Introduction

Why Water? Why Now?

In March 2012, the World Health Organization reported that the United Nations Development Program (UNDP) Millennium Development Goal (MDG) of halving the world's population that did not have access to clean, safe drinking water had been met ahead of schedule (WHO 2012). The UN Sustainable Development Goals (SDGs), also known as the Global Goals, which were designed to build on MDG successes, were instituted in January 2016 with funding and priorities set to continue through 2030. SDG Goal #6 specifically addressed the issue of global access to clean water and sanitation, and this goal is key to the success of other goals, like #2 (Zero Hunger), #3 (Good Health and Well-Being), #11 (Sustainable Cities and Communities), #12 (Responsible Production and Consumption), and #13 (Climate Action) (UNDP 2016a).

Despite efforts to address water access and quality issues on a global scale, hundreds of millions of people still lack this access, most of them in Africa south of the Sahara. MDG sanitation goals have not been achieved, and it has not been determined if the increased access proclaimed by the UNDP was achieved using methods that will be sustainable. Furthermore, the very definition of "access" is called into question, as it is often (and mistakenly) used interchangeably with "availability," and depending on the entity using the term, it can ignore issues of cost and time involved in accessing water that is available.

This book is situated within the broader global water development framework. Water access and quality problems are both broadly global and immediately local. As philosopher Thomas Pogge (2008) emphasizes, a combination of the global economic order and local conditions contribute to the current persistent poverty and water access problems that plague places like Africa south of the Sahara, and efforts to address these inequalities must consider how the two scales are related. Often, goals and programs developed by overarching agencies like the UNDP and nongovernmental organizations (NGOs) emphasize the global over the local. Our book seeks to do the opposite, by contributing to

discussions of water access through a local ethnographic examination of water vending in one West African city. The cultural practices and livelihoods surrounding water production, access, and consumption are an essential consideration for the twenty-first century.

Water vending often fills the access gap in urban areas between those who can afford a connection to formal piped systems and those with the means to secure completely private access to water, such as through wells. Water-vending methods emerged from local perceptions about water; historically symbolic associations with water; gendered relations around water; the value and meaning of the materials involved in water production, vending, and consumption; local and global economic conditions affecting a local water regime; and cultural practices involving various aspects of urban life. Drawing from long-term ethnographic fieldwork by a geographer and an anthropologist, a woman and a man, conducted from 2013 to 2018, this book explores the tension between local cultural-historical ideas about water and its proper use, such as those expressed in the Qur'an (98 percent of Nigériens are Muslims) and the reality of water access in a neoliberal capitalist world.

Research on water quality, sanitation, health, and access is abundant, especially that which focuses on the world's impoverished populations. As global freshwater supplies become ever more compromised through pollution and overextraction, and as climate change redistributes atmospheric moisture and patterns of precipitation, studies on water access, sanitation, and health (WASH) move to the forefront of efforts to alleviate water-related problems. Conflict over diminishing water resources threatens several world regions, and the gap between those with access to clean, safe drinking water and those without widens further.

Water, Life, and Profit offers an original contribution to the water literature—much of which focuses on water quality and access in poor countries—through a holistic analysis of the people, economies, cultural symbolism, and material culture involved in the management, production, distribution, and consumption of drinking water in the urban context of Niamey, Niger. We draw from anthropology, geography, political economy, political ecology, and material culture studies. Although the examination is wide ranging, this book pays particular attention to two key groups of people operating in informal and hybridized economies who provide water to most of Niamey's residents: door-to-door water vendors (called ***ga'ruwa***) and those who sell water in one-half-liter plastic bags (sachets) on the street or in small shops. We explore the economics (management, production, distribution, and consumption) of each form of water delivery, focusing on the people

involved and the symbolic meanings attached to the materials used in each stage of the process. Our analysis offers new insights on the lived experiences of gender, ethnicity, class, and spatial structure in Niamey's water economies today.

Although the focus of our research is local—two water-vending economies found in Niamey, Niger—it is at the same time global, as these economies are connected to and affected by international forces, flows, and structures. Here, water is the element connecting the social domains of those involved in its production, commoditization, and consumption (Orlove and Caton 2010), but it also connects the material, nonliving world with the living (Wagner 2013) and, thus, is essential to human activity and life (Strang 2013). In this way, water has power and is powerful (Hastrup and Hastrup 2016), and technology has enabled us to harness that power. In short, this book considers the social and lived nature of water as expressed through the processes of water vending and the lives of those involved.

While the connections to global forces offered by this book are numerous, the two water-vending economies discussed here are intricately linked to ideas of privatization, commoditization, and consumption to create conditions that affect the daily lives and profits of those involved in commoditized water production. Our research is based on the position that access to clean, safe drinking water is a fundamental human right, yet the reality of water provision in the twenty-first century is that accessing safe water is a commodity for which someone must pay, in part because the quality fresh water resources in the world are compromised and in part because the (now necessary) process of water purification and distribution requires labor and materials, thus commodifying this resource essential to human survival. Furthermore, neoliberal policies and practices have privatized, or created public-private partnerships, so that decisions about access to and distribution of water are made by corporate and government executives often driven by the for-profit and cost recovery realities of water provision. We now explore these interrelated realities of water, life, and profit from which the book title is derived.

Water

In April 2014, the city of Flint, Michigan, under the supervision of a governor-appointed emergency manager, switched the city's water supply from Detroit's treated municipal water to water from the Flint River. Within weeks, reported bacterial contamination led to

water-boiling requirements for residents, and within six months, lead levels more than seven times the US Environmental Protection Agency's (EPA's) recommended limit were reported in water entering residents' homes through their taps. The magnitude of the crisis was soon realized when local pediatricians reported that the number of children with lead poisoning had doubled since the water supply switch, and in a few specific neighborhoods, the number of poisoned children tripled (Gupta et al. 2016).

Prior to this discovery, dozens of Flint residents reported water quality problems to officials, but their complaints were largely ignored. In the months following the January 2016 state of emergency declaration by then Michigan governor Rick Snyder, blame bounced from Flint's emergency manager to EPA officials to the governor himself (Davey and Smith 2016), and many speculated that the delayed reaction to the crisis was in part due to the fact that 41.9 percent of Flint's population lives below the poverty line and 54.3 percent are African American (US Bureau of the Census 2016). At the time of this writing, water in Flint is still deemed unsafe for drinking and cooking, as various investigations impede the implementation of concrete solutions for Flint's residents (Fonger 2018).

The water crisis in Flint, a city only forty miles from our university, raises several ethical questions regarding the human right to access safe drinking water: What water is safe to drink? How do we know? How, why, and where has safe drinking water become a luxury of the wealthy classes? What strategies do those without reliable access to safe drinking water use? What are the global and local conditions that led to these inequalities in wealth, health, materialities, and water provision?

In the Sahel in general, and in Niger in particular, fresh water is in short supply. Niger, a landlocked country that lies largely in the Sahara Desert, has very little surface fresh water. Only a narrow belt of land in the southern strip of the country receives much seasonal precipitation. Most Nigériens access water from subsurface deposits created long ago, when the Sahara region was more humid. In 2011, Niger ranked 111 (out of 180 countries) in renewable water resources per capita, including groundwater and surface water (Njoh and Akiwumi 2011). Yet only about 50 percent of Niger's water resources are renewable through annual precipitation, and this estimate is growing smaller as global climate change has shifted precipitation patterns in the Sahel (MacDonald et al. 2012).

Water is not just a physical substance with geographical patterns of distribution. It is a biocultural substance, something that connects the physical and human worlds. Veronica Strang (2015: 9) describes

our engagement with water as a condition that is "as cultural as it is natural and, over time and space, the ways that societies have thought about, understood and acted upon water are in some ways fantastically diverse, and in others remarkably consistent." Both the compromised quality of freshwater resources and the power and policy structures in place that control its distribution have contributed to the commoditization of water.

The two water economies described in this book contribute to ethical discussions surrounding water access and the neoliberal realities that in part contextualize water access in the twenty-first century. Residents along the Niger River have access to a year-round supply of surface fresh water, and those living in Niamey have access to treated water, which is extracted from the Niger River and chemically purified before being pumped through the city's piped network. The chemical purification is an essential element in Niamey's water supply; however, because of water contamination in the Niger River, clean water in Niamey has become a commodity.

Life (and Death)

Availability of and access to safe drinking water is directly linked to issues of life expectancy, health, sanitation, and food security. Furthermore, by-products of water consumption create environmental hazards that further compromise the health of usually the poorest populations. Niger is no exception. Of the three leading causes of death for children under five years of age in Niger (malaria, respiratory infections, and diarrhea), two are directly attributable to water. Other health statistics in Niger, such as life expectancy at birth (sixty-one for females, sixty-three for males), are also linked to lack of access to treated water. It should be noted that these statistics show an improvement from their equivalents in the year 2000, as reported by the World Health Organization (WHO), but they still fall short of MDG and SDG targets (WHO 2015). The Institute for Health Metrics and Evaluation (IHME) reports that in Niger malarial and diarrheal diseases were the two leading causes of death in children under five years old between 2005 and 2016, and water access and sanitation risks are the leading factors in deaths and disabilities for the entire population during the same period (IHME 2018).

Water quality and availability are also related to issues of food security and soil quality; thus, they affect health and life in indirect ways as well. Periods of insufficient rainfall and overdrawing of ground water resources can compromise food availability and increase instances of

malnutrition and famine and thus negatively affect health. Niger, a country situated in arid and semiarid climate zones, is particularly vulnerable to variations in rainfall. Genetically modified seeds are often introduced as a method to combat food insecurity, among other motivations, and this is certainly true in the Sahel. These non-native seeds often require more water than native seeds. The chemical fertilizers and pesticides needed to grow non-native species affect soil and groundwater quality.

Poverty is often an indicator for insufficient access to potable water, sanitation, and water for other uses such as bathing, cooking, and irrigation (Grant 2015). In 2016, 44.1 percent of Niger's population lived in poverty, and Niger ranked 187th out of 188 countries in per capita income, making it the second poorest country in the world (UNDP 2016b; World Bank 2017). In 2008, only 39 percent of Nigériens had "access to an improved source of drinking water in rural areas" (WSP 2011: 22)—where about 80 percent of the population resides. In 2008, "73 percent of the urban population had access to an improved source of drinking water," including 37 percent that had a household connection (WSP 2011: 26).

Even when sufficient and potable water is available, the cost may be beyond the means of a large portion of the population. Most of Niger's water supply is subterranean, and the costs for bringing this water to the surface are high. Niger also has one of the highest population growth rates in the world, 3.6 percent according to the World Bank, meaning that its water demands will only increase in future years. Moreover, according to some reports, Niamey is the fastest growing city in the world, "with Oxford Economics forecasting average annual population growth of 5.2% percent between 2015 and 2030" (*Guardian* 2015).

One by-product of the commoditization of water is packaging. While we explore the perceptions and symbolism involved in packaging water later in this book, it is worth mentioning here that packaging water creates further environmental hazards, hazards to which the poor are disproportionately exposed. For example, the plastic bags, or sachets as they are also known, used in the sale of cold water on the streets of Niamey are typically discarded in the area where they are consumed, usually on the side of the road, and we observed no attempt at reusing or recycling these bags during our fieldwork. The wind that whips through the Sahel blows these bags into ditches, where they prevent adequate drainage of sewage and water, leading to sanitation and health problems that affect human well-being. The plastic bags are also often burned, along with other trash and plastic products, creating localized toxic levels of air pollution.

Plastic pollution is mobile: "A staggering eight million metric tons [of plastic waste] wind up in oceans every year" and 93 percent of it comes from just ten rivers, one of which is the Niger River (Patel 2008: 1). We suspect that some discarded sachets travel all the way from Niamey to the Bight of Benin and beyond.

These examples show how poor water quality, access, and availability have negative consequences and how compromised access in Niamey has led to the emergence of water vendors. This book explores two types of water-vending economies wherein those involved earn livelihoods by producing and selling water in different forms. The income from water selling supports families, sends children to school, facilitates the participation in other elements of civil society, and gets reinvested back into the water-selling economy. For those involved in water economies, water becomes *financial* life.

Profit

The Second World Water Forum in The Hague in 2000 focused on water resource ownership and management and their impact on poverty, society, economic development, and the environment (World Water Forum 2000). Moreover, a key theoretical and practical debate about ownership and management of water has to do with financial models for water delivery systems and, with this, the question of whether water as a human right and profit objectives are compatible. The Ministerial Declaration that emerged from the forum solidified in its rhetoric the idea that water had become a commodity. The declaration stated goals of providing water "management" and access at "affordable prices" (Ministerial Declaration 2000). In short, it was decided that water could be sold for a profit because it was a human need, rather than a human right (Page 2005). This further opened the door for the private sector to profit from the distribution and accessibility of water.

Water is profitable in part due to its commoditization and because it is an essential life source, yet profits are realized in globally inequitable ways, which is why water commoditization is a topic of debate at all levels. As geographer Ben Page (2005: 293) explains, however, this commoditization "is not new, permanent, or inevitable."

Commoditization is, though, linked to water's materiality, or its physical attributes that "affect its relation to the human body and environment and that shape its use" (Orlove and Caton 2010: 403). Furthermore, the materiality of water is socially constructed. In other words, people assign meanings and values to water's materiality, and

these meanings are incorporated into actions, such as water vending, that connect people in what Orlove and Caton (2010: 403) call "water-worlds." For example, in rural Niger, wells provide water to small villages and connect individuals who come to these central locations to get water. Although the water drawn from the wells is free, the wells themselves have a materiality because they shape the environment and human interaction associated with them. In contrast with rural Niger, water is a commodity in the city of Niamey because it is purified and distributed by both public and private entities to residents of the city. Residents must pay for water, whether they obtain it directly from the piped network or indirectly through the means we explain in this book.

Niamey's water regime is essentially controlled by four entities: two government agencies and two public-private companies. The Ministère de l'Hydraulique et de l'Environnement (Ministry of Hydrology and Environment) and the Ministère de l'Hydraulique et d'Assainissement (Ministry of Water and Sanitation) set policies and strategies for water distribution. The Ministry of Hydrology and Environment largely oversees water resources in rural areas, which is most of the country, although in some locations they work with community user associations that have some local control over their own systems. The Ministry of Water and Sanitation sets prices and policies in urban areas, including Niamey.

Falling under the jurisdiction of the two government ministries, Société de Patrimoine de l'Eau du Niger (SPEN) and Société d'Exploitation des Eaux du Niger (SEEN), are public-private partnerships that were created during water restructuring in 2000–2001 (Tidjani Alou 2005). SPEN is responsible for urban water infrastructure investment and debt service repayment, or the charges to customers SPEN includes in billing that directly help recoup upfront investments in infrastructure (Maiga 2016). It covers water distribution in fifty-two urban centers in Niger (Bardasi and Wodon 2008). SEEN operates under a lease contract to SPEN and works in partnership with the French water management company Veolia, one of the largest water management companies in the world. After water sector restructuring in 2000–2001, Veolia now holds a 51 percent share of SEEN (Tidjani Alou 2005; USAID 2010). SEEN operates public water services, including the purification and distribution of water to fifty-two urban areas in Niger, including Niamey, and is responsible for water service marketing (Maiga 2016; Veolia Inc. 2017). In short, the water supply in Niamey is delegated to SEEN by SPEN (Baron 2014).

As this book explains, the commoditization of water, and the profits realized through these processes, occur at multiple levels. Multinational corporations like Veolia control municipal water supplies in cities and regions all over the world, including Flint, Michigan. They work independently or in partnership with national and regional governments to implement distribution and marketing programs, recover costs, and realize profits. Some government agencies are truly public institutions and operate outside of public-private partnerships, but they are under pressure from entities at many levels to provide safe water without losing money. Formal distribution systems connect water resources with consumers either directly or indirectly through local individuals who fill gaps in access and availability within certain geographic contexts and with particular materials.

These small water enterprises (SWEs) (see Opryszko et al. 2009), such as the two water economies we describe in this book, are examples of local, individual entrepreneurs who are connected to global systems through markets, materials, and policies. The multiscalar complexities that are the reality of water access today create conditions of inequality, whereby the exploited and economically disadvantaged populations pay more for water than the wealthy (Bardasi and Wodon 2008). Referring to the US as well as global problem, Yanco (2014: 41) emphasizes that "it is expensive to be poor. It's not just that people living in poverty have less money to pay for basic necessities; basic necessities for the poor actually cost more." Thus, the water economies in Niamey provide a window into the lived realities of the poor in navigating water options, realities influenced by structures of access and inequality.

The Looming Water Crisis

The connections between water, life, and profit in Niamey occur within the context of a looming water crisis in the Sahel-Sahara and worldwide. Ironically, Niger sits on top of a subterranean water reserve that will be coveted across the Sahel region, but how to get access to it and at what cost remains to be seen. Cultural anthropologist John Bodley (2017: 325) identifies three crucial problems that threaten the global system: climate change and ecocide, inequality, and conflict. All three are contributors to the global water crisis. Furthermore, these problems are interlinked in many ways. For example, the poor bear a disproportionate burden of the problems associated with climate change, and this inequality leads to conflict over resources that will likely intensify in the future.

Climate Change

On the African continent, there is more variation in rainfall than in temperature, as most of the continent lies between the Tropic of Cancer and the Tropic of Capricorn. Climate change is anthropogenic and is negatively affecting the African continent, particularly through deforestation and desertification, pollution, and industrial emissions (Grant 2015). The Intergovernmental Panel on Climate Change (IPCC) predicts that although Africa as a region contributes little to global carbon emissions, its population and environment are one of the most vulnerable in the world, in part due to persistent poverty on the continent (Boko et al. 2007; Parnell and Walawege 2011; Williams 2015).

Temperatures on the continent are predicted to rise 1.5 times faster than the rest of the world. It is predicted that because of this rise the malaria zone will expand to above 2,000 meters in East Africa, the most densely populated region of the continent and an area that for now is malaria-free. Rising surface temperatures will affect farming and food security as evaporation rates from soil, rivers, lakes, and ponds increase. Rainfall distributions will shift, creating a necessary shift in types or species of crops produced (Williams 2015). In short, climate change will exacerbate the existing water crisis in Africa, affecting the economy and well-being of all.

Inequality

Industrialized countries are largely responsible for the majority of greenhouse gas emissions, while the world's impoverished populations pay the price. Current president of Uganda, Yoweri Museveni, calls climate change "an act of aggression by the developed world against the developing world" (quoted in Brown, Hammill, and McLeman 2007: 1142). As water resources are further compromised, especially in urban areas, these disadvantages play out in several ways. Travel and waiting times for water at public standpipes increase, a condition that disproportionately affects women. Even in areas with improved drinking water sources, the flow and availability of water may not be consistent across the day, week, or year. Finally, "improved" drinking water is not necessarily "safe" drinking water by definition, as transport or storage containers can still contaminate it and contain bacteria such as *E. coli*. Although the UN claims to have met the MDGs for water provision, the largest group of countries without access to improved drinking water is clustered in Africa south of the Sahara (Slaymaker and Bain 2017).

The scale at which data is reported can mask inequalities in water access. For example, the UN, UNICEF, the WHO, and others often report statistics at the country level (see Slaymaker and Bain 2017). This scale obscures geographic, gender, class, ethnic group, and neighborhood disparities in access. As a case in point, in Niamey the expansion of the piped water network often favors wealthier neighborhoods where for-profit water provision companies are more likely to recover their upfront investments in infrastructure. Thus, within Niamey, there are drastic inequalities in access by neighborhood and even neighborhood subunits.

Conflict

Conflict over scarce resources is not a new phenomenon and is an important element in the global water crisis. Heavy reliance on rain-fed agriculture in Africa means that changes in surface temperatures and precipitation could lead to increasing conflict over both water and food supplies. For example, changes in rainfall patterns have pushed some pastoralist groups onto land traditionally controlled by sedentary agricultural groups, leading to conflict, compromising their herds, and forcing them into sedentary, typically urban wage labor activities. Moreover, these changes have contributed to increasingly lethal confrontations between Tuareg and Fulani pastoralists, particularly in the Niger-Mali border region. In Niger, as we describe in Chapter 4, these conditions shape the lives of Tuareg and Fulani men who now work as water deliverers (among other jobs). Grant (2015) describes three categories of impacts of urban climate change: physical risks, such as sea-level rise and more frequent severe weather events; difficulties maintaining services, such as water, electricity, and sanitation; and the challenge of meeting the demands of increased urbanization, which is one of the effects of climate change.

In Niger, sea-level rise is not a concern, but severe weather events are. More intense storms and rainfall can diminish soil quality because runoff rates are often higher, particularly after a long dry season. Droughts and diminished or inconsistent rainfall can affect food security. And urban areas in Niger, including Niamey, are currently seeing exponential growth beyond the government's ability to provide services, particularly because Niger produces only a small amount of energy domestically and instead imports a large portion of its energy supply from Nigeria.

West Africa is a region with a high degree of water interdependence, as all countries except Cape Verde share at least one international

watercourse (Niasse 2005). Dam projects, such as the Kandadji Dam on the Niger River in Niger, threaten water resources in downstream Nigeria, raising concerns and protests among the populations affected, including the government of Nigeria, which opposes any upstream dam project that reduces water flow in the river basin by more than 10 percent (Niasse 2005). Construction of the Kandadji Dam in Niger began in 2008 and is scheduled to be completed in 2020, and it continues to increase resource tensions between Nigeria and Niger.

Research Methods

The looming water crisis created by climate change, conflict, and inequality provides the context for our research on water vendors. Because issues of scale are essential to understanding the lived experiences of acquiring water, our neighborhood-scale study of water economies contributes hyperlocal perspectives on the relationships between water, life, and profit. We consider economies and livelihoods and their connections to water symbolism and concepts using local, on the ground experiences and realities in the context of national and global processes.

To consider the meaning-laden symbolism of water, the livelihoods that exist around its acquisition and dissemination, and the profits gained by its commoditization, we employed several research methods, most of them grounded in ethnography. This mixed methods approach allows a holistic interpretation of water economies, in which water is "integral, even essential, to many if not most domains or institutions of society—economic, political religious, leisure, etc." (Orlove and Caton 2010: 402; see also Björkman 2015: 15 and Strang 2004: 5).

Formal data collection for this book occurred over the course of several trips to Niger (Figure 0.1) between 2013 and 2018, although many of our ideas are also informed by prior field expeditions. We also lived in Niamey on a Fulbright Fellowship during the 2016–2017 academic year, and a majority of our interviews were conducted during this time. We both speak French, and Keough maintains intermediate skills in Hausa. Youngstedt, in particular, has been doing field research in Niger since 1988 and is nearly fluent in Hausa, which provides a longitudinal perspective on this topic, particularly on the material changes in water access over time.

We used a mixed methods approach in data collection with an emphasis on ethnographic methods, including literature review, participant observation, semistructured and structured interviews, shadowing,

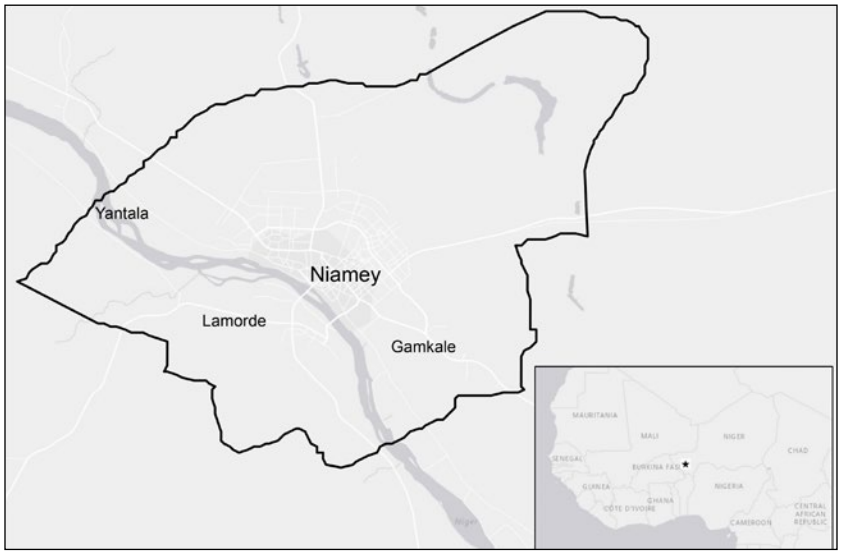

Figure 0.1 Map of Niger within West Africa, with Niamey and major neighborhoods identified. Cartography by Birch Bradford. Figure images are the intellectual property of Esri and are used herein with permission.

archival research, and our own personal experience living in Niamey as a family with our preschool-aged son and as water consumers living in Niamey. Gatekeepers in several neighborhoods were essential assistants, as they were able to explain and validate our presence to those we hoped to interview. In the case of the water sachets, which are largely produced in private homes or compounds, gatekeepers were essential informants, as we could not tell from the street which houses had machines for making water sachets and which did not.

Thus, most neighborhoods included in this study are ones where we already knew several residents, where we were already established as researchers who could be trusted, and where we had gatekeepers who could help us make important connections. In ethnographic fieldwork, a random sample of neighborhoods is less important than the quality of data we can collect by using already established connections and rapport. A few neighborhoods were specifically excluded from our study, for example Koara Kano, the wealthy, largely expatriate neighborhood in Commune I, because water delivery and roadside water vendors do not exist there.

In total, we conducted 205 individual interviews and 8 focus group interviews involving approximately 50 additional people, with water

producers, vendors, managers, and consumers. We interviewed some of these people and groups several times and spent weeks with them as participant observers. We explained to participants who we were, why we were interested in their role in Niamey's water economy, what we planned to do with the information we gathered, how we would protect their privacy and identities, and that they could withdraw or end their participation at any time without consequence. We gave explanations in Hausa or French, and when participants spoke neither of these languages, our translator communicated this information.

Interviews were conducted mostly in Hausa, occasionally in French, and when necessary, we paid local residents and graduate students from l'Université Abdou Moumouni (Niger's national university) to translate into languages we do not speak. We also had several field assistants who helped conduct interviews, allowing us to widen our sample and cover a larger geographic area. Thus, our data was collected from all five communes in Niamey (the main political division unit within the city, per the French urban development tradition), although Commune I, home to the wealthiest neighborhoods including a large embassy-affiliated expatriate community, is underrepresented compared to the others.

As we are interested in the material elements of these water economies, we also photographed means of water transportation, storage, vending, and consumption. Of particular interest to us were the mechanically produced water sachets (discussed in Chapter 4) and the labels on them. To this end, we collected sixty-five different brands that had been discarded on the side of the road after consumption. We also collected labels from eleven different brands of bottled water, including seven made in Niger, three in France, and one in Burkina Faso.

The neighborhood scale dominates our analysis for two important reasons. First, much less research on this scale of water economies than on larger scales exists. Comprehensive, citywide studies, such as that of Hungerford (2012) provide valuable insight that informs our study, especially as it provides information on household consumption, which was not a significant focus of our research. However, the neighborhood scale is appropriate for the study of hybridized forms of water vending and production because those forms are linked to assumptions about socioeconomic class. The neighborhood scale also reveals the lived experiences of inequality and how the complex relationship of ideologies of profit versus public good connects to cultures at various levels. In the postcolonial era in Niamey, and many other West African cities, neighborhood division is more strongly associated with socioeconomic class than race or ethnicity (Grant 2015).

Second, despite many attempts, we were able to secure only two short interviews with representatives of agencies involved in water distribution in Niamey: Société de Patrimoine de l'Eau du Niger (SPEN), Société d'Exploitation des Eaux du Niger (SEEN), Ministère de l'Hydraulique et de l'Environnement (Ministry of Hydrology and Environment), and Ministère de l'Hydraulique et d'Assainissement (Ministry of Water and Purification/Sanitation). Although secondary data and other published materials from and about these agencies and ministries provided the institutional and policy-specific background we needed, our primary data lacked a firsthand institutional perspective. Again, policy-oriented water research is plentiful, so our focus on water vending at the neighborhood level adds a less common perspective to the literature.

Overview of the Chapters

Our exploration of water, life, and profit through the lens of hybrid water economies in Niamey begins in Chapter 1 with an explanation of the thematic frameworks that inform our research. Specifically, we explain key ideas related to water governance, water access, and the symbolic nature of water that inform and influence the water economies we describe in detail later in the book. These three themes are, of course, interrelated, and there is significant overlap between them. Trends in governance affect access, or the lack thereof, the latter opening opportunities for alternative forms of water access. Each individually and collectively affects water, life, and profit in Niamey.

Chapter 2 situates Niger in general, and Niamey in particular, historically and geographically in a larger West African and developing world context. Interwoven into the history of Niamey's urban development are specific references to the evolution of the city's water regime, including the impact and influence of colonial powers, postindependence authoritarian governments, the establishment of democracy, and the implementation of structural adjustment programs and neoliberal practices.

In Chapter 3, we describe the different ways residents of Niamey access water. We emphasize that accessing water in Niamey involves a cross section of methods and strategies and varies by the purpose for which water will be used (drinking vs. washing clothes). We also examine the pricing structure of piped water in Niamey, a city that uses increasing block tariffs, to demonstrate why the poor end up paying more for water than the wealthy, even though they use less.

The next two chapters, Chapter 4 and Chapter 5, provide in-depth analyses of the two hybrid water economies that are the focus of this book. Both emerged to fill gaps in water access created by the governance patterns we describe in Chapter 1. In Chapter 4, we explore the realities of water, life, and profit among the door-to-door water vendors in Niamey, called *ga'ruwa* in Hausa. This method operates very differently in Niamey than in other African cities, and in addition to explaining these differences, we also consider why this job is dominated by Tuareg and Fulani men. Furthermore, we consider how ideas about gender, ethnicity, and Islam are integral in understanding this particular water economy.

The second hybrid water economy we analyze is the production of sachet water, the one-half-liter plastic bags of water that are mechanically filled and sealed and sold cold on the streets of Niamey. This is the focus of Chapter 5. In this chapter, we work backward through the commodity and value chain created and established through the production, vending, consumption, and discarding of plastic sachets as well as the groups involved in each part of the chain. At each part of the commodity and value chain, we consider the symbolic nature of water and this form of plastic packaging, particularly as it relates to livelihoods and profit.

Although we touch on materiality in Chapters 4 and 5, we focus intensely on the material culture of water in Chapter 6. In addition to exploring the symbolism of materials used in the two water economies highlighted in Chapters 4 and 5, we explore the branding of water. To this end, we analyze four highway billboards in Niamey: two commercial and two public service messages. We also analyze the labeling used on water sachets, and we connect these efforts at branding to broader links between packaging and ideas of purity and confidence.

Finally, the conclusion offers some final thoughts about water, life, and profit as they pertain to trends in governance, access, and materiality. We offer a critique of Niamey's water regime, suggestions for pro-poor water policies, and warnings that failure to consider the sociocultural elements surrounding water when attempting to improve access could create more problems than are solved.