Water, Cities, and Bodies: A Relational Understanding of Niamey, Niger

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Water, Cities, and Bodies: A Relational Understanding of Niamey, Niger

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ABSTRACT

This is a dissertation about how Niamey, Niger is experienced in neighborhoods, through bodies, and around water. I examine the particular colonial and post-colonial historical processes that impacted development and distribution of Niamey's water infrastructure, and trace shifts in governance of this infrastructure over time. To understand how the contemporary city is experienced, I explore it through households and neighborhoods and the very different ways that people outside the piped water network get water. The city, through this understanding, becomes not a city of fragments or splinters, but a city of neighborhoods and relational spaces. This understanding of the city highlights spaces of alternative practices and foregrounds local experience in ways that dystopian discourses of fragmented cities hold implicit, but fail to bring to the surface. I further foreground local experiences by looking at the ways in which water affects bodies, both materially and metaphorically. In this view of the city, bodies are intimately implicated in struggles over natural resource governance, and power over water infrastructure is also about power over bodies. These relational understandings of cities and bodies are brought together to imagine new governance possibilities and urban futures.

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This dissertation is dedicated to Chris and June: we went two, and came back three.

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INTRODUCTION

This dissertation tells the story of how everyday lives and people's bodies become implicated in and inscribed by struggles over urban water provision. Intricate networks of water circulation are central features to life in cities around the world. These water systems consist of more than their physical infrastructure and service delivery components; they are embodiments of power relationships and reflective of global neoliberal economic paradigms. Municipal water systems in developing cities are rarely accessible to all residents, and thus provide a productive departure point with which to examine city life and inequality. My focus here is on Niamey, the capital and most important city in Niger. To understand this story of water, cities, and bodies, I trace the historical development of the city and its water network, then present results on water access from 25 neighborhoods of Niamey, and conclude with observations of how this uneven urban water network affects individual bodies and everyday lives. My main themes are uneven development and a need for more nuanced understandings of peripheral places; gender emerges as particularly important theme in my discussion of water in everyday life.

For the first time in human history, over half of the world's population lives in cities (UN-Habitat 2008b). Cities are complex combinations of social, economic, political, and economic geographies that constantly shift and change, especially as they grow. The United Nations estimates that in the next two decades cities will continue to grow, and that by 2030 at least 60% of humanity will inhabit cities (UN-Habitat 2008b). Urbanization has historically been associated with industrial countries, but the fastest growing cities today are located in developing regions of the world, such as Africa and Asia (UN-Habitat, 2008a). West African cities are among the fastest growing cities of the world, with Abuja, Bamako, and Lagos included in the

list of the ten fastest growing cities in the world (UN-Habitat 2010). Maintaining effective service provision in these quickly expanding cities has been a constant challenge, especially in countries with lower levels of economic development.

Over the last decade, responsibility for water provision in many developing countries has shifted from the state to private companies, with myriad combinations of institutional arrangements. Those who favor private sector participation argue that it both alleviates pressures of service provision in already insolvent states and increases the quality and quantity of the final product reaching the citizen consumer (see Swyngedouw 2004). In human geography, studies of water in African cities have largely focused on the shift from public to private service provision as part of larger global economic restructuring processes and how these processes affect access to and quality of water in urban areas (Keil and Debbane 2004, McDonald and Ruiters 2005, Myers 2005, Page 2005, Gandy 2006, Loftus 2006, Ruiters 2006, Smith 2006, Loftus 2007, Loftus and Lumsden 2008, Myers 2008; see also Smith 1984, Graham and Marvin 1991, Harvey 1996, Gandy 1997, Swyngedouw 1997, Bakker and Hemson 2000). Local responses to these changes in access, especially the impact on everyday urban lives, have been implicit in much of this research (McGranahan 2001, Budds and McGranahan 2003, Kjellén 2006, Kjellén and McGranahan 2006, Kjellén 2007). In response, my project seeks to understand lived experiences of water in urban areas by examining the relationships between water, the city, and individual bodies in Niamey, Niger.

The first chapter contextualizes the research project. I show how Niger is a country in many ways defined by marginality: on the fringes of the global economy, high rates of poverty, in a challenging physical environment, and with a turbulent political history. Niamey rises from these conditions as the premier, cosmopolitan city connecting both the world to Niger and Niger to the world. Niamey dominates Niger's economic, cultural, and political landscape and thus

plays an important role in the geographical imagination of both Nigeriens and the international community. The city faces many challenges, one of which is water distribution. Water allocation is not simply a matter of transporting water, but rather a deeply political process that has been governed over in multiple ways. To understand water governance in Niamey, I situate the problem in the larger context of water governance in Sub-Saharan Africa. From this context, we can begin to move deeper into the story of Niamey through its water.

Chapter 2 moves to the theoretical frame of this dissertation, which revolves around a relational understanding of space, cities, and bodies as a way to understand contemporary urbanity. I first outline the development of relational thinking about space, and show how conceptions of absolute and relative space give way to relational framings to accommodate difference and leave open room for transformation. I then discuss relational thinking in cities, and show that when African cities are conceived relationally, space is made for politics rooted in local experience. I then detail the relational city through the production of relational bodies is then detailed, and I use the metaphor of the cyborg to help uncover both inequality and embodied responses.

After the theoretical groundwork has been laid, I move to a detailed analysis of the growth and development of Niamey and the urban water network therein. Chapter 3 examines Niamey from 1920 to 1960 when the city was a French colonial capital of the Niger territory. I examine how the city was a colonial creation, purposely chosen for its location at ethnic and territorial crossroads and the absence of consolidated urban centers nearby (for these did exist in pre-colonial and colonial Niger). Through colonial urban plans and subsequent water infrastructure plans, we see how urban spaces and urban services were designed to be fragmented and selective. An examination of French urban and colonial policies shows Niamey

to be a place of both modernity and control. Finally we see how changes in the colonial core shaped Niamey, particularly in the decade before Niger's independence.

Chapter 4 investigates Niamey and its water infrastructure from the 50 years since independence. Through correlating national politics, legislative developments, and international discourses the gradual shift away from state authority becomes apparent. Until the 1980s, the state retained complete control of urban water, but this was incrementally dissolved first through decentralization and eventually to international and private sector participation. Concurrently, Niamey experienced vast growth in numbers and expanded territorially, producing unique challenges to urban planning and service provision. This chapter concludes with a discussion of the new urban renaissance visions of the current president of Niger.

My fifth chapter presents results from a household survey I performed in 2010 with 550 households in 25 neighborhoods across the Niamey. Results from these surveys reveal that location is much less a determinant of water than much literature contends—peri-urban location does not always mean absence of water networks. Much more interesting were neighborhoods located in the city center that have some of the lowest rates of water access (as measured by household taps). These results reveal the need to look beyond the map of water pipes into what is actually happening on the ground. In neighborhoods with little access to water in the form of household taps, residents found a variety of solution to access water, and which of these solutions dominates tells much about the neighborhood's role in the city. Furthermore, approaching neighborhoods as deep, relational spaces instead of splinters or fragments offers a productive way of imagining urban futures, understanding alternatives, and building politics.

From understanding Niamey through neighborhoods I move to a perspective based on the body. I use data from interviews, conversations, and observation to construct four case study narratives that explore the interrelationships between cities, water, and bodies in Niamey. The

case studies focus on circumstances where water is not accessed within the home. Focusing on lack of access to water illuminates how the lack of water produces specific kinds of bodies. I ask what kinds of bodies governance strategies produce, both materially and socially, and contend that politics over water are essentially politics over the control and constitution of bodies.

I conclude the dissertation by revisiting ideas of relational cities, bodies, and water governance through the example of Niamey. Understanding neighborhoods as more than fragments or splinters, but as deep relational spaces, is a productive way of imagining city futures. Develop radical urban possibilities starting from discourses of dearth rather than abundance leads us back to top-down constructions of the city, which miss important lived experiences on the ground. I next revisit the cyborg metaphor, and show that boundaries between humans and technology (in this case infrastructure) are further blurred as human bodies become a stand-in for infrastructure pipes in certain places. Governance of water, then, is also power over and accumulation of bodies. A relational, corporeal understanding of water is shown to be productive in asking new questions about questions about governance strategies. As we pay closer attention to what kinds of bodies different governances produce, we can begin to start other ways of forming alternatives to neoliberal governance. These questions not only pertain to water, but can be asked of myriad questions about production of urban socio-natures. This dissertation closes with the opening of new questions around the production of bodies in African cities.

CHAPTER 1: SITUATING THE FIELD

Niger is a country on the margins of the global economy, politically unimportant, and environmentally precarious. Looking from the margins at systems of global politics and economics can highlight extant inequalities and reveal deep injustices in the global status quo. But Niger is more than just a place on the margin, but also a perspective from which much can be gained. It is a country in which 16 million people (INS Niger 2011) live out their lives, experience joy and sorrow, produce art, make mistakes, and experience all of the wondrous moments that constitute life. By incorporating these two aspects—the marginal and the central—we can move towards a deeper understanding inequality, the place itself, and how to bring forth challenges to hegemonic systems. This marginal-central dialectic runs through this dissertation as I seek to understand Niamey's water in terms of the global-political economy and as experienced by residents in place. I focus on water in Niamey because all cities and all people require water, water infrastructure projects require investment that Niger lacks, so water in Niamey becomes something at once decisively global and deeply personal.

To understand water in Niamey, we must know about the national stage on which Niamey not only exists, but takes center stage. To understand water in the city we must know about the historical processes and contemporary debates around which policies are made and futures imagined. In this chapter, I situate my research on water in Niamey within the context of Niger and debates of urban water governance.

Situating Niger

Niger is the second largest country in West Africa, with an area of 490,000 square miles, (Decalo 1997) and has a population of approximately 16 million, of which 49% are under the age of 15 (Niger PRSP 2008: 10). Niger consistently ranks as one of the lowest countries on the United Nations Human Development Index; in 2011 it ranked 186th out of 187, just ahead of the Democratic Republic of the Congo (UNDP HDI 2011). According to this same report, 92% of the population lives in poverty and 43% live on less than $1.25 a day (UNDP HDI 2011). Seventy percent of households in Niger reported being unable to meet their basic needs such as food, water, shelter, and education (Niger PRSP 2008). The gross national income per capita in 2010 was $360, and is projected to fall each year by a rate of -0.2% (Unicef 2012).

Figure 1: Map of Africa with Niger highlighted. By Will Penner.

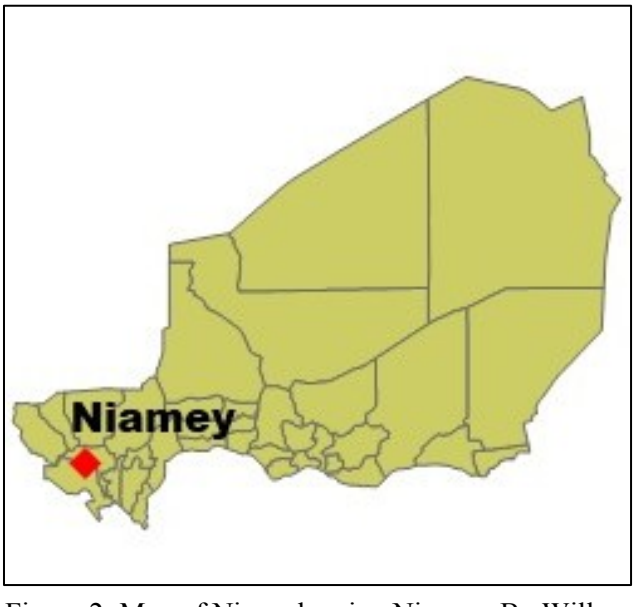

Figure 2: Map of Niger showing Niamey. By Will Penner.

Niger's population growth rate is among the world's highest at 3.4% a year, with the average woman bearing 7.1 children during her lifetime (Unicef 2012). For every 1,000 infants

born, 73 die before reaching age one and 143 never reach age five (Unicef 2012). Life expectancy is 54 years and only 29% of the adult population is literate (Unicef 2012).

Development indicators of Niger, 2010	
Indicator	*Measurement*
Gross National Income per capita, US$	360
Percent of population living on less than $1.25/day	43
Infant mortality rate under 1 year per 1000 births	73
Under-5 mortality rate per 1000 births	143
Percent of children under 5 who are underweight	40
Total fertility rate	7.1
Crude birth rate	49
Crude death rate	13
Lifetime risk of maternal death	1:16
Life expectancy at birth	54
Adult literacy rate as percent of total population	29
Percent of population with access to improved drinking water	48
Percent of population with access to improved sanitation	9
Percent of population under age 15	49
Percent of population living in urban areas	17

Table 1: Development indicators of Niger, 2010. Source: UNICEF 2012.

Nearly one in ten Nigeriens resides in Niamey, but the vast majority of the population—83%—lives in rural areas (Niger PRSP 2008: 10). These rural residents rely on agricultural activities, such as farming and animal husbandry, as their prime source of income. This rural

population is concentrated in the southern portion of the country where the cultivatable land, which accounts for less than 12 % of the total area in Niger, is located (Polgreen 2007). Niger's environments are overwhelmingly arid, with the Sahara Desert occupying the northern half of the territory and the wettest regions of the south getting an average of 20 inches of precipitation a year (Shinoda et al 1999). Niamey averages 21 inches of rainfall each year (Shinoda and Yamaguchi 2003, Tarhule 2005).

Niger's average annual rainfall measurements tell us little about the variability of rainfall during the year and of climactic variability over time. Niger's environments are marked by a distinct wet season, lasting usually from May to August, and a short rainy season in January (Shinoda et al 1999). The remaining months of the year are dry and hot, with average high temperatures in the coolest months (December/January) of 90ºF, and 103ºF in the hottest months (March to May; Shinoda et all 1999).

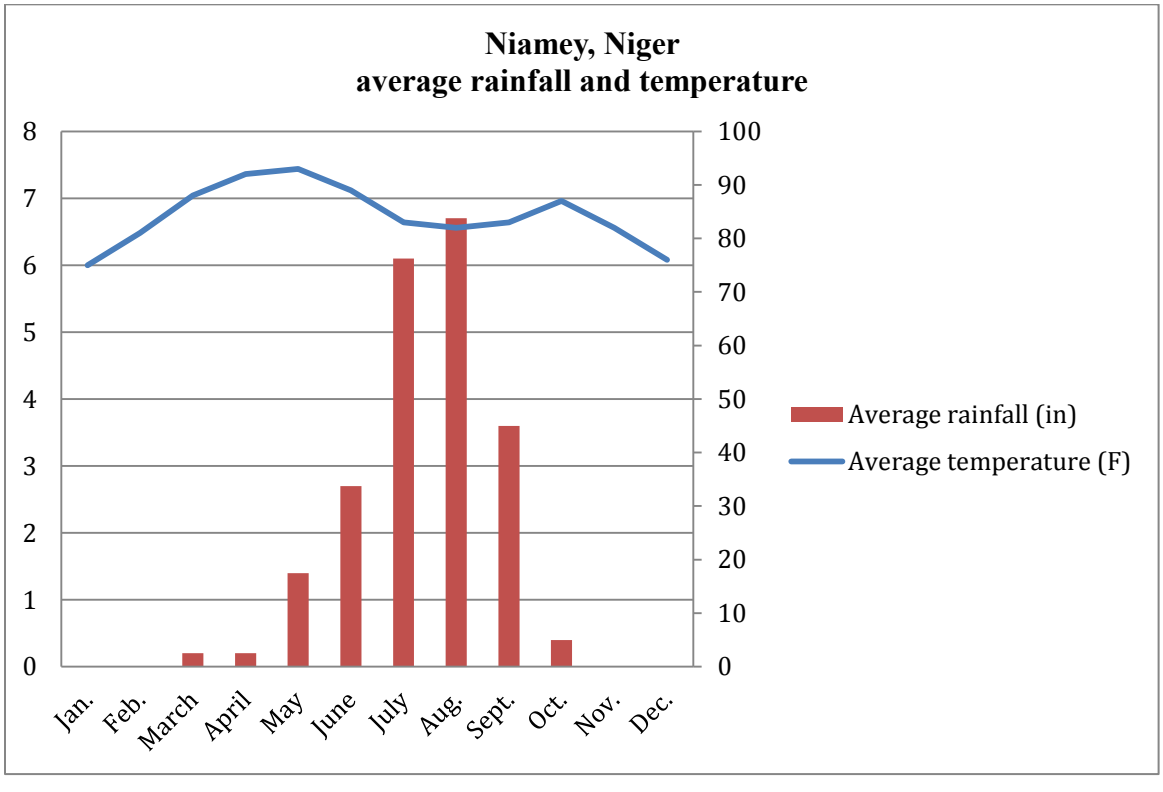

Figure 3: Climograph of Niamey, Niger. Source: AGRHYMET.

Recurrent drought cycles are common in Niger, which has resulted historically and today in both seasonal and permanent migration of rural inhabitants to urban areas (Decalo 1997). In addition, drought cycles are expected to get more frequent and severe with the impacts of global climate change (Dai et al 2004). Furthermore, when rains do come, they are increasingly more intense, with rain falling in short amounts of time, creating flooding conditions (Shinoda et al 1999).

Niger also has its share of political challenges. After gaining its independence from France in 1960, Niger was ruled as a one party state (but under two different regimes) until 1987 (Decalo 1997). After 1987, the political system opened up to multiple parties, but the road has been marked by volatility. The first president of Niger to be elected, Ali Saibou, left office after he was not reelected in 1993, but all subsequently elected leaders have been disposed in coup d'états (Massalatchi 2011). Since 1996, there have been three military coup d'états, which have generally been followed by transitional periods, and then elections. The last coup d'etat occurred in February 2010, and elections followed the next April (Massalatchi 2011). Constant during this political turbulence, particularly since the late 1980s, has been foreign aid and development assistance, so much so that the Nigerien state has lost legitimacy in the eyes of the international community (Alidou 2008).

Placing Niamey

Against this backdrop of national economic, environmental, and political challenges, Niamey emerges as Niger's cosmopolitan city. Niamey is the city where the world can be accessed, the city of opportunity, the home of the national university, a primate city in the classic sense. Niamey is a relatively new city—French colonists moved their capital from Zinder, an historic trading city located in central Niger, to Niamey in 1923 (Fuglestad 1983). Since then, the

city has grown rapidly, from 4,000 in the early 1930s to 35,000 people at independence in 1960 to over 1.3 million people today (Niger PRSP 2008, INS 2012). Niamey's population swells to 1.5 million during the dry season as seasonal migrants settle with families and on city streets to ride out the "hunger season" in the city rather than on the farm (INS 2012, Bocquier and Traore 1998).

As more people move to the city, demand increases on extant service provisions. In Niamey, the networked water system officially services about 65% of the city's residents (Niger PRSP 2008). Twumasi et al. (2005) measured a substantial decrease in water quality and availability in the Niger River, the source point for Niamey's piped water, between 1973 and 2001 as a result of increased urban usage. For those outside of the piped water system, a variety of methods are used to secure water (detailed in Chapter 5), including reliance on water vendors, public standpipes, wells, and neighbors. In Niger, household water is the woman's domain, as she manages the everyday household work of cooking, cleaning, and child rearing (Alidou 2005). Surely there are a variety of experiences of being a woman in Niger, but there, too, exist commonalities as women face entrenched patriarchy and versions of Islam (97% of the population is Muslim) that is increasingly political and fundamentalist (Alidou 2005: 6, Alidou 2008). Women in Niger, then, are on the margins in a country that is marginal in the contemporary global order, but their lives and individual experiences are essential to understanding Niamey urbanism.

Since the 1990s, Niger has been near the top of the list of highly indebted countries, and firmly in the throes of International Monetary Fund and World Bank restructuring schemes, or structural adjustment. Privatization of state run urban water provision systems was one such restructuring program. The IMF and World Bank required the restructuring of public services as part of their loan and debt relief package in many developing countries in the late 1990s, but this

process has in most cases proven inadequate in ensuring marginal populations access to water (Budds and McGranahan 2003). What is interesting for me is thinking about how the people experience the city through its water, both materially and symbolically. Urbanization and urban growth not only affect material conditions of residents, but also deeply affect human consciousness and changing realities across the globe; indeed, "urbanization of human experience is, as a dominant phenomenon, a reality of the new millennium" (Carrillo 2006: xi).

To understand how people interact with urban water and its infrastructure, we first need to examine how this infrastructure came to be and how it has been managed or governed. It is through this investigation that we see how water in Niamey is both global and local; and Niamey's situation is not unique in Sub-Saharan Africa. Urban water systems in Sub-Saharan Africa must be examined from multiple perspectives, both in terms of time (history) and space (scale), to understand frames in which contemporary residents act and for the possibilities of (re)imagining the future. It is to this topic I now turn.

Urban Water Governance in Sub-Saharan Africa

In 2010, more than half of the people living on planet earth live in cities, and every second that passes by sees 2 more people added to this number of urban dwellers (UN-Habitat 2010). In Africa, the urban population is expected to triple by 2050 (UN-Habitat 2010). Figuring out how to make sure people have access to water and providing for increasing urban populations worldwide has taken center stage in policy and development circles. Nearly all of the urban growth in the next 30 years is expected to take place in developing countries, especially Africa, thus thrusting these regions and cities into conversations on water management at the global level.

Rhetoric from international development agencies has equal if not stronger currency than local management practices, histories, and ideas of water in developing countries (Njoh 2010). Tracing how international organizations and corporations become intertwined with local service delivery in most large cities in Africa is tantamount to understanding the ways in which residents in cities today experience water in their cities and imagine the future. Water, it seems, is particularly susceptible to extra-local interventions because of its mobile and fluid nature—watersheds rarely lie within one country, and pollutants and uses upstream impact countries and cities downstream. Water, then, needs to be managed and governed in ways that account for more than just the local. In the following pages we see how an understanding of water as more than local has taken shape through development discourse and also through contemporary debates on relational and ecological governance.

In human geography, studies on water in African cities have largely been conducted within the framework of urban political ecology, and have focused on shifts to and strategies of privatization and neoliberal governance models (Kiel and Debbane 2004, McDonald and Ruiters 2005, Myers 2005, Page 2005, Gandy 2006, Loftus 2006, Ruiters 2006, Smith 2006, Loftus 2007, Loftus and Lumsden 2008, Myers 2008; see also Smith 1984, Graham and Marvin 1991, Harvey 1996, Gandy 1997, Swyngedouw 1997, Bakker and Hemson 2000). Local experiences of these changes and subsequent shifts in understanding urbanity have garnered less attention (see McGranahan 2001, Budds and McGranahan 2003, Kjellén 2006, Kjellén and McGranahan 2006, Kjellén 2007). My dissertation adds a more local, nuanced perspective of how water governance affects cities and people in cities.

In this section, I outline shifts in urban water governance in Sub-Saharan Africa that lay the groundwork for understanding urban water in Africa; the Niger experience is detailed in

Chapters 3 and 4. Unraveling these historical processes is vital to understanding how futures are imagined in the contemporary era, after failures of both the market and the state.

Colonial Waterscapes

After the formal establishment of European rule in the late 1880s, cities in Africa existed not for their intrinsic value, but rather were "embedded in times and rhythms heavily conditioned by European domination" (Mbembe 2001: 9). Many of the most populous cities in contemporary Africa began their role of primacy within colonial regimes. Examples of such cities are Dakar, Abidjan, Accra, Lagos, Kinshasa, Nairobi, and Dar es Salaam (see Gandy 2005, Myers 2003, Simone 2001). Different European powers practiced colonialism differently, but there are enough commonalities in experiences under colonialism that enable comparison between and across African cities (Myers 2011). The most important of these shared experiences is the location and growth of African cities as "sites of resource extraction" that resulted in "the functional retardation of African cities into roles as either entrepot/warehouse towns, bureaucratic capitals, or both at once, rather than as organically grown industrial manufacturing engines of value added" (Myers 2011: 51). Cities in Africa were valuable only as sites linking resources and extractive rents to Europe, sites linking the hinterland to the core.

Once located firmly in place, these cities needed to be organized, or re-organized as is the case with already existing cities, according to European visions of modernity in Africa. These visions of modernity included European superiority, economies of extraction, selective inclusion of local peoples, transformations of extant institutions, and development of the built environment (Stoler 1989). These visions of modernity had material impacts on the form and structure of African cities. According to Attahi et al (2009: 29-30), colonial urban plans shared the following four guiding ideas: "the separation of living quarters according to status, the preoccupation with

public health and hygiene, strengthening the security of the French Quarter or "European town, " and the quest for practical modernism and a vision of the future of urban development." Geographer Ambe Njoh (2008: 91) explains that all colonial cities in French West Africa had their own versions of "la ville blanche" (the white city) and "le village or la ville des indegenes" (the village or the indigenous part of the city). Moreover, colonial cities became laboratories for architects, urban planners, and social scientists as whole cities were formed and/or reformed according to ideas of modernity and race (Wright 1991). This was especially true in Francophone African cities in the 1920s and 1930s. During the 1920s and 1930s, French society was in a wave or romanticism for rural life; French cities were largely seen as uncreative nodes of consumerism and industry (Merrifield 2002). Disenchantment and apathy with cities at home was replaced, for many, with nationalistic pride in new urbanisms in the colonies (Wright 1991).

Water played an intricate role in these modern-colonial experiments and practices of the city. In the separate European quarter, Haussmann-style neighborhoods (patterned after those of the infamous architect of modernist Paris), with wide boulevards and gridded street patterns, undergirded with water distribution infrastructure were constructed (Baron 2006). In the "Native" quarter, however, streets were narrower and not laid out in a formal grid pattern, but rather were seen to take shape organically and by community decisions. This process was part of a deliberate effort of French colonial policy of promoting certain "traditional" forms of organization (Wright 1997). Water in the native or community quarter was modeled after rural systems (Baron 2008). Water was also seen as a public health issue in the native quarters, something the natives needed to be taught how to use and dispose of correctly in a city (Gandy 2006). Colonial urban planners viewed the "natives" as not ready or able to use the same distribution system as Europeans; when piped water networks did reach the native quarter it was only in the form of public fountains designed to mimic rural systems, and even this was

extremely rare (Bakker 2010a). The home and private space of the native seemed too unknown and uncivilized to risk contaminating the modern piped water network. Colonial officials deployed committees of hygiene monitors to ensure the correct use of public fountains and appropriate disposal of wastewater (Myers 2003). Water access and use became a foundation upon which identity boundaries were constructed and indeed policed (Bakker 2010a).

As cities under colonialism grew, so did the piped water network, but only for the Europeans and small groups of indigenous elites (Swyngedouw 2004, Gandy 2008, Loftus and Lumsden 2008). As Kaika (2005: 110) explained, "projects that could potentially trigger local independent development, such as irrigation or water supply, received little or no [support]." The European modernist project of "taming nature" was exported to colonies to "not only increase dominance over nature, but also dominance over human beings" (Kaika 2005, 109). Unequal access was literally built into colonial infrastructure projects and had material impacts on city form (Swyengendou 2004, Bakker 2010a). In Francophone African cities, a dual city emerged with the European/modern quarter relying on piped water and the native quarter relying on community management techniques that mimicked rural systems (Baron 2008).

Post-Colonial Modernization

With independence came limited investment in urban water infrastructures, as national governments placed emphasis instead on "large-scale hydraulic works, particularly large dams" as signs of modernization that helped served as markers of progress in newly independent countries (Bakker 2010a, 9). This push for modernization was informed largely by Rostow's famous theory of economic growth, which contended all economies pass through specific stages on their way to economic progress (Rostow 1960, Willis 2005). Rostow's theory was built around his idea of how European economies progressed from traditional societies, through pre-

conditions for taking off, take off, driving to maturity, and finally entering the stage of development as evidenced through mass consumerism (Rostow 1960, Williams et al. 2009). Of course, this theory did not take into account the myriad ways that European progress was built on the backs of colonized peoples, places, and resources (Wolf 1997). Instead, this theory of economic growth and accompanying stages was pushed as the inevitable road for countries should they wish to develop and become part of the modern world. International institutions, like the United Nations and the World Bank, became deeply involved in helping newly independent countries finance large-scale water projects in the immediate post-independence era (Bakker 2010a).

What little infrastructure developed in cities were far from systems ensuring universal coverage (Baron 2008). Local elites generally occupied former European quarters, and new neighborhoods created by independent governments were integrated into the European quarter's water distribution network (Baron 2008, Coquery-Vidrovitch 1988). Baron (2005, 2008) explained that the dual urbanism created under colonialism in French Africa persisted until the 1970s, largely as a result of underfunding, confusion over whether state or municipal officials held responsibility, massive urban growth, and multiple systems of property rights. Property rights became especially important in this post-colonial era. In French West Africa, there existed two ways that land could be obtained: through the state or through the customary/traditional leaders (Njoh 2008). Land obtained through the state was more expensive, and took a longer time, but these titles were the only ones recognized as legal. Only legal settlements were eligible for infrastructure extensions and water taps for personal use (Baron 2008). Land obtained through traditional leaders was deemed illegal, thus not an area of state concern. In an effort to bolster state and urban legitimacy, infrastructure extensions only served legal plots of land.

Settlement deemed illegal continued to rely on community water management techniques such as wells or pumps.

An emphasis on legality and property rights was a way for post-colonial states to both gain and exert their legitimacy in urban spaces. Just as different spaces of the colonial cities produced different subjects (i.e., whites, natives), post-colonial constructions of legal and illegal settlements became a way of understanding who belonged in the city and who did not (Kooy and Bakker 2008). Ultimately the state decided who was a legal resident, a citizen of the city, and thus merited inclusion into city services. States did not promote equal access to city services for all urban residents, but rather emphasized legal property rights as the avenue to urban citizenship. In essence, the state came to be viewed as a "benevolent despot," an absolute power that distributed services according to its own logics of legality, however fraught with problems they were.

In the 1970s, international development agencies shifted their focus from post-colonial reconstruction and modernization to development and poverty alleviation, and water distribution networks in developing countries became popular sites of intervention (Bakker 2010b, Baron 2008). One reason for this renewed interest in urban water supply networks were the links between poverty, lack of water access, and poor health expounded by the World Health Organization early on in the decade (Bakker 2010a). Clean water was, for the international development agencies, a cornerstone of the solution to more productive and healthy local populations. Cities took a front position in these development and poverty alleviation as sites of positive externalities, such as labor pools, consumer markets, and the targets of large numbers of rural migrants (Potts 1995). Loans and aid were given to state-run urban supply systems across the African continent (Bakker 2010a).

The United Nations designated the 1980s the "International Drinking Water and Sanitation Decade," and special attention was given to countries in Sub-Saharan Africa (UN General Assembly 1985, Bakker 2010a). The United Nations provided technology and project advice to developing countries, ministries, and water projects while the international development institutions (primarily the World Bank) followed close behind with the necessary investment capital (Black 1998). In 1983, the water and sanitation component of the World Bank was reorganized and now fell under the office of urban affairs, further entrenching water development as urban and infrastructural (Cairncross and Mundial 1992). Solutions early in the water decade focused mostly on "hardware" solutions to water access problems, including both low-cost technologies and massive urban infrastructure networks (Black 1998).

In 1985, things began to change. The international development community held a mid-decade review of the water decade, and concluded that "software," or questions of governance and sustainability, were more important than hardware solutions (Cairncross and Mundial 1992). In the early 1980s, African countries were struggling to find their footing amid a global recession that saw commodity prices drop and import prices swiftly rise (Helleiner 1983). Governments began to rely heavily on international aid for budget shortfalls and debt levels rose (Helleiner 1983). Water projects in which the development community invested often fell into disrepair, as budgets were insufficient locally to fix hardware problems and the political will to fix international projects stalled (Black 1998). Where cities were once seen as positive sites of creativity and growth, they were now viewed as over-urbanized and heavy burdens (Potts 1995). Governance and "software" issues became the focal point of the remaining half of the Water and Sanitation decade. Governance issues focused on the failure of states to produce effective water systems and promoted the market as the solution to state failure (Bakker 2010b).

Neoliberalization

The end of the 1980s marked a dramatic shift in urban water governance around the world. In most countries in Sub-Saharan Africa until the 1990s, urban water supply was state or municipally-owned and operated, and retained a highly unequal pattern of access across cities echoing colonial times (Jaglin 2005). Failure of these systems was tied, for development institutions, to the inefficiencies and failures of the state. There was little acknowledgement of problems within the global financing and modernization discourses themselves or their application to different places. The state in Africa became discursively constructed as "clientelistic, predatory, sorcerous, patrimonial, neo-patrimonial, criminal, imported, kleptocratic, and so on" (Olivier de Sardan 2009: 39). In his influential book *Markets and States in Tropical Africa*, Robert Bates (1981, in Arrighi 2002: 7) argued that "state officials in newly independent African countries used the powerful instruments of economic control that they had inherited from colonial regimes to benefit urban elites and, first and foremost, themselves" and that the solution to this problem was "dismantling state power and leaving the peasantry free to take advantage of market opportunities." Where the state was once the focus of development partnerships and international aid, the state now became the source of problems and the reason for failing water supply networks (Bakker 2010a, Jaglan 2005). The state was discursively replaced with the market as the most efficient way to deal with urban water inequalities. This discursive shift was paramount in the reorientation of international finance and development away from the state itself to semi-private and private entities.

Another factor in the shift away from state management of water networks was the Dublin Statement on Water and Sustainable Development adopted by the United Nations in 1992 that recognized water as a finite good having economic value (see also Bakker 2010a, Jaglan 2005). The Dublin Statement asserted that "past failure to recognize the economic value of water

has led to wasteful and environmentally damaging uses of the resource" and that "managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources" (United Nations 1992). This assertion opened wide the gate of commodification of water resources internationally. Now not only were Africa states despotic in their management of water networks, but they were also negligent in their development of this important economic arena. African states were discursively constructed as overburdened with industries and programs, making them unable to fulfill their promises and enact their development ideals. This process, coupled with the global recession of the 1980s, left African states cash poor and over-extended (Jaglan 2005).

The World Bank latched onto this idea of over-burdened states and the new definition of water as an economic good, and reoriented its strategies away from state and parastatal organizations to private operators (Baron 2008). The state became idealized as regulator rather than operator of urban water networks (Bakker 2010a). The key to the World Bank approach became "sectoral lending," which frequently necessitated reform of the very sector before lending could actually occur (Bakker 2010a: 71). Sectoral reform in the 1990s was often bundled with programs of debt relief, especially in countries in Sub-Saharan Africa (Goldman 2007). In order to qualify for debt relief and/or other structural adjustments by international finance regimes, countries first had to comply with a liberalizing state-owned water services (Goldman 2007). In much of the developing world, and particularly in Sub-Saharan Africa, "financial constraints on governments, rapid population growth, the qualitative infrastructure demands of foreign investors and elite residents, the perceived 'inefficiencies' of state-owned enterprises and general dissatisfaction with the supposed inflexibilities of centralized infrastructure" came together and thus gave credence to liberalization policies of international institutions (Graham and Marvin 2001: 99).

The late 1980s marked the first of these sectoral reforms and associated private sector insertions into water networks in developing countries (Bakker 2010a). By the early 2000s, 183 contracts between state and private companies had been signed in developing countries (Bakker 2010b). Fourteen contracts between states and private water entities were signed between 1994 and 2002 in Sub-Saharan Africa (Kirkpatrick et al 2006). Of these 14 contracts in Sub-Saharan Africa, half were in countries in Francophone West Africa: Cote d'Ivoire, Guinea, Mali, Senegal, Chad, Burkina Faso, and Niger (Jaglin 2005: 32-34). These liberalization contracts between African states and private companies rarely meant the wholesale privatization of water networks, but rather usually indicated the privatization of exploitation, operation, and commercialization (Bakker 2010b, Jaglin 2005). The most common form of private sector participation in Sub-Saharan Africa was, and is, the Public-Private Partnership (PPP). In these partnerships, states tended to retain ownership of water infrastructure and were accordingly responsible for investments and extensions. Private companies, conversely, took over as exploiters and operators; they became responsible for advertising, collecting payments, and dealing with customer service requests and complaints.

The opening up of water networks in poor countries to private participation in the 1990s spurred a wave of debates, in academic and policy circles, as well as activist groups. Anti-privatization activists and academics point to the failure of private companies to improve water access, and of their tendency to raise prices and focus on economic measures, as evidence of the fallacy of market solutions (Bakker 2010a). Proponents of private sector involvement highlight lack of state funding, availability of private sector funding as multinational corporations tap into global economy (stock markets, futures trading, debt trading, etc.), and the innovative nature of the market as reasons to further encourage private participation (Kaika 2005). Fifteen to twenty years after their implementation across the continent, though, access has not dramatically

improved (Bakker 2010b, Baron 2008, United Nations 2010). Both state and market-led water network management paradigms have failed to achieve more equitable distribution across and within regions and cities.

Contemporary Debates

So now what? This is the question that most research on water governance and urban water issues asks today. There still are proponents of state control and management, just as there are proponents of increasing private sector involvement. Increasingly, though, debates on futures of urban water governance focus on questions of politics of community (Bakker 2010a), the partiality of neoliberalization (Loftus 2005, Kaika 2003), and the increasing fragmentation of urban spaces (Graham and Marvin 2001, Gandy 2006) rather than critiques of the state and/or market.

Karen Bakker (2010a) concluded her book *Privatizing Water: Governance Failure and the World's Urban Water Crisis* by outlining what she sees as a potential solution to problems of water governance, contending that approaching water from an ecological governance standpoint opens up space for a multiplicity of actors and ideas more reflective of the nature of water as a natural resource, not just a human need or economic good. In her calls for ecological governance, she leaves room for the private sector and for community participation, but more importantly reasserts the centrality of the state in urban water governance. She calls for the state to be more inclusive of "communities," which vary depending on geo-ecological scale, from the watershed, to the urban, to the neighborhood.

I see Bakker's argument of opening up governance debates to include ecological scales as a call to recognize the multiple scales at which water operates relationally. This call to relationality is echoed across the discipline of human geography and can be a productive way of opening questions of water governance, which are ultimately questions of justice and equity.

Recent (re)assertions of the relational nature of space buttress ideas of relational politics and governance, and also lived experiences of urban life. The field of African urban studies has also recently asserted the need to think relationally, and this notion intersects in productive ways with geographical concepts of relational space. What I find most interesting in thinking about space, urban life, and relationality is how these ideas, experiences, and practices become embodied experiences, transcribed onto bodies of urban residents, particularly those residents without access to the piped water network. Looking at water and the city through the relational body reveals different ways that politics become embedded in everyday life and potential new sites for understanding urban consciousness and experience. The following chapter explores these different understandings of relationality and how they can be used to understand links between and within water, cities, and bodies.

Conclusion

In this chapter, I laid the groundwork for understanding Niamey and Niger. I showed how Niger lay at the margins of the global political economy, on the margins of the global environment, and politically mercurial. Though Niger lies on the margins, Niamey is central to the political, cultural, and economic functioning of the country and occupies center stage in the national imagination. Water certainly plays a part in this, so I outlined debates over urban water governance that will be key to understanding the histories of Niamey presented in Chapters 3 and 4. In the next chapter, I elucidate my theoretical framework of relationality that runs through and threads together the rest of the dissertation.

CHAPTER 2: RELATIONAL FRAMINGS

On April 12th, 2010 I sat with Hadiza in the courtyard of her family home in the Talladje neighborhood of Niamey. It was the fifth day in a row that the water tap inside their courtyard failed to yield water. Such events are common during the three month-long hot season in Niamey, where temperatures regularly exceed 120 degrees F and water is in high demand. Hadiza leaves the water tap open during times like these, hoping for some trickle of drops or an unexpected gush of water to flow. When gushes come, it is during the night, so she has slept outside near the tap for the past days just to make sure, but still nothing. During the day she gets water from vendors carrying water from the airport a few miles away, but this water is expensive. She gets enough so that her husband and children can wash themselves, but that she hasn't had a proper bath in a few days. She cannot cook without water, so she buys prepared food for her family and worries that they will fall sick because of their compromised situation. We walked together to the public standpipe where the neighborhood water vendors get water, but their taps also ran dry. Here was a neighborhood well serviced by a variety of water access points (public and private), one that by most measures would be classified as adequately serviced, but that had no water. Water pipes everywhere, but not a drop coming out.

Figure 4: Water tap after fourth consecutive day without water. Photography by the author.

Hadiza's story shows us that water in Niamey is not simply a question of who has pipes and who does not. To understand water in Niamey, we must look beyond the network map of piped water. Places are not either serviced or un-serviced; water access functions in more nuanced ways. Hadiza's household, for instance, has a working water tap, yet the flow varies seasonally and there are months where she gains little access through her tap. Other places may not have a water tap, but have money and knowledge to build private mechanized wells that function the same as water taps. But we have to look further than these different strategies of water provision among people outside of the formal water network. Hadiza tells us that not having water affects her health, her role as wife and mother, her body, and her household economy. It's not that there is less water during the hot, dry season, but rather that scarcity is *produced*: there is ample water from the river and the storage capacity of water stations should suffice. In reality, though, certain locales in Niamey are furnished first while others are left to wait. The city is connected through its water network, not just materially, but socially. From the physical water infrastructure we can unearth myriad ways the city comes into being through its relations.

In the previous chapter, I introduced Niger and Niamey, and described how water governance has changed over time. I concluded that contemporary debates on water governance are really calls to understand water relationally. In this chapter, I develop ideas of relationality into which water plays a pivotal role. I first look at space and relationality, and then argue that these understandings mirror Bakker's (2010a) call to ecological/relational governance. I extend this understanding of relational space to both cities and bodies to uncover ways of approaching questions of justice and city futures. I appropriate ideas of cyborg urbanization as particularly important for understanding the links between water, bodies, and cities.

Changing Ideas of Space

All human action is spatial action, as our material bodies move within various constellations of atmosphere and earth; everything occurs *somewhere*. Questions of space and the nature of space have been central to geographic understandings, but *space* itself has not always been conceived the same. Different conceptions of space affect the ways in which human projects are organized, both materially and metaphorically. These are particularly useful and salient when considering urban water systems, as conceptualizations of space alternatively formulated urban water as apolitical, universalizing, or partial and produced. In this section, I outline three main concepts of space—absolute, relative, and relational—and how urban water becomes differentially conceived.

Absolute Space

Plato, the classical Greek philosopher, explained that space is something which can be observed, not something created like time, but more real in that humans can observe space (Warf 2010). As I look out my window, I can *see* space. Space is observable—it is there, I can see trees at a distance and buildings behind that—features on and in space. Since space is observable, it is knowable. Space is concrete, unlike time which is fleeting and but for the present moment incapable of being experienced. Space is finite; time is infinite (Smith 2008).

During the Renaissance period, philosopher Rene Descartes took this idea of space as knowable and further separated human's experience into thought (which takes place in the mind) and material experience (which takes place in space), detaching a "highly self-conscious self from a universe that now lies decisively outside the self" (Bordo 1986: 444). In this view, humans are the locus of knowledge as they experience the inner mind, assumed to be rational,

asocial, and not located anywhere. The human subject, for Descartes, could discover and make sense of objects (and material experiences) in space through rational thought and observation (Warf 2010). Knowledge, then, was "neutral" and "disembodied," the product of a rational mind explaining observable truths in space (Warf 2010: 4). Absolute space became, in the words of Lefevbre (1992: 49), "an antagonism between full and empty." Space was empty as it was a container, but full with human activity. Space and society, though occurring in the same place, were separate entities (Smith 2008). Society acted upon space, but space did not have this equivalent agency (Smith 2008).

Placing space outside of human life made space into something independent of human thought, effectively dislocating the social from the spatial (Sack 1986). Space, in these absolute terms, was an "immobile, closed system" (Massey 2005: 55). Understanding spaces as immobile and closed typified early geographic scholarship that remained content with classifying and describing patterns on the earth's surface: "the job of geography [was considered to] consist mainly of filling the 'container' with information" (Meentemeyer 1989: 164). This way of thinking of space had political consequences, too. Massey (2005) explained that "so easily this way of imagining space can lead us to conceive of other places, peoples, cultures simply as phenomena 'on' this surface. Immobilised, they await [our] arrival. They lie there, on space, in place, without their own trajectories" (4). In this world of absolute space, or primitive space for Sack (1986), places outside of one's own realm existed within their own contained systems, unconnected from both natural and social systems across space.

Urban water in absolute spaces was merely an artifact of human organization that was locally differentiated depending on physical characteristics and perceived cultural abilities of different groups. Water systems were but a way that societies filled and acted upon their concomitant spaces, but these systems were neither social nor spatially mediated. Indeed, this

view of space was largely instructive in documenting physical and cultural water systems of the world (like the *qanat* systems of North Africa or the aqueducts of ancient Rome), but left little room for talking about how water spaces were connected across space (like the diffusion of water technologies historically), and disregarded social aspects of water spaces (Sack 1980).

Relative Space

The increasingly connected world of the 20th century was problematic for ideas of absolute space. As distant places were increasingly brought into the fold of Western, global capitalism, connections and processes became more important to understand than isolated traits. Conceptions of absolute space ideas gave way to concepts of relative space that contended "space can be defined only in relation to the object(s) and/or processes being considered in space and time" and that "distance/relationships are relative and change over time and across space" (Jones 2009: 49). Space, then, is not some *a priori* category acted upon, but rather space within which various phenomena—processes, events, life—occur at different spatial scales and are differentially experienced. Harvey (2006) aptly explained the difference between the absolute and relative approaches to space: "Absolute space is fixed and we record or plan events within its frame. Space is relative in the double sense: that there are multiple geometries from which to choose and that the spatial frame depends crucially upon what it is that is being relativized and by whom" (in Warf 2010: 4).

Ideas of relative space opened up space (and thus knowledge) for other ways of understanding geography. Space was no longer universalizing, but partial and differential, and critical post-positivist human geographies elucidated different experiences of space according to, but not limited to, gender (WGSG 1984, Valentine 1989, Hanson and Pratt 1995), sexuality (Bell and Valentine 1995, Nash 2005), race (Ruddick 1996, Crenshaw 1993), and class (Rose 1984,

Smith 2008, Harvey 1996). This shift was immensely important in early post-positivist geography, as scholars approaching human geography through critical lenses of feminism, postcolonialism, and Marxism described multiple experiences of space and theorized the different spatialities of social processes. Smith (2010: 106) described this sort of approach as arguing "different societies use and organize space in different ways and the geographical patterns which result bear the clear imprint of the society which uses and organizes this space." An implicit assumption in these ideas of relative space is the existence of some *a priori* space that is differentially experienced, a space that is separate from society (Smith 2010). Social and political processes mediated these experiences of space, but do not affect the constitution of space itself. Critical geographers, wary of fetishizing space or according to space some sort of agency, continued to assert the importance of the social over the domain of the spatial (Soja 1980).

Approaching urban water from the premise of relative space resulted in understandings of the city that were functionalist and teleological, that cities were unevenly developed but the promise of universal urban inclusion remained possible (Gandy 2004). Understanding processes across space and connections between the political, social, and water systems became key in understanding early privatization programs in the global South and unequal access to urban water networks (Swyngedouw 1997, Graham and Marvin 2001). Solutions to urban water and uneven access focus on changing the social structures in order to change space, and regularly disregarded aspects of physical environment or materiality (Smith 2008, Bakker 2010a).

Scholars working on urban water issues since the 1990s have radically opened up conceptions of the relationships between water, cities, and space to show that water not only produces spatial patterns, but that water and space are co-constitutive and exist within a socio-spatial dialectic (Soja 2010). These ideas echo ideas of relational space and radical ways of

bringing together society and space. The socio-spatial dialectic approaches of Soja (2010), Harvey (1996), Smith (2010) and Lefebvre (1996), with of course some differences between their visions, remain important in highlighting how space and society are not only co-constitutive, but how space itself is not natural or given, but always and continuously produced (Heynen, Kaika, and Swyngedouw 2006).

Relational Space

Concepts of relative and absolute space both conceptualized space as something separate from objects or processes, and insisted on the separation of space and society (Smith 2010). Space exists and processes enacted upon it and are differentially experienced. Thinking about space relationally, on the other hand, establishes that space never just *is*, but is *always created*. All spaces are relational spaces, always produced (Lefebvre 1997, Soja 1980, Harvey 1998, Smith 2010); never is space simply a given entity waiting to be filled, measured, or acted upon. That space is produced means that there is not only a heterogeneity of experiences of space, but rather a radical multiplicity of space itself. Massey (2005) aptly concluded that space is better conceived of as "a simultaneity of multiple trajectories" that is produced "through the practices of material engagement" (62). Space, in this understanding, becomes imbued with almost existential qualities, but at the same time bracketed by interaction and material relations. Space is unenclosed, yet bounded by relations: space is "open, multiple and relational, unfinished and always becoming" (Massey 2005: 59).

Relational space is closely aligned with post-structuralist geographies that argue that "space is made not by (underlying) structures but by diverse (physical, biological, social, cultural) processes" and emphasize that "these processes are made by the relations established between entities of various kinds" (Murdoch 2006: 19). Proponents of this framework claim that

"the mingling of various entities in complex assemblages, networks and/or systems, might now comprise geography's main intellectual concern" and argue that this is best accomplished through frameworks of relational space that include both natural and social systems (Murdoch 2006: 20).

Bakker's (2010a) suggestion of approaching urban water from the perspective of relational/ecological governance aligns closely with Murdoch's call for geographical inquiry to focus on relational frameworks. Bakker's (2010a) ecological governance framework sees urban water as more than just technological, political, or social processes, but also incorporates aspects of water that are physical, environmental, and even mystical (see also Linton 2010). This concept is an important addition to the ways in which urban political ecologists have used human-environment relational understandings to question the commodification and neoliberalization of water governance in cities around the world (Sywngedouw 1999).

Bakker (2010a) instead asserted the need to look at the relationality of water spaces, not just city spaces, in the formulation of alternatives to state and market driven water reforms. Approaching urban water and questions of access and inequality through the framework of relational space affords an understanding of water access beyond the infrastructure and conceptions of modernity to see how water shapes everyday lives in cities. I extend relational understandings to water in a similar fashion as Bakker, but focus on physical and social aspects of the neighborhood (Chapter 5) and the body (Chapter 6) instead of using the relational-ecological scales of water. A relational frame of urban water means that all understandings of water systems are situated and necessarily partial, and the story is continuously formed and reformed as water is produced, consumed, represented, experienced, and imagined.

Relationality is not only a fruitful frame within which to understand urban water, but also a useful lens to understand cities and urbanity, particularly in Sub-Saharan Africa, where

environmental and social processes are the target of international development intervention because of their unevenness across space. Thinking relationally both connects the local to the global, and looks beyond dystopian views of the city to understand the multiplicity of spaces that constitute urbanity and everyday life. Relational thinking allows a local perspective, but one grounded in connections, processes, and relations that tell us much more about how cities in Africa work and how they are experienced everyday. This call to relationality also resounds with contemporary work in African(ist) urban theory.

Relationality and African Cities

"Over the past ten years," explains Jane M. Jacobs (2011: 1), "'thinking space relationally' has had a profound effect on how urban geography is conducted and how its project is conceptualized." A relational understanding of cities contends that the city "exists in, and manifests, a condition of relationality that defies territorial depiction" (Jacobs 2011: 1). The city is not a territory, but rather an unbounded entity that relies on flows and networks—both material and discursive—from other places. A city never simply *is*, but is continuously produced out of a series of relations that extend beyond the urban to the rural, beyond the local to the global, and at varying scales in between (Amin 2007). To understand a city is to understand its relational context and the multiplicity of relations that exist within its nooks and crannies. As such, the city is not something that can ever be fully known; all knowledge of the city must always be partial because the city is multiple, open, and constantly in flux.

The destabilization of the category of "urban" in relational urban geography opens up space for understanding the city as a set of flows, and as such reflects different processes (cultural, social, economic, political) of urbanization around the world. Relational urban geography "is a radically cosmopolitan urbanism that does not simply add in to urban geography

different cities, but also enables urban geography to see difference" (Jacobs 2011: 8). Approaching African cities from a relational perspective plays a key role in this cosmopolitan urban project, and marks a distinct disjuncture from both developmentalist and relativistic approaches to African cities.

The African City: From Chaos to Relational Urbanity

The bulk of scholarly literature on African cities approaches urban life as a series of developmental hurdles—lack of infrastructure, poverty, slums, violence, informal economies, street youth, unemployment, fragmentation, inequality, and disarray (Pieterse 2010). Rarely are these qualities of African cities questioned; the focus remains how to intervene and act upon urban landscapes in Africa, how to save the African city from itself. Cities in Africa have not often been seen as cosmopolitan, creative, or exciting opportunities; Western cities were the only cities imbued with such qualities (Pieterse 2008). In response, recent critical human geography studies of African cities have shifted from demonstrating how they are disorderly, differ from, or are exceptions to normative urban theory deriving from the West to examining them as "fundamental dimensions to the global experience of urbanization" (Gandy 2006: 374; see also O'Connor 1983, Coquery-Vidrovitch 1988, Coquery-Vidrovitch 1991, Mabogunje 1990, Robinson 2002, Abrahamson 2003, Gandy 2005 and 2006, Freund 2007, Myers 2008, Myers 2011). Simone (2004: 15) contended that "it is important to emphasize that what is going on [in African cities] has worth and value, and is a crucial aspect of Africa remaking itself."

By shifting the focus from problems plaguing urban centers to positive gains that have materialized, the African city emerges as what Robinson (2006: 1) calls an "ordinary city," a city in which the "ways of being urban and ways of making new kinds of urban futures are diverse and are the product of the inventiveness of people." Envisioning African cities as ordinary cities,

argued Robinson, ruptured the trend of seeing African cities as "objects of developmentalist intervention" and their need to catch up to standards that came out of western urban theory, but extended to cities across the world as the urban idea (Robinson 2006: 2-3; see also Pieterse 2008). By formulating cities as ordinary, Robinson fractured the Developed (Western)/Under-developed (Other) binary, thus bringing all cities in all countries into the realm of urban theory, opening up space for non-normative Western experiences.

Anthropologist James Ferguson's (2006) further opened up space for ordinary cities through his framework for the uncoupling of development (or modernity) status with time. Ferguson showed how development and modernity thinking has been bound up with time, so that less developed countries just need to wait until the promise of development/modernity can materialize (Ferguson 2006, see also Fabian 2002). Underdeveloped places are thought to be "lagging behind" and just need to "catch up" with developed countries. Ferguson (2006: 186) contended, though, that the vast majority of African people no longer believe in this fictive future: "the developmentalist reassurance that history would, by its nature, transform status and that Third World people needed only to wait and to have patience and their turn would come, ceases to convince." Time ceases to have meaning in relation to development.

Uncoupling development/modernity from time, Ferguson (2006) explained, leads to two responses. The first reaction, and an important one, has been the disavowing of modernity as a universalizing conception of Western modernity and instead looking at alternative or African modernities (Comaroff 1993). This multiplicity in the ways to be modern parallels the ideas of the ordinariness of African cities. Multiple modernities and ordinariness allow for a re-historicizing of African communities and places in order to see the contemporary not as "traditional" or "modern," but something concurrently different and similar, a different way of being modern (Harrison 2006). Here, "modern" becomes synonymous with "contemporary" as

the modern is opened up to include multiple modernities occurring within the same historical moment. This idea mirrors Massey's idea of relational space leaving room for multiple trajectories at the same time (Massey 2005).

Besides appreciating a multiplicity of modernities, though, this approach does not address real problems many Africans themselves see as the very lack of the modern: the "shamefully inadequate socioeconomic conditions and their low global rank in relation to other places" (Ferguson 2006: 186). In the second part of Ferguson's (2006: 188) uncoupling argument, he contended "with the idea of temporal sequence removed location in the hierarchy no longer indexes a stage of advancement. Instead, it marks simply a rank in a global political economic order" (Ferguson 2006: 188). This notion, too, aligns with Massey's (2005: 8) conception of relational space: she argued, "the real challenge of the contemporaneity of others can be deflected by their relegation to a past." By seeing African cities as lagging behind or not quite modern, we deny them contemporaneous existence and place them in some fictive past. Once space is acknowledged as relational, however, other places become accepted as contemporaneous, and inequality is no longer a question of time but of hierarchical status. African cities become "nodes in a relational setting" that are continuously being created and re-created (Amin 2002: 391). Understanding the city beyond ideas of ordinariness and modernity, seeing the city as relational space, opens up the possibility for change and the creation of a new urban future.

African Urban Futures and Relationality

Pieterse (2008) argued that possibilities for African urban futures should start with the informal aspects of urban life in Africa. For Pieterse (2008), understanding the survival mechanisms of the poor living outside of the formal infrastructure, legal systems, and networks

of resource provision is the first step in creating cities that are more just, and that ultimately just cities should be the goal of urban planning. By foregrounding poor people's survival mechanisms, Pieterse showed that the city was not divided into categories of formal and/or informal, but one in which people live out complex everyday lives and depend on a variety of strategies and networks to survive in the city. I take Pieterse's suggestion and apply it to my understanding of how water works in Niamey by foregrounding experiences of neighborhoods with low rates of water coverage (Chapter 5) and examining how inaccessibility to water shapes urban bodies (Chapter 6).

The city, for Pieterse, is inherently relational and it is this relational nature that needs to be accessible and democratic in order to make progress towards a city future that will work for the majority of urban residents. Urban politics, then, becomes relational politics, as the relational city is multiple, open, and becoming, and thus the site for radical politics. Myers (2011) extended Pieterse's ideas of the relational city and urban politics, emphasizing that relationality itself changes depending on which of the multiple and changing identities people enact at any given moment. In this way, the city never is, but is always becoming, and is a process that varies widely between and within cities (Robinson 2011).

Despite this variability, cities across the African continent share patterns of inequality that make urban life for some (even many) a game of survival. How to work beyond survival mode and make cities that are more just and more inclusive is again brought to the forefront by Myers (2011), but in a way that approaches the city as a dynamic lived experience instead of a site of development intervention. An approach informed by relational space helps us understand how inequality in the city is produced through social relations that have material effects: "relational space is a 'power-filled' space in which some alignments come to dominate, at least for a period of time, while others come to be dominated" (Murdoch 2006: 20). There is not one

development solution, but rather myriad questions of how to understand how power is enacted within various relations to create contexts within which people experience city-ness and urbanity in Africa. After all, it is within relations that meanings and metaphors "slip into the clear text of the planned and readable city" (De Certeau 1984: 93).

Studying urban water systems from a relational perspective is one such way to examine how people experience urbanity, particularly in cities with stratified water distribution networks and multiple modes of water provision. Understanding how water functions to create its own version of the relational city can shed light on different experiences of the city and opening up space for these nuanced differences can be the building blocks of radical, relational urban politics. This is what I do in subsequent chapters: chapters 3 and 4 outline how the water was intentionally used to create specific spaces in the city, but also how water as an ecological resource (particularly the lack of water and drought) shaped the city and the water distribution network. Chapter 5 builds on this historical development to look at experiences of places on the margins and re-conceptualizes the city not as a series as fragments, but as a collection of neighborhoods and relational spaces.

Through this work on neighborhoods and lived experiences of urbanity amid inequality, the question of material, corporeal experience rose up again and again. It is not just neighborhoods or spaces that become marginalized, but bodies within those spaces become shaped by their very marginality. Understanding how bodies in marginal spaces are specifically shaped by urban water systems becomes an important piece of imagining different futures and radical, emancipatory politics.

Relational Space and the Body

The challenge brought to us by relational understandings of space and cities are seeing them both as material and tangible, open and always becoming, thus rendering them fleeting and (im)material. Space and the city become something both perceived, yet never completely knowable. They exist in moments, but are constantly created and re-created and radically open. Moreover, space and cities are not just produced and re-produced, but they are experienced. As subjects (humans and non-human animals and objects) experience spaces/cities, they then re-act upon the very space or city itself based on their very experience. This socio-spatial dialectic (Soja 2010) can also be extended to an understanding of bodies as relational and bodies as co-constitutive in myriad environmental and social processes.

The body came to occupy central stage in human geography in the 1990s, led by feminist geographers who argued for the social construction of gender and its corresponding implication on the construction of geographical knowledge and the constitution of space. Integral to this early feminist work was seeing the body as something produced through and inscribed by social and cultural systems, rather than merely existing (Rose 1993, Blunt 1994, Hanson and Pratt 1995). Until the early 2000s, most work in human geography on the body retained this constructivist approach, and focused on how power became inscribed onto bodies and how particular spatialities were subsequently produced (Longhurst 2007). The body's materiality in these studies was de-emphasized and bodies became "little more than surfaces etched with social messages" (Longhurst 2007: 23).

More recent work on the body in human geography, particularly within non-representational theory, however, goes beyond social constructivism to study how bodies are lived and experienced (Thrift 2008). Non-representational approaches argue that the body exists outside of and before representation, and that bodies are deeply sensorial and life-giving (Thrift

2008). Approaches, here, tend to focus on the body's response to affect and emotion, the subsequent shaping of spatial experience (Pile 2010), and how space itself produces affect and emotion that in turn shapes peoples bodies (Bissell 2008, Anderson 2009, Abrahamsson 2011). Feminist and post-structuralist geographers have critiqued non-representational theory for overlooking important contextual questions of how different bodies experience phenomena in different ways, particularly in relation to discursive power(s) (Barnett 2008). Understanding the body as relational incorporates aspects of both social constructivist and non-representational approaches to the body, and is thus a useful way to work beyond these debates.

Relational Bodies and Relational Space

The definition of relational bodies put forth by David Harvey (1998) seamlessly aligns with Massey's definition of relational space as multiple, open, and becoming through process. Bodies, Harvey contends (1998: 98), are best understood relationally: "the body is not a closed and sealed entity, but a relational 'thing' that is created, bounded, sustained, and ultimately dissolved in a spatiotemporal flux of multiple processes" and is always "an unfinished project, historically and geographically malleable in certain ways." Harvey's ideas of the relationality of bodies are particularly important to my work here because of his use of a "'relational-dialectical' view in which the body (construed as a thing-like entity) internalizes the effects of the processes that create, support, sustain, and dissolve it" (Harvey 1998: 98; see Lefebvre 1991, Haraway 1991, Merleau-Ponty 1992, Butler 1993, Grosz 1994).

This relational dialectic of the body rests on the foundation that bodies are "simultaneously material and metaphorical" and that they "exist within contextual systems of meaning and power" (Creswell 2006: 73). Furthermore, bodies at once impact and are impacted by material and metaphoric processes (which are both environmental/natural and/or social). I see

this notion as a corporeal extension of Soja's socio-spatial dialectic, in which society and space are co-constitutive, and indeed he contends that the "production of spacetime is inextricably connected with the production of the body" (Harvey 1998: 100, see also Foucault 1977, Lefebvre 1991). Here, the struggles over spaces and cities also become struggles over bodies (Smith 2008, Smith and Katz 1993). This understanding is particularly useful for me in Chapter 6 as I examine how bodies outside of the piped water network are shaped by their marginality, and in turn how their embodied marginality affects the network and struggles over governance. A relational understanding of the body also resonates with African experiences and philosophies of the body's constitution.

African Philosophy and the Relational Body

In African philosophy, the body is understood both as material, as evidenced in sensory and material experiences with the world (Stoller 1995) and metaphoric/social, or a canvas onto which social and cultural ideas are imprinted (Izugbara and Undie 2008; see also Gyekye 1997, Mbembe 2001, Appiah 2005). The body is "an extension of many other phenomena that are central to the societies with which individuals are affiliated" (Izugbara and Undie 2008: 161). Stoller (1989, 1995), for example, documented how sensory experiences were experienced in unique corporeal ways in African settings and that this sensorial experience of the body was integral to the understanding of the self in African culture. Bodies, also, are important sites of discursive contestation and norms become transcribed onto bodies in particular ways, such as acceptable styles of dress or appearance in public spaces.

This line of thought means that the body is site of the self, but that the self contains much more than just the individual but the extension of an array of phenomena, such as sounds, ancestors, or nature. The self, in African philosophy, arises not out of individual, isolated

experience, but only within relations to both community and nature (Adams 2012). African constructions of individuals emphasize "the experience of self as a relation node embedded in contexts" (Adams 2012: 185). Adams (2012) argued that this interdependent construction of the self is not natural or inherent, but rather the product of specific social and ecological contexts from which these ideas arise. To understand the self and body as interdependent, relational, and arising from particular geographic contexts, then, requires an understanding of grounded in a relational framework of space. The body as the site of self is constructed interdependently and emerges at the intersection of relations, continuously being formed and re-formed.

Understanding bodies as both material and social, or in terms or relational-dialectics of embodied experience becomes a useful tool in both critical human geography and African studies approaches to cities, water and governance. In Chapter 6 I present an embodied relational understanding of water through case studies of women without access to water in their households, and I trace the ways in which water becomes traceable materially and socially upon their bodies. I take inspiration from Gandy's (2004: 373) statement that "water implies a series of connectivities between the body and the city, between social and bio-physical systems, between the evolution of water networks and capital flows, and between the visible and invisible dimensions to urban space," and from his broader ideas of cyborg urbanisms.

Cyborg Urbanisms, or Links between Cities, Water, and Bodies

Donna Haraway's (1991) Cyborg Manifesto introduced the figure of the cyborg as critique of subtle forms of power and a radical opening up of identities, ways of knowing, and experiencing. What is important here is how the cyborg blurs the boundaries of the body—"Why should our bodies end at the skin, or include at best other beings encapsulated by skin?" (178)—and imagines a cyborg world that acknowledges both the imposition of controls and the "lived

social and bodily realities in which people are not afraid of their joint kinship" (152). The cyborg is both a phenomenon and a way of understanding. Cyborgs as phenomena are the amalgamation of human and machine, or processes by which human beings are mediated by technology. Cyborgs are also a way to push our understandings into lived experiences that encapsulate both material and social phenomena (Gandy 2005). Haraway (1987: 152) contends "the political struggle is to see from both perspectives at once because each reveals both dominations and possibilities unimaginable from the other vantage point."

Swyngedouw (1996) interjected Haraway's cyborg into urban political ecological understandings of nature and cities and argued for understanding urban water not as hydrologic, but as hydrosocial, and that material bodies are linked through technologies that exist within power relations focused on transforming nature. As Gandy (2005: 28) further argued, "the emphasis of the cyborg on the material interface between the body and the city is perhaps most strikingly manifested in the physical infrastructure that links the human body to vast technological networks." In African cities, these technological networks are not accessible universally, so this view of cyborg urbanization (linking bodies to infrastructure technologies) reinforces the relational understanding of cities, which posits that cities are multiple and the boundaries between city and non-city are increasingly blurred. Let us not forget, too, that infrastructure and technology are deeply political, and the struggles over control of infrastructure then become struggles to control both cities and bodies.

Gandy (2005: 41) further argued "the [cyborg] concept simultaneously engages with both the renewed recognition of urban vulnerability and the theoretical hiatus facing the study of the city as a polymorphous web of different social practices, imaginative constructs and material elements." This is exactly what I do in Chapter 5 as I examine uneven access to water across the city and argue that the city is better understood as a relational collection of neighborhoods rather

than fragments of a once universal whole. In Chapter 6 I examine how bodies become implicated in water infrastructure and how they are shaped by this cyborg urbanization. In Chapter 3 and 4, I outline shifts of power over these infrastructure technologies and their governance. This ontological framework of cyborg urbanization is particularly useful in understanding how cities and bodies are produced relationally through (in)accessibility to water infrastructure technology.

Conclusion

This chapter has presented the relational ontological frame through which I approach understanding water in Niamey. I first outlined how space itself is best thought of as relational, and as such is always open and becoming. Knowledge of space, then, is necessarily partial. I then showed how approaching cities, particularly African cities, through a relational perspective opens up space for difference and lived experience, and makes space for radical politics rather than mere sites of developmentalist intervention. I then discussed how a focus on the body as relational, and both material and social, can illuminate specific experiences of the co-constitution of self and space. Looking at the body in relation to water infrastructure links questions of governance with embodied experiences of the body, and this idea can be conceived of as in the intellectual project of cyborg urbanization. Understanding Niamey through relationality—in space, in cities, and in bodies—and around water becomes a productive way of organizing and understanding links between politics, marginality, and lived experience.

In the following chapter, I develop a relational history of water in Niamey during the colonial era to show how water was never universal, but always partial and always political. In the subsequent chapter, I continue the history of water in Niamey into the post-colonial era and onto contemporary water governance configurations. After that, I explore the contemporary city through water access at the household level and argue that the city is best understood as a

collection of neighborhoods. In the final chapter I trace water's relational impacts on bodies, and contend that power over water is really power over bodies. In my conclusion chapter, I bring us back to relationality and look once again at the city as neighborhoods as a way of looking to the future of water governance in Niamey.

CHAPTER 3: WATER AND COLONIAL NIAMEY

"The history of cities can be read as a history of water"(Gandy: 2002, 9).

This chapter tells a history of Niamey through the lens of urban water developments and changing forms of urban water governance. In the preceding chapter, I outlined debates about water governance, and traced a general evolution of water governance in urban Africa. Throughout this discussion, I use the concept of governance put forward by Karen Bakker (2010a: 8): "a practice of coordination and decision making between different actors, which is invariably inflected with political culture and power." Bakker (2010a: 8) goes on to explain that this "concept of governance can help us understand some of the persistent failures of government and private models, and the emergence and persistence of fragmented patterns of urban water supply." This chapter uses the outline of water governance debates to focus on how water developed and changed over time in colonial Niamey. Shifting frameworks of water governance are tied up with shifts in colonial construction of native subjects and modernity. I look at how each phase of urban water management in Niamey discursively constructed certain groups as traditional, uncivilized, and un-modern, and how these ideas were manifested on the material landscape of the city, from pre-colonial times until the 1960s. How water was used to produce specific urban spaces becomes the cornerstone of my understanding of relational urban spaces of Niamey. This chapter begins the story of water in Niamey and continues until the end of the colonial era; the following chapter starts the narrative after colonialism and brings us to the present day.

Pre-Colonial to 1900: Anonymous Beginnings

Before the establishment of a French military base in 1901, Niamey existed only as a collection of villages along the Niger River (Bernus 1969, Sidikou 1980, Motcho 2010). This collection of villages was a place of betweens: between the empires of Hausa to the east and the Songhai to the west, between the market zones of the Tuaregs to the north and east and the Peul to the south and west (Bernus 1969: 7). It was a little used zone, far away from Hausa, Songhai, Tuareg, and Puel centers of power, but, as Bernus (1969: 7) explained, "in this marginal zone came together various populations with diverse origins." This zone that Niamey now occupies has historically been a place of exchange, of mixing, of coming together, of refuge, and of being together (Sidikou 1980).

Niamey's location at the margins of various empires and being a zone of immense diversity has been used to explain the lack of concentrated population centers or cities in the area, particularly when surrounding empires had long histories of urbanization (such as Tomboctou, Agadez, Zinder, Ouagadougou; see Motcho 2010). Despite the lack of a consolidated urban space around Niamey, and there certainly were these spaces in pre-colonial Niger (Zinder, Agadez, and Say), Niamey's pre-colonial history is a complex story of families, intermarriages, rivalries, mobilities, and diversity characteristic of other Nigerien cities (Sidikou 1980).

One of the first appearances of white people in Niamey was recounted by Djibo Salifou, resident of the Niamey zone in the late 1890s, to anthropologist Suzanne Bernus (1969). These white people seen by Salifou were most likely Captain Toutee's expedition, the first European expedition to pass the town of Say (50 km south of Niamey). Bernus (1969: 8-9) explained that Salifou recounted a story in which villagers saw what they thought was an elephant on the water that turned out to be white people in a boat of iron with large sails. The whites docked the boat,

and sent out a black man to trade beads and rings for chickens and eggs while the Europeans stayed on the boat. Salifou noted that he and his people were suspicious, and sent women and children to trade while the men stayed back. The whites stayed for a week, and just as mysteriously as they came, they left. By staying in their riparian vessel, expedition members asserted their belonging in the modern, civilized world through the positioning of their bodies. Certainly this position served material purposes (close to their belongings and home), but it also discursively aligned their bodies and allegiance with technology, Western-ness, civilization, and the colonial project. Furthermore, by staying on the boat they asserted their difference—they were of another make, a kind that could not mingle with locals. Africans were long constructed by French colonial and popular imaginations as stuck in time, pre-civilized, and primordial beings with strange customs, limited technology, and logics that defied Western notions of rationality (Conklin 1997). Staying in their boat on the river was also a claim to space: they defined their own exclusive space and also made maps and charted the river's course, thus transforming this village into a series of representations on paper that was discovered and such could be known, could be consumed.

The year 1896 marks the first appearance of "Niamey" by name in colonial documents, a travel log from Lieutenant Hourst's expedition on the Niger River (Sidikou 1980, Hourst 1898). Hourst traveled from the start of the Niger River in Senegal, and was the first to chart its entire course. Hourst demonstrated his extensive knowledge of ethnic groups and inter-ethnic politics, though he himself stated he never quite understood what to expect: "whenever we had hoped for a friendly reception we had always been disappointed, and when we feared hostility from the natives we had generally been kindly welcomed" (Hourst 1898: 277-278). Hourst here reaffirms the European's notion of irrationality of the native, of a people who do not know to respond appropriately. In a village north of Niamey, *Sansan-Haussa*, Hourst (1898: 278) described his

"disappointment" in the village because of poor aesthetics and thatch construction, but that "to make up for this, the granaries storing millet are really beautiful." Hourst at once denigrates and elevates the local cultural landscape, asserting his, and by extension French, authority to define how places should look. A few pages later he is in the zone of Niamey and remarks on the appearance of big villages on elevated points along the river. On one of these plateaus about 20 km downstream of Niamey, Hourst (1898: 284) saw a line of warriors on horseback watching them and standing guard, concluding that "our enemies on their side acquitted themselves bravely, and with considerable dignity, though it must be confessed they reminded us rather of china dogs glaring at each other." Hourst, upon meeting a show of warriors and exertion of local power, dehumanizes locals and turns them into a pack of dogs. Here Hourst discursively transforms bodies into animals and thus opens wide the space for conquest and domination.

According to Nigerien geographer Sidikou Sidikou (1980), it was from 1897 onwards that Niamey started to have an important role as an urban center. Sidikou explained that starting after the Berlin Conference in 1884, European countries attempted to occupy the vast areas of their colonial regimes, and that the French in particular envisioned a united French West Africa. The French occupied vast realms of the Africa, and moved west from Sudan, north Dahomey (Benin), and east from Senegal along the Niger river (Sidikou 1980: 11). As French troops moved east, from Senegal towards Lake Chad, they first chose Say as their stopping point and therein established a fort in 1898 (Sidikou 1980).

Later in 1898, the infamous Voulet-Chanoine mission—an exploration team sent by the French government to explore the regions between the Niger River and Lake Chad—reached the Say stopover point and began their infiltration inland (Guyotat 1999). The Voulet-Chanoine mission was notoriously brutal in their consolidation of power, and criticized earlier missions for only establishing a presence at Say, downriver from Niamey (Fuglestad 1983, Sidikou 1980,

Bernus 1969). In February 1899, the Voulet-Chanoine mission's leaders argued that the French presence along the bend of the middle Niger River—the regions north of Say to Boubon (20 km north of Niamey)—needed to be stronger, and set out on a campaign of looting and burning villages, taking prisoners, killing people, raping women, and destroying communities in the name of squelching resistance (Guyotat 1999). Sidikou (1980: 14) cited French colonial documents in the Archives of Senegal as describing that "many villages have been burned: Boubo (Boubon), Bossei, Boubel (Goudel), Yatela (Yantala), Niemei (Niamey), Libore, etc" (parenthetical names added). Bernus (1969: 233-235) explained the other side of the story as recounted by her witness informant Salifou who explained that in the region of Niamey, locals expected only to trade supplies with the mission, but instead were met with weapons and fires, and nearly all the houses (which were made of thatch) were burned to the ground (Bernus 1969: 233-235). Just as Hourst claimed that when he expected calm he was met with hostility, so too did locals. It seems, then, amenable logics were defied on all sides, and each side saw in the other a profound difference, something that was unknown and irrational. The action by the Voulet-Chanoine mission to resistance (which Salifou denied) marked the beginning of the inclusion of Niamey in the French empire, and forever changed the course of this "anonymous village" (Sidikou 1980: 15).

That explorers, military expeditions, and the Voulet-Chanoine mission constituted the early interactions between locals and French has been emphasized to show the ways in which French imposed their rule. First, explorers map and document local places, abstracting them as certain classifiable places with certain physical and cultural characteristics. Certain people encountered by the explorers were venerated as allies, knowledgeable guides, and powerful chiefs, but European supremacy was always asserted. They dehumanized locals with their discourses of evolution and tradition, and thus made their physical attacks on bodies part of their

colonial project of ridding the place of difference and otherness. Early demonstrations of force by the Voulet-Chanoine mission served as the cornerstone upon which French imperialist identity was built in the collection of villages that would one day becomes its capital. In Niamey, people were taken by surprise; they had no reason to expect destruction, but in so performing imperialism through violence the colonial expeditions demonstrated what scholars describe as a different set of logics, or an internal logic (Mudimbe 1988, Nally 2008). The French operated in a different social world, transplanted physically onto the banks of a river in West Africa, and aimed to transpose this world onto their new location.

1900 – 1924: Colonial Beginnings

In 1900, the French declared control of the Third Military Territory of Niger, which consisted of three regions: Tomboctou, Niamey, and Zinder (Fuglestad 1983). A year later, the French set up a refueling and provisions post in Niamey for the ongoing military and administrative expeditions moving between Tomboctou and Zinder (Sidikou 1980). The site of Niamey was chosen for its ease in establishing a port, the strategic location on the bend of the Niger River, and the existence of plateaus overlooking the bend (Motcho 2010; see figures 5 and 6 on the following page).

In 1903, Capitan Salaman fortified Niamey's place in the colony by making it the capital of the *Cercle du Djerma*, the zone extending from Say north and eastward 200 km (Motcho 2010). Salaman insisted on using the name Niamey to refer to this collection of villages along the banks of the Niger River, marking the transition from a collection of autonomous villages to districts within a growing administrative unit (Sidikou 1980).

Figure 5: Geographical extent of contemporary Niamey along a bend in the Niger River. Source: Google Earth.

Figure 6: First colonial officer residence. Photograph by the author.

Salaman was well liked by Niamey residents, in part for his promise of protection under the laws of the Empire, and also for his decision to end any sort of tax collection in the Niamey zones (see Motcho 2010, Sidikou 1980). Niamey residents, about half of whom were slaves before Salaman's arrival, exclaimed "Niamey, captain Salaman's city, is a city where life is good because the chief is not mad at his subjects" (Mothco 2010: 16). Indeed, Salaman cultivated the image of benevolent ruler, painting himself as a father figure who protected his children subject, which fit conveniently into the "civilizing mission" of the French empire (Conklin 1997).

In 1905, Niamey became the capital of the Third Military Territory of Niger (Motcho 2010). Also in that year, the first cadastral map showing limits of the city appeared, reinforcing the rhetorical control and ownership of the French: they drew the map, the decided who owned what (Sidikou 1980). Niamey retained the status of capital for only six years; in 1911 the capital was moved from Niamey to Zinder (Sidikou 1980, Motcho 2010). Zinder was favored over Niamey for a number of reasons. First, the reorganization of the Territory of Niger saw the integration of its western region, Tomboctou, into the Malian territory (Fuglestad 1983). After this move, Niamey lay at the western edge of the territory rather than a centralized point. Also, French officials preferred Zinder as their capital because of its historical importance as one of the original city-states of the Hausa Empire (Sidikou 1980). Co-opting a Hausa city for the French empire was a symbol of the successful French conquest of strong indigenous areas. Niamey, they argued, had been artificially elevated to a position of importance when it was really just a mishmash collection of villages and ethnicities (Sidikou 1980). Niamey reverted back to its function as a military stopping point until 1924, when the capital moved from Zinder back to Niamey. Multiple reasons for moving the capital from Zinder back to Niamey were given by French officials. First, and probably most likely, was the noncompliance and resistance by Hausa leadership to French control of their historic city (Sidikou 1980). In Zinder, the Hausa, though

certainly not the only ethnic group in the region, were by far the most powerful and controlled the city and trade routes for centuries prior to French arrival. The French had failed to understand the importance of this historic city and also underestimated the extent to which the Hausa people would resist a take-over. The more documented reason, however, was water (Motcho 2010). Zinder lay inland far away from any riparian source of water and undergirded by thick layers of granite rock, making wells both difficult and expensive. French officials lamented the difficulty in obtaining water in Zinder, and in a letter to French Colonial office recommended, indeed asked, for the capital to be moved to Niamey (Motcho 2010). In addition to having ample water, Niamey was in the middle of a zone with a variety of ethnic groups, the in-between zone discussed above, and no single ethnic group wielded extensive control, making it easy for the French to assert their ruling status (Sidikou 1980).

The City Emerges: Niamey 1924 to 1930

Work on the new colonial capital started one year before the official move. Skilled workers were imported from Sudan and Senegal to start work on public buildings, including the Palace, hospital, and government housing, as well as the market place and parceling out new neighborhoods while local labor was used primarily for unskilled, manual tasks like hauling cement, laying bricks, and digging roads (Sidikou 1980: 30). Importing skilled labor, though this labor was still African, denied local populations the ability and knowledge to learn new skills and effectively constructed them as useless and ignorant. The French used the inexistence of central urbanized areas in the region and the low levels of local technology as evidence of their superiority (Conklin 1997). The French then used this idea of superiority as justification for their system of forced labor: they "knew what was in the best interests of the colonized and could thus force Africans to cooperate in their plans" and that "coercion, though unpalatable, was often

temporarily necessary to inculcate in the African an absent work ethic" (Conklin 1997: 213). The city was literally built on the backs of local populations: their forced labor brought the capital city into physical reality, thus imbuing every slab of concrete and mud brick with the "ethics" of the French empire. The built environment encapsulated the power of the colonizer over the indigenous. By 1926 official buildings were complete or well underway, and most government services had moved back to Niamey (Sidikou 1980).

A colonial urban water regime emerged in Niger in the 1920s. The first signal of this was a 1921 report by then Minister of Colonies, Albert Sarraut published in the weekly colonial communiqué (Merlin, J.O.A.O.F. #856, April 9, 1921). Sarraut was highly influential in colonial affairs of the 1920s, and his *mise en valeur* idea became the foundation upon which the French ruled their overseas territories (Conklin 1997). Sarraut's *mise en valuer*, roughly translated as bring into value or put to use, emphasized "long-term economic value of the colonies to the metropole" and a "more rational and progressive development" of France's overseas territories (Conklin 1997: 41). In his 1921 report from Niamey, Sarraut pleaded to the French president that more specific strategies of water management were needed than the 1904 ordinance that granted France domain over all water resources of the French West Africa colonies (Merlin, J.O.A.O.F. #856, April 9, 1921: 277). His regulation reinforced the 1904 stipulation that water was a public good under the control of the governor general, but required that water infrastructure development go through the appropriate local public works officer first (Merlin, J.O.A.O.F. #856, April 9, 1921: 279-280). Water was simultaneously a public good owned by the French state and a resource to be managed at the local level. From its inception, urban water in Niger has been shaped by multiple actors operating on multiple scales.

Sarraut also outlined standards of water use and disposal to which the African residents of the city must conform. European residences and districts were outside of Sarraut's concern,

for they already followed building and practices aligned with France's public health law which detailed requirements for sanitation in buildings and neighborhoods (see Conklin 1997, 48-50). Sarraut's (J.O.A.O.F. #856, April 9, 1921: 279) legislation stipulated that

> Rivers or bodies of water could no longer be used for disposal of household waste; used water could no longer be left to dry in the open air; no materials (such as sand, clay) may be taken out of the river bed or other water source without a permit; boats could not be stored anywhere they could interfere with the circulation of water; and that destruction of public works would not be tolerated.

These prohibitions on existing water uses effectively constructed the colonial subject as ignorant of how to live in a city without contaminating and destroying the surrounding environment. The colonial subjects, in Sarraut's eyes, need to be taught how to properly treat urban resources; they needed development.

Sarraut's construction of the colonial subject as more un-evolved rather than hostile resistors, as in the previous military and conquest expeditions, marks a paradigm shift in French colonial organization, one in which infrastructure and development takes center stage. After World War I, France approached overseas territories as places to invest and make money rather than mere sites of extraction and zones for exploitation (Conklin 1997). Sarraut contended that "long-term investment in infrastructure … would enhance the modernization of colonial economies, the expansion of imperial commerce," and ultimately would "offer a more important strategic prize: popular acceptance of French rule" (Thomas 2005: 929). Investment and development in the colonies, Sarraut argued, "promised to make colonial rule more permanent" (Thomas 2005: 927). At his urging, a Department of Forestry and Water was created in 1928, closely aligned with the Office of Public Works and the Office of Urbanism (Thomas 2005). One year later, *La Compagnie des eaux et électricité de l'Ouest Africain* (West African Water and Electricity company) was created by the colonial administration to manage the urban networked infrastructure created by the public works office (Blanc and Botton 2011).

By 1930, the city was following an urban plan that was quintessentially colonial (see Attahi et al 2009, Smiley 2010). Figure 7 below shows Suzanne Bernus' (1969: 26) depiction of this 1930 plan.

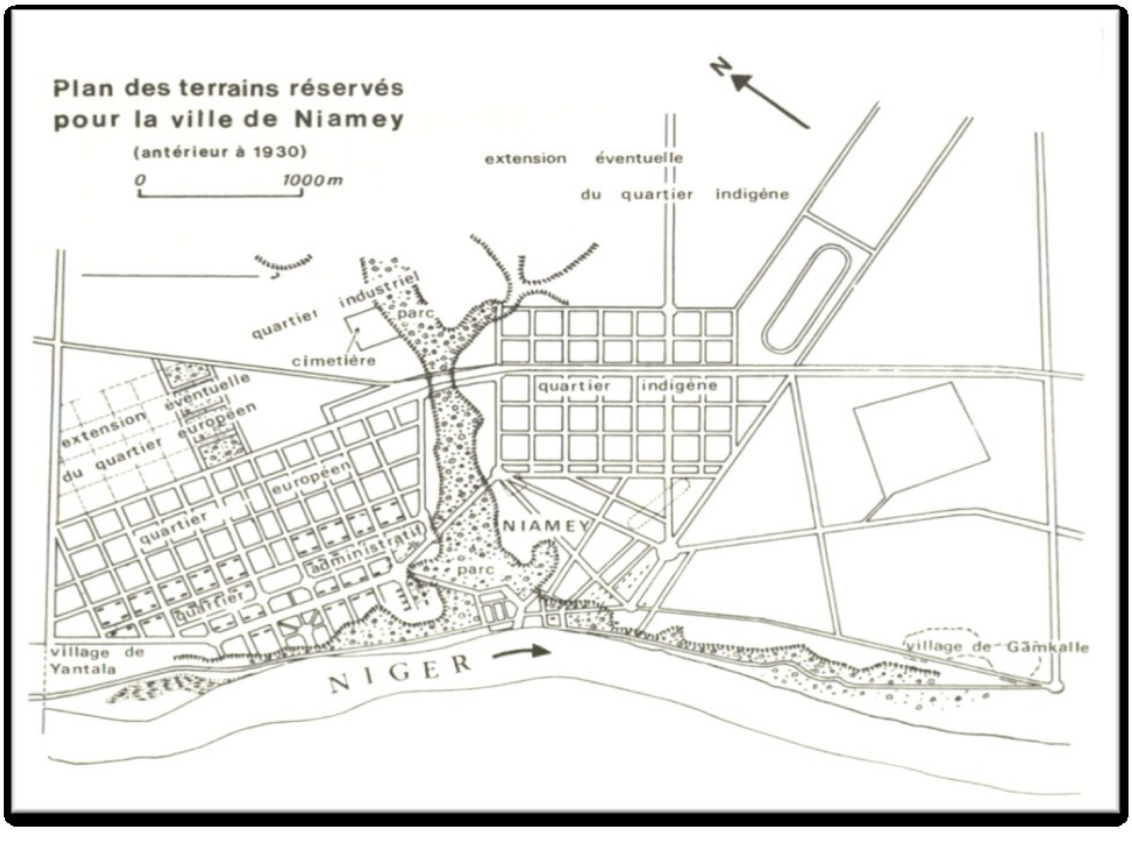

Figure 7: Original colonial plan of Niamey. Source: Bernus 1969: 26.

In this 1930 plan, there were separate spaces designated as European (*quartier européen*) and African (*quartier indigène*). These spaces were segregated by a buffer zone: the park or *zone sanitaire* separated the two realms of the city (Bernus 1969). The bulk of *la quartier européen* occupied the northern plateau of the right bank of the river's bend. Official governmental buildings were located just beyond the river's edge, still visible to people passing by along the river. The European residential neighborhood was placed further inland, ostensibly to avoid diseases of the river, particularly malaria and river blindness. The *quartier indigène* was located across the *zone sanitaire*, which was actually an ephemeral drainage channel, also on an

elevated plateau. Placed near the *quartier indigène* closer to the banks of the river and on the highest parts of this southern plateau were the military barracks and the residence of the first colonial governor and European settlers (Sidikou 1980). This positioning of the military barracks away from the rest of the *quartier européen* was a strategic way to exhibit control both of the indigenous inhabitants and the Niger River.

Niamey's first five years were relatively prosperous times, owing much to an increased colonial revenue resulting from changed economic policies. Revenues increased substantially in the 1920s in terms of subsistence supplies given to the colonial masters (millet, cows, chickens), cash crops produced by the colony (peanuts and cotton), and taxes paid by local residents, as the French looked for new sources of income and recovery in the post war period (Fuglestad 1983). With this new revenue the French continued to build their new colonial capital and increasingly provided urban services. Though municipal water services did not appear until the late 1930s, the urban environment weighed heavily on the minds of the French administration, and the enforcement of Sarraut's 1924 legislation became something of great import. The colonial administration set up a hygiene and sanitation brigade (in French, *la police d'hygiène*) that, according to Motcho (2010: 18) "had as its objective to impose the French conceptions of urban space on the indigenous [landscape]." French urban planning at the time was based on a sort of "bacteriological revolution," a new way of conceptualizing social problems focused on scientific and rational solutions to deteriorating urban living conditions (Conklin 1997: 42). Driving this new way of thinking were "experts of all kinds, armed with improved medical and social knowledge, reassigning blame for poverty, worker discontent, and poor health from moral depravity to hostile environments, physical fatigue, and invisible micro-organisms" (Conklin 1997: 42). Moreover, the state, according to these bacteriological experts, was the most capable institution to carry out these reforms, particularly in overseas territories. Faced with what they

deemed a hostile physical environment in West Africa, French colonizers enforced strict individual and group hygiene regulations that linked the individual's body to the health and functioning of the urban space. If the city or parts of the city were dirty or poorly functioning, reasons for this were found in individual comportment, rather than in structural constraints imposed by the French state.

Modernity and Water in Niamey: The 1930s

The situation in Niamey took a drastic turn in 1931 as the western region of Niger experienced a severe drought and famine. In 1931, rainfall was less than half what it had been the previous three years, making even the heartiest of arid crops, like millet, difficult to grow (Sidikou 1980). Furthermore, most villages had decreased subsistence crop production in order to satisfy peanut taxation requirements, and what little crops they had planted fell prey to the ravages of locusts (Fuglestad 1983). Villages found themselves with little to satisfy their most basic needs, so many people left the village and headed to the city. Niamey in 1931 experienced its first massive influx of people fleeing rural problems, a pattern which has had a profound impact on Niamey's geography, as we will see in the following chapter (Sidikou 1980). Between 20,000 and 22,000 women, according to the official record, sought refuge in Niamey by July of the hardest drought year 1931 (Sidikou 1980).

That colonial documents specify that women sought refuge in Niamey speaks to the absence of men in western Niger during the dry season. Men of various ethnic groups in pre-colonial Niger used the dry season to engage in political and physical struggles to ensure the survival of their villages and families. Once colonialism took hold in the region, these warriors found their position forcibly antiquated, and used the dry season months instead to gain wage employment in southern regions (in what are now Nigeria, Benin, Ghana, and Ivory Coast; Painter 1988). When the consequences of lack of rainfall hit western regions of Niger, with the

famine starting in April 1931 (Fuglestad 1983), most migrant workers had long left for their southern jobs. Women and children who had stayed behind were the ones bearing the consequences of drought, locusts, and ultimately famine. Most of these women, however, were not permanent migrants; many returned to their villages once the worst was over. During the peak of the famine, Niamey had an influx of ten times its normal population, and people arrived at the rate of 3,000 per day for several months (Sidikou 1980: 50).

By 1935 the situation in the countryside had stabilized and most migrants that would leave the city had done so, but substantial numbers of people remained (Sidikou 1980). Actual numbers are difficult to ascertain, but colonial reactions to new areas of the city that sprung up as a result of migration suggest that a significant number of people stayed after the famine. Neighborhoods of rural migrants emerged on the outskirts of the planned *quartier indigène* (Sidikou 1980). These neighborhoods were characterized by thatch-mud construction and cheap monthly rents that were paid to traditional chiefs rather than colonial administrators (Sidikou 1980). The French administration was less than thrilled with the development and growth of these new informal, migrant-populated parts of town. They feared a growing urban population would lead to unrest and organized resistance, and that deteriorating living conditions would give credence to indigenous leaders. The French accordingly revamped their hygiene and sanitation monitoring services in the *quartier indigène*. This revamping of *la police d'hygiène* was a way to enforce order in new neighborhoods through the policing of individual bodies. Bodies became the benchmark of rationality as individual comportments were judged either to be aligned with French conceptions of bacteriology and urban space or as being remnants of an uncivilized rural life. The French did not acknowledge that their own policies could limit the ability of residents of the *quartier indigène* to make improvements. Stipulations from the water code of 1928, for example, banning waste disposal in rivers and preventing the use of riverbed materials for

construction produced a scarcity of building materials with which to improve standards of living in the *quartier indigène* (Motcho 2010). Rather than recognizing the pitfalls of their own policy, the French instead derided the character of indigenous residents and argued that the very deplorable conditions of the *quartier indigène* was a manifestation of African laziness and ignorance

Massive fires ravaged much of the African city in 1935 (Sidikou 1980), and served as the catalyst to forcibly re-place the *quartier indigène* into an expanded *nouvelle ville indigène* further north and east on the adjoining plateau (Bernus 1969). A new urban plan was put in place firmly in 1937 (see Figure8 below; Bernus 1969: 28).

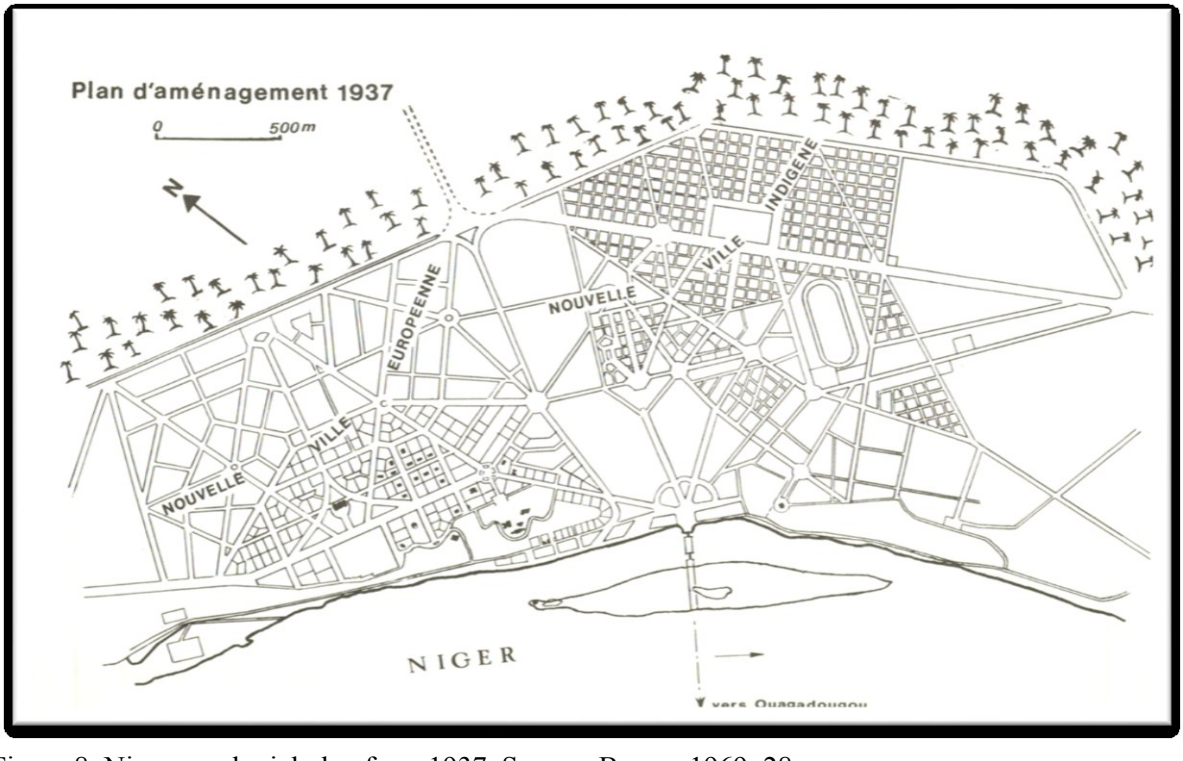

Figure 8: Niamey colonial plan from 1937. Source: Bernus 1969: 28.

New plots and accompanying titles were free to residents who moved willingly and constructed houses using imported mud bricks (Sidikou 1980). Thatch construction materials were outlawed within the city limits, ostensibly for the risk they posed in igniting and quickly

burning (Sidikou 1980). While thatch construction certainly did pose fire dangers, this was also a chance for the French administration to once again validate their ideas of what should or should not appear in a city.

In 1936, in accordance with the new urban plan taking shape, extensive studies were undertaken concerning the best way to ensure a steady supply of potable water for the growing town. The Office of Public Works in Niamey concluded that water from the Niger River, rather than from wells or springs, was the best way of providing water to the city, especially the *nouvelle ville indigène* that was situated upon a particularly "water-poor plateau" (Sidikou 1980: 52). In 1937 the first plan of a drinking water network appeared in Niamey. Figure 9 below is the colonial map of the piped water network from 1942, upon which I have highlighted the original colonial distribution network.

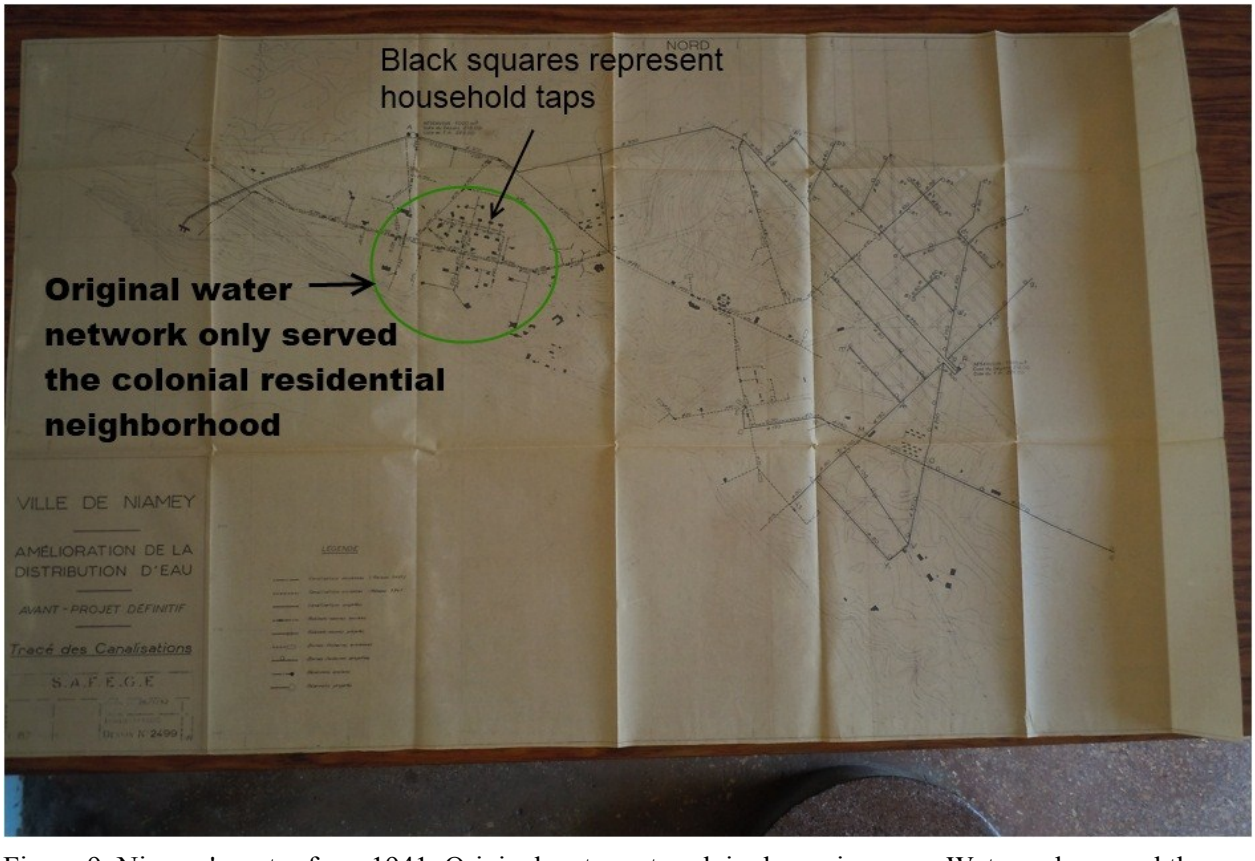

Figure 9: Niamey's water from 1941. Original water network is shown in green. Water only served the European neighborhood and was provided directly to the house. Source: SAFEGE.

This first plan served only the *nouvelle ville européen*, and even there was restricted to mostly administrative functions. Residences had limited access to piped water, and those that did have water were primarily European and/or part of the colonial government apparatus. Networks of pipes bringing chemically treated drinking water came together with other practices of sanitation and hygiene to create a sort of "bacteriological city", a term coined by Gandy (2004) describing European cities during the industrial revolution which is useful in understanding the idealized urban space of the colonial administration. Gandy (2004: 365) explained:

> The "bacteriological city" that emerged out of the chaos of the nineteenth-century industrial city was driven by a combination of factors: advances in the science of epidemiology and later microbiology which gradually dispelled miasmic conceptions of disease; the emergence of new forms of technical and managerial expertise in urban governance; the innovative use of financial instruments such as municipal bonds to enable the completion of ambitious engineering projects; the establishment of new policy instruments such as the power of eminent domain and other planning mechanisms which enabled the imposition of a strategic urban vision in the face of multifarious private interests; and the political marginalization of agrarian and landed elites so that an industrial bourgeoisie, public health advocates and other voices could exert greater influence on urban affairs.

This is the city the French brought to Niger, infused with ideas of rationality and order buttressed by science and technology. Furthermore, water, for Gandy (2004: 366), "played a pivotal role in this reconstruction of urban space to produce what we would recognize as an archetypal modern city with its closely choreographed intersection between technology, space and society." Water networks are unique in Niamey's nascent urban fabric because it fused together ideas of the French bacteriological revolution and idealized urban space into iron pipes woven across the urban landscape, transforming Niamey from a nascent urban concentration to a burgeoning modern city. Limiting access to these pipes was a way to enforce, and patrol, the boundaries of modernity in the city.

Water, Modernity, and Shifting Citizenship: Niamey 1940 to 1960

By 1940, the first water pipes were operational in Niamey (Sidikou 1980). Less than a year later, plans were already in the works to extend the piped network to more parts of the *ville européen* and also to parts of the *ville africaine*. In the figure below, the map of colonial water is shown again, but here highlighted in terms of areas that were prioritized for extensions in this second plan.

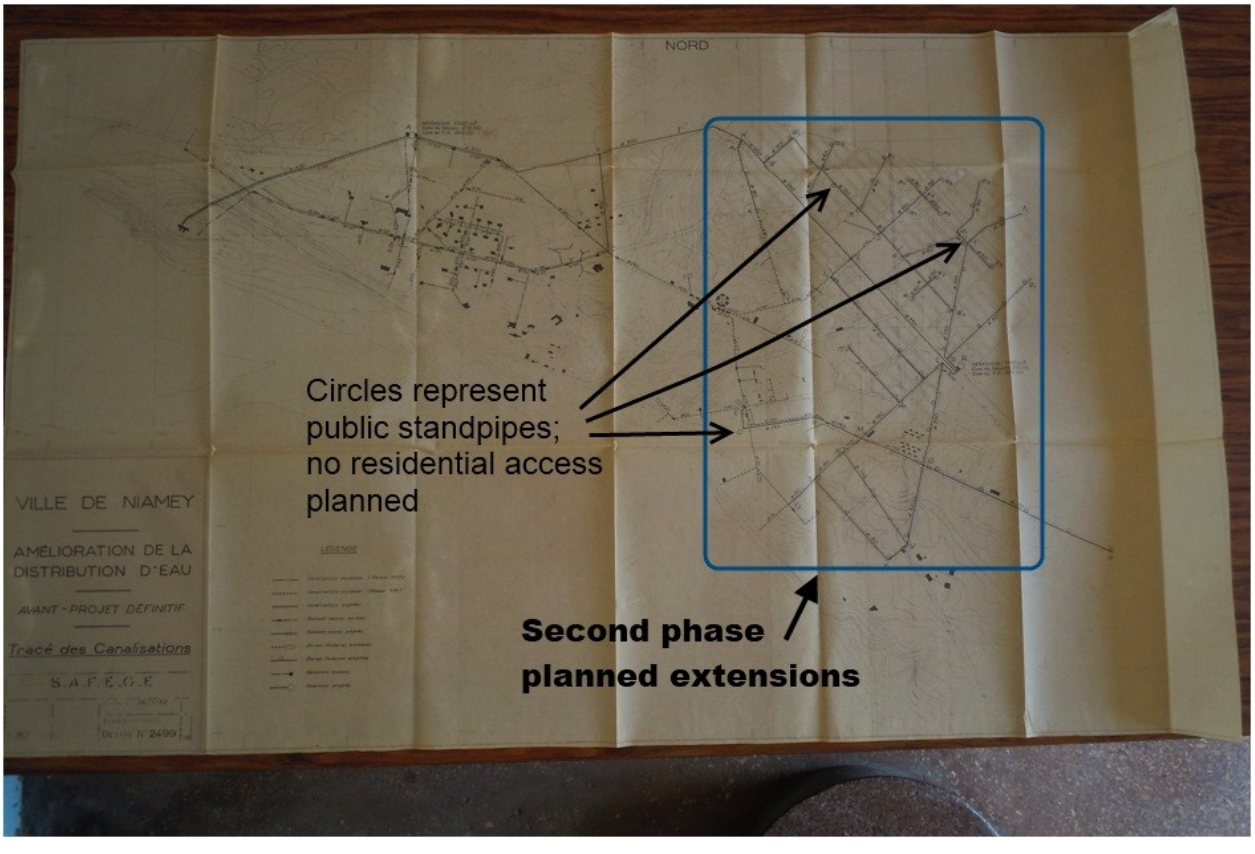

Figure 10: Niamey's water network of 1941. Highlighted in blue is the planned extension of the network to the African neighborhood, and public standpipes (not household taps) were installed.

Upon close examination of the map, different strategies of water provision become apparent. In the *ville africaine*, there were an abundance of *borne fontaines*, or public standpipes, while in the *ville européen* these are nearly non-existent. Connections to the piped water network

in the European city seemed to have been mostly private—either within residences or administrative buildings. In the Indigenous city, connections to the piped water network were primarily public. While extending the water network to include parts of the *ville africaine*, indigenous subjects were still denied this powerful symbol of modernity: private spaces of the indigenous were ostensibly too unclean, too chaotic, too primitive, too contagious to warrant the extension of piped water. By providing water via the *borne fontaine*, colonial officials could profess they had provided urban services to all groups, mirroring the shift of colonial policy from exclusion to inclusion and citizenship. Urban citizenship in Niamey was never free—everyone had to pay for piped water.

The early years of the 1940s saw water and urban infrastructure lose importance in the colonial strategy as global geopolitics of World War II and consequences of changing French regimes played out in colonial territories. In Niger this transformation meant an increasing emphasis on cash crops and exports, banning trade with neighboring enemy-controlled territories (namely Nigeria, Chad, and Libya), and a temporary shift from development and investment to oppression and intimidation (Fuglestad 1983). The number of indigenous military members (forcibly) grew, but most of them refused to live in the barracks in Niamey, preferring instead to lodge in surrounding villages (Sidikou 1980). Local concerns of Niamey took a back seat to ensuring military provisions and bolstering the empire, but the city continued to grow. The population of Niamey grew from nearly 5000 in 1941 to just over 7500 in 1945 (Bernus 1969: 33). This marked increase in population occurred at a time when the colonial administration was underfunded and overburdened resulted in more informal neighborhoods around the city. Rural migrants demanded local chiefs, not the French administration, to rent or even buy land. Official property and building rights became increasingly difficult for the French to enforce, and this dual

system of property rights took hold. Dual systems of property rights still impact city residents, as we will see in the discussion of contemporary water access in Chapter 5.

The end of World War II in 1945 sparked a reconfiguration of the French empire with the establishment of the Fourth Republic. The Fourth Republic drastically altered colonial policies and management techniques. Within the new Fourth Republic, colonies were renamed *les territoires d'outre-mer* (overseas territories) and incorporated into the French Union; colonial subjects became citizens, albeit with limited rights (Fuglestad 1983). Conversely, the French colonial officers lost power to (formally) coerce and oppress. For Niger, it was particularly important that forced labor was outlawed, and the French no longer could limit the mobility of indigenous citizens. Internal migration rapidly expanded within territories, and cities increasingly became destinations of rural migrants (Fuglestad 1983). Niamey began to grow in importance as the capital of an overseas territory with its own citizenry (Sidikou 1980).

The new modes of governance brought by the Fourth Republic gave rise to multitudes of acts and laws by which overseas territories were governed. Water legislation in the West African territories drastically increased, though most of it seemed to deal with human resources aspects of water management, such as reorganizing personnel, updating uniforms to erase differences between French and Indigenous officers, and reorganizing the School of Water and Forestry in Dakar. In 1951, regulation of local water resources in the Niger territory moved from the Office of Water and Forestry in Dakar to an Office of Mines and Hydrology in Niamey (Chevalier, J.O. n0239 du 1er janvier 1951, Arrete no2038 TP/H). Water was becoming increasingly mediated by localized colonial institutions, staffed not only by French officers but also local *évolués*—Nigerien citizens educated in the French system. One of the five key responsibilities of this new Office of Mines and Hydrology was developing local urban water supply networks (Chevalier, J.O. n0239 du 1er janvier 1951, Arrete no2038 TP/H).

This reorganization of water governance reveals the changing ways in which the French viewed urban water in the Fourth Republic. No longer was urban water on par with other natural resources like forests or wood, but rather linked with mining, an enterprise from which the colonial administration benefited greatly. Water in cities was no longer a resource that was merely used and consumed, but rather something from which revenue was to be gained. Managing water and mining from the same office implies that the two resource domains share similar characteristics. Mining implies taking minerals and metals—elements that have a finite supply—from the earth, generally with the goal of transforming these elements into commercial products. By aligning water with mining, the French administration constructed water also as a natural resource with finite supply and something from which revenue could be gained. Certainly the experiences of the French in Niger with drought and famine resulting in unrest and rapid urban growth led them to think differently about water.

This new Office of Mines and Hydrology moved promptly and proposed substantially extending the water network in Niamey to include most of the *nouvelle ville indigène* and its rapidly growing population by 1952. By 1953 the total population of Niamey had doubled, in less than 10 years, to 15,000, with the majority of growth being in the indigenous districts (Bernus 1969: 33). In 1955, Boubou Hama, the first president of the Nigerien national assembly, remarked that the city was not growing outwards from the designated zones of habitation, but rather filling in the *zone sanitaire*, the zone separating the European and African towns (Hama 1955, Bernus 1969). Later in 1955, the city was cartographically unified, and the names of *nouvelle ville européen* and *nouvelle ville indigène* disappeared from maps, replaced with neighborhood names like Plateau, Terminus, Kalley, Boukoki, and Zongo. Neighborhoods became defined not on the basis of ethnicity and race (though neighborhoods often retained these characteristics), but rather on materials of construction and socioeconomic status. Neighborhoods

once designated for white residents only were opened up to indigenous elites, symbolizing the opening up of the French empire to include elite Nigeriens as modern citizen-subjects. This change reflects, also, the larger colonial project moving from "local intrigue" to "economic development and running a modern administration" (Fuglestad 1983: 178).

The multitude of development projects undertaken by the expanding local-level colonial government necessitated also a large pool of low skilled laborers. By 1953, an important class of "urban proletariat" had emerged in Niamey (Fuglestad 1983: 173), clustered in and around the old native city. The French acknowledged the importance of this emerging class of workers and decided to substantially increase the points of water access in the old native city. Rural migrants also settled in and around these neighborhoods, and the territorial administration, intent on preventing unrest and uprising of these new city residents, once again attempted to extend the water network, at least on paper. These extensions also reflect French use of development and consent as a way to maintain their power. Jean Ramadier, the governor of Niger from 1955 to 1957, was well known for his efforts to bridge the class divides between urban and rural residents by improving urban living conditions in the name of modernization (Larrue and Payen 2000).

Starting January 1, 1953, the *Société Energie A.O.F.* (*Afrique Occidental Française*) replaced *La Compagnie des eaux et électricité de l'Ouest Africain* as the merchandisers of urban water in Niger. *La Compagnie des eaux et électricité de l'Ouest Africain* was a private French company that leased water commercializing rights from the French state. The *Société Energie A.O.F.*, on the other hand, was created in 1950 by the French state in the Division of Overseas Territory, as a semi-public company of which 35% of whose shares were controlled by the French state, 40% controlled by local offices in the Niger territory (which were still operated by French nationals), and the remaining 25% by private enterprises (Blanc and Button 2011). In this

new organization, the French state maintained ownership of water infrastructure through the office of public works, and contracted the operations of this material infrastructure out to *Société Energie A.O.F.* In Zinder, the price of water was fixed by the colonial government (at 10 *centimes* per liter), but in Niamey the price of water was to be determined by the *Société Energie A.O.F*. Buyers in Niamey could either choose to pay on a usage basis (28 francs/cubic meter) or by monthly subscription (1,100 francs/month; Balay, J.O. no 265 du 1er fevrier 1953: 36).

With the expansion and commercialization of water in the 1950s came an immense increase in small-scale water vendors, most notably in the old native city where the majority of *borne fontaines* were installed. In Niamey, the local name for these small-scale vendors is *garuwa*, a tern derived from the Hausa language: *ga* meaning to see or look at, *ruwa* meaning water. In an interview with a long-time water vendor (a man with 40 years of water vending experience) in the Kalley neighborhood (part of the old native city), the vendor explained to me, "as long as there are *borne fontaines*, then there are *garuwa*". He explained that most vendors were recent migrants to the city and that work was widely available, an account affirmed by Bernus's 1969 *ouvre*. Use of the Hausa language, a language found in far eastern Niger near Zinder and a common lingua franca in West Africa, speaks both to the role of the migrant in filling these positions and the commercial aspects of water provision.

During the latter half of the 1950s political changes within the French empire and Niger itself, and tensions between the two, shaped the future of Niamey in important ways. Ramadier's method of colonial rule (from 1954) focused on modernization and development, and relied on an expanding integration of Nigeriens into politics. Increasing colonial decentralization coupled with increasing local participation in politics resulted in what Fuglestad (1983: 188) described as the "rise of an urban bureaucracy" and extensive urban growth. By 1960, an estimated 35,000 people lived in Niamey, an increase of 30,000 people in just 20 years (Bernus 1969: 33). A quick

succession of governors replaced Ramadier, but all followed the same path: a focus on modernization and development in cooperation with local *évolués*.

These successive governors also negotiated with and between two popular and powerful local politicians—Diori Hamani and Djibo Bakary—each with a disparate vision of the future of Niamey and Niger. Diori Hamani was the leader of the PPN-RDA, a political party formed in the late 1940s with the advent of the Fourth Republic, and was a darling of the French administration in Paris for being moderate and cooperative (Fuglestad 1973). Bakary, on the other hand, was a radicalized socialist leader of the UDN, and highly popular with recent urban migrants, the urban proletariat, and the small radicalized portion of the *évolués* (Fuglestad 1973). Ramadier recognized the potential explosiveness of radicalized socialist local groups and argued that instead of isolating them they should be fully subsumed into the colonial administration. Ramadier thus backed Bakary's foray into national politics and successive governors followed suit. In Paris and Dakar, on the hand, Diori was still recognized by the French administration as a desirable and effective local leader. Bakary won the first national election in Niger in which there was universal suffrage, and served as the highest level local leader from 1957 to late 1958, a critical time in the history Niger (Fuglestad 1983).

In 1958, citizens of French West Africa were called to vote on a referendum in the French constitution that would enact the Fifth Republic. Fuglestad (1973: 313) explained the importance of this vote in Africa as follows: "voting for or against this constitution implied whether the African accepted the elevation of their territories as autonomous, self-governed but not independent republics, members of the French community, or whether they preferred independence straight away." Bakary campaigned for "no" votes; his vision was of an independent Africa, with former French colonies united in an African federation instead of under the tutelage of France. French officials, on the other hand, aligned themselves with Diori and

campaigned for "yes" votes, contending that alignment with France gave Niger and Nigeriens access to the wider world, protection, and a stable future. France wanted to retain close relationships with Niger in order to protect their strategic location near Algeria and Nigeria, and also to protect its interests in the massive uranium reserves recently discovered under the sands of the Sahara desert (Fuglestad 1973). In the end, Bakary gave his official vote as "no," but 76% of the electorate voted "yes" (Fuglestad 1973: 328). These discordant results provided the French with the opportunity to construct Bakary as a radicalized leader who was out of touch with his constituents. Accordingly, the French government tightened its grip on Bakary's administration, refusing to cooperate on even mundane tasks like land titling, holding meetings, and signing legislation (Fuglestad 1973). After a short time these tactics worked and Bakary resigned his post and became, instead, the leader of the Municipal Council of Niamey and, in 1959, Hamani Diori replaced Bakary as leader of Niger's Government Council (Salifou 2008).

In highlighting tensions between Diori and Bakary, the existence of considerable distrust between the two emerges an important theme. This distrust profoundly impacted Niamey. Diori supported the Fifth Republic, and in doing so agreed to keep Niger a territory of the French state. Diori in many ways assured the continuation of French policies in Niger. For Niamey, this meant a continued privileging of *évolués* and elites in terms of official land titles and accompanying water services. Furthermore, in the new constitution of the Fifth Republic, water resources were explicitly under the jurisdiction of local territories. In Niamey, this meant that both Hamani (as Niger's leader) and Bakary (as Niamey's leader) had interests in water governance at different scales—national and local, respectively—and drastically different approaches to resolving social problems. The animosity between the two leaders meant that little progress and legislation around water management materialized in the years leading up to independence. Despite the tensions, in 1960 Diori Hamani took the reins as the first president of independent Niger. In the

first years of his administration, water played a central role in national and urban identity and development, as the following chapter will show.

Conclusion

This chapter traced the history of water in Niamey alongside the history of the city itself, and we began to see how water relations produced a certain kind of city, one comprised of multiple spaces, spaces that never simply existed, but rather were always in a process of transformation. We saw, first, how water was an integral factor in the French decision to locate the capital in the region. As colonialism grew more entrenched, water was a way for the colonial regime to simultaneously assert its benevolence, create dependent relationships, and selectively include subjects into their colonial and modern project. Fires, droughts, seasonal migration, and forced relocation of neighborhoods, too, have shaped Niamey and through these processes we see that the city is marked by continual and partial transformation. The French fingerprint has been shown to be pronounced in the city, and with the election of Diori Hamani this influence only continued into independence. The next chapter picks up the history of water and/in Niamey from Hamani and continues it through the contemporary era.

CHAPTER 4: POSTCOLONIAL TRANSITIONS IN WATER GOVERNANCE

This chapter continues the story of Niamey's water systems, governance, and urban growth since the end of French colonialism and the beginning of Niger's independence. In the previous chapter we saw how Niamey's water network started in the 1940s, and how inequality was literally embedded into the physical infrastructure. Niamey was produced through colonial ideas of hygiene and race that were manifested in the city's water network. In its inception, the water network served only whites in the form of household taps while Africans only had access to public standpipes. In selectively provisioning water, water access became a marker of modernity and urban citizenship, and the state decided who and where was worthy of this designation. We also saw how French urban planners enacted policies that mimicked French plans and left little room for local innovation or practice.

In this chapter, we will see that some aspects of the colonial systems of water access and urban planning remained little changed in the years directly after independence. French experts maintained authority over urban planning and water governance, while the state exercised official control. Over time, especially since the 1980s, there has been a marked loosening of state control of the water sector and an increase in the role of international institutions and the private sector. National policies and politics continues to guide the sector, but, as we will see, at times seem to have little affect on everyday functioning of Niamey's water network.

Water and Urbanism in Diori's Niger

At midnight on the eve of August 3, 1960, Hamani Diori mounted the steps of the presidential palace for the first time as leader of an independent Niger. He explained in his first speech as president that Niger must not look at the wrongs done during colonial times, but

instead look to the present moment of independence and a promising future. In the concluding remarks of his first speech as president, Diori exclaimed, "*Vive le Niger indépendant! Vive la France émancipatrice*!"; in uttering these words, he assured the close relationship between the two countries (in Salifou 2008: 69). Diori had risen to position of leader of the Territory of Niger in 1958, when Niger was still a territory of the French Republic. He was in many ways hand-picked by the French administration for his adherence to their ideals and their confidence of a long-lasting relationship.

Hamani Diori, according to Andre Salifou (2010), was preoccupied with water. Upon becoming president of Niger, Diori used his position to promote peace and collaboration between ethnic groups, and also between rural and urban populations, and water was to play an integral role in this process. Diori explained to the Nigerien public that, "in order for developing peoples, like the peoples in Africa, and especially the peoples of Niger, to benefit they must have peace, tranquility, security, and confidence" (Mahamane 2008: 53). Diori attempted to foster this peace, tranquility, security, and confidence through nation building both materially and symbolically around water. One of the first transformative water laws of Diori's new republic was the splitting of governance into two distinct jurisdictions: rural and urban (Dupont 2010). Rural water was managed under the *Office des Eaux du Sous-Sol* (OFEDES) and urban water was managed under the newly created state electricity company, *Société Africaine d'Électricité.*

In 1961, the semi-public water company of the colonial regime, *Société Energie A.O.F.*, was nationalized by Diori's administration and the *Société Africaine d'Électricité*, a public corporation of the newly independent Nigerien state, was created (Dupont 2010). In February 1961, *Société Africaine d'Électricité* introduced a metered pricing structure for general public consumption. No longer could users pay a flat monthly fee. Instead, users paid in terms of how

much water they used, and paid according to a decreasing block structure. This pricing structure favored large-scale users: the more water used, the lower the price.

Société Africaine d'Électricité ***Price of water in Niamey, 1961***	
Water usage in cubic meters	*Price per cubic meter*
0 to 2.0	40 francs
2.0 to 4.0	35 francs
4.0 and more	33 francs

Table 2: Price of water in Niamey, 1961. Source: Dupont 2010.

In the newly independent Niger, these large consumers of water were state administrative buildings, industries and commerce houses, and public standpipes. Charging less for water used in state industries was a way for the state to perform its benevolence: state workers always had access to water at work, though at home it could be a different story. Also in providing this service, the state aligned itself with modernity and progress, integral parts of Diori's vision for Niger. Pricing water cheaper for large users also favored industries, and the nascent state administration was eager to maintain and attract more industries for economic growth, modernization, and tax revenue. Finally, the *borne fontaines* in the historic native quarter served whole neighborhoods rather than single households, making them one of the largest classes of water consumers. Providing water at a lower cost to *borne fontaines* was a way for the state to assert its legitimacy and demonstrate its benevolence toward rural migrants and poor people.

In 1963, the *Société Africaine d'Électricité* was renamed the *Société Anonyme pour la Fourniture d'Electricité* (SAFELEC ; Dupont 2010). By renaming the company, the state discursively asserted their central management role: the name *Société Africaine* (African Company) identifies with the African continent, while the name *Société Anonyme* (Limited Public Company) suggests a closer relationship with the Nigerien state. Mahamane Tidjani-Alou

(2005: 165), a Nigerien anthropologist and political scientist, explained that until the 1990s, the Nigerien state had a nearly exclusive role in water management, and that the state operated on logics that were "purely technical," based on national urban planning politics rather than the real needs of the population.

Urban planning politics in Diori's Niger, though, were in many ways a continuation of colonial ideals and ways of organizing space, focusing primarily on modernization (Njoh 2009). Niamey's population on the eve of independence was estimated at nearly 35,000 and rapidly growing (Bernus 1969). In early 1961, a *Commission Nationale de l'Urbanisme et de l'Habitat* (National Commission on Urbanism and Habitat) was created at the urging of French development advisors to accommodate the booming capital city (Dulucq 1997). Later that same year, the French architect and planning firm Kalt, Pourdaier-Duteil, and Raymond was appointed as the official advisor to the Nigerien state on all questions of urban development (Dulucq 1997). Their first draft of Niamey's master plan was created in 1961, and outlined areas designated for government buildings, foreign embassies, public stadiums, and neighborhood developments. Kalt, Pourdaier-Duteil, and Raymond privileged the historic European part of town (the northwest and areas near the river) as sites of major investment, continuing the colonial legacy of uneven spatial development (Dulucq 1997).

Moreover, Kalt, Pourdaier-Duteil, and Raymond developed a typology of neighborhoods, outlining building materials and population densities that would be accepted in each neighborhood. Neighborhoods in the African part of town were said to be more capable of supporting growth and high population densities, while the European parts of Niamey were said to best accommodate low population densities because of the plan implemented by colonial officials (Dulucq 1997). Mud brick construction materials were allowed in the high population density areas, while concrete was designated as the preferred material of construction in the

European part of town (Dulucq 1997). Mud brick construction lasts only a few years, and needs to be constantly reinforced, while concrete is permanent and heavy. It seems, then, that these city planners considered African parts of town temporary or malleable, while the European parts of town were conceived of as permanent and unchanging. Residents of the former European zones hence became the only enduring citizens of the city—residents of the African zones occupy impermanent, ephemeral buildings that can easily be created and destroyed. These different land use policies artificially created the demand for water in different neighborhoods and, according to Tidjani Alou (2005: 163), did so with "little regard to the opinions of local populations towards whom the actions were oriented." Only parts of the city deemed permanent warranted investment and provision of city services such as individual water taps; temporary residents would remain provisioned by the shared water of the public standpipe.

In 1964, the price of water in Niamey was raised by 10-francs/cubic meter. This time the decision came from the office of the President instead of from the public company, reflecting both Diori's preoccupation with water and the consolidation of water management to state entities. Here, monthly subscribers (*abonnés*, meaning private households with monthly subscriptions) and public consumers are distinguished, and both subscribers and low water users are charged the highest amount (50 francs/m3). A monthly subscription was required if the water meter was inside a personal residence or compound, and was decidedly more convenient than having to transport water from a public standpipe. Limiting those who could have water inside their household was another way of asserting citizenship in the modern city. Belonging and citizenship became discursively aligned with construction materials and presence of water; limiting those who could have water inside their household was a way to once again patrol the boundaries of modernity, making modernity available only to the elite or well connected.

SAFELEC ***Price of water in Niamey, 1964***	
Water usage in cubic meters	*Price per cubic meter*
Abonnés	50 francs
0 to 2.0	50 francs
2.0 to 4.0	45 francs
4.0 and more	43 francs

Table 3: Price of water in Niamey, 1964. Source: Dupont 2010.

Conversely, the price structure once again favored large-scale consumers such as state administrative buildings, industries, and *borne fontaines*. By the mid-1960s, almost half of "all wage earners [in Niger] were employed in the public sector," and this population was by and large concentrated in Niamey (Fuglestad 1983: 188). State administrative offices employed vast numbers of people, and daily life in an office proved to be water intensive. Water was used for flush toilets, providing food (snacks, lunch, coffee), cleaning, performing ablutions before prayer, construction work, and was even transported to worker's homes. Water usage in state buildings added up, often outstretching the government's ability or willingness to pay: since the 1960s, state administrative offices have been the most negligent consumers in terms of paying their water bills (Tidjani-Alou 2005). Providing water at a lower cost to consumers of *borne fontaines* served to construct the state as benevolent and accommodating to poor people and recent migrants, while at the same time discursively denying them the ability to be modern citizens of the city.

In 1965, a French official was appointed as the director of the new *Service de l'Urbanisme*, an office created out of the reorganization of the Ministry of Public Works (Dulucq 1997) This new director worked closely with architect-planners Kalt, Pourdaier-Duteil, and Raymond in developing urban plans that were adopted in 1967 (Dulucq 1997). This urban plan

once again continued trajectories put in place during colonization and privileged the old European quarter in terms of infrastructure investments (Njoh 2006). The Nigerien state was eager to provide for these elite residents in order to maintain their own interests of power—these elites needed to be satisfied so that they would not challenge or overthrow Diori's administration (Njoh 2006).

Diori further asserted the central position of his state in city affairs by changing the name of the electricity and water provider from *Société Anonyme pour la Fourniture d'Electricité* (SAFELEC) to the *Société Nigérienne d'Electricité* (NIGELEC). No longer was water supplied by an anonymous institution, but by the Nigerien state itself. As residents drank water from their taps, no longer were they constituted by a nebulous entity, but rather they consumed the state. Their quenched thirsts became proof of a benevolent and capable government, a state centered on Hamani Diori.

In the late 1960s, three important events in Niger's history dramatically impacted Niamey: *La Francophonie*, uranium, and drought. The first meeting of *La Francophonie* (the organization of countries with French linguistic heritages) took place in February 1969 in Niamey, and attracted media attention worldwide. In the first week of March 1969, Diori's weekly commentary focused on revamping Niamey's image in the face of damning commentary especially from the *New York Times* (Martin 1991). Diori embarked on a program of urban renewal, focusing on naming streets, promoting cultural events, and programs generally focused on making Niamey a cosmopolitan capital city (Martin 1991). Conveniently, a new source of revenue was also emerging at this time: uranium.

Though discovered by the French in 1955, Niger began exploiting uranium in 1968 (Dulucq 1997). By 1970, revenues from uranium mines were fuelling Niger's development and attracting droves of investment institutions to the country (Dulucq 1997). Prior to 1970, the

majority of overseas investment for urban and infrastructure projects came from France's *Fonds d'Investissements pour le Développement Economique et Social* (FIDES), a financing institution set up for newly independent African countries (Nugent 2004). FIDES loaned or granted Niger's administration funds primarily for urban infrastructure, and worked closely with French urban planners and advisors (Dulucq 1997). Funds flowed in an almost circular manner: France loaned money to the Nigerien state so it could hire French planners and advisors to plan Nigerien cities. In 1970 work began on the newest phase of urban development plan of Kalt, Pourdaier-Duteil, and Raymond, but this time it was financed not only by FIDES, but also with funds from the United States, the European community, and Libya (Dulucq 1997). The "building boom" experienced by Niamey in the 1970s was "largely financed by the country's uranium mines" and resulted in "some of the most interesting architecture in West Africa-modern Sudanese-style buildings" (Youngstedt 2004: 96). French architects Kalt, Pourdaier-Duteil, and Raymond designed numerous of these buildings across Niamey (Archnet 2009). Also in 1970, the United States built the first bridge connecting the two sides of Niamey (Decalo 1997); the Chinese built the second bridge 40 years later.

Occurring alongside this uranium-driven urban renaissance was a devastating drought in the Sahel region. Lasting from 1968 to 1974, this drought rivaled that of the 1930s, and led to a massive influx of migrants to the city. A complex web of rural land use policies based on colonial taxation schemes coupled with a dramatically increasing population made the impacts of these drought years particularly devastating in rural Niger. Years of farming peanuts and cotton—cash crops introduced by the French—left Sahelian soils depleted and especially vulnerable to the cyclical patterns of drought extant in the Sahel. Decreased rainfall meant limited production of both subsistence and cash crops. This meant both a declining amount of food available from individual farms and a decrease in revenue and income from cash crops with

which to purchase food. Also, people suffered great losses of cattle—anywhere from fifty to seventy percent of cattle had died by 1972 (Van den Brink et al 1995, Martin 1991). Consequently the price of grains and meat rose dramatically, pushing many rural inhabitants to the brink of famine. Increasingly people sought refuge in Niamey. By 1970, the population of Niamey had more than doubled in the ten years since independence to 80,000, and by 1972 the population had climbed to almost 110,000 (Bontianti and Sidikou 2008: 25).

At a time when much of Niger's rural population was facing extreme hardship, Diori's *Francophonie* program with its focus on foreign policy coupled with his expensive urban development schemes came to seen as luxurious programs of an oblivious leader (Higgot and Fuglestad 1975). Diori, realizing his mistakes, shifted his rhetoric in 1972 to negotiating uranium contracts with France and seeking foreign food aid assistance to relieve growing rural hunger. In practice, however, Diori's regime still relied on French advisors—everywhere from the army to urban planners—whose presence was felt in Niamey discursively through architecture and organization or urban space, but also by the sheer number of French residents in the city (Higgot and Fuglestad 1975). The people of Niger rarely liked the Nigerien members of Diori's regime more than the French. Ministers and government officials were notoriously corrupt, and repeatedly found guilty of stockpiling donated grains and selling them at an artificially high price (Higgot and Fuglestad 1975). Students and intellectuals attempted to organize and rally against Diori's regime, only to be met with harsh prison sentences and nightly patrols by the Nigerien army (Higgot and Fuglestad 1975). Combined, these factors left Diori's regime severely weakened, creating a perfect opportunity for a new emergent leader: Seyni Kountché.

Kountché, the New Niger, and Shifts in Water Governance

Seyni Kountché, the Nigerien army chief of staff, led the brigade of army officers that toppled Diori's regime in 1974 (Decalo 1997). During the drought years, the army was well positioned on the ground to witness the "scandalous management" of foreign aid assistance and corruption in Diori's administration (Issa 2008: 133). Kountché presented the army as the "incarnation of national consciousness," a group that could translate the will of the people into political action (Issa 2008: 126). Kountché quickly appointed himself as sole leader of the Supreme Military Council and President of Niger (Decalo 1997). For the first time since independence, there was a new leader in Niger.

In the years leading to the coup d'etat, Niamey experienced the most rapid growth in its nascent history. The population swelled from 110,000 in 1972 to nearly 200,000 by 1974, primarily a result of rural migration (Motcho 2010: 23). Spatially, the city expanded haphazardly in all directions as people desperately sought refuge from rural starvation in urban areas (Motcho 2010). One of Kountché's first acts as President was redistributing food aid to people on the urban periphery, and in so doing he gained great popularity and notoriety for his populist politics (Issa 2008). Kountché further promised to dissolve bureaucratic elitism and redistribute wealth, though explicitly in a non-Marxist way. He unequivocally stayed out of the Cold War politics being played out elsewhere on the African continent, opting instead, at least rhetorically, for development based on Niger's needs and peoples (Idrissa 2008). He was notorious for surprise visits to government agencies, branding his administration with an almost panoptic power. During my fieldwork in 2009/2010, nearly 25 years after his death, Kountché's reputation as a popular leader remained in Niamey. People celebrated Kountché, and said he was one of the few presidents able to get things done in Niger. They said he was a man of the people, one who was

not afraid of international pressure, and a president dedicated on improving life for the average person.

Despite Kountché's rhetoric of dismantling bureaucracy and promoting Nigerien-led development, reliance on foreign advisors and aid remained intact throughout his administration. According to Ibrahim and Souley (1998: 146), Kountché's administration operated with a "mode of governance that linked civilian technocrats in an alliance with military officers who ran the state apparatus with the advice of donor bureaucrats and the assistance of an embryonic entrepreneurial class." In this scheme, advisors from donor agencies and countries retained discursive control over constructions of plans and practices. Technical assistants to urban works ministries were overwhelmingly filled with young, French architects and engineers who carried with them plans and ideals in vogue in Paris rather than ideas tailored to Niamey's unique geography (Dulucq 1997). In the Ministry of Urbanism and Public Works alone there were seven French advisors—three urban planners and four architects—working alongside one Nigerien architect counterpart (Dulucq 1997: 267). Though these French staff lacked any formal decision-making capability, their position as highly educated and skilled workers, and the sheer number present in ministries, made them the *de facto* experts upon which decisions were made. Advisors in government offices worked closely with private French architectural and engineering firms, and various ministries awarded four times more construction contracts to them rather than to local offices (Dulucq 1997: 269). Furthermore, most of these young French advisors were unimaginative and even indifferent to the problems and futures of Niamey, viewing the post as but one stop in their career ladder (Dulucq 1997). Kountché worked around this, though, and his image as an effective leader that "got things done" remains ingrained in Nigerien national memory.

By 1977 there were 242,000 people living in Niamey (INS Niger 2011), and strong revenues from uranium fuelled Niamey's development. Kountché used tax revenue generated from uranium export to expand the public sector and invest in semi-public companies, and used the promise of future uranium revenues to borrow massive amounts of money from bilateral institutions (Gervais 1993). Part of Kountché's expanding public sector was the creation of new ministries, including the first *Ministère d'Hydraulique* (Water Ministry) in 1980 (Tidjani 2005). This new ministry not only reflected Kountché's expanding public sector investment, but also mirrored international development rhetoric *en vogue* at the time.

In the late 1970s, water resources became the focus of much United Nations (UN) development planning. In 1977, the first global water conference was held by the UN in Mar de Plata, Argentina. The action plan generated by this conference stipulated that all member countries, of which Niger was included, should develop national water policies and create appropriate institutions through which policies could be enacted. This emphasis on water by the UN consequently shifted donor aid increasingly towards water projects that were once unattractive—rural water projects and urban water supply projects in poor cities (Bakker 2010a). The World Bank did show interest in urban water supply projects in the 1970s, but mostly in markets in which pricing could be high enough to ensure cost recovery, not in places like Niger (Bakker 2010a). To take advantage of these new funding opportunities in the 1980s, Kountché created the *Ministère d'Hydraulique*, and appointed a civilian technical specialist to the post of minister (Stoller 1995).

This new ministry was tasked with planning and implementing drinking water systems, and to guide national policy on all issues relating to water. Niger received its first urban water sector loan from the World Bank in 1982: $6.5 million (Dupont 2010). One of the first projects was to open and expand the second pumping and treatment station for Niamey (African

Development Bank 1991). The new Goudel station almost doubled the amount of water available for the city's drinking water system (Motcho 2010). Though the *Ministère d'Hydraulique* was the agency borrowing money and building the pumping station, the operation of Niamey's water system (which the new pump increased dramatically) was NIGELEC, the national electricity company. Moreover, all revenue from the sale of water went directly to NIGELEC. The new *Ministère d'Hydraulique* had taken out loans to finance the project, but was left without a reliable source of income with which the debt could be serviced. To come up with much needed funds, a *Fonds National de l'Eau* (National Water Fund) was created in 1982.

The funds generated through this *Fonds National de l'Eau* were to go to maintaining existing water structures, as well as expanding existing piped water systems and contributing to internationally funded projects (Kountche 1982, Ordonnance n82-39 du decembre). The main source of revenue for the *Fonds National de l'Eau* was a tax of 15cfa/cubic meter on all water supplied by NIGELEC (Kountche 1982, Ordonnance n82-39 du 9 decembre).

In addition to imposing a new water tax, the *Ministère d'Hydraulique*, with the help of the German development bank KFW, developed a new price structure for piped water service (Dupont 2010). The price structure changed from a decreasing block structure to an increasing block tariff (IBT), with different prices for household and industrial uses. International donor and development institutional wisdom at the time argued that increasing block tariff structures promoted equity and water conservation by "forcing wealthy households to cross-subsidize poor households, cross-subsidizing poor residential customers with revenues from rich industrial firms, and discouraging or stopping "extravagant" or "wasteful" water use" (Boland and Whittington 2000: 220).

NIGELEC: Price of water, Niamey, 1982				
Water usage in m3 / month		***Price / m3***	***National Water Fund tax***	***Total price / m3***
Borne fontaines		70 CFA	15 CFA	85 CFA
Residential	0 to 15	90 CFA	15 CFA	105 CFA
	16 to 50	120 CFA	15 CFA	135 CFA
	50 and more	160 CFA	15 CFA	175 CFA
Administrations & Public Establishments		135 CFA	15 CFA	150 CFA
Industrial Uses		160 CFA	15 CFA	175 CFA

Table 4: New increased-block price structure of water in Niamey, introduced in 1982. Source: Kountche 1982, Decret no 82-190/PCMS/MH/E du 9 decembre 1982.

Different tariff rates were implemented for residential, administrative, and industrial uses. In Niamey, the price of water at the *borne fontaine* (the public standpipe) was kept intentionally low, ostensibly to provide water to the poor (i.e. people without private taps) at a minimal cost regardless of the amount used. Development economists at the time argued that higher cost users would effectively subsidize the *borne fontaine*, and that keeping water at a low cost for the poor was socially and politically beneficial. These prices did not take into account, however, the existence of small-scale water vendors (in Niamey called *garuwa*) that are ubiquitous in neighborhoods with a high number of *borne fontaines*. *Garuwa* buy water at the *borne fontaine* and then add a delivery fee, which varied greatly depending on neighborhood and season. People who were unable to go directly to the *borne fontaine* themselves—because of time restraints, physical limitations, lack of transport containers, or the cultural practice of wife seclusion—bought water from vendors at an elevated price, often paying more per cubic meter than people

with private water taps. As the city grew rapidly, the *garuwa* vendors became an important furnisher of water to poor households, and an important source of employment for recent rural migrants.

Residents with private taps paid more money the more water they used. The thinking here was that wealthier households consumed more water per month than poor households; wealthier households generally had larger land plots with gardens, sometimes pools, cars to wash, automatic appliances, and western-style toilets and showers (Boland and Whittington 2000). In practice, however, poorer households do not use substantially less water, as they tend to have higher population densities (Boland and Whittington 2000).

On top of financial assistance in urban water supply projects and tariff redesign, Niger received six expatriate technical assistants—three at the *Ministère d'Hydraulique* and three at NIGELEC—to serve as technical advisors and to train Nigerien staff in management principles (World Bank 1982). Salaries for these expatriate staff were built into the loan agreement signed in 1982. In essence, the World Bank loaned the Nigerien government for services that in turn the World Bank would fulfill itself. The World Bank was getting back its money in three ways—interest on the loan, the principal, and Niger's payment of the salaries of World Bank experts.

In just over five years, Niamey's population had grown from 272,000 to nearly 400,000 by 1983 (Charlick 1991: 24). Uranium revenues that fuelled Kountché's expanding public sector and ambitious development schemes in the 1970s all but disappeared with the fall of global uranium prices and the onset of the global recession in the early 1980s. Niger quickly fell into a downward spiral, and the rural exodus that had marked the drought years of the mid-1970s continued as more and more people sought refuge in the city from worsening conditions in the countryside. Further, revenue generated from uranium exports became insufficient to cover government operating costs and Niger fell drastically behind in payments to service the national

debt. The amount of revenue needed to service the debt rose substantially, primarily because of variable interest rates, plummeting uranium prices on the global market, and a drastic increase in amounts borrowed (Gervais 1992). The total amount needed to service the national debt rose from "8.7 billion FCFA in 1978 to 42.6 billion FCFA in 1984" (Gervais 1995: 31), and aid from donor agencies went to running everyday government operations rather than development programs.

This already difficult situation took a turn for the worse starting in late 1984 as Kountché's government declared that Niger faced severe food shortages because of prolonged drought, and that as many as 150,000 people had temporarily settled in Niamey (UN 1985). In response, the MH/E embarked on a project of construction of 50 new wells and water pumps in peripheral neighborhoods in Niamey (MH/E 1985). The French government financed the project with a $1 million loan. In the project proposal, the authors—a team of French geologists and urbanists working with the *Bureau de Recherches Geologiques et Minieres* (BRGM)—argued that building wells and pumps was a better solution than investing in water network infrastructure because the price paid by consumers of water would be substantially lower at the wells/pumps. Of course this price does not include delivery fees added by water vendors, which was a common form of water provision. Building wells also allowed the team to bypass the urban water bureaucracy, which was seen as corrupt and incapable, and implement solutions directly in neighborhoods.

The water ministry applied the recommendations of the BRGM proposal, and in just over one year constructed 50 wells and pumps. The wells and pumps constructed in Niamey east of the Niger River (*la rive gauche*) were both on the outskirts of the city and within older, un-planned neighborhoods, whereas west of the river (*la rive droit*) wells were constructed only within the older neighborhoods. By building wells rather than extending the water network, the

state acknowledged the existence of these parts of the city but denied them membership into the modern city. Recent migrants and (supposed) temporary residents occupied most areas on the periphery of Niamey in which wells were built, and in supplying these people with water the state promoted its image of benevolent provider, a sentiment echoing Diori and the construction of the postcolonial state's identity. For residents in the older, unplanned neighborhoods the message was different. The state both acquiesced to their presence and denied them full membership to the city. Residents of these areas did not belong in the modern Niamey, but rather were relegated to living in the shadows. Officially, however, water from these wells and pumps was to be less expensive for the residents assumed to be poor. Though these wells did satisfy certain immediate needs for water, the project was ultimately shortsighted. By 2009, only one of the 50 wells functioned; the others were closed because of disrepair, mismanagement, or contamination of water.

In June 1985, the Niger River was barely a trickle of slowly running water at Niamey. Kountché used this legendary dry river moment as the backdrop for the "fight against the notion of free drinking water" and the formulation of a new *Regime de l'Eau* (Water Code; MHE, Rapport 1, June 1985, Niamey). In the *Regime de l'Eau*, the state defined all aspects of water, from ownership and management to types of water extant. By clearly defining all aspects of water, the state opened up new areas of participation, collaboration, and financing, which accorded well with the mandate of the United Nations Drinking Water and Sanitation Decade. By defining aspects of water, the state had something with which to negotiate and barter. Within the text of the *Regime de l'Eau* there were stipulations on how contracts and concession of water management should be set up and the norms by which they would be expected to comply. Though not officially signed into law until 1993, the *Regime de l'Eau* set the stage for water to become more than a resource supplied by the state (as under NIGELEC). Water became both a

natural resource and an economic good that could be controlled by the state, either alone or in new partnerships.

In addition to changing legislation, the new water ministry began a massive program of reform aimed at restructuring of extant governing institutions (Dupont 2010: 27). The first step in restructuring the sector was extensive study of the actual state of the urban water sector. A French company, *Société d'Aménagement Urbain et Rural* (SAUR), performed most of the research on water sector reforms, and found that the sector was highly inefficient because of poor organization, confusion of duties, and duplication or structures (Dupont 2010). It recommended disaggregating the urban water sector from NIGELEC and creating a *Société Nationale des Eaux* (SNE; National Water Company) that fell under the tutelage of the *Ministère d'Hydraulique*. This proposed reorganization was to streamline and consolidate urban water governance to the *Ministère d'Hydraulique* itself and in so doing increase technical capabilities, facilitate further financing by streamlining the bureaucracy, and providing a source of revenue for the state. The SNE came into being in September of 1987, and was charged with planning and implementing urban drinking water schemes, operating, distributing, and selling the actual water, and aligning itself with state politics around water governance (Algabid 1987, Ordonnance n° 87-031 du 24 septembre 1987).

By 1987, Kountché's regime faced low levels of support for new governance models and economic restructuring measures. The debt crises and ensuing collapse of the uranium market along with the mid-decade drought spurred Kountché to open up his military administration to greater participation from the general population through the myriad *Soceiete de developpement* put forth in the new National Charter of 1987. Kountché initiated this *Societe de Developpement* as a way to both gain insight from local populations and to influence development on local levels (Robinson 1991). Faced with pressure from international donors to achieve fiscal stability,

service loans, and repay debt, Kountché organized the *Societe de Developpement* as mechanisms to implement potentially unpopular program cuts and austerity measures (Robinson 1991). The stressful years of the 1980s resulted in worsening health for the dictator, and Kountché died in 1987, leaving behind a country with an uncertain future in the face of multiple challenges.

1987 to 1999: Enduring Water Policy despite Political Instabilities

After Kountché's death in 1987, his close ally Ali Saibou was appointed president, a post that he retained until 1993 (Decalo 1997). Saibou was in many ways a continuation of Kountché's regime. Saibou continued Kountché's *Societe de Developpement*, using local organizations and groups as the vehicles of development and the link between the public and the state. In Niamey, this policy meant that neighborhood chiefs were responsible for communicating the problems of their residents to the governor in a series of organized meetings. Communicating their needs for water, though, was more complicated, for the governor's office had little to do with water policies and programs. The water ministry retained jurisdiction over the *Société Nationale des Eaux* (SNE), and the two institutions together decided how and where to extend the water network. Neither the urban ministry nor the governor's office played a part in these decisions. Water remained constructed as a problem with a technical and engineering solution, relegated to the corridors of a technical ministry. To make matters worse, Saibou required the *Societe de Developpement* groups to be members of his—the only—political party--*Mouvement National pour la Société du Développement* (MNSD). By participating in local level development, neighborhood leaders became aligned with Saibou's regime, a choice that became increasingly unpopular.

International Monetary Fund and World Bank programs of structural adjustment (SAPs) put in place during Kountché's time remained, and Saibou implemented further SAPs to gain access to additional funding from international donors. Implementation of SAPs aimed at

reducing the number of state employees, reducing salaries and benefits, lowering investment in the education sector, and the sale of state companies were met with massive resistance movement by students, union leaders, and public workers. In February 1990, students at Abdou Moumoni University organized a peaceful protest against austerity measures in the education sector, but as they crossed the bridge over the Niger River Saibou's army ambushed them. Five students were killed in this ambush, and their death during a peaceful march substantially changed the political landscape of Niger.

In the weeks after the student massacre, union activists and students organized protests against Saibou's version of democracy—an authoritarian one—urging instead for multiparty elections and the holding of a National Conference where the people could voice their opinions and grievances in a safe space (Ibrahim and Souley 1998). The largest of these rallies was estimated to have over 100,000 peaceful protesters with a unified message: the need for true democracy. According to Ibrahim and Souley (1998), these rallies signaled the birth of Nigerien civil society, a force that would be integral in water sector negotiations years later.

As a result, Saibou conceded to political reform, for he was "unable both to appease the protesters and to maintain the measures necessary for continued external assistance" (Gervais 1997: 92). Saibou led the organization of the National Conference in 1991 in which representatives of civic groups, 1200 people in all, negotiated the transformations of state power (Idrissa 2008). The National Conference dissolved the National Assembly and Saibou's Government, and made the President the spokesmen of Niger's national interests instead of an individual with any sort of official power. The National Conference rejected the SAPs of the World Bank/IMF and refused any financial assistance from international donors, opting instead for a clear picture of sector needs based on the analysis of experts and participants in corresponding fields (Idrissa 2008).

As a result, a *Regime de l'Eau* materialized in 1993 (Cheiffou 1993--Ordonnace n 93-014 du 02 mars 1993). Through this legislation, the State retained its central role in water ownership and management. Water fell into one of two public domains: natural or artificial. Natural public water included all surface and groundwater resources within the territory of the state of Niger. "Artificial" public water consisted of all modern access points (wells, pumps, taps, etc.) and any concessionary or management contracts (Cheiffou 1993--Ordonnace n 93-014 du 02 mars 1993, Article 1). Furthermore, the state was the only entity able to construct and operate *borne fontaines*. In explicitly defining the public domains of water, particularly by including management contracts in the artificial public domain, sector leaders subtly acknowledged that water governance was on the precipice of change. In the years leading up to this piece of legislation, the state fell years behind in paying the water bills of hospitals, schools, ministries, and public offices, and international donors repeatedly called for the sale of the nearly insolvent SNE (Tidjani 2005).

The ambitious goals of the National Conference were met in large part with empty public coffers and declining state revenues because of the continuing drop in uranium prices worldwide. By 1993, the state had amassed such huge debt that it was unable to pay public employees and incapable of paying off its external debts (Idrissa 2008). Into this context of economic crises came Niger's first democratically elected president, Mahamane Ousmane. Ousmane's administration faced an economy that was quickly nearing its breaking point. In 1993, the Nigerien state spent nearly twice the amount it earned (Gervais 1997). To finance his fledgling administration, Ousmane reopened negotiations with international donors, but once again the issue of SAPs and shrinking public sector employment was raised. Ousmane obliged and attempted to implement the SAPs, only to be met with repeated strikes and political infighting (Adji 2000). In Niamey, unemployment rose to 20%, and people became less and less able to pay

for essential city services. The SNE collected only about 40% of billings, but continued operating where possible (Hansson 2002).

Niamey continued to grow during Ousmane's regime, and by 1996 just over a half a million people permanently resided in Niamey (INS Niger). During the dry season, this number increased anywhere from 100,000 to 150,000 (INS Niger). The SNE, barely able to keep its doors open, was largely incapable of providing extensions to new residents except for members of *la class politique*—politically and economically connected elites (Villalon and Idrissa 2005). Furthermore, backlogs at the land title office in Niamey made it exceptionally difficult to prove legal ownership of parcels, a prerequisite for a household water line extension. As the economy worsened and conditions in Niamey deteriorated, civic groups like students and the unions became more vocal in their opposition to the Ousmane administration.

Ibrahim Baré, an army officer, used the stalemate and political infighting in Ousmane's regime as justification for his coup d'état in January 1996. Baré insisted that he led the coup not for personal political aspirations, but to facilitate the transition to true democracy in Niger (Idrissa 2008). A few months later, though, he declared his bid for presidency and in July 1996 won the presidential elections, though they were widely boycotted and most observers considered them fraudulent (Idrissa 2008). Nevertheless, Baré assumed power as a democratically elected leader and embarked on transforming his country. International donor aid varied widely in these first months of Baré's regime— aid was suspended first because of undemocratic political negotiations (the coup), but after the (fraudulent) elections aid started flowing into public offices in Niger once again (Davis and Kossomi 2001). Baré, recognizing the massive need for international financing, agreed to the SAPs of the World Bank/IMF, and implemented programs for the reduction in the public workforce and in salaries, reduction in

university scholarships, forced retirement of longtime public workers, and privatization of multiple state companies (Idrissa 2008).

The *Société National de l'Eau* was one such company to be privatized (Tidjani 2005). In the years leading up to 1996, the SNE had fallen into widespread disarray. During Saibou's tenure the state had accumulated such massive salary arrears that paying its water bill was of little consequence (Tidjani 2005). Though the government was by far the largest non-payer of bills, collection of water bills in Niamey was generally very low: only about 40% of water sales were actually collected (Hansson 2002). Furthermore, the SNE's leadership was highly unstable, and a new leader was appointed almost every year due to corruption allegations and mismanagement of projects (World Bank 2010).

The instability and poor management of the SNE translated into the dearth of new water infrastructure points and a severely challenged urban population. In 1987, only about 100,000 people were estimated to have direct access to the piped water network in Niamey—there were nearly 10,000 water taps in private households, and each of these taps served about ten people (Motcho 1996). The remaining 2,000 water access points along the SNE network were public standpipes. Motcho (1996) argued that direct household connections are the most effective measure of water access, and using this measurement only 22% of Niamey's population could be said to have access to piped water in 1990 (Motcho 1996). The SNE increased its number or subscribers in Niamey by only 15% between 1992 and 2000 (Motcho 1996). This means that SNE added about 1800 water access points to its network. Niamey during this same time period grew by about 200,000 people (INS Niger 2011) , so Motcho's estimates of 22% coverage rate were fairly accurate. The SNE, conversely, argued that 45% of Niamey's population had access to household taps, but acknowledged their lack of investment because of restricted cash flows and financing (World Bank 2010).

International donors argued that incorporating the private sector into urban water management was the key to improving coverage. In 1996, international donors led by the World Bank loaned the Nigerien state $20 million to begin restructuring the SNE from a state corporation to management based on a public-private partnership (PPP; World Bank 2007). By August 1998, the World Bank issued another report stating that the privatization of the SNE had not occurred because of political instability and socioeconomic pressures (World Bank 1998). Particularly interesting in this report is the recommendation of how the World Bank and governments should proceed with restructuring the water sector:

> The design of a reform program under conditions of political uncertainty and instability requiring a high degree of consensus building should include provisions for a meaningful and sustained communication effort. This would ensure a greater assimilation and ownership of the reform program within the administration and would promote a better understanding of the need and rationale for reforms by the different political, interest and pressure groups (*World Bank Report* #18382, 1998, iii).

This statement conceded that the push to privatize was both a program pushed by international donors and locally unpopular. In the face of political instability, the World Bank urged for assimilation and consensus so that reforms could continue as planned, and not be reevaluated and reassessed according to new ideas from the local level. The World Bank is the permanent institution compared with the unstable, temporary governments of Niger.

Baré's strict imposition of SAPs were widely unpopular, especially in Niamey as public sector employment shrank and urban service conditions were increasingly challenging. Baré's affinity to international donor institutions and willingness to implement unpopular programs heralded the attention of civic and military leaders alike (Idrissa 2008). Life in Niger, and especially Niamey, became "increasingly informalized" and state institutions amidst reform were disorganized at best (Idrissa 2008: 191). Following what seemed to be the way unpopular and undemocratic leaders were dealt with in Niger, Baré was assassinated in a coup d'etat in 1999.

The World Bank in its 2010 report on water sector reform explained that in 1999 the government of Niger embarked on the program of urban water reform. For the majority of that year, though, the government was led by the transitional regime of Major Daouda Malam Wanké. This suggests that though offices of elected officials were highly unstable, the everyday operations of public sector employees and ministry officials continued. International donors focused on the presidency and the national assembly ignored how the preceding decade of political instability and stagnation opened up new opportunities of political negotiation on local scales by non-state actors (Lund and Sikor 2009). As political instability became the hallmark of the elected governments, lower level state workers and civil society became the stable force pushing for change and progress.

This stability became especially important in the water sector. By the end of the 1990s, the state's tight grip on water management had loosened. Donor agencies and private companies became key players in water discourse, rather than just sources of financing. Further, NGOs and water users associations began to appear and mitigate local water projects, especially in rural areas, in part spurred by international development programs. In Niamey, however, water management retained its abstract and detached nature—no water user organizations were required for urban water systems.

Institutional Changes and the Private Sector in Water

Baré's assassination in April 1999 was followed by an eight month transitional period in which the army, led by Wanké, retained full control over the government. During this transition, all international aid was halted, and government ministries waited to see how a new regime would reorganize operations. Wanké, much like Baré, promised to hold elections by the end of the year and vowed that he had no political ambitions besides transitioning Niger to a real

democracy (Davis and Kossomi 2001). Unlike Baré, Wanké honored his pledge and free and fair elections were held in October and December 1999. Mamadou Tandja emerged as President of a new, democratic Niger.

Tandja inherited the urban water sector reform plan adopted by Saibou in 1996 and carried forward by ministry workers under Bare. Shifting from a governance strategy focused on a state corporation into a partnership between state and private actors was a complex and confusing process. The restructuring plan, essentially created by consultants at the World Bank (Tidjani 2005), stipulated that four new institutions be created to govern Niamey's (and other urban centers) water: *la Société de Patrimoine des Eaux du Niger* (SPEN), *la Société d'Exploitation des Eaux du Niger* (SEEN), *le Projet sectoriel eau* (PSE), and *l'Autorité de régulation multisectorielle* (ARM). In this new configuration, the state's role in urban water was not the direct provisioning, planning, or implementing, but rather a role in guiding national water discourse, proposing and implementing legislation, and defining the political goals behind water pricing (Tidjani 2005: 168).

SPEN and SEEN were created out of the division of the SNE into public and private components, respectively. SPEN, through a concessionary contract, leased the "physical management, accounting, financial assets, and property rights" from the Nigerien state (Tidjani 2005: 168). Accordingly, SPEN was responsible for infrastructure investment, solicitation of aid, extension of the water network, and communication with urban populations (Tidjani 2005). SEEN then leased the rights to produce, distribute, and sell water in Niamey under the tutelage of SPEN (Tidjani 2005). SEEN was a private company funded by a consortium of investors: Veolia water (private French company) at 51%, private Nigerien investors held 34% of shares, workers from the SNE retained 10% of shares, and the remaining 5% went to the Nigerien state (Tidjani 2005: 169).

In addition to these two new institutions, the *Projet Sectoriel de l'Eau* (PSE; water sector project) was created at the beckoning of international finance institutions (Dupont 2010). The financial institutions, weary of state corruption and non-transparency as displayed in the SNE, mandated the creation of an independent institution through which loans and grants would be dispersed and monitored. Zibo Zakara, the project coordinator at the Ministry of Water for the initial $65 million loan for the reorganization of the sub-sector, was named director of PSE in 2001, a position he holds still in 2012.

International financing was key in the transition from public to public-private partnership and provided much needed money for which the state could invest in its impoverished water sector and systems. In order to sustain and attain additional loans, the urban water sector was measured by its successful implementation of the Millennium Development Goals (MDG) and made to prove their success and outline future goals in a series of Poverty Reduction Strategy Papers (PRSP). These MDGs, proposed by the United Nations on the eve of the new millennium, are a one-size fits all development solution that has been much criticized by scholars advocating a more nuanced and local perspective on development goals (see Fuster and Voute 2005, Clemens et al 2007). Nonetheless, the fulfillment of MDGs as outlined in Poverty Reduction Strategy Papers (PRSP) remain requisite for countries seeking financial assistance from major global donors, such as the World Bank.

In 2001, SEEN became operational in Niamey. A few months into their operations, the price of water in Niamey rose, but at different amounts depending on the usage amount. Water sold at public standpipes and to households with low consumption rose from 115cfa/cubic meter to 121cfa/cubic meter, but for the largest consumers of water prices rose from 349cfa/cubic meter to 395cfa/cubic meter (Dupont 2010). This sort of pricing was said to both encourage conservation of water resources and a way for the highest consumers (assumed to be wealthy) to

subsidize the lowest consumers (assumed to be poor). This thinking continues to guide water pricing in Niamey, but through household surveys I found these ideas to be misguided and incorrect. Poor households, for example, often have higher population densities and more water consumption that single-family homes in elite neighborhoods. Further, poorer households with taps share water with neighbors, exacerbating the situation even further.

Shortly after the start of their commercialization of water, SEEN embarked on a project in partnership with the World Bank that provided household connections at a subsidized rate: 20,000cfa instead of as much as 150,000cfa (Dupont 2010). In the first year of this project, they added 12,000 household taps across Niger, the majority being in Niamey. Through this program SEEN effectively expanded their market and the World Bank added a charitable program of water subsidies to their portfolio. The location data available for many of these household connections in Niamey tells a story not of the poorest neighborhoods benefitting, but rather the wealthiest (SEEN 2002; interview with previous SEEN employee). It seems that SEEN preferred new clients in areas with more wealth, that they wanted to minimize risk instead of expanding coverage to poor households. Expanding to poor households, though, is exactly what is promoted through the literature by both SEEN and the World Bank on this program of subsidized connections.

In 2004, prices of water were again increased in the hopes of attaining financial equilibrium and cost recovery. These two themes became the mantra in water governance arrangements that included both private and state participation (Dupont 2010). Concurrently, civil society actors in Niger began organizing around the *La Lutte Contre la Vie Cher* (the fight against high prices - literally, "the expensive life"). Encompassed into this struggle against high prices were concerns of increasing water and electricity prices for urban residents, the removal of state wheat subsidies, and the increase in the value added tax to 19% (Saidou 2005).

Participation in this day-long protest was vast, and Niamey turned into a "dead city"—markets closed, taxis stopped, street vendors of all kinds stayed home (Saidou 2005).

For the subsequent six years, the protests seem to have worked; prices did not increase again until 2011. An important change in the price structure did occur six months after the "dead city" protest, and it went largely unnoticed by civil society actors and urban residents (Tchangari 2010). The lowest price category was changed in 2005 from being based on 15 cubic meters of consumption to 10 cubic meters of consumption. This means that residents before paid 127cfa/cubic meter up to 15 cubic meters of consumption, but in 2005 this price was assured only for up to 10 cubic meters. Additional water consumed was also charged higher rates: before 2005, 246cfa/cubic meter from 16 to 40, 371cfa/cubic meter from 41 to 75 cubic meters, and anything above 75 cubic meters was charged 415cfa/cubic meter. In 2005, however, this structure changed to 0 to 10 cubic meters sold at 127cfa/cubic meter, 11 to 40 cubic meters cost 246cfa/cubic meter, and anything over 40 cubic meters cost 415cfa/cubic meter. By decreasing the consumption limits of each price bracket, SEEN increased the amount of money collected each month and did so without changing prices. This augmented revenue in turn increased the amount of money that SPEN collected from SEEN each month. By not changing directly the price of water, SEEN and SPEN were able to circumvent national concerns over the high cost of water and expand both their profit base and their cost recovery measures (Tchangari 2010).

Bill collection also changed with the transfer in institutional arrangements. SEEN, the private operator, was now the responsible agent for collecting monthly bills, rather than the state. In this shift also came different tactics of bill collecting; SEEN imposed a strict regime of bill payment, and backed it up with their own supervisors (in French, *La Police de la SEEN*). Bill collectors were not allowed to work in the neighbors in which they resided or had family and were strictly monitored on monthly outings. This combination of increased revenues generated

by changes in price structure and strict rules of bill collection resulted in vastly improved balance of payments. By the end of 2006, the urban water sector was said to have reached financial equilibrium (Tchangari 2010).

By 2009, Niamey's water coverage rate (officially) increased from 60% to 68% (Dupont 2010). Ninety four percent of SEEN's clients were private, household connections, but they accounted for only 56% of water consumed. Public stand pipes, on the other hand, constituted only 3% of SEEN's clientele, but consumed 22% of water in Niamey. The state, too, was a large consumer at 17% of total water sold, but they made up only 2% of SEEN's clients. Public stand pipes were the biggest consumers of water proportionally, and also the least profitable of all categories of water users, for water at public stand pipes is 127cfa/cubic meter irrespective of how much water is consumed and/or sold. As a result, increasing the number of household connections was identified as the preferred strategy of increasing water coverage rates rather than increasing the number of public standpipes. SEEN has been negotiating with the World Bank for another program on subsidized connections, but as of 2011 negotiations had not moved forward.

Type of connection	Connection type as % of SEEN clientele	Connection type as % of total water sold
Household taps	94%	56%
Public Stand Pipes	3%	22%
State services	2%	17%

Table 5: SEEN's client composition and water use by each category. Source: SEEN 2010, personal communication:

SEEN's initial contract was for ten years, and renewable only after evaluations and potentially another round of open bidding. The first contract was set to expire in 2010, but political changes in Niger unofficially prolonged their contract by one year. In 2009, Mamadou Tandja reached the end of his constitutionally-mandated two years in office. Instead of leaving office, he proposed a referendum to the constitution that would allow him to be elected to a third term of presidency. When both the judiciary and the parliament rejected his constitutional referendum, Tandja dissolved both institutions and instead sent his proposition directly to the citizenry in the form of a national vote. The referendum passed, but the opposing national parties boycotted and only a small fraction of eligible voters actually voted. Tandja organized presidential elections a month later, in which he won, and he entered his third term as President of Niger.

Both the coalition of opposition parties and the international aid community did not recognize Tandja's third term as legitimate and thus suspended all financial aid and withdrew support. Tensions continued to build around what most viewed as Tandja's illegitimate third term, and on February 18, 2010 the *Conseil Suprême pour la Restauration de la Démocratie* (CSRD; Supreme Council for the Restoration of Democracy) overthrew Tandja's regime and installed Salou Djibo as leader of the transitional military council.

During the days of the coup d'etat and the following months of the CSRD control, water services in Niamey continued to function as if nothing had happened. Even at the water ministry, most employees only took one day off of work—the Thursday of the coup d'etat. By Friday most people were back at work. This continuance highlights the importance of lower-level state workers and offices in the everyday functioning of the state.

The transitional military council organized elections as promised, and Tandja's main opponent, Mahamadou Issoufou, emerged as president of Niger on April 7, 2011. Three weeks

after he took office, Niger was awarded a $90 million loan from the World Bank for urban water and sanitation programs (ICA 2011). One of Issoufou's primary programs of his early administration was "Niamey Nyala", a program of urban renewal and regeneration designed to improve quality of life for residents of Niamey (Issoufou 2011). The Niamey Nyala program encompasses all facets of urban living, taking it further than just providing basic urban services to city residents to providing scenic river walks, parks, and providing opportunities for city residents to impact public space. Basic services addressed in Issoufou's speech were transportation and trash collection; water service was not directly as part of Issoufou's cosmopolitan imagination, but rather assumed to be present. Facing the situation of uneven access to water on the ground requires looking into the cracks and of urban spaces and the hidden spaces of water pipes. Assessing the situation, as we shall see in the following chapter, necessitates a view of the city that is relational and grounded in neighborhoods.

Conclusion

In the preceding pages, I traced the evolution of water governance in Niamey alongside how the city was growing, both in terms of population and urban development. The overarching trend in water governance has been a loosening of the grip of the central state in urban water management discourse and increasing participation by the international donor community and the private sector. Alongside changes in governance and increasing institutional complexity came an ever-expanding city and growing demands for water provision. Though the rate of coverage varies by author, official reports state that at least 25% of Niamey's population currently does not have household water taps.

Through this historical tracing we saw how Niamey and the water network were produced by different political and ecological process. This way of thinking relationally about

the city, about the city through process, reveals how the city is not only created locally, but mediated by international development discourse and neoliberal governance strategies. Relational approaches further open urbanity and city-ness to not only top-down approaches, but also lived experiences on the ground.

The next chapter explores this contemporary uneven distribution of water and the production of Niamey through household surveys completed during 2009/10. In these surveys, I look at both access to water pipes and resident's ideas of governance, water politics, and potential solution. I delve deeply into neighborhoods where water access (in terms of private, household taps) is low to get at explanations of why particular spaces are underserved or marginalized. I discovered that location does not determine water access, but that spaces of drought are produced politically, socially, and economically. These effects are not only felt on the household level, but in terms of the neighborhood, and I argue that approaching neighborhoods as constitutive of the city and as inherently relational is a productive way of imagining new urban futures.

CHAPTER 5: WATER IN CONTEMPORARY NIAMEY THROUGH NEIGHBORHOODS

The previous two chapter traced Niamey's growth and development through the lens of water. Water played a fundamental role in city growth, fuelling mass migrations to the city, which in turn necessitated increased development of water infrastructure. Water provision in Niamey has always been uneven and water was used intentionally to create specific spaces. Through a understanding of how water and urban growth in Niamey co-evolved, from colonial times to the contemporary era, Niamey emerges as not a uniform entity, but rather something, some*place*, that contains a variety of histories of becoming urban. Niamey emerges through this historical understanding as a relational space. There never was *the* city, but rather elements becoming part of urbanized and urbanizing spaces.

Ideas of urban fragmentation have been employed to understand uneven development and inequality, particularly in neoliberal and capitalist projects of urban development that benefit only selected groups (see Graham and Marvin 2001). But this unevenness is only part of the story. Niamey never was a unified city; there was not *one* city that has fallen prey to injustice, but rather a collection of urbanizing spaces connected by an uneven water infrastructure network. In response, neighborhoods became key places for marginalized groups to drive and contour development priorities. Common are appeals to develop neighborhoods—to obtain education, markets, and water towers—for the good of the neighborhood, not for the good of the city. This strategy of neighborhoods, of local decentralization in response to inequality, is often overlooked in studies of how cities are fragmented or splintered by colonial or neoliberal projects (see

Bakker and Mooy 2010, Graham and Marvin 2001). A nuanced look at neighborhoods on the ground can reveal different stories.

In this chapter, I study water in Niamey through contemporary neighborhoods, as opposed to through the historical material histories of the infrastructure as in Chapters 2 and 3. I examine patterns of inaccessibility to ask questions about why and how some neighborhoods are marginalized, and others are brought into the fabric of the urban water network. Important in this understanding are urban political ecology understandings of the role of water in shaping relations in the city (Swyngedouw 2004, Gandy 2004). Gandy (2004: 374) explained that urban political ecologists "recognize that water networks are also active agents in the production of space not only through reflexive interactions with processes of socio-technical evolution but also through their constitutive role in the production of urban culture." My question, then, is how does water create Niamey—on the ground, in neighborhoods, and households across the city?

I compile household surveys together to get a story of the neighborhood in order to understand more about the city of Niamey. Water access on the household level at first glance is a simple thing—either a household has a water tap or it does not, and if the household does not have water the answer, for state and development discourse, is either that they lack money or the water pipes have not yet extended to their living space. More often than not, water coverage rates are calculated based on distance between water pipes, existence (which does not always mean the functional existence) of public fountains, and water taps. Water coverage rates are mathematical abstractions that tell us little about how water access works on the ground and how residents in different neighborhoods experience water. Approaching water from a relational standpoint reveals that understanding access to water is much more complicated.

Methodology

To gain an understanding of the spatial distribution of access to piped water, I administered a mixed-method questionnaire in different neighborhoods in Niamey (see full questionnaire in Appendix 1). The questionnaire asked a mix of quantitative and qualitative questions designed to get at questions of who, where, and why some places/people have water taps, how this affects their living spaces, and what people think about water in Niamey more generally. I used a systematic sampling method to get a representative sample of household water use in Niamey (Robinson 1998). First, I chose three to five neighborhoods in each of the city's five administrative districts (25 total neighborhoods) on the basis of location to city center, socioeconomic status, age, and level of formality. Neighborhood classifications were based on the Plan Urbain de Référence et Programme Directeur d'Investissement de Niamey by Jean Granjux (2008) of Urbaplan, a French urbanization consulting firm.

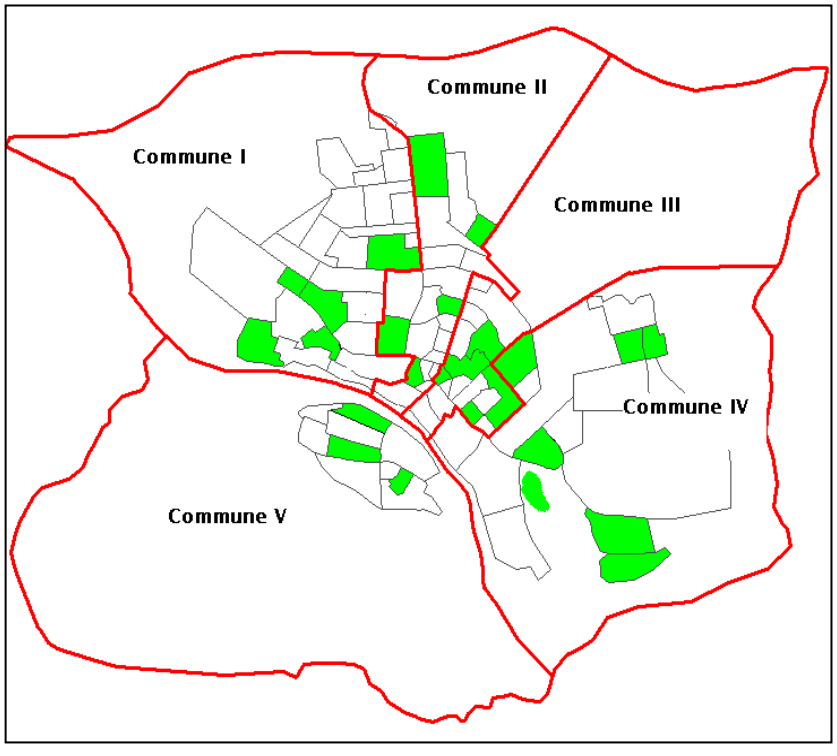

Figure 11: Neighborhoods selected for household surveys.
Cartography by the author.

Within each neighborhood, 25 sample sites were chosen on the basis of location within the neighborhood. To get the 25 sites, I plotted 12 twelve points in different areas of the neighborhood using maps from the *Institut géographique national du Niger* (National Geography Institute of Niger). I acquired the geographical coordinates for each point and navigated to them on the ground using a GPS (Global Positioning System) unit. Once I arrived at each point I administered surveys at households on opposite sides of the street (two surveys at each point). The final survey was completed with the household of the neighborhood representative or chief. The map below shows an example of sample sites in the Talladje neighborhood.

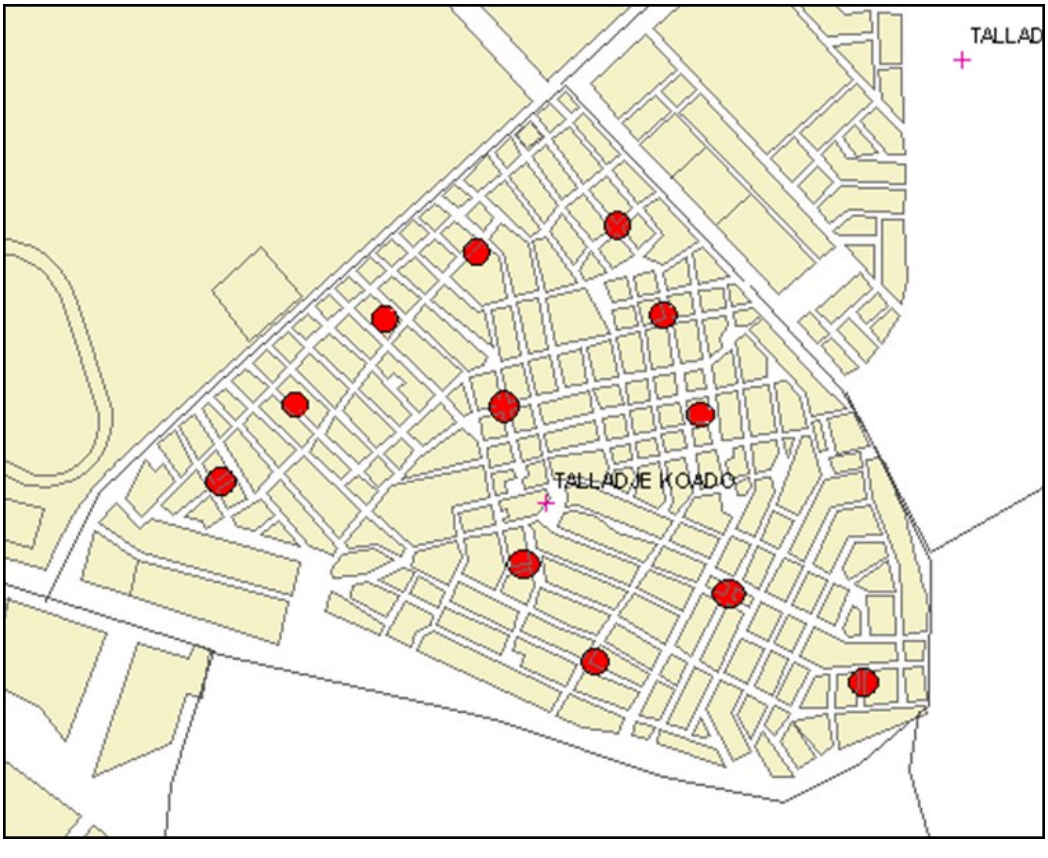

Figure 12: Map showing sample sites chosen in Talladje neighborhood. Two surveys were administered at each point. Cartography by the author.

Before carrying out surveys, I sought permission of the neighborhood representative or chief, and also asked for a guide to accompany me and assure the population that I was working through appropriate channels. This sort of official recognition seemed conducive to establishing legitimacy to my research team, and the vast majority of people spoke openly on questions of water access, use, and reflections on water governance in Niamey. I had two research assistants—male graduate students in geography and sociology at the Abdou Moumouni University of Niger—to help with translating from Zarma and Hausa to French.

My original intent for these surveys was to target women, as they are generally the ones responsible for household water provision, especially in cases where there is no water tap inside the household. Women also work more with water inside the home (cleaning, cooking, etc.) than do men. Early on, though, I realized my intent to only talk to women was unrealistic, and most surveys took place in conversation with multiple people not just with one isolated female participant. The vast majority of my surveys (90%), however, did include women in the group of survey participants. A total of 573 surveys were carried out in Niamey during November 2009 and February 2010, but 26 were omitted because of incompleteness or error. The final sample size included in this analysis is 547 households.

Results and Discussion

My first objective in this research was to measure how many households in Niamey had water taps within their residence. If water taps were absent inside the home, my next question was how residents accessed water. Figure 13 on the following page shows the breakdown of water access by method of water provision. Fifty-two percent of survey participants had water taps within their households, while the remaining 48% used a mix of standpipes, vendors, neighbors, and wells/forages to obtain daily water.

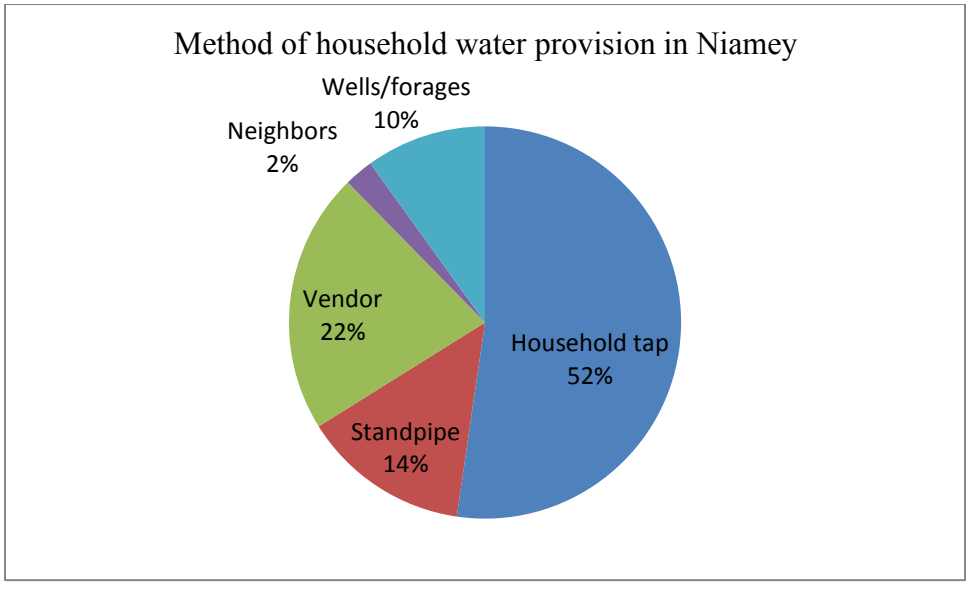

Figure 13: Method of household water provision. Based on survey data from 547 household surveys in Niamey between Nov. 2009 and Feb. 2010.

Figure 14 below shows average cost by water provision method. Cost of water varies greatly between households in terms of method of water provision. Poorer households that rely on standpipes and water vendors pay substantially more per month than do households with private taps (see Appendix 2 for breakdown by household size and construction materials).

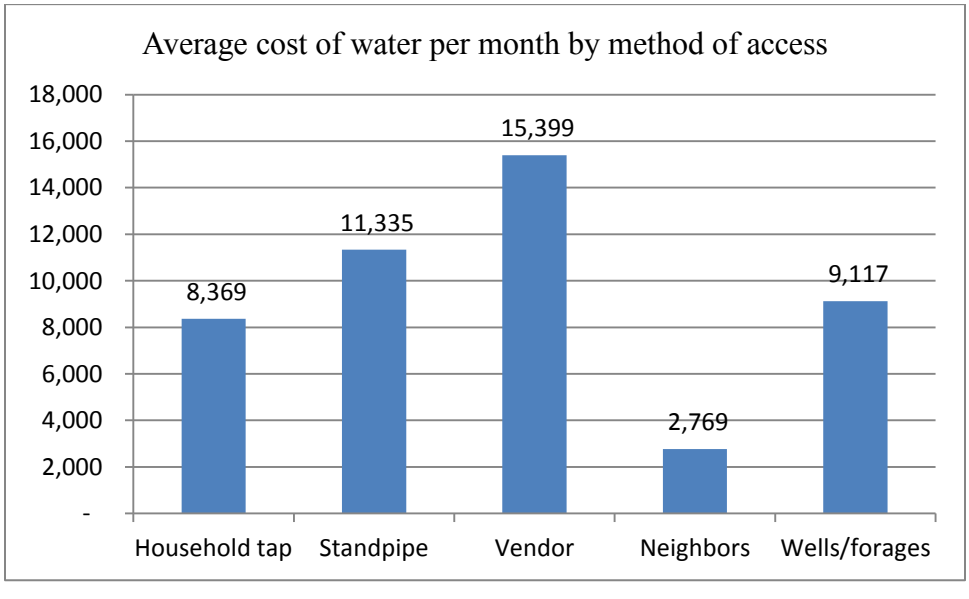

Figure 14: Average cost of water per month by method of water provision. Households relying on water vendors pay the most per month for water. Based on survey data from 547 household surveys in Niamey from Nov. 2009 to Feb. 2010.

My next question in household surveys was to gain an understanding of the spatial distribution of access to water taps. I wanted to know which neighborhoods had ample access to private water taps and which did not, and then look within each neighborhood at how water was secured in the absence of taps (see Table 6 on following page). The map below shows the prevalence of household taps by neighborhood surveyed.

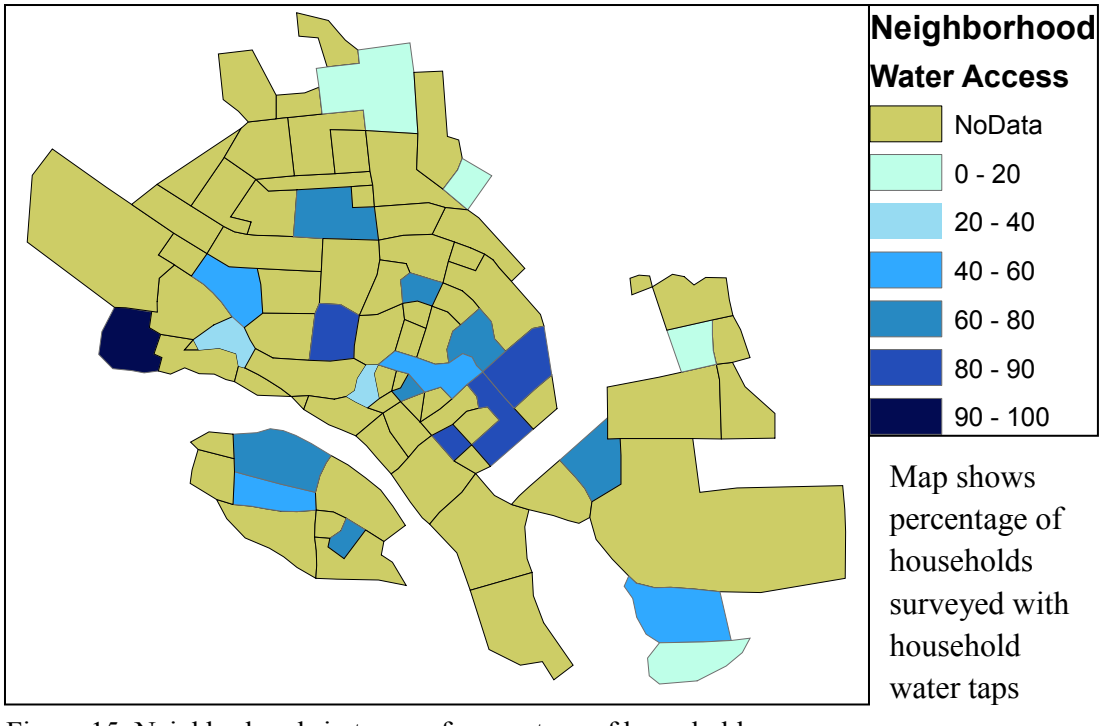

Figure 15: Neighborhoods in terms of percentage of households surveyed with private water taps inside their dwellings. Cartography by Will Penner.

Neighborhoods that had the least amount of access to household taps are located on the eastern edge of the city. I expected to find neighborhoods on the edges of town with little access to household taps, but what also emerged from my surveys were two neighborhoods on the opposite edge of town that had the highest rates of household water taps. Two downtown neighborhoods also emerged as having some of the lowest rates of household water taps. This was an expected result because of the abundance of water pipes, and coverage is assumed to be

adequate based on these maps. The realities in the neighborhoods, though, tell a different story. In the discussion below I first cover the neighborhoods with physical lack of water infrastructure, then move to a discussion of discursive lack of water as presented in the downtown cases.

Neighborhood	**Method of household water provision**					
	Private Household Taps	*Shared Household Taps*	*Standpipes*	*Vendor*	*Neighbors*	*Wells/ forages*
ABIDJAN	12	2	0	9	1	0
AVIATION 1	9	3	8	5	0	2
AVIATION 2	2	0	4	10	0	8
BANIZOUMBOU	13	3	1	8	0	0
CITE DEPUTES	3	0	12	5	1	4
GAWEYE	11	5	1	7	1	0
GOUDEL	17	6	0	2	0	0
ISSA BERI	7	0	0	0	1	0
KARADJE	10	3	8	4	0	0
KOIRA ME	12	4	0	8	1	0
KOIRA TEGUI	4	1	7	13	0	0
LOGEMENTS	16	0	0	2	4	2
MADINA	13	2	1	8	0	0
NIAMEY 2000	2	0	2	3	0	19
NOGARE	1	16	5	1	2	0
NOUVEAU MARCHE	13	7	0	4	0	0
PAYS-BAS	0	0	3	4	0	18
POUDRIERE	19	3	0	2	1	0
ROUTE FILINGUE	12	10	1	3	0	0
TALLADJE	16	3	2	3	1	0
YANTALA BAS	9	1	7	8	0	0
YANTALA HAUT	12	0	10	1	0	1
ZONGO	2	3	3	7	0	0
	215	72	75	117	13	54

Table 6: Method of household water provision by neighborhood. Based on data from household 547 household surveys carried out between Nov. 2009 and Feb. 2010.

Material Lack of Water Infrastructure

Four of the five neighborhoods with the lowest percentage of respondents who have a water tap at their direct disposal (Niamey 2000, Aviation 2, Cite Deputes, and Koira Tegui) are located neighborhoods on the periphery of the city where the water network is barely extant. The fifth neighborhood—Pays-Bas—is not located in the peripheral zones of the city, but rather is an informal neighborhood near this peripheral zone.

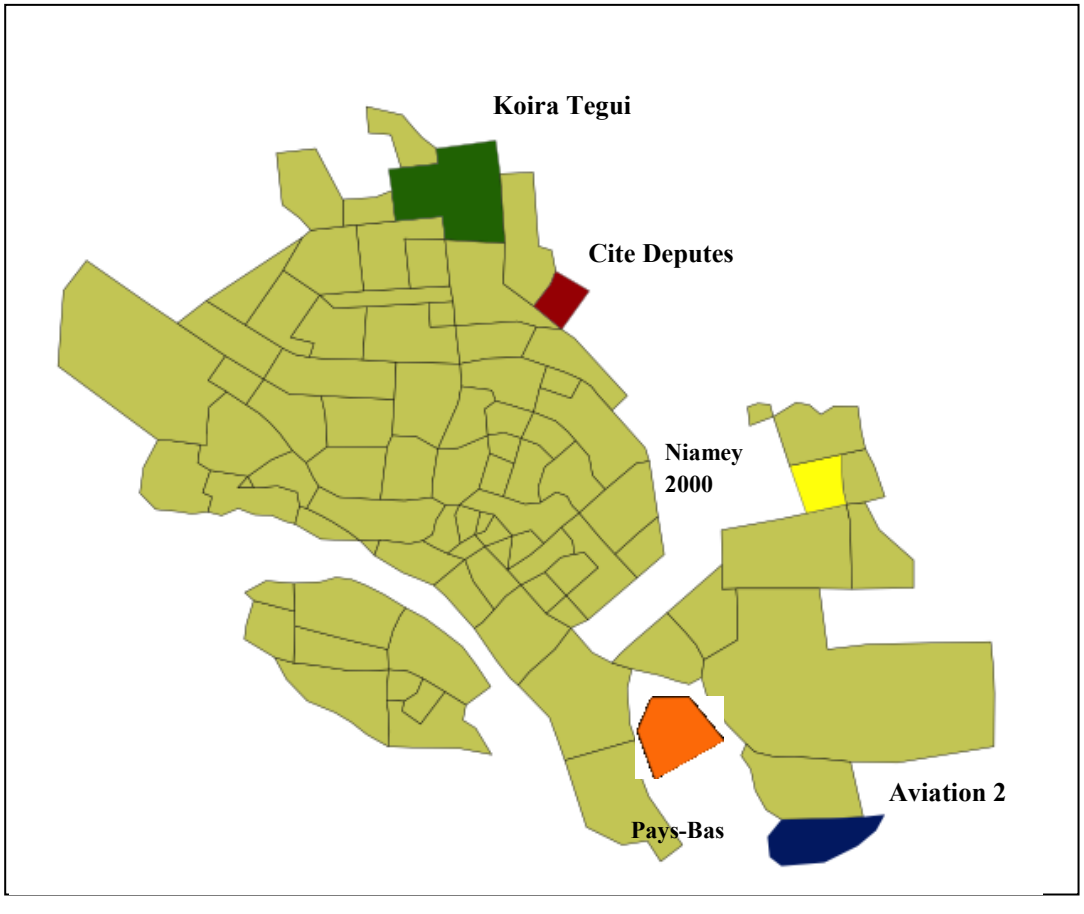

Figure 16: Neighborhoods with the lowest percentages of household water taps. Cartography by Will Penner.

The story of these five neighborhoods and their lack of water is in many ways not new; much research has been done on peripheral zones of cities and their lack of city services, urban growth and the outpacing of city services, and peripheral informal settlements and water

connections (see McGranahan 2001, Budds and McGranahan 2003, Kjellén 2006). The modes of access for residents in these four neighborhoods without piped water are very different from one another, and an in-depth look at each neighborhood shows how these different communities deal with lack of access to the piped water network. Location on the periphery or outside edges of the city, moreover, does not mean that the water network has yet to reach those locations: two of the neighborhoods with the highest percentage of respondents with water taps are also on the edge of the city, albeit a different edge, and will be discussed at length later.

Niamey 2000

Niamey 2000 was to be the model neighborhood of the new millennium. This neighborhood, on the northeast edge of the city, follows a grid plan with wide streets, spaces for schools, and even public space reserved for parks. Since its foundation in the late 1990s, though, few substantial infrastructural investments have occurred. Eighty percent of residents surveyed in Niamey 2000 did not have taps to the piped water network (only 7% had private taps), but relied on personal mechanized wells (*forages*). Though these residents lacked access to the water network they had enough money to build costly personal water infrastructure: they made a massive investment in the beginning to construct personal mechanized wells, but then have water free for as long as their well works. The majority of people in Niamey 2000 who did not have access to taps/*forages* were temporary residents: seasonal migrants, squatters, or temporary guards of undeveloped parcels. The practice of hiring people to live in one's undeveloped piece of land is common in Niamey; generally these guards live in thatch huts on the property, are usually part of the extended family of the property owner, are not charged rent, and sometimes are paid a nominal fee. This is a popular choice for recent migrants to the city and also for landowners/investors who are not yet ready to develop their new parcels. Temporary residents

rely on water vendors, purchasing 35-litre jugs of water for the standard price set by the state-private partnership, but adding in delivery costs (which vary depending on location and season).

This neighborhood is the classic example of a place with limited access to the piped water network due to the inability of the state services to keep pace with urban growth. The Niamey Urban Community (CUN) in coordination with each of the five city districts (Communes) guides the spatial expansion of the city through the parceling out of new neighborhoods. Land sold through the CUN and Communes provides a key source of revenue for the municipal government, and thus frequently occurs with little coordination with SPEN, the state agency responsible for expanding the physical water infrastructure. SPEN is left following the CUN's decisions and attempts to expand the network as needed.

Cité Député

Despite being another example of the newer neighborhoods in Niamey, the piped water network has reached Cité Député, but mostly in the form of the public standpipe. Nearly half (48%) of respondents reported getting water from the public standpipe as their primary source of water provision, and another 20% get their water from water vendors (who get water from these public standpipes). Twenty-eight percent of households surveyed do have personal sources of water—12% have private water taps and 18% have personal mechanized wells. Cité Député neighborhood has a similar temporary resident phenomenon as Niamey 2000; 24% of the households surveyed were either squatters or guards of empty parcels. These populations are easily identifiable by their similar thatch houses, but guards are usually behind the parcel walls, while squatters occupy public space and do not have walled enclosures. Their water provision methods are the same, too, relying on either vendors or public standpipes. Temporary residents

rarely rely on neighbors for access to water: only one household surveyed in Cité Député regularly used their neighbor's connection for water.

Aviation II

Unlike Niamey 2000 and Cité Député, Aviation II has existed since the late 1960s on the eastern-most edge of the city. The neighborhood is an extension of the Aviation 1 neighborhood, a neighborhood created in the late 1950s to house airport employees and members of the military, providing a mix of state, apartment-style living available for rent and private parcels for purchase. By the late 1960s, more parcels were needed for the airport workers and military households, so the northern part of Aviation II was parceled out by the state and sold. The southern part of the neighborhood, on the other hand, is a collection of parcels with land titles not from the state, but from the customary/traditional landowners at a reduced price. These customary land receipts were not recognized as official land titles until 2009 (Benjaminsen et al. 2009). Lack of recognized/legal land titles in the southern portion of Aviation II could explain why residents here rely on water vendors and wells as their primary source of water, rather than on the piped water network which only covers the extreme northern portion of the neighborhood. In order to obtain a private, household tap, residents are required to show proof of legal ownership of their parcel; residents who bought parcels from customary land owners thus were unable until recently to obtain personal taps, even if they had the capital to do so. The informally planned part of the neighborhood, with its varied topography and web of small streets and passageways, presents a challenge to extending the infrastructure network without restructuring the neighborhood.

Koira Tegui

In 1989, the Koira Tegui neighborhood was forcibly relocated from the site where the national stadium (Stade Seyni Kountche) was being built close to downtown to the extreme northern edge of the city. Koira Tegui in its previous incarnation was a neighborhood of Peuhls, an ethnic group known for nomadic pastoralism centered on cattle and sheep. In the new Koira Tegui neighborhood on the outskirts of the city, the state gave land titles to displaced residents and also incorporated a new design of the neighborhood as a refuge for people with blindness and leprosy, and gave them land titles accordingly. A recent extension of the neighborhood has seen the incorporation of areas to the east and south, and the selling of land parcels to whoever wishes to buy. Residents of Koira Tegui get their water mostly from vendors (52%) and public standpipes (28%), as the piped water network reaches the neighborhood only as one large water main with limited number of household extensions. Some houses are gaining personal extensions and water taps, but they are mostly in the new part of the neighborhood.

The older parts of the neighborhoods, especially the zones of the blind and lepers, have gained a lot of attention from international aid organizations. In Niamey, it is widely known that most people who practice begging on a permanent basis are from or live in Koira Tegui. Accordingly, there are a number of NGO operations in Koira Tegui that focus on training and providing other options of work. In the water sector, this aid assistance is evident in public standpipes—one gifted by Rotary International and one by a Kuwaiti Islamic Relief organization. I saw no evidence of such international organizations or assistance in the other four neighborhoods with the extremely limited access to the piped water network. Water from these two standpipes does cost money, but revenue generated goes to project development within each organization rather than to the financial gain of one proprietary owner. The vast area of the neighborhood combined with the few number of public standpipes makes it difficult for residents

to go directly to the standpipes, so they rely instead on vendors. Residents I spoke with in this neighborhood frequently spoke of both the high cost of water and the long wait time for vendor delivery, especially in the new neighborhood extension.

Pays-Bas

This last neighborhood with a severe lack of material water infrastructure is Pays-Bas. This neighborhood is not on the physical periphery of the city, but in a kind of middle zone between the center and the edge. Pays-Bas also occupies a kind of middle zone in terms of its legality. Officially, this neighborhood is not recognized by the state—it is not present on city maps, is not counted in the national census, and the neighborhood chief is not formally recognized. According to the neighborhood chief, this neighborhood started as part of the Saga village in the early 1900s, but in the 1960s it expanded exponentially. The location near the city's industrial zones, close to the airports, and relative ease in acquiring land made it a popular neighborhood for recent migrants and seasonal residents. In the 1990s, the name Pays-Bas (in French this can mean low country or the Netherlands) was adopted for the region because of its location below (in terms of elevation) the rest of the city. Property rights and land titles in Pays-Bas are customary or traditional, which the state does recognize as a legal form of land ownership as an *Acte de Consession* (Niger Rural Code, Lund 1998). This *Acte de Concession* works much like a receipt of purchase, but not an official land title. *Acte de concessions* can be used to buy a land title, which requires paying a tax of 15% of its value. Having a land title rather than an *acte de concession* protects people from claims of eminent domain: people with land titles are paid the full value of their land, while people with *acte de concession* are paid only 25% of the land's value. Land titles are also required for personal extensions of the water network.

Because of its semi-legal status and challenging topography, the piped water network exists in Pays-Bas only in the form of two public standpipes. Residents in this neighborhood rely on a mix of personal wells (52%), four large mechanized wells (20%), public standpipes (16%), and vendors (12%) for water; there are no personal connections to the piped water network. Most residents with personal wells said they used them for non-drinking water purposes, except during the dry season when water supply to standpipes was variable and waits were long. Personal wells were both lauded as a useful point of free access all year and as a problem because of the health risks associated with drinking well water. Also, the limited number of standpipes and forages in the neighborhood made well water easier to use, and people often pay neighbors for access to their wells. Eight-five percent of respondents in Pays-Bas noted the high cost of water as one of their concerns.

Discussion

The discussion above presented the five neighborhoods with the least amount of access to the piped water network. Four of the five neighborhoods are located just at the edge of city limits where the water network has yet to reach. Each of these neighborhoods, however, has a unique history that distinguishes it from the others, and these contexts complicates the idea of a "peripheral neighborhood." Niamey 2000 was to be the model neighborhood of the new millennium, but tapped water services have only recently occurred. Permanent residents of this millennial development, though, have enough money to invest in personal mechanized wells, and can thus circumvent the piped water system altogether. The Cite Deputy neighborhood tells a similar story—a new development with a small number of permanent residents who rely on personal mechanized wells and a few private taps, and a large number of temporary residents relying on public standpipes and vendors.

These two groups represent very different experiences of Niamey. Permanent residents first have money to buy the land (in these two developments the CUN sold the land), then to acquire an official land title. Obtaining an official land title is in itself a long and costly process involving fees, land survey payments, and frequently social connections and bribery. Temporary residents have no legal rights to the land, except in terms of guarding/leasing agreements with titled landholders. Squatters or seasonal migrants often take up residence in these periphery zones, so the neighborhood becomes a checkerboard of beautiful gated mansions with thatch houses surrounded by cattle interspersed in between. Temporary residents rarely obtain water from the permanent residents in the same neighborhood, which suggests clear divisions along class lines and a sort of individualist mindset. One permanent resident explained to me that they could not refuse to give water to their neighbors, but that also the poorer neighbors rarely ask for help because they are illegal settlers. Temporary residents do not belong in the modern city (though many of them have lived there for years), and accordingly are not granted the great symbol of modernity—the water tap.

Aviation II presents a different story. Aviation II is a much older neighborhood than Niamey 2000 and Cite Deputes, with a mixed legacy of formal and informal settlements. Despite its length of existence, the water network is sparsely distributed in Aviation II, and most residents get water from public standpipes or vendors. The northern portions of Aviation II—the formal parcels from the 1960s—have more residents using private taps than the informal zone. Koira Tegui also has two distinct districts in the neighborhoods that are easily identifiable in terms of how people get water. Mostly public standpipes and vendors service the older part of the neighborhood, the original zone for the displaced Peuhl people, while the newer extensions more frequently have personal tap connections. These two neighborhoods show contrasting experiences—in Aviation II, the older planned district has more personal water tap connections,

while in Koira Tegui it is the newer extension of the neighborhood where one finds more household water taps. Age of neighborhood or settlement, then, cannot be used to explain why some places lack material access to the city.

Pays-Bas has existed for nearly a century, but it is completely off the piped water network grid and officially does not even exist—it is not counted in the census and does not appear on official maps of the city. Seeing Pays-Bas as only an extreme example of spatial inequality that exists in Niamey disregards the ways it is actually a vital community to the city. As the closest example to a slum district in Niamey, Pays-Bas has garnered much national and international attention. During Mamadou Tandja's campaign for a third term presidency in Niger, his party donated a public standpipe to the population of Pays-Bas. Locally, this standpipe is called *Pompe Tazarché*, referring to the popular name of Tandja's campaign: *Tazarché*, or continuation. Installing *Tazarché* standpipes was not commonplace; in fact Tandja only donated one *Tazarché* standpipe in the whole city. In acknowledging the neighborhood and recognizing their severe lack of water, Tandja admitted the neighborhood had been ignored and left out of city water, but more importantly he showed the importance of the neighborhood to not only the city, but the state itself. Sure, he was looking for votes, but he could have built standpipes in any number of poorly serviced neighborhoods. Doing so in a neighborhood that officially does not even officially exist showed that their very existence was connected to these off-the-map places. Pays-Bas has also been featured in the Washington Post and appears on Google Maps (though un-named).

Location on the physical periphery, though, does not automatically mean lack of access to water. In fact, two of the neighborhoods with the highest household water coverage rates in my household surveys were Goudel and Sonuci—neighborhoods located on the northeastern edge of the city. Moreover, the location on the edge of the city is the most striking similarity

between these two places. Goudel was one of the original villages of the region, which has been brought into the urban expanse as the city grows. As a village, Goudel lacks the grid pattern of streets that characterize formal, planned neighborhoods. Despite this winding pattern to streets, most households surveyed in Goudel (92%) had private water taps inside their household. The lack of grid-pattern streets, though, is often proffered as the reason behind the lack of water in neighborhoods like Pays-Bas.

Why does Goudel have water and Pays-Bas does not? Goudel, as one of the original villages, lays claim to most of the land upon which Niamey has been built, and satisfying the leaders of Goudel became paramount for past, contemporary, and future land requisitions as the urban space continues to spatially expand. Pays-Bas, on the other hand, is considered an informal squatter settlement that has no legal claim on the land it occupies, much less any land which would be useful in Niamey's future expansion. Also, the water treatment stations in Niamey are both in this northeastern zone between downtown and Goudel, and residents of the neighborhood are keenly aware of new developments in the two plants. Goudel's relative location close to treatment stations combined with their importance in land ownership claims makes it an important neighborhood to keep content.

Cite Sonuci, the other neighborhood with an abundance of private water taps, tells quite a different story. The name of the neighborhood itself derives from a land development agency, Sonuci, which bought the majority of land parcels within this neighborhood when the state annexed the parcels to be sold. Once the land was obtained, Sonuci paid for water and electricity extensions to each plot, and then sold the plots to the highest bidder. Buyers in Sonuci neighborhood bought land directly from the developer—complete with title and services—rather than buying land from the state that would require electricity, water, and title be obtained. Buyers into Sonuci constitute the Nigerien elite: lawyers, military officers, professions in uranium and

gold mining, numerous Ministers (like the Water Minister!), key figures in various Ministries, and commercial elite. This elite neighborhood consists almost exclusively of Nigerien elite, not a mixture of expatriates (mostly French and American) and Nigerien like the old colonial neighborhoods. Most of these elite residents bought their parcels from Sonuci, and as such the plots are fully serviced even if villas are in progress or have yet to be constructed. There were a few cases where individuals bought the land directly from the state, but had not yet started construction. In these cases, guards (family members from the countryside) lived behind property walls, but did so without water and electricity in houses made of thatch. The location of Cite Sonuci on the edge of the city and the few years that the neighborhood has been in existence would lead us to first think that water would be scarce if present at all, for as the city grows services cannot keep pace. Clearly, as the Cite Sonuci example demonstrates, there is more to the story than physical location.

Just as physical location on the edge of the city does not determine availability of water infrastructure, neither does location in the center of town mean that water taps are accessible. The neighborhoods with the lowest percentage of residents with a personal water connection after these lowest five were two neighborhoods in the heart of downtown Niamey—Zongo and Gandatche. Lack of water access here cannot be understood as material, for here the piped water network exists. Why do people still rely on vendors and public standpipes in these neighborhoods? The following discussion provides an idea.

Discursive Lack of Water

Much of the research on distribution of water access focuses on where water pipes exist and where they are absent, and assumes that residents in those places access water accordingly (see Bakker and Mooy 2010). Results from my household surveys, however, suggest that we

must look beyond the map of water pipes to understand water access on the ground. The physical existence of water pipes tells us little about how populations gain access these subterranean resources, and how this access changes over time. Looking at water in two neighborhoods which are within the water network's reach yet do not have household access to water taps reveals other forces at play.

Zongo

The Zongo neighborhood is one of the oldest neighborhoods in Niamey, and a neighborhood in which water pipes were laid early on (Sadikou 1984). The neighborhood historically has been the home of Hausa migrants from Zinder and eastern Niger; indeed, there is a Sarkin Zongo (King of Zongo) who traces his lineage to early Hausa migrants. Hausa people are often lauded for their entrepreneurialism and skill as merchants (Lovejoy 1974), and these early migrants to the city were a group the French were eager to assuage. The water network was extended to here in the 1950s, though mostly in the form of public standpipes. Private taps came later, mostly in the early 1970s.

Looking at a map of the piped water network, Zongo would be considered a covered neighborhood. Coverage rates are calculated based on distance to a main water conduit or an extension, number of private taps (one tap is assumed to serve 10 people) and number of public standpipes (one standpipe serves 250 people; Dupont 2010). Water pipes undergird streets all around the neighborhood, and based on relative location to pipe calculations alone, coverage in Zongo would be nearing complete. The results from my surveys with residents of Zongo, however, tell a different story. Only 13% of households surveyed have private taps within their residences, and an additional 20% have taps that are shared in a combination of family arrangements or apartment style concessions. Twenty percent of households surveyed reported

the public standpipe as their primary source of water, and nearly half of households surveyed relied on small-scale water vendors for water provision. The map of water pipes tells a story of coverage, but residents tell a story of difficulty and an overwhelming reliance on vendors and public standpipes. These strategies of access are survival strategies, not spatial practices one would expect to find in a neighborhood laced with water pipes. There is more to the story than just relative location near the water system.

Just over 30% of the households who rely on standpipes or vendors now once had a private tap, but the taps have been cut off because of non-payment. Restarting service once the tap has been cut, moreover, presents a formidable challenge. First, the unpaid bills must be paid, another water meter bought and installed, then usually an official penalty and unofficial bribe. Some residents surveyed relayed that even if these conditions are met, if the household has does not have personal connections to the water company, then the application would sit for months, maybe years. In addition, since this neighborhood is undergirded with water pipes, residents were ineligible for the World Bank-funded program of subsidized connections in 2002/2003. These subsidized connections were available for households further than 20 meters from a water pipe and who had not previously had a private tap connection, conditions that Zongo residents could not meet. Zongo residents can apply for new connections, but official prices for new connections have risen three-fold since 2001 (Tchangari 2010) and residents contend that bribes and personal connections add additional costs.

Gandatché

Unlike Zongo—the historic neighborhood of migrants—Gandatché was one of the original villages that occupied the space that would become Niamey. It was originally located on the bend of the Niger River as it reaches Niamey, and was thus a highly desired location for early

colonial settlements. Gandatché was displaced from this original location on the banks of the river in 1935 after fires swept through the village and thatch/mud buildings destroyed. The village was moved inland next to the Grand Market (Sidikou 1980) and given neighborhood status.

Gandatché is another example of a neighborhood that from the map seems to have water, and would be statistically calculated as a zone of coverage. Despite the existence of water pipes encircling the neighborhood, only 46% of residents surveyed had private taps within their households. The majority of the remaining residents (46% of the total) rely on water vendors, primarily because of the lack of public standpipes within the neighborhood. Most houses without private connections are further than 20 meters away from the water main, and to obtain water taps would have to pay an additional extension fee. At the same time, rules governing locations of standpipes makes increasing the number of standpipes nearly impossible. Standpipe installation requirements stipulate that they must be 350 meters apart and at least 500 meters away from existing or planned water infrastructure. In a small, densely populated neighborhood like Gandatché, this means that residents are simultaneously too close to existing water pipes to benefit from social programs yet not close enough to connect without paying extension fees.

Gandatché's location near the Grande Marche of Niamey provides residents, and merchants who have rented space in the neighborhood, easy access to the largest market in the city. For this reason, people in Gandatché use water not only for direct household consumption, but in providing services (cleaning dishes, clothes, cars, animals, etc) for the market and in making goods (food, drink, dyed clothing, etc) to sell at the market. Water's role in economic production is amplified in Gandatché because of its relative location in the city.

Discussion

The ways in which water access operates on the ground in Zongo and Gandatché reveals that these neighborhoods exist in a space of liminality, a space of in-betweens. Houses within these neighborhoods are at once too close and too far from water pipes; they are too close to qualify for social assistance programs or new public standpipe installations, but too far from water mains to get household taps without paying extension rates. The half of households in Zongo and Gandatché that do not have water taps exist within this liminal space in practice, though maps of the two neighborhoods would suggest nearly universal coverage rates. Households find themselves without recourse to the tapped network, and thus they employ water vendor services which double the cost of water.

The assumption of universal coverage of places in the center of town makes water extensions and development in the periphery of the city the priority. Water coverage problems are displaced to the edge of town, to places far away and more convenient to problematize. The need of peri-urban has been confirmed by development agencies and has effectively become discourse driving water network expansion. Households in Zongo and Gandatché have revealed, though, that we must look beyond the map of water pipes to understand how water shapes everyday life in the city. If we just looked at the map of water infrastructure, these two neighborhoods would not emerge as points of priority. Proximity to water infrastructure, though, tells us little about how people access water flowing through these pipes.

Informal settlements have also been identified as key places with needs to connect to the water system in development discourse (see UN-Habitat 2008). Niamey, though, does not have a consolidated slum space like many other African cities. There is no Kibera (the largest slum in Nairobi, with over 300,000 residents) in Niamey. There are pockets of squatters in every neighborhood, and concentrations along the urban periphery of more informal and squatter

settlements, but even these usually only consist a few families. The United Nations, on the other hand, characterizes 80% of Niamey as slums (UN-Habitat 2010). But Zongo and Gandatché are not informal settlements or slums. They are, in fact, some of the oldest formal neighborhoods in the city. Land tenure in these neighborhoods is not tenuous; there are multiple old family homes within the neighborhoods that have land titles and also houses that have been turned into rental properties by old families. Increasingly, though, these two neighborhoods are targets of urban gentrification and redevelopment plans. Neighborhood leaders in both Zongo and Gandatché pointed to these plans as the reason their neighborhoods were not prioritized in water coverage programs.

Zongo and Gandatché occupy spaces adjacent to the commercial heart of Niamey next to the two biggest markets (which are only a few blocks apart really) and are within the zone of an urban redevelopment project. This project, if adopted as policy, would require buildings in the central downtown zone be constructed with concrete rather than the mixture of mud, thatch, and concrete that typifies construction materials in both neighborhoods. The *Sarkin Zongo*, the king or traditional leader of the Zongo neighborhood, lamented "it is a way to push us [old, traditional residents] out so they [the state] can take the land and sell it to merchants and banks" (Interviewed April 2010). He explained that first the state pushed residents to get official land titles so that land ownership would be modern rather than traditional. Once residents had land titles, the king explained, many of the families sold their titles to developers. The residents who do remain feel the pressure of the encroaching commercialization, and point to the inability to access water as evidence of their marginalization. Some residents claim that during construction of commercial houses, their water lines were broke and have never been repaired.

Zongo residents especially, perhaps guided by their king, repeatedly expressed fear of an impending displacement. Numerous times in Niamey's history displacement of neighborhoods

has occurred, particularly displacement of neighborhoods occupying space near the city center. Gandatché was displaced from the river banks to its current location, but that happened early in the city's history. Koira Tegui, a well-known neighborhood on the northern edge of town, has been displaced numerous times—first from along the river banks to inland, and then from this inland location (displaced for the construction of the national stadium) to the northern outskirts of the city. The story of Koira Tegui's multiple displacements is well known in Niamey. Zongo residents fear a similar story. They worry that if the neighborhood does not comply with construction material ordinances stipulated by the urban renewal project, the neighborhood will be forcibly displaced to the edge of the city. One older resident in particular exclaimed:

> What would I do at the edge of the city? I would have to pay to come into the city every day for my business. 400 cfa each way probably. And how much do I make in a day? I would have too much space. I am used to living like this. I was born here and have my family here. It's noisy, yes, but that is all I know. I am not a farmer or a nomad; I don't want to live at the edge of the city (Household survey #18, Feb 2010).

Complying with the construction materials ordinance, however, would be cost prohibitive to many residents in the Zongo neighborhood, and this, residents claim, would be the impetus for state acquisition of land. Now that residents have modern land titles, the king explained the state can enact eminent domain and not be mired in controversy about traditional land rights in this old village.

Gandatché leaders expressed more fear about encroachment of merchants and increasing commercialization of neighborhood spaces. Multiple high-rise complexes line the outer limits of this neighborhood and stand as proof of the value of the land. Neighborhood leaders here worry that residents seeking money will sell to merchants, and eventually the neighborhood will be mostly commercial. That this transition from residential to commercial space occurs without difficult bears witness to the paucity of zoning laws and the dearth of zoning enforcement. In the

very quest for modernization through commercialization, Niamey becomes un-modern as spaces become unclassifiable and not neatly categorized as residential or commercial. Modernity in Niamey is enacted through this blurring of the boundaries, but the state responds by privileging the commercial enterprises (which pay a higher rate for water) rather than residential connections.

An understanding of Zongo and Gandatché through a relational understanding of water reveals that these neighborhoods exist within liminality, that is, they exist as spaces of in-betweens. They are both too close and too far from water pipes and too old for the modern city. This is an understanding that requires us to look beyond the maps—of location in the city, of location near water pipes—to see how neighborhoods are politically imagined and enacted through water.

Not Fragments, but Neighborhoods

I am uncomfortable with the militancy on fragmentation found in much contemporary human geography studies of urban inequality (see Graham and Marvin 2001). Fragmentation or splintering discourse focuses on water access through a historical-materialist lens (much like in Chapters 2 and 3), but tells us little about what happens in households and everyday life on the ground where people do not have water. Understanding how water is enacted and experienced through daily life in neighborhoods is critical to understand potential alternatives or sites of politics. Inequality and fragmentation are important, but I argue that seeing how things work in these fragments becomes the realm in which possibilities and alternatives emerge. Sywngedouw (2010: 233) asserts that "it is indeed precisely in these 'marginal' spaces—the fragments left unoccupied by the global urban order that regulates, assigns and distributes—that all matter of new urban social and cultural practices emerge; where new forms of urbanity come to life."

Constructing Niamey as a matter of splinters overlooks that these are lived spaces and places in which people go about the tragedies and joys that are life itself. These are important, relational spaces, not just fragments of a system.

My thinking of Niamey as a collection of different places, not fragments or bits, but *places*, came through discussions with neighborhood leaders about the histories and development of their specific neighborhoods. Through these conversations, Niamey emerged as a collection of unique, purposeful places. There was never *one* Niamey, but a multitude of places that came and come together through relations (political, economic, social, infrastructural) to produce city-spaces. Yes, some of these places have been brought into the water network's reach more than other places, and there is no denial of service fragmentation. But to look at these places only as fragments silences the very thing around which people converge: the neighborhood. If we want to look for spaces of alternative visions, we need a perspective that understands the city as a collection of places, not just spaces of fragmentation. This grounding in place aligns with understandings of relational space—space is more than just lack of water, but is the multitude of relations and the open, unending futures. Tapping into these relational spaces, as done in this chapter, tells us a deeper story about how city and water are co-produced.

Conclusions

This chapter has detailed the ways in which residents get water in neighborhoods with low household coverage rates and has sought to understand why some places do not have access to water infrastructure. In many ways, my results confirm what Gandy (2006) and Bakker (2010a) explain as the increasing inequality in water access in developing cities, and that access favors the politically and economically connected through neoliberal water management schemes. Results from my household surveys, however, suggested the need to look beyond the

map of infrastructure to understand how water reflects and produces spaces of marginalization. In much of the critical work on urban water systems, maps of water pipes (not maps showing main distribution channels, like those flowing through Mumbai's slums on the way to the suburbs in Gandy 2008) showing local distribution pipes, become synonymous with water coverage (see Bakker and Mooy 2010 for example). Certainly, this convention is upheld in Ministerial and development reports, which are then the basis of policy futures. How water functions in households and neighborhoods within these spaces on the maps ceases to be important. Contradictorily, my research suggests these local, nuanced understandings are paramount.

In the next chapter, I extend these ideas of water through neighborhoods to an understanding of how the body is implicated in and transcribed by politics of urban water. I examine how the body is both symbolically and materially affected by urban water systems through four case studies drawn from interviews, conversations, and observations with women experiencing difficulty in accessing water. I argue that politics around control of water is ultimately about laying claim to bodies.

CHAPTER 6: CYBORG URBANIZATION—THE CONNECTIONS BETWEEN WATER, CITIES, AND BODIES

The greatest single chemical element that defines our experience as humans in lived bodies is water: sixty percent of the human body is water. This water needs to be constantly replaced and renewed; humans cannot survive more than a few days without water. Moreover, the constitution of this very water has real effects on our very lives. Water can carry, suspended in invisibility, chemical and environmental contaminants. Decisions on what is considered harmful and how to purify water are not just questions of science, but political questions implicated in knowledge creation, governance, and transparency. In drinking water that flows from and within these political contexts, the individual body consumes and becomes constituted by these larger structures. Beyond the chemical and molecular constitution of bodies, accessing water at times requires intense physical exertion, and bodies respond by altering shapes and experiencing pain.

The approach of cyborg urbanization helps bring to the forefront interconnections between water, cities and bodies. Gandy (2005: 36) explained that seeing the city as cyborg urbanism is "an interpretative analytical framework that can connect analysis with the cultural and ideological realm of everyday life and include those 'unconventional' urban landscapes that have emerged outside the core metropolitan regions of the world economy and where incongruities and displacements are an even more pervasive feature of the urban experience." Cyborg urbanism is a way into the relational city through the most local level, the relational body constituted by a multitude of social and biochemical processes. In this chapter, I present four stories of lack of water in Niamey and tease out connections between water, cities, and bodies

evidenced in these stories. I begin with a discussion of the methodology used in constructing these case studies.

Methodology

Four case studies were selected from the household surveys to follow and investigate how water functions in daily life. I chose the four case studies because each presented a unique story and participants expressed interest in learning more about my research when we first met during the household surveys collection. All case study participants spoke either French, which I speak fluently, or Hausa, in which I am conversant, but required help from a research assistant (a local, male master's student in geography). Case studies took place during the hot season (between late February and late May) because this is the time of year that water access is most restricted.

I approached case studies using three primary qualitative research methods: observation, conversation, and unstructured interviews. Participants did not want to be recorded, so field notes were taken after each encounter. Some did permit pictures, and I have included a selection in the text below, but I made sure that pictures illustrate landscapes instead of people. I do not show any faces or other ways of identifying participants as they wished to remain anonymous. Their names, accordingly, have been changed. My aim with case studies was to understand how water shapes everyday life, particularly when there is no water, and to see what themes emerged as critical in understanding the relationship between cities, water, and everyday life.

I did not originally intend to write a dissertation about bodies, but this theme repeatedly emerged during conversations and observations during household surveys and case studies. I decided, then, to focus more deeply on how water constructs bodies physically and socially in the latter half of my fieldwork. In my own life, too, I was becoming more aware of interactions

between bodies, water, and cities as I navigated the city in the scorching heat, experienced thirst, and felt my body conform to these different experiences. It was also the time I became pregnant for the first time, and I had a heightened awareness of how bodies are personal yet social, and how our bodies become shaped by the processes of which we are a part. Being aware of how my physical, pregnant body shaped my daily experience (for example, having nausea in the mid-day heat and needing to rest, or the urge to drink an inordinate amount of cold water) helped me understand and put words to questions about how places are experienced "through the body" (Nast and Pile 1998).

Case Studies

The narratives on the following pages are constructed from four case studies of water in Niamey. Each story is woven from threads of interviews, observations, and field notes. Each story highlights social interactions and physical realities around water in Niamey, and particular contexts through which these stories arose. Following the narratives, I present my analysis on what they mean for a deeper understanding of the connections between water, cities, and bodies. I chose to highlight stories about the lack of water for a few reasons. First, I show that even in places that have water taps, water is not always accessible. Also, lack of access to clean water in developing cities is the major focus of governance and alternative management debates, but often these debates lose sight of the complexity of access on the ground. Finally, I chose to focus on real stories of lack in order to question alternatives and governance and city futures (elaborated in the concluding chapter).

Hadiza's Story

Hadiza lives in her husband's family compound in the Talladje, the largest neighborhood of Niamey with about 50,000 residents (Motcho 2010). She shares the family compound with a few sisters-in-law and their families, and the mother in-law. Each family has a separate section of the courtyard near their bedrooms as their private domain. Her house is not a single-family house like one finds in areas with newer construction, but more of a traditional compound like one would see in the village. Hadiza herself has three children, all under age eight. It is hard to know how many people live in the compound; that question does not make sense in Nigerien culture as household size and composition fluctuate seasonally and daily.

Her husband is the "*chef du quartier*" (neighborhood chief), a title he inherited from his father. His family started the Talladje neighborhood in the 1950s. They did not acquire land rights from the state, but rather bought land from the traditional leaders in Saga village. Talladje was not legally recognized by the state until 1972 (Motcho 2010). Before then, the neighborhood was considered informal, though the chief's family had rules on where people settled and how they constructed their houses and compounds. This helped in their struggle to gain formal recognition as a neighborhood by the municipal council. With formal recognition came the extension of city services, and in 1975, this compound obtained one of the first water pipes in the neighborhood.

The compound's water tap is located inside Hadiza's space of the compound. She retains this privilege as senior wife of the chief, but everyone in the household accesses it freely. Her husband pays the water bill, though he sends one of his assistants to the SEEN office with money instead of going himself. The water tap functions without interruption for nine months out of the year, but during the hot season, Hadiza's husband explained, "water comes like the piss of a camel," or like a forced trickle rather than a steady stream of flowing water (Maiga 2010). This

is not an unusual story in Niamey. During the hot season, which lasts from about March to June, temperatures hover around 115ºF and regularly reach 120ºF. Accordingly, during the hot season, demand for water soars. People require more drinking water and take multiple baths a day to keep cool. Also, demand for electricity during the hot season is high and the system regularly crashes; it is not unusual during these months to have four days at a time without electricity. The water towers require electricity from the power grid to circulate water—water is pumped from the distribution plant to the towers across the city where it is stored and distributed to their respective pipes as needed.

By the time water reaches neighborhoods like Talladje, neighborhoods far from water towers, a combination of increased demand and lower supply because of electricity problems creates a perfect storm, and water flows are interrupted for days at a time. One particularly bad week, I visited Hadiza and her family numerous times to see how they were coping. She told me it was the fourth consecutive day without water. She left the tap open at all times just in case, and occasionally water did flow in the middle of the night.

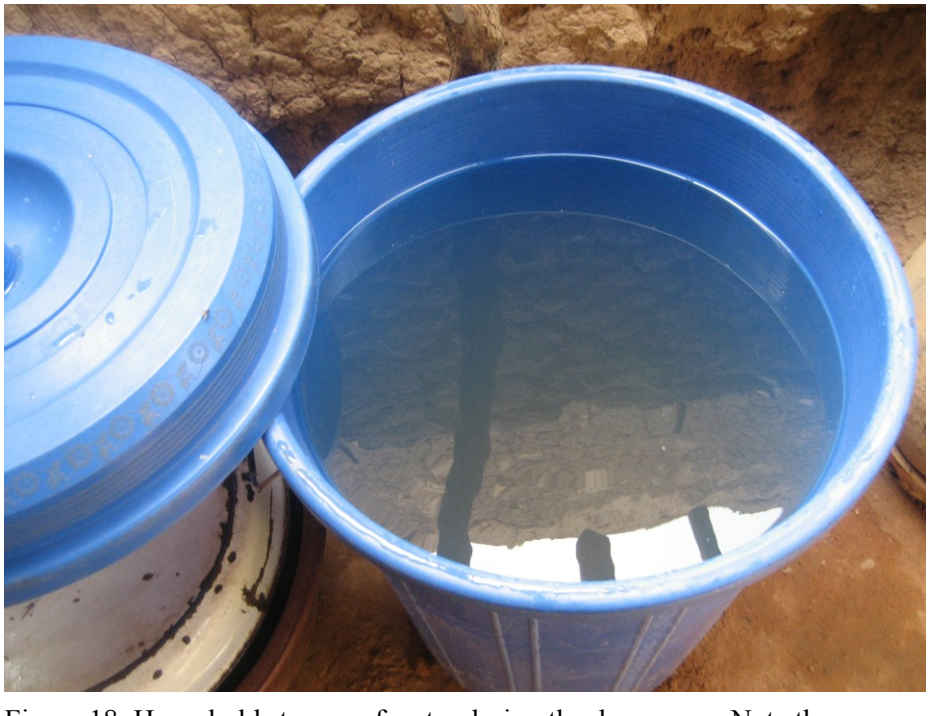

Figure 18: Household storage of water during the dry season. Note the discoloration of the water. Photograph by the author.

But during this particular week, water had not even come during the night. She said she buys drinking water during the day from cold-water businesses, but that even that is hard to come by, and is hardly ever cold because the power has been out. Hadiza tried to get at least a few jugs of water daily so that her husband and children can bathe. Luckily, she explained, she is the chief's wife, so she usually gets at least some water during the day. Vendors are hard to come by and she waits a long time. She has not cooked in days and is worried her family will get sick from eating food prepared outside. When water does come, she stores water in plastic jugs and earthenware pots, but does not want her family to drink that water because it can lead to sickness. She prefers to have the tap running like normal and be able to get clean water at any moment without having to store it. She showed me water she has stored for the day, points out its brownish hue and says it worries her. When water does run, neighbors who do not have water taps also come. Vendors were so hard to come by during the past few weeks since water pipes are unpredictable

Hadiza does not work outside the home, and so much of the work around the house relies on water that she feels like she has nothing to do. She cannot cook, do laundry, clean the dishes, bathe her children, or help out her mother in-law or sisters. She waits for water. She talks with the other women of the house and neighborhood to see how they are coping. Everyone is in a similar situation, and she knows she is lucky for at least getting a little. She complains and says the state needs to do something. They need more water towers around the city, especially near Talladje. She laments that the politics is just talk and they never do anything. They have promised so many things, but the situation for the average person does not improve.

Hadiza complains about not sleeping. Sometimes she sleeps outside near the tap, but then mosquitoes get her all night. Other times she sleeps inside and wakes a bit after midnight and then stays up and waits to see if the water comes. She waits with other women in her house and

neighborhood while the men and children sleep. Their work is invisible, taking place under the cloak of neighborhood darkness, but she knows it has to be done. Her younger sister told me that one day she went to Pays-Bas, a neighborhood nearby that has a deep-water forage, to get a bucket of water because they had spent days without water. Pays-Bas neighborhood is located downhill from Talladje (Pays-Bas literally means "low country"), and on her way up from the forage she slipped and all the water spilled. The water was too heavy and the terrain too difficult; she will not try to get water there again unless she is desperate.

Just down the road from Talladje is the airport, and the airport always has water. She says sometimes she persuades her husband to drive her there to get a few jugs of water, but so many people go there for water in times like these that she must wait a long time and her husband becomes impatient. He is busy, she explained, and has a lot of people calling on him and has duties as the chief, so she understands. She explains to me, too, that at school there is no water and that she worries for her kids with no water to wash their hands or drink.

Mariama's Story

Mariama is the most famous street vendor in Niamey. Her stand is located in the center of town, right outside of two of the tallest buildings in Niger that house a variety of government offices and private businesses, and down the street from the capital city's maternity hospital. She is well known by the Nigerien professionals that work nearby; government workers and businessmen regularly come down for lunch or send their secretaries for food. Women, except for foreign women, rarely eat at the benches behind Mariama's storefront; the sitting lunch crowd is almost exclusively male. She is also well known in the expat community, particularly by Peace Corps volunteers, and there is regularly a smattering of American volunteers eating. She was even featured in a *Washington Post* article.

What is most interesting about her business is that making food requires massive inputs of water, but Mariama lives in a neighborhood that has absolutely no connections to the piped water network. The neighborhood is hilly, located on the downslide where the surface above meets the river below. Though not located on the river directly, the neighborhood is located below the streets above. Pays-Bas (literally low-country, but the phrase also means the Netherlands) is an historic "spontaneous neighborhood" in Niamey, meaning that it was not planned by the state (Motcho 2010). The neighborhood, however, did have leaders that monitored new settlements, but they did not have planning guidelines or construction regulations. As such, narrow streets and windy passageways mark the neighborhood. Pays-Bas does not appear on most city maps, but is widely known around the city as an older informal settlement.

Water in the neighborhood is challenging at best. The main source of water is a mechanized deep-water well located in the center of the neighborhood, and three other smaller public fountains in other quadrants. In 2009, then-president Mamadou Tandja installed a fourth public fountain in the neighborhood in attempts of gaining votes for his illegal third term presidency. This fountain is called *la pompe tzartche*, the local name for Tandja's campaign. Water costs 15cfa/35-gallon jug if bought directly from the pumps, or 25-35cfa/35-gallon jug from water vendors, depending on the customer's location within the neighborhood.

Just before daybreak, Mariama awakes and waits for water vendors to deliver the day's water rations: two carts of eight 35-litre jugs, maybe more depending on her family's needs, at 25cfa/jug. She has an elaborate storage system consisting of plastic buckets of varying sizes, some being extremely large. There are some storage containers reserved for drinking, bathing, and preparing food, and she takes water from the appropriate storage container as needed.

Figure 19: Water storage system in the home. Photograph by the author.

She shares the house with three or four of her nine children, depending on who is home and who is traveling. She and her husband had nine children together, but he died a few years before, leaving her to work and support the remaining two children at home. She likes her work and has no intention of retiring, but her body is increasingly feeling the consequences of such hard labor. She stands on her feet all day, and she is tired by the end of the day. While she works preparing food, she bends over to reach the pots on the earthen stoves on the ground, and it takes a toll on her back.

During the hot season, Mariama explained, people come from nearby neighborhoods to Pays-Bays because there is always water. Since they are not connected to the city's water pipes, they are not vulnerable to selective distribution during the hot months. "Here," she said, "we

always have water somewhere. It is hard sometimes to get on a daily basis. You have to wait for vendors or wait in line. But water is here all year, even during the hot season. People come here from all over the city during the hot season because they know they will find water" (Mariama 2010). Water might cost more at certain times than others, but it is always here. Despite this price fluctuation of water, she does not change the price of food she sells. She does sometimes give smaller portions if her supply cost rises, but customers notice, and she does not want them to stop coming.

After her water is delivered and she has prepared the day's food, Mariama bathes and waits for the taxi to arrive. Her neighborhood, Pays-Bas, is far away from where she set up her shop. It takes at least 15 minutes by taxi to get from Pays-Bas to her storefront, and actually the neighborhood itself is barely accessible at all by car. She explained to me that she uses the same taxi every weekday to pick her up around 11 am and drive her to her restaurant location, and he comes back around 3 to take her to the market (if needed) and back home. When she first started working, she walked from Pays-Bas to town, which usually took over an hour, but she liked to work and knew that she needed to help support her family. She moved to Pays-Bas to be with her husband when they got married more than 30 years ago, and since then they have built a modest house and supported their children through school. She does not have formal a land title, but customary land rights count in this neighborhood, so she is not worried she will be forced to move.

When I asked whether she was satisfied with the way she obtained water, Mariama told me that the vendors are reliable for her because she always pays on time and has developed a good relationship. The system works for her. Sure, she says, it would be nice to have a tap inside the compound, but the way the neighborhood is she does not think it will happen. When asked if she would ever move, she replied "only if my children had a nice place somewhere and invited

me to live. Here is my house with my husband and my work. I am used to it. This is my life" (Mariama 2010).

Aisha's Story

Aisha lives with her husband and son in a partially built house in the Logement Sociaux neighborhood on the northern part of Niamey. The house and land belong to her husband's brother and they are living there while the husband looks for work. She left their village near Tillaberi two years ago, right after they got married and moved here. The neighborhood was zoned and allotted in 2004, and some land parcels were given to government workers as payment of salary arrears. There are wide streets and a well-laid grid pattern to the neighborhood. There is not a neighborhood chief since it is a new, state-planned neighborhood. Typically, higher socioeconomic neighborhoods such as this do not have traditional chiefs.

The water network has been extended to this neighborhood, though not all houses are connected. Since it is a planned, residential neighborhood for state workers and other middle class residents, water pipes have been extended to private households rather than public standpipes. There were no public fountains as of June 2010 in this neighborhood. For residents like Aisha, this means that she must go to her neighbors' houses and ask for water. There are no vendors in this neighborhood, or on the rare occasion when there are, their water is too expensive because they have carried it long distances. Aisha goes to her neighbors at least six times a day—she makes three trips in the morning and three in the evening. She fills up two 35-gallon jugs each trip, then walks back to her house carrying the water on her shoulders and her young son on her back. She pours the water into earthen storage containers and then makes the next round.

Figure 20: Individual water transportation system. Each jug holds 35 liters of water. Photograph by the author.

I asked her how she came up with the idea of carrying jugs of water like this, and she said she knew of the women who sell dirt and soil from Tillaberi and modeled her system after that. This system saves time, she explained, but it is harder than balancing one jug on her head. She tells me that her neck and backache from this work. The muscles in her lower neck are so strained and worked that they extend towards the center of her neck, forming a triangle between her head and shoulders. Her shoulders hang lower than they used to, she explained, because of the weight of water day after day. She thought life in the city would be better than in the village, but she feels like a beggar always asking her neighbors for water; "but," she says, "what choice do I have? I must have water to cook and drink and do the washing."

She wants to plant a tree so that she has shade, but is worried it will require too much water and add work. There are no trees in her compound, but one of the houses I visited where she gets water has shrubs lining the walls and flowers on the gate. The two situations stand in such stark contrast: she barely has enough water every day, while across the street water availability is not even a question. She reluctantly admits that sometimes she feels envious, but knows that "God is grand," yet that "water is life." Her living space is austere and materially bare and her body bears the burden of not having water. She hopes the situation changes, she says, by the time her next baby arrives in a few months.

Women's Group Story

Zainabou and twelve other women in the Karadje neighborhood created this women's group in 2005. They started the group with the purpose of pooling money so they could buy grains and basic supplies in bulk, and so that they could get food aid from international aid organizations. Cereal banks, as they are known, are common in the Sahel, particularly in villages. Generally, during the first year or two the bank collects grain from food aid programs, like the World Food Programme, while they raise money to become self-sufficient. Cereal banks are much more common in rural areas, but the Karadje group decided to organize one in urban Niamey. They justified their need for a cereal bank because of their location on the other side of the river from Niamey's large markets and as a major source for seasonal migrants.

Any funds generated from the sale of grain went back into the group coffers to buy more grain. They quickly realized, though, that grain was not the only need of people in their neighborhood, but that there was also a severe lack of water. In 2006, they heard there was funding available for public water standpipes and approached World Vision, a Christian aid organization, about the project. World Vision agreed and provided a small loan to the group so

that they could obtain a public standpipe. World Vision also helped with the paperwork and contacts so that the process was easier and faster than the women had expected it would have been otherwise. The standpipe opened for business in 2008, and quickly found a customer base in this under-serviced neighborhood.

Operation of the standpipe rotates among members, with each member serving as "boss" of the standpipe for two consecutive months. The standpipe is open from 6am to 8pm every day, and serves hundreds of customers each day. There are two faucets at the standpipe: one for individual customers and one for water vendors, though if not vendors are present individuals can also use this side. The majority of the individual customers are female, and fall in a wide range of ages. During the day there are mostly women and young children, but once the school day is over, older girls may join them. There are a number of water containers women bring to the pump: 35-liter jugs (most of which were once oil containers), plastic buckets and basins, and some metal basins. Each container costs between 10 and 15 cfa to fill, depending on size. Payment is requested at time of service, though there are loose agreements on credit and delayed payment. There is no documented record of payment. Women wait in line to get their container filled, and once filled they walk back to their houses balancing the container on their head. One 35-liter jug of water weighs over 75 pounds.

The water vendors are all male Malians who have temporarily relocated to Niamey, though some of them have been in Karadje for a few years. The vendors share similar stories, and one explains to me that most of the time they sell a cow or two back in Mali to have enough money for the trip to Niger and to settle in. They come to neighborhoods where they already know other vendors and know they can work. At first they rent water chariots (pictured below) from other vendors until they have enough money to buy their own and start their own business.

Each jug holds 35 liters of water, costs 15 cfa to buy directly from the pump, and is sold for 25 cfa to the household consumer. A chariot full of water weighs approximately 225 pounds.

Figure 21: Typical water vendor cart. Each jug holds 35 liters of water. Photograph by the author.

The standpipe is located just down the street from the neighborhood mosque, and during prayer times men come to the standpipe to fill small plastic teapots with water with which they would perform their ablutions (cleansing before prayer). The president explained that they do not make the men pay for small amounts used for prayer, for "prayer is God," and that one does not require money for that. Though selling water is prohibited in Islam, the imposing of taxes or fees on water services is not (Faruqui et al 2001). When asked further whether selling water is prohibited in Islam, and whether they think this means that selling any water at all is a problem, one woman explained, "we didn't create this situation, but we are left to deal with it." They did not create this water in this city, but this is how it works. Indeed, most people in the water ministry itself said Islam did not enter into water planning or understandings on any level, despite the vast majority of Nigeriens being Muslim (Hansson 2009).

The standpipe, too, suffers from water shortages during the dry season, especially when electricity has been out for days on end. There was a water tower built in 2009 that has eased water shortages, but they still do occur. In extreme cases of shortage, women go to the nearby

Figure 22: Customers at a standpipe during the hot season. No water is coming from the pipes. Photograph by the author.

pond, for this neighborhood has been built on part of an old floodplain and there are a number of small ponds that remain. The low lying situation of this neighborhood makes it vulnerable to flooding and standing water, and the women complain about the recurrent bouts of malaria their families endure.

When asked whether they would prefer having water taps inside their individual households, group members all replied they would. What would they do if everyone had water taps inside their house and their standpipe did not have any customers? The president replied "we would find something else to do. Don't worry about us, we will find some other business and make money." Indeed, the president explained, they had already started saving money to buy plastic chairs and tents to rent out for ceremonies like weddings, baptisms, and funerals. Water was a business and a service they provided to the neighborhood, but one that each said she would prefer to have an individual household tap.

Urban Water and the Production of Bodies

The four preceding narratives examined different ways that water shapes people's everyday experience of urbanity, and particularly emphasized the intersections of water, cities, and bodies. Water brings people in the city into relations with one another materially and symbolically, and I argue these processes are reflected and produced in the body itself. Water for and in bodies is at once fluid and fixed, social and material. As the narratives above outline, investigating these relationships through the lack of water highlights how this resource becomes implicated in everyday life. The body as relational is pivotal to any understanding of how water, bodies, and cities are interconnected and inter-experienced. Harvey (1998: 402-403) explained relational groundings of the body as ones that acknowledge "the mix of performative activities available to the body in a given place and time are not independent of the technological,

physical, social, and economic environment in which that body has its being" and that "different social processes 'produce' (both materially and representationally) radically different kinds of bodies." In this section, I detail what kinds of bodies are produced through the hydro-social system in contemporary Niamey.

Polluted Bodies

SEEN, the private operator and distributor of water in Niamey, is responsible for testing, maintaining, and assuring the quality of water in Niamey. It operates two water treatments stations in Niamey and uses chemicals imported from Germany to treat water from the Niger River and send it down pipes and into the homes, mouths, and bodies of people in Niamey. Water quality, as one of the basic building blocks of health, emerged from the cases above as a primary concern. People questioned the chemical smell and the discoloration of water, and though hesitant to imbibe, consumed this water because "*on n'a pas le choix*," (they have no choice). People wonder how chemicals will affect their bodies, and in response some people filter water or use local and traditional products that purport to sterilize water. Through cracks in water mains debris enters the distribution pipes, and not infrequently water comes out of pipes with a brownish hue or rust-colored. When people drink this water—the chemically treated river water that flows through infrastructure with historic origins in colonial times and contemporary trajectories tied up in international neoliberal urban development discourse—they consume this history and their bodies are made through and by these processes. In consuming water flowing from water taps in Niamey, people drink the state, they drink the private French company, they drink neo-colonial relations, they drink the international financial institutions. Through water, bodies are continually produced and re-produced through power.

Accessing water from standpipes reads as a veritable pantheon of opportunities for contamination. Transporting water from the standpipe to the home opens up possibilities for

pollution, as containers are open and vulnerable to exposure. Not only can water be tainted by debris falling into the open basin or water jug, but also in the open water storage systems of households. Dust (which in Niamey is a complex mix of soil, animal feces, and trash) layers on the surface and trickles into the supply. Indeed, water-born illnesses (diarrhea, parasites, even cholera) are common for residents in Niamey (INS Niger 2010). Water is taken out of large storage barrels by smaller bowls, jugs, and hands, all potential vectors of contamination. Storage containers themselves have potentially harmful effects on health. Earthen and clay storage containers were once the common way to store water, but now plastics are cheaper and readily available across the city. Plastics in Niger come mostly from Nigeria and China, and are frequently recycled containers previously used for cooking oil, industrial chemicals, or cleaning supplies. Most of these plastics include harmful chemicals (like BPA) that release toxic chemicals into water as they heat, which in the heat of the dry season is impossible to prevent. The water held within becomes invisibly soiled.

Water in the dry season, with its aggravated access to water from the networked systems, further produces sick bodies in Niamey. During the hot, dry season water access, even for those with water taps inside their homes, is unpredictable. During the hot season, though, is when the body needs the most water. This combination of increased need and decreased supply makes bodies vulnerable to physical ailments and creates a situation of social tension. During the hot season, water is selectively distributed across the city. Wealthy neighborhoods rarely experience produced droughts, but poor and marginal neighborhoods are regularly cut off. As water becomes unavailable through pipes, other sources of water are sought. Drinking well water is common, despite the documented contamination of Niamey's subterranean water from urban pollutants (Hassane et al 2010). I rarely encountered people who drank water directly from the river, but people did respond that it would be an option if there were no other source.

During the dry season, food supplies dwindle across Niger and grain prices rise, and people seek refuge in the city temporarily. Niamey regularly absorbs 200,000 seasonal migrants each year, starting in late February and ending in June (Motcho 2005). The increased demand for water from the heat, plus the additional demand from seasonal migrants, plus the problems of electricity that disrupt water systems creates a perfect storm of inaccessibility. People across the city suffer thirst, feel dust, and exude heat because water ceases to flow, but trickles and drips out of open taps. Less water is available for drinking and booking within the home. Mariama, in the case study above, lamented that she was unable to provide food for her family after four days without water. She bought prepared food outside, worried about the quality, and felt she left her family open to sickness. Also, she used minimal water to bathe in order to ensure her husband and children had ample bath water. Her body became inscribed by the inability to bathe.

Not everywhere in the city is affected: places close to the treatment stations on the northern end of town, or near one of the twelve water towers scattered about experience little difficulty. The placement of water towers is not random, but selective, and once again both reflects and creates privileged spaces. The old, European residential neighborhood colloquially goes by the name "*Chateau Un*" (Water Tower One) because of its location around the first water tower built in the 1940s. Water was extended to other parts of the city only as increasing numbers of migrants settled, and the colonial government wished to somehow bring them into the city without fully incorporating them. The colonial government provided public standpipes to the new areas of the city, and the contemporary post-colonial, neoliberal water administration continues the legacy: selectively providing standpipes and private taps to different households, laying claim to bodies that belong to the modern city and ones that should be left behind.

Public Bodies

Lack of water taps propels people, particularly women, to leave the private spaces of their homes and enter the public realm. Women are the ones responsible for water inside the household, and if water does not exist in the form of private taps they must find and secure water resources in their neighborhood. For some women, this means hiring vendors to deliver water. In Niamey, water vendors are male, and most of them are migrants from Mali and, to a lesser degree, rural parts of Niger. Male water vendors have access to the female private space of the household as they transfer water from their carts to household storage systems, usually located in the courtyard, but close to the home. Entering private, courtyard space—female space—would be otherwise off limits to males outside of the direct family. These ideas of private space are directly tied to Islam, which in recent years has grown increasingly fundamentalist in Nigerien public spaces, as evidenced by more conservative dress styles (Alidou 2005), increased cloistering of women (Masquelier 2005), and the masculinization of public space (Masquelier 2009), and the increasing presence of Islam in state functions (Sounaye 2007).

Women who cannot pay for vendor delivery must leave the home altogether and go to the public standpipes. Women who have older children or domestic help send them instead to the standpipe. Women who do not have help must go to the pipes themselves. For married women, this usually means veiling (to varying degrees) and dressing appropriately.

Most people frequenting standpipes as individual customers are women. Males at standpipes are generally the pump manager, the water vendors, or younger male employees (such as apprentices or assistants). Public standpipes, then, become an important arena of both female public space in an region marked by the increasing masculinzation of public spaces. Standpipes are also spaces where interactions between women and men occur informally, which is increasingly uncommon in Islamic spaces of contemporary Niger. Women at the standpipe

discuss neighborhood events, family events, and even use the space for didactic lessons for younger women. On one occasion, for example, older women at the standpipe teased younger girls for the way they dressed and insinuated how this style leads to loose morals and indecency. One of the older women performed this didactic lesson through comedy and sexually explicit bodily gestures, and the other women roared in laughter. The standpipe, then, becomes a claim to public space in the midst of increasing pressure for women to remain cloistered in the private realm of the home.

The last ten years have seen a remarkable increase in the number of public standpipes in Niamey, and this change can be traced directly to neoliberal development and governance. To ensure availability of international financing and aid, the state and the water company must show increases in the networked water coverage every year. Public standpipes are a quick and easy way to increase statistical coverage rates. For SPEN and SEEN, each standpipe in Niamey means that 200 additional people gain access to piped water. Installing standpipes became the preferred method of increasing coverage in the early years of the public-private partnership of water governance—it was easy, quick, statistically efficient, and they could boast huge percentages of increased water coverage rates. More standpipes sometimes meant less distance to travel for consumers, but sometimes standpipes installed became points for water vendors instead of individual customers. An increase in statistical coverage through the standpipe tells us little of how water is experienced, phenomenologically, in neighborhoods and by households. Promoting standpipes not only produced public bodies in Niamey, but also the body itself became an integral part of the network infrastructure.

Bodies as Infrastructure

In neighborhoods reliant on public standpipes, bodies are brought into the infrastructure network and become a vital part to the circulation, to the metabolism, of water in the city. Bodies become extensions of the infrastructure as they perform the same functions as pipes and water mains. Bodies take water from central access points (standpipes) and distribute it to households across the neighborhood. Labor takes the place of pipes and the networked water system relies on corporeal exertion to complete its uneven distribution grid. Bodies become the flexible and invisible pipes that marginal spaces so badly need. Bodies become not only linked to, but actually a part of, the very fabric of the city through their role as extensions of infrastructure technology. Bodies transporting water are the cyborgs of the uneven city, performing the roles of service of technology. Governance strategies encouraging public standpipes (as fast ways to increase statistical coverage rates), rather than increasing household connections, bring more bodies into cyborg existence. Neoliberal water governance, as in Niamey, becomes not only a way of controlling urban nature, but a method to capture and accumulate bodies.

Some of this cyborg bodywork in neighborhoods is paid for, while other labor is considered banal and not compensated. Male water vendors gain money for their work in completing the city's incomplete water system. Their labor is recognized through their commercialization of water as they take city water, transport it, and sell it to residents at cost plus labor. Labor for household water, female labor, on the other hand, comprises part of her daily domestic routine and is not remunerated. Moreover, some standpipes are informally reserved exclusively for vendors, while others allow individual female customers but require them to wait in line. Male labor and commercialized water are valued over female labor and the mundane water of the household.

Fatigued Bodies

In neighborhoods where public standpipes rather than private taps are common, people's muscles, backs, necks, legs, shoulders, and arms articulate the physical toll of transporting water. Water is heavy and transporting water is hard work. One liter of water weighs just over two pounds. The 35-litre jugs or basins of water, which are commonly used by both vendors and individual customers, weigh over 70 pounds. As water is transported, both by vendors and individual customers, their muscles compensate in particular ways. For women, muscles in the necks, shoulder, and backs become strong as they balance single jugs or basins of water on their heads. Their posture changes as muscles compensate for intense use. Their bodies become accommodated to the work of transporting water—backs are ever straight, necks forever sore. They get headaches. One told of slipping up hills as they traveled to distant neighborhoods during the difficult dry season. For vendors, arms, hands, and feet bear the weight of the cart typically loaded with eight 35-litre jugs. They spoke of pain and muscle tightness, but it has become so mundane that my questions about it were initially not understood.

In the household that stores standpipe water, women constantly engage their bodies in the handling and moving around of water for assorted domestic tasks. To cook, for example, water must be taken out of the storage container and put into the cooking pot. Something banal, perhaps, but repeated over long period of times becomes a practice that imprints both the body and household space. Muscles become tired after such repetitive use. Women spoke of backaches, neck pain, and general exhaustion. Again we see the heavy burden of the public standpipe, but this time in the movement and muscle of water laborers. Bodies that transport water are weary, and governance strategies that promote public standpipes foster fatigue.

Cooperative Bodies

In one case study above, we saw how Aisha, a woman without water inside her house in a neighborhood with no standpipes, relied on her neighbors for water. She varied which houses she visited for water so that they would not feel burdened by her constant demands. Neighbors freely gave water; Aisha has never paid for water. In another neighborhood (Yantala Bas), the wife of a customs agent explained that it was her duty to share water with those in need and that she could never ask for money in return. Numerous times I heard stories from households that shared water freely, and as a result could not pay the final bill (in Niamey, water costs more as usage rises). Similarly, the Karadje pump president explained that from their embeddedness in the neighborhood, they know their customers and can respond when households are in need by providing credit and at times, free water, though she prefers daily or weekly payment plans. Where the networked water system is rigid, requiring payment near the first of the month and cutting off taps for one month of non-payment, the neighborhood scale systems are flexible, able to accommodate household changes.

Water brings people into cooperative relationships not only on the scale of the neighborhood, but across the city. When survey respondents were asked whether they thought Niamey had sufficient water, they answered with a resounding no: 89% of people responded that Niamey did have a problem with water. Only a small difference was found between households with taps and those without: 87% of households with private taps maintained that Niamey had a problem with water, while 93% of households without taps responded the same. Niamey's residents think that the city has a problem with water, whether or not they experience difficulty in accessing water themselves. This perception speaks to the constitution of self in African philosophy—the self is defined interdependently and in terms of relations to the wider community (Adams 2012). The African philosophical maxim "I am because you are" (Menkiti

1984: 118) remains an important part of how people understand the city as a community of interdependency.

Though most people agreed that Niamey had a problem with water, they varied in their responses of who or what holds responsibility for improving water access. For people without household taps, the state was the culpable party. People with household taps, on the other hand, identified the private operator (SEEN) as the responsible party. This difference reflects class divisions that access to water taps indicate. Poor people who rely on public standpipes or vendors point to the state to ameliorate conditions; more affluent and connected people point to the private sector. The market works for the wealthy, while the poor hope for respite from the state. The contemporary Nigerien state, though, operates water services within a neoliberal framework (encouraged by the international community as we saw in Chapter 4) that privileges market solutions over state welfare. And, as we saw in Chapter 1, both the state and market have failed to bring out real changes in access to water. Neighborhood systems, on the hand, have proven flexible and accommodative. Water governance, then, can be productive reconfigured through an understanding of relational space through neighborhoods, and this is a cornerstone of my concluding chapter.

The Body Politic

Niamey occupies an important space in the geographical imagination of the Nigerien state and population. In Chapter 4, we saw how post-colonial leaders purposefully inscribed ideas of modernity, nationalism, independence and cosmopolitanism onto this city. Niamey's modernity became a metaphor for the nation's modernity. And it seems that this conflation of Niamey with Niger lingers on in contemporary visions: Niamey, for Nigeriens, is more than just a city, it is *the* city. It is the material emblem of the nation's progress and place in the world.

Residents repeatedly lamented the poor state of water connectivity in Niamey, *the capital city*, as unacceptable, incongruent with the idea of Niamey as the dignified capital of a proud nation. Getting water from standpipes, one neighborhood leader bemoaned, is how water works in the village, not in the capital. The capital city, in the geographical imaginations of residents of Niamey, should at least have clean water.

It seems, too, the state imagines a central role for Niamey in the symbolism of the nation. The renovation and rehabilitation of Niamey into an "international city" with a "clean image" (Issoufou 2011) was one of the first project proposed by the current administration. This project, called "Niamey Nyala" (Nyala meaning shiny or tidy in Zarma) is meant to "reinforce its [Niamey's] identity as the capital city" and not just as a political capital, but as an economic and cultural center of "radiance" in West Africa (Issoufou 2011). Providing urban water services is key to this urban renewal, but not once in his speech did the President acknowledge uneven access to water services. President Issofou's geography of survival in Niamey does not include strategies of securing water on a daily basis. For the half of the population who do have geographies of everyday survival into which are embedded spatial practices of water access, Niamey will never be the cosmopolitan, capital city without water.

Conclusions

Through an understanding of the different bodies that contemporary urban water systems and governance produces in Niamey, we can begin to ask new questions about how better to build equitable and just water systems. Small-scale or neighborhood based water distribution networks are favored by many academics and practitioners weary of private sector involvement in urban water, especially in the global South (see Bakker 2010a for a more detailed discussion). From the standpoint of the kinds of bodies these diffuse systems create, though, we see that the body becomes an extension of infrastructure, and that body labor is differentially valued. Perhaps

small-scale systems would not result in a radical opening up and sustenance of communities, but rather reproduce hegemonic gender roles around labor and spatial practices. Large-scale projects, on the other hand, are questioned in terms of chemical treatment and water quality as bodies are literally built through consumption of this technologically transformed nature. Seeing the city as cyborg urbanization helps us bring questions about the links between bodies, technologies, and cities to the forefront. Understanding these corporeal and cyborg aspects of urban water is the first step in envisioning systems that create better, more just bodies. The question, then, becomes not what kind of city does uneven access to water create, but what types of bodies do these processes produce.

CHAPTER 7: CONCLUSIONS

Cities of the global South are the cities of the future. These are the cities where the majority of the world's urban populations will reside in the next 50 years. These cities challenge urban theory and urban geography by their difference and non-conformity to Western modes of urbanization and prove unruly for urban planners. This irrepressible urbanization on the margins—of the global economy, in informal ways that defy neat categorization—requires new ways of talking about cities and imagining urban futures. Out of the ashes of fragmentation, from the splinters of capitalist and neoliberal systems, arise the city spaces that are creative and hold within them possibilities for a different kind of urban. These spaces have diverse histories and local contexts that contour their specific strategies of survival.

This project seeks to uncover some of these marginal city spaces and to see how the city is lived and experienced through water. Niamey—the capital city in one of the most marginal countries of the world, Niger—was our point of entry in bringing into conversation ideas of water governance with concepts of relational space, cities, and bodies that illuminate the nuanced ways that water shapes urban spaces and lived experiences.

Summary of Chapters

In Chapter 1, I presented the context within which this study occurred. I showed how Niger lies on the margins: consistently ranked near the bottom of the United Nation's Human Development Index, mired in poverty, occupying a challenging physical environment that is only expected to get worse with the effects of global climate change, and marked by persistent political volatility. Niamey emerges as the cosmopolitan center of Niger, the place through

which the world is accessed and the nation imagined. It is a big city—permanent home to 1.3 million people—and only expected to grow in the coming years. Keeping pace with city growth presents a continuous challenge for urban planners, and this difficulty is especially evident in the city's water infrastructure. Water infrastructure is not a simple matter of pipes and networks, but a complex system embodying relationships between nature and society. In Sub-Saharan Africa, urban water networks have been marked by extensive extra-local and intervention, and we traced the evolution of this intervention from colonial times to contemporary neoliberal mediation. Now we find African cities in a situation where both states and markets have failed to bring about equality and more accessibility to water networks. In response, contemporary debates about urban water governance center on relational understandings of ecological governance, and widen the debate to include more than just the city, but the processes that sustain the urban.

This relational understanding of water governance was expanded in Chapter 2 to a discussion on relational space, cities, and bodies, and the (inter)connections between these ideas as a way to understand cities. In order to understand relational space and the challenge it presents, I outlined ways in which space has been otherwise conceived—in terms of absolute space and relative space. Both these conceptions of space proved to be inadequate for encompassing process and connection that are vital when talking about urban water systems, their creation, their functioning, and possibilities in their futures. I then discussed how relational thinking has shaped urban geography and is particularly useful when thinking about African cities. I showed how understandings of geographies of African cities have shifted from chaos, to relativism, and finally to relationality with acknowledgement of inequality but celebration of local possibilities. I then moved to thinking about the body, for urban water imprints the body in both material and social ways. Through the relational-dialectical view of the body offered by Harvey (1998), we began to see how water, cities, and bodies are co-constituted. What emerges

from this is a view of cyborg urbanization, where bodies and cities become linked through technological infrastructures. This notion helps us understand how struggles over water infrastructure are also struggles over bodies. From bodies, we can further understand cities and space.

The subsequent chapters traced the co-evolution of Niamey and its water system from colonial times (Chapter 3) through post-colonial and to the contemporary era (Chapter 4). In Chapter 3, we saw that the water system in Niamey was predicated on uneven access between Europeans and Africans, which was built into city plans through racial segregation. At its inception in the early 1940s, only the European neighborhood was afforded access to piped water. The first extension to African parts of the city occurred some ten years later, but access remained differentiated: in African neighborhoods public standpipes were installed, not household taps. Moves towards political independence in the 1950s further impacted Niamey and its water system through the privileging of local elites rather than a radical expansion to neighborhoods of lower status.

Independent Niger was marked by a continuation of French colonial policy and moved increasingly towards extra-local intervention, as evidenced by the historical development of water governance presented in Chapter 4. From 1960 through the early 1980s, water in Niamey revolved around the state, but the state itself remained heavily influenced by French and Western ideas of urban planning and water provision. Technical experts at Nigerien ministries proffered solutions and plans to the Niger government based on Western experiences of urbanization, despite the incongruence with the reality of Niamey itself. Development institutions—particularly the World Bank and United Nations—began their involvement with the water sector in the 1970s, but by the mid-1980s occupied the central role in agenda-setting and governance strategies, which they bound to financing and aid projects. Authority over water, subsequently,

shifted from the state to the international institutions. This turn became especially visible in the late 1990s as the water sector was reorganized and opened up to private sector participation amidst immense political instability and multiple regime transitions. The state, it seemed, did not matter. As of 2012, urban water in Niger remains controlled by a public-private partnership driven by market logic despite lack of popular support.

In Chapter 5, I moved from looking at water governance to how water functions and is experienced on the ground, in neighborhoods, in Niamey. I used data from surveys I undertook in 25 different neighborhoods (for a total of 550 households surveyed) across Niamey to explore ideas of uneven access to water. I showed that lack of water was not dependent on location within the city or along its edges, but inaccessibility was more related to historic and contemporary politics. Moreover, within neighborhoods where household water access to the piped water network was inadequate, methods of gaining water varied greatly between and within neighborhoods. Household water access was tied to land tenure, but this was not the most important factor in whether or not a household had a water tap. Rather, the reasons behind inaccessibility were multiple, including lack of tenure, lack of money, availability of other water (wells, pumps), and proximity (both close and far) to existing water infrastructure. Through an investigation of marginal neighborhoods (ones with the lowest water coverage rates), I asserted the importance of seeing these neighborhoods not just as places of absence, but as important places and parts of a relational city. Recasting the intellectual gaze from lack to abundance, I argued, was a more productive way of creating new ideas of urbanity. By highlighting neighborhood strategies of working around state and market systems, I asserted the importance of a local perspective grounded in neighborhood experience to (re)imagine city futures.

I moved from looking at water in neighborhoods to water in bodies in Chapter 6. Through four case studies of people without permanent access to water in their homes, I showed how

water becomes imprinted on the material and metaphoric (or social) body. Materially, not having water becomes traceable on bodies in terms of health, shape, and constitution. Through the control over water, both the state and the market directly contribute to the constitution of urban bodies on a cellular level as bodies are constantly created and re-created. Metaphorically, water brings the body into relation by blurring boundaries of public and private space, creating new spaces of resource access, and shaping the national urban imaginations. In consuming water from the networked infrastructure, people drink the state and the market, they imbibe the technological and social norms supporting networked infrastructure, and the cyborg is born. The cyborg metaphor also helps us understand how bodies become water infrastructure in neighborhoods with little access to household taps. Through the physical labor of transporting water from standpipe to home, people are the water infrastructure. From this vantage point, the public standpoint becomes not easy or increased access, but a heavy burden for marginal bodies. Ways of responding to this heavy burden—using the informal economy, resident organizing for more water points, and neighbor cooperation—were highlighted as new ways of urbanity that have developed in response to corporeal challenges of there being no water in particular neighborhoods.

Now that we have reached the end, let us return again to the beginning to see how understandings from this project contribute to relational understandings of cities, bodies, and water governance.

African Cities: Beyond Fragments to Neighborhoods

What does it mean to define and approach cities or spaces within cities in terms of dearth? Urban fragmentation and splintering discourse, through their focus on absence, (re)produce dystopian views of the city. In colonial times, pre-existing African urban areas were

dismissed as uncontrollable, ill-conceived spaces that needed European control and planning. Contemporary development thinking retains this legacy, as African cities are seen to be overcrowded, informal, and chaotic with western urban planning the remedy for these sick cities (Njoh 2010). Dystopian views of the city maintain African cities as places of deficiency on the way to impending doom. Starting from a place of lack, of urban spaces of nothingness, how can we build full and rich urban alternatives, rooted in local geographic context and practice? If we see these spaces not as lacking, but as rich spaces and abundant neighborhoods, we can begin to notice alternatives and perceive new ways of being urban.

Splintering urbanism (Graham and Marvin 2001) and work on urban fragmentation are incredibly useful in understanding processes producing uneven development, particularly in terms of uneven access to water, neoliberal development, and the global capitalist political economy. I agree, especially, with Kooy and Bakker (2008) as they call into question the process of splintering and argue that it is not merely the contemporary neoliberalization of urban infrastructures that has resulted in splintering. Instead, post-colonial cities inherited splintered organization from colonialism, which have then been carried through and exacerbated in the post-colonial and neoliberal era. They do, however, retain the outlook that splintering and fragmentation define contemporary cities, especially in the global South. I prefer, however, to envision city futures upon foundations of fullness in lived experiences of the city through neighborhoods and bodies rather than upon bedrocks of absence.

In asserting the necessity of seeing cities, especially African cities, as collections of neighborhoods instead of fragments, I seek to ground the city in the local experience rather than conceiving of it as fragments or splinters. When we look into these fragments in Niamey, we see neighborhoods arising out of the ashes of the splintering discourse, and these neighborhoods are replete with practices and materialities upon which to build other ways of being urban. We see

some neighborhoods mobilizing the marginality discourse strategically and gaining water taps through charitable organizations (as in Koira Tegui). In other neighborhoods (e.g., Karadje), we see a women's group organized around food and water, with more flexibility in terms of payment, recognizing spiritual claims to water, and responding to community needs. Still other places (e.g., Cite Depute) reveal spaces of synergism and relations of cooperation as neighbors share water with those unable to access it in other ways. Are not these spaces of the city just as real and important as the spaces of neoliberal governance? Can we not imagine urban spaces filled with and built upon these strategies already extant in what has been called "fragments" and "splinters" that comprise the city? Swyngedouw (2010: 233) argues "It is indeed precisely in these 'marginal' spaces—the fragments left unoccupied by the global urban order that regulates, assigns and distributes—that all matter of new urban social and cultural practices emerge; where new forms of urbanity come to life." Swyngedouw (2010: 233) answers the question "can neighborhoods save the city?" with a resounding "yes." It is these spaces, therefore, that need more attention in academic research.

The Cyborg in African Cities?

The cyborg is an ontological framework to approach understanding the ways that the city is experienced, indeed mediated through the body. Accumulation within bodies of trace chemicals, which are used to treat water, reflects the technological solution to urban water that has been normalized and now embedded in the very cells of our bodies. Through the capture of urban socio-natures via the control of governance, states and markets seek more than just power over social and natural processes, but rather seek control and accumulation of bodies. Consequently, different forms of governance and strategies of water provision produce specific bodies, bodies grounded in relational contexts. Recognizing different productions and

accumulations of bodies—acknowledging the cyborg city—opens up the city "to contestation through a renewed connection between urban governance and the public realm" (Gandy 2005: 41).

In an inversion of the cyborg metaphor, we see that not only does technology bring about urban bodies, but that bodies themselves are constituents of the very technological systems themselves. In urban spaces beyond the grid of infrastructure networks, bodies stand in for technology, and the vision of the universal networked urbanism is impossible without body work on the ground. Boundaries between city and body are effectively blurred, as the city relies on bodies to perform city functions and to create cityness. We can attest to Pieterse's (2010: 216) declaration that in the body is a "more fertile territory for exploration and theorisation to get to the core of contemporary forms of cityness or urbanity." As the body-network line blurs, we can see into the spaces that make up contemporary, lived, African urbanisms.

Relational Water Governance

Understanding water through relational bodies helps us ask new questions about water access, governance, and justice. We can begin to ask what kinds of bodies different governance strategies produce. We saw, in Chapter 6, that promoting standpipes produces bodies as infrastructure, as bodies compensate for the lack of material infrastructure, and how only certain bodies (male bodies) are in turn compensated for this labor. Standpipes, in addition to providing water, entrench gender relations and produce different kinds of bodies. Through an understanding of water in bodies, in neighborhoods, we found that small-scale neighborhood systems leave more room for flexibility and can respond to local situations. In being adaptable and pliant, neighborhood strategies reflect the inherent relationality that exists within space itself,

and thus proffer potential ways of responding to strategies that seek to homogenize space, such as the global capitalist project.

Universalized networked infrastructures, too, produce specific bodies, bodies distanced from water's natural cycles and instead create bodies that consume treated, technologically and scientifically constructed water. They create stationary, private bodies that need not create cooperative communities. On the other hand, universalized networks free the body from the daily, time consuming task of obtaining water outside the home. Once freed, the body can participate in important social activities like education and community enrichment. The question, then, is how do we create systems that can accommodate demands for flexibility while at the same time providing water inside the home?

These questions point to a neighborhood-city dialectic in which one cannot be understood without the other. Urban water governance in Niamey has not acknowledged the importance of neighborhood strategies of water provision, both within and outside of the water network. This perspective, from below, from the relational neighborhood and body challenges the urban water network to be more elastic. Practically, neighborhood groups already exist in various forms, from informal women's groups, street corner conversation groups (see Youngstedt 2004), organized groups, school advisory boards, and around the neighborhood chief (see Motcho 2005). Public-private water strategies purport to be open to the local perspective, but have not effectively tapped into the formal and informal organization that already exists within neighborhoods. Dialogue, though, is desperately needed between those who know the neighborhoods and those who know the infrastructure. This is not a strategy, necessarily, outlined for policy makers, but rather a way of making infrastructure networks open, democratic, and reflecting the relationality that comprises urban spaces, cityness, and space itself.

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APPENDIX 1: HOUSEHOLD SURVEY

ENQUETE SUR LE PROVISIONNEMENT EN EAU POTABLE DANS LES PARCEL RESIDENTIEL : NIAMEY, NIGER

Identification et location de parcelle :

1. Latitude : …… Longitude :……..

2. Caractéristiques de la voire : *rue pavée* *revêtement en terre, bonne état* *revêtement en terre, innavigable*

3. Accessibilité du centre ville : taxi, …….cfa 17 place, ……cfa

    a. Distance en marchant avant de trouver le transport : ……..

4. Caractéristiques du végétation : *arbres plantées* *fleurs* *pas de modification* *pas de vegetation*

5. Matériels de construction de la clôture : *paillote* *banco* *semi-dur* *dur* *pas de clôture*

6. Autres observations sur l'état physique de la parcelle :

7. Caractéristiques de la parcelle : *Maison indépendante* *Concession* *Construction provisoire*

autres: …….

8. Présence du propriétaire dans la parcelle : *Oui* *Non*

9. Présence des locateurs dans la parcelle : *Oui* *Non*

	Nombre de	Statut d'occupation	Combien de temps ils ont habité dans le logement	Nationalités ou ethnies présents	Matériels de construction	Source d'eclirage	Energie du cuisine	Evacuation des vidanges	Eau de boisson	Payement	Combien
Log. 1											
Log. 2											
Log. 3											
Log. 4											
Log. 5											
Log. 6											

Réflexions des habitants sur l'approvisionnement en eau a Niamey

10. Vous étés satisfaisant avec votre méthode d'approvisionnement en eau ? Quels sont vos problèmes d'approvisionnement en eau ?

11. Est-ce que vous pensez qu'il y a un problème d'eau à Niamey ?

12. Selon vous, quels sont les acteurs institutionnels qui sont impliqué dans le secteur de l'eau ?

13. Autres observations sur l'eau à Niamey

APPENDIX 2: RESULTS FROM HOUSEHOLD SURVEYS

Neighborhood	Average monthly cost in CFA (500 cfa = $1)	Construction materials of residence				Average household size
		Concrete	Mixed	Mud	Thatch	
ABIDJAN	10,856	12	3	5	4	15
AVIATION 1	11,367	1	13	12	1	15
AVIATION 2	8,615	3	11	10	0	12
BANIZOUMBOU	15,386	7	9	9	0	20
CITE DEPUTES	10,484	18	0	1	6	11
GAWEYE	6,081	10	2	7	6	10
GOUDEL	7,780	21	1	2	1	11
ISSA BERI	23,889	8	0	0	1	6
KARADJE	6,557	7	5	12	1	10
KOIRA ME	8,250	19	2	1	3	17
KOIRA TEGUI	11,028	5	9	6	5	10
LOGEMENTS SOCIAUX	5,771	18	2	1	3	9
MADINA	12,542	18	3	1	2	12
NIAMEY 2000	13,131	18	0	1	7	9
NOGARE	8,122	10	2	13	0	15
NOUVEAU MARCHE	15,438	16	2	6	0	17
PAYS-BAS	11,654	0	8	17	0	11
POUDRIERE	8,240	23	0	0	2	10
ROUTE FILINGUE	10,748	21	1	1	3	17
TALLADJE	7,862	11	6	8	0	14
YANTALA BAS	9,280	9	2	12	2	13
YANTALA HAUT	7,502	4	2	18	0	11
ZONGO	14,507	3	2	10	0	16
total	10,656	262	85	153	47	13

Table 7: Construction materials, average household size, and average monthly cost of water by neighborhood. Based on household survey data from 547 surveys collected between Nov. 2009 and Feb. 2010.