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► **To cite this version:**

Tristl Christiane. CO-CONSTITUTING COST-RECOVERY, ASSEMBLING BENEVOLENCE – THE TECHNO-POLITICAL PATTERNING OF AUTOMATIC WATER DISPENSERS. 2017. halshs-01686982

HAL Id: halshs-01686982

<https://shs.hal.science/halshs-01686982>

Submitted on 18 Jan 2018

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MAMBO!

Volume XIV, (4) 2017

CO-CONSTITUTING COST-RECOVERY, ASSEMBLING BENEVOLENCE – THE TECHNO-POLITICAL PATTERNING OF AUTOMATIC WATER DISPENSERS

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Introduction

Concerned about “providing reliable and sustainable water supply in the developing world,” a multinational water pump manufacturing company identified the inability to: collect and manage revenue, reduce “non-revenue-water” and lack of money for service and maintenance as the main challenges for “sustainable water supply” in the Global South. To provide a solution to these supposed problems, the company developed “automatic water dispensers”. The dispensers are meant to replace kiosk attendants in already existing water kiosks in “slums” and rural areas. The dispenser can be described as a foursquare unit with a display, an integrated touch screen and a slot on the front side for the blue customer cards that come with the dispenser. Above the slot, the display shows the balance on the card, the amount of the water fetched, and the price per litre. According to the product brochure, the prepayment feature that is integrated in the water cards shall “remove uncertainty in revenue collection”. Combined with an internet connected water

management system (WMS), the dispensers promise to improve the efficiency of the respective tap water system by facilitating transparent revenue collection. Through these features the water system promises to become sustainable and respectively cost-covering. In the cartoon-like promotion film of the dispenser, the protagonist – a person labelled “water provider” – will by the end of the video have transformed into a “water manger”.

The emergence of automatic water dispensers can be associated with what Schnitzler (2016, p. 130) identifies as an “unprecedented investment” in creating technologies that are supposed to improve the lives of “the poor” – for example, water filtering (Redfield 2012) or biometric (Donovan 2015) devices. They are therefore being framed as neutral solutions for supposed managerial deficiencies. According to Law and Ruppert however, what “*devices are doing is not necessarily written on the package*” (2013, p. 230, emphasize in original).



Lifting jerry cans full of water on a donkey's back after fetching water from an automatic water dispenser in a Kenyan village

Instead, they are proposing to conceptualize devices as “patterned teleological arrangements”. The reference to teleology points towards purpose and functionality which then allows us to say that devices do things. Namely, they “assemble and arrange the world in specific social and material patterns”. By hinting towards the social and the material, they are stressing that those patterned arrangements are always heterogeneous. They may include high-tech to bits and pieces, nuclear reactors, but also kit, and they may include people. Devices contribute to the patterning and (re)configuring of the relations between those heterogeneous elements. By so doing, they are constitutive of what is called social order.

Going back to the quote of Law and Ruppert however, how determinate they are is up for empirical investigation. Devices might not always pattern the world according to the scripts that had been imagined by their designers¹. They may have quite some ordering capacities but the question if they have politics (Winner 1980), and then which kind of politics they co-constitute, has to be investigated empirically (Law 1992; Akrich 1992). Schnitzler (2016) argues that technologies can re-stabilize in new contexts and even become constitutive not only of social order, but more specifically of new “ethico-political assemblages”. Therefore, the first point is that their effects may change when devices are located in different networks of relations. They might enrol new purposes and elements along the way. The, within the confines of the “same” set of relations, a second point is that these devices might have multiple effects that are often not intentional. Water dispensers might dispense water, but they may also do a range of other things. They might embody a variety of different (political) agendas, which had originally not been envisaged. This again is always subject to change. Devices are contingent, precarious achievements that are never autonomous or final and that may not manage to keep together bits and pieces.

By drawing on ethnographies with automatic water dispensers from two different settings in Kenya, from one settlement within the confines of Nairobi and from a village some hundred kilometres eastwards of Nairobi, I want to discuss how automatic water dispensers pattern heterogeneous materials and reconfigure the relations between them. By doing so I want to show no matter how determinate that patterning is, it is up for empirical investigation, especially if it is political. By drawing on two different settings, I want to engage with how effects change in new sets of relations. For example, how seemingly neutral devices may co-constitute “ethico-political-assemblages” in what one may call techno-political patterning. But the dispensers might also enrol other unforeseen purposes along the way and do different things at the same time.

A disciplinary device for co-constituting cost-recovery

One of the sites where I spent a couple of months researching

¹Lifting jerry cans full of water on a donkey’s back after fetching water from an automatic water dispenser in a Kenyan village

on how automatic water dispensers play out, is a village in rural Kenya where 30 water dispensers had been implemented by a well know international NGO and funded by a foundation from the UK. Here, typical water sources are rivers, dams, rain water and boreholes. One borehole usually supplies several water kiosks which are connected with pipes. Similarly, as the narrative in the advertisement of the dispenser goes, the problem formulated was that, due to money-mismanagement through the water committee – civilians managing the borehole – and fraud by the kiosk attendants, there was not enough revenue to cover the costs for maintenance. The implementation of the dispenser thus went in line with the efforts to achieve neoliberal policies of full cost recovery that had been brought underway in the Kenyan water sector with the Water Act from 2002, and globally since the late 1990s/early 2000s.

Cost-recovery is a contested achievement however, and needs to deal with material negotiations and configurations. Due to often rather far distances between a person’s home and the next water point, in these rural areas people usually go with their donkeys to fetch water. Before leaving home towards the water point, four empty jerry cans are fixed on one donkey. To accomplish this, two jerry cans are tied together at their handle on top and then lifted on the donkey’s back, where they are dangling to the left and right side of her belly (see picture below). Essential for this system of fetching water is to find a hose pipe fixed to the water tap of the kiosk, in order to fill up the jerry cans while they are on the donkey’s back. The kiosk attendant used to take care of fixing the hose pipe to the tap every day in the morning, and locking it inside the kiosk in the evening to avoid theft. At many kiosks now, the pipe stayed locked inside the kiosk. Having no pipe meant there was no way of getting the fluid and fugitive substance all the way from the tap, usually about 50 cm above ground level, to the jerry can on the donkey’s back. The customers had to remove the jerry cans to fill them up. Since two jerry cans are always tied together, taking them down means after filling those up, 40 litres have to be put back onto a mostly stubborn donkey. An impossible task for most of the people : *“I went to the kiosk sometimes and I filled the jerry cans up. I then had to wait for someone to come by and help me. At times, the next person that comes is not in a position to help you. Maybe it is a child or a Mzee². So, I stopped going there and I now go to the private borehole instead, which is more expensive”*, a former customer explained. Donkeys seem not to have been taken into account in the scripts of the designers, which meant that they stood in the way of “efficient revenue collection”. In other cases, the device managed to pattern different arrangements, like a “collective user” (Akrich 1992, p. 208): people began to organize in a way that they would only go in groups to fetch water, in order to be able to help each other to lift the jerry cans.

The water users that managed to use the dispenser were still confronted with a prepaid component, that patterned the

²A Kiswahili word for an old person.

people's water practices in different ways, especially regarding the until then, common practice of paying later for water. The more well off of them, like business owners, explained: *"It is very good. My guys used to fetch water in the morning and then pay in the evening. Sometimes they would forget, and then all of a sudden you have a chain of enemies. Now I do budgeting for water in the evening, like for everything else"*. The ones without a budget did not manage to adapt in this way. The prepaid component seeming quite determinate, they were forced to other arrangements: *"Now, when there is no money, we go to the dams and rivers. Before, we would have talked to the kiosk attendant and if you were a trustworthy person, you also could pay the next day. But now there is no attendant to listen to you"*. Opposed to this statement, the NGO workers praised the rational virtues of the dispenser, by contrasting them to the behaviour of the attendant: *"She (the attendant) could also give some free water. If your mother in law comes or your sister or your father, or a friend, who says 'Oh I don't have money, give me some water, I will bring money tomorrow.' Maybe you are tempted to give. The dispenser [...] just understands a water card with credits"*. The word "temptation" can be literally translated in the desire to do something appealing that is against social norms. The dispenser seemed to embody and co-constitute the objectification of some new regime of rational morality, while dismissing behaviour (like giving water to a thirsty person) that others might conceive of as a moral obligation.

Donkeys at times were challenging cost-recovery and led either to absence of people or to new arrangements like "collective users". In many cases however, the patterning of the dispenser seemed to be quite determinate though. Many people were coming forward to play their roles as paying users that even by themselves developed modes of budgeting and thus organizing themselves. At the same time the dispensers failed to assemble *budget* where there simply was none. Besides its incompatibility with donkeys, the dispenser's own determination undermined its task of dispensing water and cost recovery. The existence of some dispensers was threatened through absence, and they seemed to be in constant danger of "becoming a monument" as the NGO workers said, referring to the numerous water projects implemented in rural areas that are coming to a standstill on a regular basis.

Assembling benevolence, patterning techno-politics

In other sets of relations, the dispensers seemed to play out quite differently. In order to test them in a "peri-urban" area the manufacturer agreed with the Nairobi City Water and Sewerage Company, short Nairobi Water, to install four dispensers in water kiosks in a so called "informal settlement" in the city. The organization of the water supply in this area result in a situation where there are a few water kiosks owned by Nairobi Water and operated by officially registered groups from the area, which usually signed some sort of contract with Nairobi Water. To

make some gain, these groups usually take higher prices (around 5 to 10 Kenyan Shilling (KES) per 20 litres) than customers pay when they purchase water from Nairobi Water via household connections. Most importantly however, the area is pervaded by a dense web of "illegal" PVC water pipes that inhabitants connected to the main pipes of Nairobi Water, and that supply taps that are run by informal water vendors. The connections are prone to water rationing – Nairobi Water closing the water for the area frequently, usually without announcement of the time and the duration. In both ways, the inhabitants mostly go to fetch water with yellow 20 litres jerry cans. As a result of shorter distances and rather donkey-unfriendly environments, in this case hose pipes are obsolete for non-commercial water practices at the household level.

"The governor wants the project. The elections are near and the governor wants to say that he has offered cheap, clean water for the poor!", an employee of Nairobi Water named John³ explained. As this quotes describes quite well, the governor, who even made it to the inauguration of the dispensers in the area, strategically used the technology for political goals (Hecht 1998). This techno-political arrangement needed some further patterning however. As opposed to the first setting where cost recovery was set as the priority, here the price for water was set on the low level of 0.50 KES, so that some users even wanted confirmation that Nairobi Water really did mean 50 cents and not 50 Shillings. To circumvent water rationing and provide water 24/7, the dispensers furthermore assembled water tanks on the roof of the kiosks and additionally big blue lorries with some white lettering saying "CLEAN WATER", that had to navigate the narrow paths of the area to fill the tanks up every time when they were empty. To coordinate between empty tanks, the lorries and the inhabitants, Nairobi Water ordered John to be present within the area seven days a week.

Despite the efforts of providing water 24/7 from the dispensers, they were by far not enough to serve the whole area during rationing, which meant that the residents had to walk for long distances to get water from elsewhere. After a period with frequent rationing, there was increasingly unrest. In December 2015, the residents staged a protest blocking the main road to town after lacking water in the area for about three weeks. At this point, the dispensers enrolled a further political agenda since they were now mobilized as a tool of pressure. *"They chased us away and they were threatening to burn the dispensers and block the lorries"*, John said. *Indeed, "after the protest, we had to make sure that there was water in the settlement all the time, even in the illegal connections"*, John continued. Therefore, the dispensers became involved in the resident's struggles for water and contributed to an improvement of water supply in the area in unforeseen ways.

The precarity of the dispenser continued however. Every time when there was no water in the settlement, the inhabitants now

³I changed the name due to reasons of anonymization.

come to complain to John. They would threaten to kidnap the lorries and burn the dispensers. When the atmosphere was becoming too tense, John would put pressure on Nairobi Water to provide water for the area. Being present throughout, he would also find out when some protests were being planned. “*Now every time we are planning a protest they switch on the water. They try to calm us down*”, a resident told me. The dispenser and everything it assembled, i.e. the lorries and water tanks, became an arena of political negotiation that furthermore put the existence of the dispenser up for constant negotiation. When I came back to the area after a while, a tank on top of one kiosk had been stolen. Without its water connection, the dispenser became as idle as the previous kiosk operators used to describe themselves, since they had been expelled from the kiosk by the former. In other cases, the dispenser itself was just circumvented by people climbing onto the kiosk and taking out water directly from the tank at night, when John had left the area.

There were many inhabitants coming forward to play their role as users, the dispenser was dispensing water, also the transactions were being tracked by the WMS. People, especially the direct neighbours, were glad about the low prices and about water 24/7. Far from being neutral however, the dispenser co-constituted a political agenda and even enrolled a countering one. It was doing several things at the same time, and it was patterning relations between diverse elements in unforeseen ways. The structures it helped to co-constitute however remained precarious and always prone to breakdown.

Conclusion

Regarding an unprecedented investment in seemingly neutral devices that are supposed to solve the assumed problems of “the poor” and by taking a device to produce “water managers” as an example, I wanted to discuss this assumed neutrality. Instead, I’m proising to analyse devices as such as what Law and Ruppert term “patterned teleological arrangements”. Beyond neutrality, this perspective allows to foreground that the effects of devices change in different sets of relations and that they may also do many things at once, some that were written on the package and some that were unplanned.

In the first setting, the water dispenser co-constituted an assemblage of cost-recovery that set out to discipline and to objectify new regimes of rational morality by dismissing human temptation. In the second setting however, cost-recovery did not play a big role. Other than being determinate, the same mechanism of excluding the human factor mobilized a narrative of benevolence, of providing cheap water for the poor by excluding the cartels and thus became part of the governor’s strategy to achieve political goals. Whereas in the rural setting, donkeys and its own determination led to new arrangements or threatened the dispenser’s existence through absence, in

the second setting it enrolled countering political agendas that threatened to pull it apart. While dispensing water and collecting revenue as it was supposed to, it took part in techno-political patterning that led to an improvement of water supply for the area, in unexpected but precarious ways.

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Biography

Christiane Tristl is a PhD candidate in Human Geography at Frankfurt University, Germany. She conducts ethnographic research on experiments between philanthrocapitalism and marketization in South-North relations. From a Science and Technology Studies perspective, she is focusing of the co-constitution of these processes with technological devices. The article draws on fieldwork with automatic water dispensers in one settlement within Nairobi, Kenya and in a village on the Kenyan countryside. This allowed her to carve out the relational character of such technological devices.

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