 'unbundling' seemed to be working to produce a feeling of liberation from being a captive client of the state while simultaneously, in practice, my interlocutors remained even more indebted to or dependent on state provision. Furthermore, they asked to be recognized as consumers and to be fully granted such rights by the state even though the neoliberal reforms of the heating system were not 'fully there'. In other words, the inflexible materialities stayed (mostly) the same and the state provision remained nearly similar but the individuals have changed. Their 'expert' knowledge of district heating and the process of individualization, as well as the emphasis on becoming moral citizens as consumers, all demonstrate a specific neoliberal governmentality in a situation in which infrastructure was still to some extent a 'bundle'. To be more precise, it demonstrates an emergence of what Nikolas Rose has referred to as 'advanced liberal' political subjectivity within the cultivation of self-management techniques (Fennell, 2011; Rose, 1999). Hence the neoliberal, 'free to govern' individuals have almost surpassed the full realization of neoliberal policies, impeded by the given inflexible material qualities of heating infrastructure, among others.

Finally, the thermodynamics of the social contract I have described here also suggest that the visibility of the infrastructure did not occur through its physical breakdown, as a large number of studies on infrastructures have suggested (Furlong, 2010; Graham and Thrift, 2007; Humphrey, 2003; Star, 1999), but through a reordering of relations between the states and their citizens where the conditions of physical continuities played a significant role. The vertical pipes with differing volumes, the radiators, the valves, the heat cost allocators, and even the material properties of heat, became prominently visible and played an important role in the transformation of the social contract. The old heating pipes not only constructed and reproduced ambivalent attachments to the states but they also contributed to an experience of broken promises. Day-to-day engagements with district heating in Bor and Rijeka therefore show how the infrastructure became visible through a shared sense of the broken promises of the social contract, including its promises of (and for) the future (modern and comfortable lives,

and welfare and care), and what the state ought to provide. Moreover, the infrastructure became significantly more visible through people's attempts to make the social contract anew through their desire for even more individual decision-making capacity and for becoming consumers. It is exactly through such practices, as well as through affects and the ambivalent relationship with post-socialist states, that the visibility of heating infrastructure and its provision became considerably mobilized in everyday life.

## **Conclusion**

In this chapter, I illustrated how people in two different post-Yugoslav towns encountered district heating and how the socio-materiality of infrastructures and their endurance and visibility was achieved through a sense of a breakdown of the social contract, established through heating. The common material post-Yugoslav infrastructural legacy, which became the root of my interlocutors' frustrations precisely because it relied on the material continuity of infrastructures, proved to be a fruitful window to explore the weight of the common Yugoslav historical and material legacy, which had an impact on social transformations in these two towns. Although there were significant differences, such as policy decisions that affected infrastructural provisions, the cross-Yugoslav ethnography in this chapter illustrated specific commonalities, such as the residents' ambivalent relationships with their states, common cross-generational concerns, and how infrastructure became a space for moral ruminations and a place for (re)definition of post-Yugoslav citizenship. Moreover, it showed that the infrastructure was still a determinant in people's everyday lives (Humphrey, 2005), not as a part of their integral development like during socialism (Krstić, 1982), but of their deprivation, and a site for the production of inequalities where the 'ordinary' turned into a 'privilege'. Having these local concerns in mind, the infrastructures seem to be a potential site for broader political actions across the post-Yugoslav region, which remain to be explored in the future.

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## Notes

- 1 All interlocutors' names have been changed.
- 2 On many occasions, studies from the former Yugoslavia were not included in attempts to address post-socialism (see edited 'post-socialist' collections: e.g. Mandel and Humphrey 2002; Burawoy and Verdery, 1999).
- 3 The 'Mining and Smelter Basin Bor' (*Rudarsko topioničarski basen Bor*, 'RTB Bor'; hereafter referred to as 'the company' or 'RTB').
- 4 Out of a total of 14,200 households in the whole town, the district heating covers 11,000 flats and around 1,400 houses.
- 5 Seventy per cent of the citizens of Rijeka had the heat cost allocators installed by 2016. In April 2017, a new study carried out by the Institute of Economics in Zagreb proved the economic ineffectiveness of the heat cost allocators (M.B.O., 2017).
- 6 In Croatia and Serbia, many people consider the local government as serving the state's interests, and see it as equivalent to the state. This is partly due to municipal institutions for utility services being run by head directors chosen from the political parties, which are in power both on the local and the state level.
- 7 Freedom to travel and consumerism in everyday life resembled the 'Western' nature of Yugoslav socialism (see also Duda, 2010).

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