Rainwater Capturing in Mexico City: The Adoption of the Social Practice

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Abstract

With an increasing migration into urban areas and with the imminent effects of climate change, large cities must become ever more resilient. Water provision to urban inhabitants is a fundamental public service and a human right, but in the context of the Mexican capital of around 22 million people, it has constantly been a problematic issue. Mexico City's history with water is long and complex; it has transitioned from a massive lake where people's livelihood depended on the surrounding ecosystem, to a megalopolis that suffers both significant floods and water scarcity, particularly in low-income areas. As a result of this, some rainwater capturing programs have found success around the city. However, it is the first time that the Mexican capital's government piloted a rainwater capturing program that is specifically directed at low-income households that lack access to public water services. This paper is interested in how the practice at hand has differed between those private clients of Isla Urbana (the service provider) who purchased the system and those public program beneficiaries who received the system at no cost. This study is interested in how the social practice has been adopted in each of the two groups mentioned and how its adoption can be improved. Since we are mainly looking at the perception, behavior and habits of these individuals, this study makes use of the sociological theory of practice.

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Introduction

Climate change and its effects are already occurring, now it is about how resilient we can become to face the consequences of our actions and/or stall the process. Certainly, one of the main issues revolves around water: the most valuable resource on our planet. Over 2 billion people in different countries around the globe are experiencing high water stress. Also, around 4 billion people, which is more than half of the global population, suffer severe water scarcity for at least one month out of the year. (*World Water Development Report*, 2019). With a consistent growth in population, fluctuating consumption patterns, and the imminent effects of climate change, the global community has shown concern for the future of the resource that characterizes life as we know it. This past March (2019), the United Nations (UN) launched the *Water Development Report, Leaving No One Behind* as part of the 40th session of the Human Rights Council, where the access to safe drinking water and sanitation are emphasized as a basic human right (*World Water Development Report*, 2019).

With a growing population, procuring water services for all is becoming an on-going issue, particularly in urban zones where they experience constant waves of migration. In 2018, 55% of the global population resided in urban areas, it is expected that by 2050 this figure will increase to 68% (*World Urbanization Prospects*, 2018). The great majority of people migrating into cities who come from more rural areas tend to accommodate themselves in affordable slums where public services like that of water are lacking. Because the rate at which migration is occurring is too fast, the infrastructure and planning departments find it difficult to accommodate such demand. ("Water and Urbanization", 2019). Ultimately, since most of the world's population resides in cities, the management and procurement of water services in these sites is of key importance. Here, opportunities and risks for securing this basic human right, this essential resource, await us.

Mexico City, with a top figure of 21.6 million inhabitants as of 2018 (*The World's Cities in 2018*, 2018, p. 4), is the fifth-largest city in the world, and as such, it is a prime example of an urban area that is undergoing population increase and suffering water scarcity. Before the colonization process, Mexico City, or *Tenochtitlán* (by its previous *Náhuatl* name), was a large lake. There, the inhabitants engineered islands where they lived and practiced agriculture. The livelihood of the people depended greatly on the surrounding body of water. They even developed a mythology about it, like the origin of the national shield, which is currently represented on the Mexican flag. At present, the lake is gone and the relationship with water is distant, to say the least. *Tenochtitlán* may have come to pass, but the rainfall is still constant, whether there is a lake to store it or not. For such reason, the Mexican capital does not suffer droughts, but the public water access is still lacking. The infrastructure that provides water services to the population has

not reached many of the households in low-income or more rural areas. Along with this, the city's population keeps increasing, it is expected that by 2030 its population will be of 24 million inhabitants (*The World's Cities in 2018*, 2018, p. 4). Even nowadays, the public administration has not been able to procure water services for the whole urban population. Moreover, the capital's hydro-system acquires most of its water from distant lakes, rivers and the aquifers beneath the city (Torres Bernardino, 2017, p. 20). The reliance on distant water sources is increasing and the aquifer sources have been visually depleted, so much so that it is evident in some areas where buildings have begun to sink, like the massive cathedral in downtown Mexico City.

As exposed, the responsible water management in Mexico City is significantly hindered by the accelerated urban population growth and by the irresponsible exploitation of water sources. On average, the Mexican capital receives around 625 mm of rainfall every year (*Climate Mexico City,* 2019). Because of the amount of rain, the lack of water-service infrastructure and the trash on the streets, in rainy seasons many areas around the city become quickly flooded, causing the displacement of many and serious damage to the public infrastructure around the city. This situation has been occurring for many years, and as the urban area expands, it has only gotten worse. The concern for water provision, after several years, has reached the political arena. The new city government led by Claudia Sheinbaum declared earlier this year that the budget for the water system would be doubled to 977 million Mexican pesos ("Notimex", 2019). The increase in budget will be directed to procure different sectors of the water system, but there is one novel program that was aimed at involving society: rainwater capturing.

Water harvesting and rainwater capturing is not a new practice in Mexico's old and modern days, but it is the first time the Mexican capital's government joined for the venture. This resilient strategy derives from the unequal access to public water, the amount of annual rain the city gets and the waste of such. Along with providing low-income households with the means to harvest water, it also seeks to educate society about the sustainable use of water and its natural cycle in the Central Mexican valley, something that has been previously ignored by both governmental institutions and the populous. The new government program and Isla Urbana, a leading rainwater capturing organization that has been around for a decade, identify four benefits of installing these systems: fewer floods, less energy use for water transportation, 5-8 months out of the year of water autonomy, and last but not least, the recovery of overexploited water bodies like rivers and aquifers. The capturing system can also be used for drinking and any other domestic purposes. ("Isla Urbana", 2019). The success of the program will be measured by the number of systems installed and by the assessment of the adoption of this practice ("Sistemas de Captacion de Agua"*,* 2019). The government project aided in the no-cost installation of these systems in neighborhoods that present water scarcity. However, there are households around the city where the company has sold and installed capturing systems before the launching of the joint venture with the government. The purpose of this paper will be to analyze **how has the**

practice of capturing rainwater been adopted by those carriers who have installed the system in Mexico City? And how has it differed between private clients of Isla Urbana and those beneficiaries of the governmental program?

I seek to analyze the potential of adopting the rainwater capturing practice in residential areas, how it affects the perception and behavior of those who have embraced the practice, and how the practice differs between private clients and program beneficiaries. The first section of this paper will be dedicated to reviewing the relevant literature surrounding social practice theory while relating it to my case. After this, I will briefly go into the definition of rainwater harvesting in Mexico City and what adopting this practice entails. This section will seek to expand on what the installation of this system involves (based on the guidelines by the company "Isla Urbana" and the government-led program). The next segment defines and justifies the methodology that will be carried out throughout the study. The first central portion of this paper will be dedicated to analyzing the interviews that will be made to some of the household dwellers who have adopted the rainwater capturing practice. In the second central portion, I will discuss and compare the findings, which will then lead to plausible policy recommendations. Finally, the results will be summarized and some final remarks will be made.

Literature Review

Practice Theory

Practice theory is concerned with how social practices are reproduced across time and space. The reproduction of the practices creates patterns that are constantly reinforced and changed by its carriers. It springs from the justified need to go beyond dominant dualisms between social structure and human agency. (Ropke, 2009, p. 2490-2491; Giddens, 1984; Shove, 2014). Bourdieux (1977, p. 10) defines agency as the ability of actors in a society to act independently of rules and structures. Structure, on the other hand, is the repetition of a set of individual actions that form norms, traditions, institutions, etc. Activities are molded and made possible by structures, but these are also simultaneously reproduced by human action. Social practice theory seeks to reconcile these two methodological approaches by focusing on the practice-oriented dynamic relationship between both. (Shove et al., 2012; Hargreaves, 2011). Instead of being concerned with the behavioral aspects of individuals (and consumers), practice theory is rather more interested in the dynamics of collective practice and its role in social change. Social theories of behavior pay attention to external drivers and causal aspects, while social theories of practice center their study on evolving and endogenous dynamics. (Shove, 2014). Furthermore, in practice theory individuals are carriers and reproducers of practices, while in behavioral theories they are autonomous agents. (Shove, 2010). Supporting Giddens' (1984) understanding, the main focus of study in social sciences should not be the individual actor nor the structure, but the social practices spread across space and time.

The main social practice theoretical understanding that I will be making use of is that of Elizabeth Shove, Mika Pantzar and Matt Watson (2012). Firstly, we will elaborate on the definition of practice, while denoting the difference between practice-as-a-performance and practice-as-an-entity. The following section will explain the three relevant elements that constitute a practice (material, competence and meaning) and their characteristics. Also, because the elements must be linked for a practice to exist, the next portion will be dedicated to representing how elements and their connections are made, broken and shared. The following section will be devoted to those who keep practices alive: the carriers. Then, we will elaborate on how practices overlap and connect while denoting the differences between bundles and complexes of practices. Finally, while drawing on intervention in practice and the function of public policy literature, the last section of this review will elaborate on the potential and role of state actors.

Practice-as-a-Performance and Practice-as-an-Entity

Practices are often the object of study in many social sciences, they spread across many aspects of our daily life to the structured activities at any given level. The definition of practices in social sciences has slightly evolved as authors have embraced the theoretical approach. For example, Reckwitz (2002, p. 250) states that a practice is a pattern that is composed of a series of single and frequently unique actions. Similar to Reckwitz, Shove et al. (2007) state that practices persist through their instants of enactment. They can be long-term patterns of activities or only brief behaviors. Moreover, practices can be geographically and historically local, while others can go beyond to the wide-ranging. They can be represented through the material, culture and/or linguistic performances. (Rouse, 2007, p. 499). Practices can be culturally specific, like accompanying food with a corn tortilla, or institutionalized activities, like playing a national anthem before a football match. Overall, they are constantly dynamic and therefore ever-changing. Furthermore, practices can be represented in the immediate moment of enactment, known as practice-as-a-performance; or widely recognized and composed of a pattern of other practices, known as a practice-as-an-entity —it is only through constant performances that the interdependencies between the pattern of practices can sustain practices as entities (Shove et al., 2012). To elaborate on this, we will discuss these two types of practices while drawing on the example of water consumption.

Practice-as-a-performance is enacted in a particular moment and place. In the case of water consumption, this complex practice is composed of smaller ones. Particularly, if we think of domestic water consumption in a household, it would include patterns of showering, washing dishes, cleaning, etc. These smaller moment-specific practices are the components of a larger recognizable pattern of consumption known as practice-as-an-entity, which exists beyond specific instances of enactment (Giddens, 1984). That is because the complex of practices referred to as entities are a direct outcome of the performances taking place. Ropke (2009, p. 2492) states that practice-as-entities are about gluing activities together. Practices consist of the active integration of its elements (which are explained in the following section), through these performances, practices are reproduced as provisionally recognizable and stable entities (Shove et al., 2012, p. 82). The execution of the performance always varies from enactment to enactment, which means that in due time the performance of smaller practices can change the larger entity. (Ropke, 2009, p. 2491). So, if practices as entities are shaped and composed of the performances of other practices, what holds practices-as-a-performance together? From the lens of Shove et al. (2012), these are constituted of elements, that in return are kept together by the continuous enactment of a practice. These elements are classified as material, competence and meaning.

The Elements of a Practice: Material, Competence, and Meaning

Drifting away from the understanding that places the human actor as the central unit of analysis and change, the "elemental" approach of practice theory places its constituent elements at the center point of how practices evolve. According to Reckwitz (2002), a practice is comprised of a pattern or block of interdependencies between the elements, which are maintained by the carriers of practice as they reproduce it through a practice-as-a-performance. Shove et al. (2012) argue that by understanding and analyzing the trajectories of the elements that make a practice and the links between them, we can describe and better identify changes in practice. To gain a better grasp of this elemental approach, we will describe each of the three fundamental elements that make a practice according to this theoretical understanding. We will do so by linking the explanation to the practice of capturing rainwater.

The material element of a practice encompasses things, objects, infrastructures, tools, technologies, bodies, equipment, and/or any tangible entity, like a place (Reckwitz 2002, p. 249; Shove et al., 2012, p. 14). The material element is not something that was broadly discussed by older practice theorists like Giddens (1984) since he was mainly concerned with the social aspect of the phenomena. Yet, for the newer generation of theorists this element plays a vital role. Schatzki (2002) and Reckwitz (2002), for example, are interested in how social practices are intertwined with the tangible because they intend to make this social theory more suitable for empirical investigations. Regarding our case of rainwater capturing, the material element would be that of the rainwater harvesting system and all its components: the container, the purifier, the cleaning tools and even the infrastructure of the house ("Isla Urbana", 2019). In sum, the material element represents anything tangible that is involved in the enactment of a practice.

The competence element of a practice includes the skill, knowledge and know-how necessary to perform an activity. This is usually gathered through experience and training, while reinforced and evolved through the application of the necessary knowledge—becoming embodied in the carriers. The knowledge needed can be very distinct from each other (Shove et al., 2012), it can be disguised as principles, rules, instructions, etc. It can also take an implicit form, like that of know-how. (Ropke, 2009, p. 2492). Competences can be generic and wide-ranging like reading, but they can also be very particular, like how to clean a water purifier. In the vein of our case study, the competence element would include everything from how to maintain the rainwater capturing system, knowledge about the rain cycle in the Mexican valley, how and who to contact in case of needing help, etc. ("Isla Urbana", 2019). Overall, this element is comprised of all the knowledge (in its many forms) necessary to perform and sustain a practice.

The meaning element of a practice refers to how the carriers make sense of activities. This can include ideas, aspirations, symbolic meanings (Shove et al., 2012, p. 14), emotions, beliefs, understandings (Ropke, 2009, p. 2492), mental activities and/or motivational knowledge (Reckwitz, 2002). In other words, it is the significance that is given to the participation and enactment of a given practice. Furthermore, while the meaning element is certainly carried out by the practitioners, it is also something that is shared and changed among those who carry out the enactment of the activities. In the context of our research at hand, the meaning element would be the symbolism that is attributed to capturing rainwater, e.g., being more in touch with nature, being more sustainable, being more water autonomous, etc. ("Isla Urbana", 2019).

Links Between Elements Make a Practice

Practices are created and defined by the interdependent relations (links) between the material, competence and meaning elements. Shove et al. (2012, p. 24) elaborate on this notion by stating two important considerations (Figure 1): elements exist independently when there is no link made between them (labeled as proto-practice), and a practice disintegrates when the links no longer exist (labeled as ex-practice). This representation helps us in understanding how practices are composed, yet it does not say how the links between these elements are made, sustained, nor how the elements evolve. Such a process is hard to represent with a motionless diagram because both the elements and the practice that is made by such are constantly changing. Links between elements can be broken when such elements change, but new links are then made between similar yet distinct elements. (Shove et al., 2012). This is a dynamic procedure that is repeated as a practice is performed (Ropke, 2009, p. 2492).
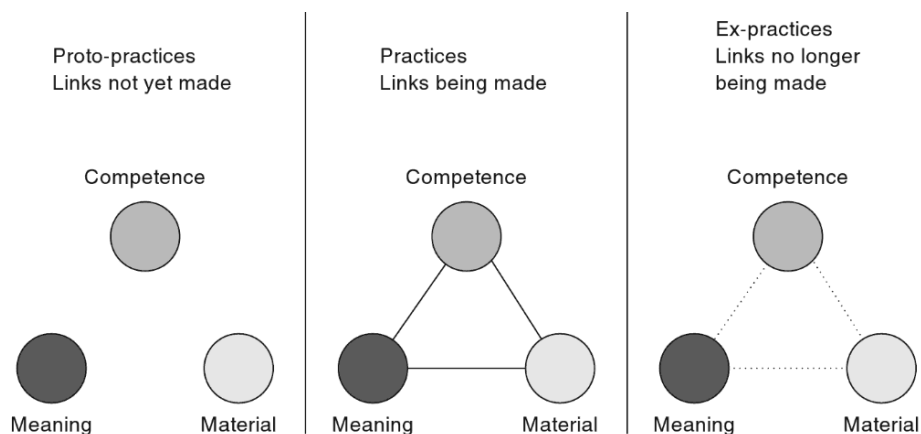

Figure 1:Links between elements of a practice.

The elements of a practice are constantly changing and being routinely transformed, which in consequence changes the elements themselves and the practices they conform. The element-based approach argued by Shove et al. (2012) seeks to target the composing elements of a practice and their relationship to understand how practices emerge and disappear. Also, this understanding could be used to bridge the comprehension between practice-as-performances and practice-as-entities. The authors explain this approach by looking into the evolution of driving as a practice-as-entity. The aim is to capture snapshots of crucial moments where an element of the practice changed. By comparing these instances, both between periods of enactment and across the different elements, a historical narrative can be created. At the same time, it is important to consider that elements can shape each other as they change. For example, when driving was reserved to the wealthy and mechanically-minded individuals, it required a certain level of (mechanical) competence to perform the practice, but as driving became more common, the material component (the car itself) became more user friendly to accommodate the demand, which then changed the (symbolic) meaning of who could drive a vehicle, also changing the competence necessary to execute a practice because it no longer required advanced mechanical knowledge. In this example, one element influenced the other, which in turn changed another. As one element transforms, it breaks a link in the practice, but at the same time it creates a new link with a different element derived from its precursor; all, in turn, evolving the practice. (Shove et al., 2012, p. 32). As elements change and practices evolve, features of those previous elements either disappear, remain inactive or are simply built upon (Shove et al., 2012, p. 35)— it is, all in all, part of the dynamics of practice.

Elements are defining practices, but elements are not exclusive to a single practice, they can be shared across many. Shove et al. (2012, p. 36) consider elements to be the connective tissue that holds complex social arrangements together and could simultaneously break them apart. A change in an element can have an impact across different practices, sometimes with those that are not so closely related. For example, hypothetically speaking, as rainwater capturing makes its carriers more environmentally aware of the pollution around the city, they might start, as a consequence, to ride a bike or use less public transportation to reduce the smog. These repercussions of a change in practice are of interest for this paper since we seek to analyze the overall impact of adopting the rainwater harvesting practice.

Practices evolve differently depending on the circumstances at a given point in time; correspondingly, multiple different versions of a similar practice can coexist (Shove et al., 2012, p. 37). This phenomenon brings about a type of diversity in practice created by a series of varied circumstances and enactments. Because of this, Shove et al. (2012) beg the question if a practice can be analyzed as an entity when there are so many different variations of it. To this, the reasoning is that there are instruments that circulate common forms of material, competence and meaning across space and time. In the vein of our research, Isla Urbana, the company that is

dominating the rainwater capturing market and is leading the program, has aided in the stabilization of the practice. At the same time, the government is also involved in the circulation and standardization of the composing elements. Regardless if every enactment might slightly differ, it is possible to study this type of practice as an entity because its elements are being somewhat regulated. Now we turn to those who are responsible for keeping practices alive: the carriers.

Practice Carriers

Elements are linked together by practice, but those who carry out the enactment of it are responsible for its nature and existence, mainly because they can link the necessary elements to make and reproduce a practice. Carriers are those who reproduce and diffuse a practice. The enactment of such is not something that can be easily imposed, but rather it has to be reproduced by a group or community of faithful practitioners (Shove & Pantzar, 2007, p. 154; Shove et al., 2012). This community is the one that develops and carries a practice, even across groups. The process of learning a practice is inherently transformative, particularly at the level of practitioners because processes of sharing and learning evolve the knowledge required to perform a given practice (Shove et al., 2012, p. 70). The changing patterns of participants can also lead to changes in the various elements that make a practice. Furthermore, individuals, through practice-as-a-performance, can change and reproduce a practice-as-an-entity, which consequently makes this phenomenon a collective achievement (Ropke, 2009, p. 2491). Even though individuals are responsible for maintaining a practice alive, the object of study remains the collective of shared activities and not the individuals themselves (Shove, 2014). That is because the object of study is not the habits of individuals as a form of behavior, but rather how individuals are captured, retained and affected by shared habits, which makes the object of study inherently and dynamically social. (Shove, 2011). Largely, carriers of practice define how long a practice lasts, at what scale it is enacted, and where and how routinely it is reproduced (Shove et al., 2012, p. 63). In a context where many diverse social practices exist, carriers are the crossing point of practices because they constantly perform multiple bodily-mental routines. (Reckwitz, 2002, p. 256). When someone enacts a practice, they take over the mental and bodily patterns that are constituent of such practice. However, this does not mean that practice carriers are autonomous nor that they blindly conform to norms. They act according to a particular form of a practice—which shapes the practice itself through its continuous reproduction, enacted by old and new practitioners.

In a sense, practice carriers define the volume (and/or extension) of a given practice. Practices change, contract and expand as they gain and loose practitioners (Shove et al., 2012, p. 77). Therefore, the question of how practices capture, retain and lose their carriers is of prime

importance for understanding the careers of established and emerging practices-as-entities. Ropke (2009, p. 2493) rigorously begs the question of how practices recruit practitioners. To this, he answers that practices compete for the attention of carriers, which means it is a selective process where, as new practices emerge, others are replaced and/or transformed. To the question of recruitment, Shove et al. (2012, p. 69) reiterate that a practice can become so embedded in its elements that it no longer requires social networks for the recruitment of practitioners, e.g., the recruitment of carriers for the showering practice largely rests on showering-related products for the recruitment of its performers. Overall, it is stressed that the means of recruitment change as the practices, the careers of its carriers, its institutions, and its infrastructure develop.

Shove and Pantzar (2007) further analyze the relationship between carriers and practice. They shed light on four aspects that are essential when understanding the recruitment of carriers and the reproduction of a given practice. The first point refers to the instance when practices are introduced. If they become popular, the opportunities for individuals to participate increase. A practice becomes popular when firstly, initial circumstances for its reproduction are met, and practitioners undergo positive experiences through the performance of the practice, which enables its repetition and reproduction; hence becoming the carriers of the practice. Secondly, Shove and Pantzar (2007) remark that practices acquire an identity through repetition, particularly when the practice itself is carried by faithful practitioners. This moment of relative stability raises the question of how a practice inspires innovation and novelty. To this, the authors suggest that the mutable circumstances of the practice that lead to change can be external, while also clarifying that they can also be internal. This leads to the next point they make, which is that the circulation of a practice's composing elements, whether they are external or internal, are somewhat autonomous to the reproduction of the practice. This point further inquiries the relationship between the composing elements across practices, since practice-as-entities can still endure beyond the moment of enactment and the shifting elements. The relative stability of a practice-as-an-entity rests on the carriers of it. But carriers, in their daily life, exercise more than one practice-as-entity (Shove et al., 2012), and therefore can also destabilize, intersect and create complexes of practices. That is why in their last point, Shove and Pantzar (2007, p. 165) state that the careers of practitioners result in the constant reconfiguration of how complexes of practices and those who exercise them converge, diverge, bundle and un-bundle. Thus, the recruitment and defection of practice carriers are relevant for individuals, practices, the relationship between practices, and the evolution of everyday life. The next section will be devoted to understanding how practices intersect and congregate into bundles and complexes.

Connecting Practices: Bundles and Complexes

Just as practices are composed of elements linked together, practices can also be connected into bundles and/or complexes. Based on the analysis of Shove et al. (2012), they define bundles of practices as those patterns that derive from the co-existence and co-positioning of practices. Complexes of practices are defined as more closely integrated practices, which in many cases can comprise new entities. (Shove et al., 2012, p. 81). The links between practices can change and influence each other. That is how, if closely related, a practice-as-an-entity can emerge and the distinction between its constituent practices dissolves. Nonetheless, not every inter-practice relation leads to new entities. There are cases where one practice can simply overtake and replace another, e.g., how rainwater harvesting can replace the previous water delivery services. Other practices are so dominant that they can shape the pathways of other practices and their carriers. All in all, bundles and complexes of practices, and the links that keep them together, must be reinforced by the constant reproduction of the practice system. Eventually, the reproduction creates a dependency between the practices, which is what ultimately holds these systems of practice together.

The question of how and why practices connect is of key importance in understanding the development and reach of a practice. Practices come together in many ways, Shove et al. (2012) describe a few. The physical plain where the performance is exercised can be shared with other practices, which is certainly an avenue to cross-fertilizing and connecting them. Another would be through the location and significance of the material element and/or the meaning attributed to certain performances. Let us take our case study as an example, where the water consumption practices are linked to the rainwater capturing practices. These are connected by the common and necessary material element—that is the water and the infrastructure necessary for the water to circulate—and by the meaning that is attached to using less water, since the amount of water that is used in various domestic activities could be decreased. Lastly, Shove et al. (2012, p. 87) describe three manners in which bundles of practices become more intertwined and can result in a complex of practices:

- *Sequence*: when practices follow a certain order of performance to arrive at an encompassing practice.
- *Synchronization:* when practices have to be performed at the same time for an outcome-practice to occur.
- *Co-dependency/necessary co-existence:* when practices depend on each other for a loftier one to exist.

Social Practice and the Role of Public Policy

In the frame of sustainability and consumption, practices are how certain patterns of demand endure, but more importantly, how they can also be altered. The possibility of reconfiguring dominant systems through practice introduction and intervention is of primary concern for governments, particularly within the context of a city where some of its inhabitants lack access to essential resources like water. A successful introduction and/or intervention can be represented by a deliberate shift in practices, social arrangements and technologies, which can, in turn, result in a change of landscape or dominant regime to, e.g., more sustainable ones (Shove & Walker, 2007; Shove, 2014). It is important to remark that the introduction of a practice or the intervention in the dynamics of existing practices, is something that does not necessarily have to enter from the exterior or the public-institution realm, but it can also derive from within the practice and from (for example) the private sector. In a different vein, the primary concern when analyzing a practice in transition is that of cause and effect, where we are interested in how a specific reconfiguration affects the whole. (Spurling et al., 2015, p. 79). Furthermore, Shove and Walker (2007, p. 763) consider the relevant conception of transition to be firmly based in the tradition of system thinking. This understanding emphasizes the coevolutive process of the social and the technical dimensions while defining and analyzing the rise, transformation and decline of sociotechnical systems.

Shove (2014), to emphasize the role of social sciences in sustainable policymaking, denotes the importance of focusing on social practices rather than on individual behavior, which is currently how much of public policy (e.g., towards consumption) is directed. If sustainable consumption and behavior are to be achieved at the necessary rate (considering the already present effects of climate change), it is necessary to not fully rely on conceptual models of individual behavior (Hargreaves, 2011, p. 96), but rather focus on the bigger complex picture brushed by practices. By aiming public policy at practices and their demand-consumption dynamics, the ability to change behavior is in turn aimed at the collective of carriers (Shove et al., 2012, p. 137). Moreover, the reconfiguration of practices to aid in transition depends on the adjustment and comprehension of a practice's elements (Shove, 2014, p. 419; Browne, 2015, p. 416) because each is subject to different patterns of demand. If we think of taking showers as a practice and are interested in it as a significant part of domestic water consumption, the performance could be shaped by, e.g., the meaning attached of what good hygiene is and/or the technology that is used when performing the practice, like a new showering product. Because the complexities of practices and their elements are many, the ability to alter them predominantly befalls on dominant institutional actors that create, guide and enforce public policies or projects. Hence, when discussing the adoption of a practice or the intervention in an existing one, the role of state actors is essential to address.

By understanding the world through the lens of social practice, we allow policies and agendas to be defined and framed a certain way, which, in turn, provide guidance to what kind of practices are adequate and possible (Shove et al., 2012, p. 139). Even though social practices are constantly emerging, their development is unforeseeable, and they are constantly in transition. Thus, systemic policy interventions can be crucial in whether certain ways of life endure or thrive. However, because policy intervention in practice occurs in a given historical state of a practice, when the intervention is made is definingly crucial for the outcome of the policy—this timing aspect also applies to when a practice is introduced—. (Shove et al., 2012, p. 155). Ultimately, Shove et al. (2012, p. 161) state that effective policymaking consists of guiding processes of fluctuation and selection, while at the same time adjusting and reflectively tracking emergent bundles and complexes of practices as they change.

The Rainwater Capturing Program

In the face of water precarity in the Mexican capital, the city's government has recently opted to support and finance the installation of rainwater capturing systems in areas around the city that lack access to public water services. The public-private partnership sought Isla Urbana because it is the leading business in the rainwater capturing systems' market. They also have a defined service model, the technology, know-how and philosophy to implement this novel program. Even though other businesses install rainwater capturing systems, Isla Urbana fulfilled most of the government's requirements for the pilot project. Furthermore, this enterprise had previous interactions with Claudia Sheinbaum when she was working as the Environmental Secretary in 2003. Now, as she became head of Mexico City's government, she has pushed for this innovative program to take place. (E. Becerril, personal interview, February 11, 2020). The first round of the program occurred this past 2019, with a budget of 200,000,000 Mexican pesos aimed at installing 10,000 capturing systems ("Sistemas de Captacion de Agua", 2020). It is operated by the Environmental Secretariat (*Secretaria del Medio Ambiente: SEDEMA)* and supported by the Department of Environmental Culture and Policy Coordination (*Dirección General de Coordinación de Políticas y Cultura Ambiental*). The success of the program has been measured by the number of systems installed and by the assessment of the adoption of this practice. Among the objectives of the public program, they seek to prove the viability of using decentralized and sustainable models of water provision to improve the living conditions of the most vulnerable communities in the city. Furthermore, both the program and Isla Urbana declare a few benefits of installing this system: the reduction of water flow to sewers, decreasing the presently common floods; the reduction of energy used to transport and pump water across the city; provide 5 to 8 months of water autonomy to those who install the system; enable the recovery of aquifers by reducing their demand. ("Sistemas de Captacion de Agua"*,* 2020; "Isla Urbana", 2020).

The joint program consists of the following steps. Firstly, those interested in the program must reside in one of the neighborhoods that qualify for the program. There, they must attend the community meetings where they discuss the issue with water provision within the city's context, while also presenting the novel capturing system. Secondly, the selection of those who are interested and fulfill the socio-economic related requirements is made. Thirdly, the prospective beneficiaries of the program receive a visit by technicians who provide an assessment of where and if the system can be successfully installed. Following this, the installation is made, along with a thorough instruction and mentoring of how to use and maintain the system. As the clients made use of the rainwater capturing technology, both Isla Urbana and the government-led program gave follow-up visits to make sure the system is being used properly, the beneficiaries understand it, and the water quality is adequate. Finally, some

interviews were made to assess the adoption of the systems and the level of satisfaction of the clients. ("Sistemas de Captacion de Agua", 2020; "Isla Urbana", 2020). It is important to mention that those private clients that opted to install the system independently of the government's program follow a similar series of steps. According to Emilio Becerril (personal interview, February 11, 2020), that is because the program was largely based on the already existing service model of Isla Urbana.

The *SEDEMA (*by its acronym in Spanish) and Isla Urbana have concluded the government-supported program, where they reached their goal of 10,000 installations. In addition to this, in 2019 they installed a total of 1,251 systems for clients who wished to do it independently, since the public program was aimed at particular households who lacked access to public water. (*Reporte Anual*, 2019, p. 6).

Methodology

Since I seek to analyze the social practice of harvesting rainwater shared among its carriers, this study made use of qualitative research methods to answer the research questions. These types of methods aim at interpreting and understanding individuals' lives, relationships, behaviors, etc. (Strauss & Corbin, 1990). This form of investigation primarily uses language because it is concerned with the perceptive and linguistic aspects of the subjects. Furthermore, the type of study that was conducted required methods and a qualitative procedure that was adaptable to the aim of the research questions. And while this study could have benefited from some quantitative methods, this research was only supported by qualitative ones. Silverman (2011) makes an important division between quantitative and qualitative methods, where the latter does not necessarily begin the research process with a defined hypothesis, but it is instead created through the analysis itself.

I opted to analyze the rainwater harvesting practice because it is a novel and emerging one that continues to attract recruits. I sought to understand how the rainwater capturing practice has impacted the perception, behavior and competence of those dwellers who installed such a novel system. For this, we must understand the elements composing the rainwater capturing practice-as-entity, then we must inquire how they have changed before and after the adoption of the rainwater capturing practice. The guiding points for this research revolve around the constituent elements of a practice: material, meaning and competence; and the changes that these have undergone. Based on this, we can discuss the success of the joint venture between the city's government and Isla Urbana, while also suggesting plausible areas of improvement for the public program and the promotion of the novel practice.

Given that I looked into the behavior and perception change of those households who have installed the rainwater capturing system, I chose to examine this with ethnographic methods of interviews and observation. The ability of practice theory accounts that lead to generalizations within certain contexts may be restricted with the use of these methods, yet, the quality of inference from the results depends on the framework which is being used to organize and analyze data (Lewis & Ritchie, 2003). Because of this, the data was segmented into the three composing elements of a practice. When all interviews were completed, a constructivist grounded theory approach (Charmaz, 2006) was used to analyze the whole sample of household dwellers. Next, I identified repeated ideas within the data gathered from the interviews, which was then turned into codes. When all codes were identified they were grouped into concepts and categories, from where I made use of grounded theory's inducting reasoning to draw results. Moreover, the interview process was constructive and complementary; this means each

interview was studied before the other was conducted. In sum, the research process mainly made use of semi-structured interviews to gather qualitative data.

The rainwater capturing program section was complemented by an expert interview directed at the public policy coordinator of Isla Urbana, the organization installing the systems. The central section of this paper is dedicated to analyzing the rainwater harvesting practice of those household dwellers who have adopted such practice. At the same time, the interviews were divided into two sets of groups: those who have opted to purchase and install the capturing system, and those beneficiaries of the governmental program who lacked access to public water and had the system installed at no cost.

Analysis of Interviews

The Outcome of the First Public-Private Partnership: The Perspective of Isla Urbana

To get a better understanding about the success of the public-private program, I contacted Isla Urbana and had the opportunity to speak with Emilio Becerril (personal interview, February 11, 2020), the public policy coordinator who worked at first hand with *SEDEMA* to assess the adoption of the rainwater capturing practice in those households that present water scarcity. In addition to this position, Emilio also handles some of the design and management of larger projects with governmental institutions. Also, he was involved in the updating of the National Water Law.

During the interview Emilio emphasized two important aspects of the program that are the reason why Isla Urbana was chosen. Firstly, they have the technology and know-how to execute the project, since they have been around for over a decade. Secondly, and perhaps most remarkably, their business philosophy involves what they refer to as the socialization of rainwater harvesting. The latter, in the scope of our research, refers to the importance given to the adoption of the rainwater capturing practice. This socialization is concerned with approaching communities to promote and inform them about the benefits and relevance of adopting this practice (related to the meaning element). Besides, it is concerned with providing the necessary mentoring on how to use and maintain the systems (related to the competence element), since among its goals they want to make these households more water autonomous. The socialization aspect is what could make this project sustainable in the long term. In the language of our theory at hand, it is what could enduringly install the rainwater capturing practice in this context by effectively introducing it to recruits.

The project has given great importance to the training necessary to use and maintain the rainwater harvesting system. According to Emilio (personal interview, February 11, 2020), this has been the greatest challenge for the program. Since one of the aims is to make these households partially water autonomous, the understanding of how the system's components work and how to maintain them is of prime importance. Even though there is a training given during many stages throughout the program, it has proven to be the most conflicting aspect. Certainly, mastery of an activity comes from repetition, but there is particular knowledge that is not so easily transmitted. As previously mentioned, the knowledge necessary to execute a practice refers to the competence element of the practice. According to Shove et al. (2012, p. 49), the issue with the introduction and circulation of the competence element is that of the abstraction and reversal of knowledge. To communicate the know-how, it must be abstracted to

an understandable format, but the comprehension of such depends largely on the ability of the receiver to reverse (or de-code) this information, which can largely depend on prior experience. The aim of giving follow-up visits, calls and interviews to the beneficiaries of the program has been mostly to identify those aspects of the competence element that were not thoroughly understood. According to Emilio Becerril (personal interview, February 11, 2020), the main component of the system that beneficiaries of the program had issues comprehending was that of the initial water separator (known and patented as *Tlaloque*), which is a key component of the harvesting system. The issues related to the competence element identified by Isla Urbana led them to re-abstract and re-introduce the knowledge in an easily digestible format, like that of videos or pamphlets.

According to Emilio (personal interview, February 11, 2020), an issue that appeared when showing interest for this novel initiative to harvest rainwater, was that of skepticism towards governmental programs which carry a deficiency reputation, while also being skeptical of using rainwater that is believed to be polluted. The issue of skepticism towards both the program and capturing rainwater relate to the meaning element of the practice. The latter issue was said to not be of such significant importance because there are some neighborhoods where the water quality is already poor. Yet, the issue of trust in governmental programs has been more difficult to overcome. Also related to the meaning element, Emilio emphasized that while the no-cost aspect of the rainwater harvesting program attracts interest, what they want to remark is the possibility to become more water autonomous. Along with this, they want to integrate more eco-literacy into the program, since they believe it is important for clients to understand why it is relevant to capture rainwater in the Mexico City context. Ultimately, the aim is to re-classify the old connotation of capturing rainwater and joining the program into a new one. Such a narrative is intended to be integrated into the following rounds of the program.

The Material Element and the Rainwater Capturing Practice

Mexico City, as previously mentioned, has a peculiar relationship with water. It has gone from a floating civilization that subsisted through a close relationship with its surrounding ecosystem, to one that suffers from both floods and water scarcity. The issue of access to water is of interest for our study because this tangible resource is a defining parameter for a carrier who may want to adopt a water-saving practice (Niemczynowicz, 1999). This I considered essential in our case to analyze how the rainwater capturing practice has been adopted. Throughout the interview process, it was clear that water precarity and how consistently one has access to it goes beyond socio-economic class, neighborhood or environmental perceptions. Out of the eight interviews conducted to private clients of Isla Urbana and beneficiaries of the public

program, five of them mentioned they did not suffer any water scarcity. However, for Jose Alfredo (personal interview, February 17, 2020), a private client who said he did not suffer water scarcity, his neighbor who provided me his contact said otherwise and explained how in their area there occasionally is (P. Barranco, personal interview, February 17, 2020). For the other interviewees who said they do not suffer water scarcity, it was explained to me by both Elianne Garcia and Omar Zamora (personal interview, February 19, 2020) that *Xochimilco*, the district where I conducted the interviews to the program beneficiaries, has continuously suffered water scarcity despite of being close to bodies of water. A significant example of this that everyone who was interviewed in this area mentioned, was that of the 2017 earthquake that left some communities without piped water for months (Suarez, 2017). Overall, every interviewee except one had decent access to public water. Jesus Silva (personal interview, February 19, 2020), who lives up a hill, said he continuously lacks access to this essential resource because it does not always make it up to where his house and community are located.

To perform the rainwater capturing practice, adequate infrastructure and materials are crucial, otherwise, the adoption of the practice is hindered. As Reckwitz (2002, p. 252) says, "in order to play football, it is necessary to have goals and a ball as essential resources". In terms of the capturing system itself, the material for the system is something that is provided by Isla Urbana; and in the case of the public program, subsidized by the city's government ("*SEDEMA*", 2019). However, before the installation there is an assessment to see if the infrastructure of the household can support such a system. Elianne Garcia (personal interview, February 19, 2020) wanted to install the system in both of her parents' houses, but one of them did not have an adequate space on the roof to do so, so they could not. According to Emilio Becerril (personal interview, February 11, 2020), this is a requirement and filter that some could not overcome, but for their system to work effectively, it is important to have adequate space. In a different vein, all practitioners mentioned that when the systems were installed, they had to be adapted to the structure of their house and their needs. For example, Pilar Torres (personal interview, February 20, 2020) mentioned that she had to get a special filter for the first rains due to the debris her roof liberated; or in Jose Alfredo's (personal interview, February 17, 2020) case, where he opted to install a meter in his system to see how much rainwater he was harvesting. In addition, there was an unexpected issue regarding the infrastructure required to adopt the practice, which was something beyond the power of household dwellers: the street. In *Xochimilco* the streets are particularly small in some areas and some houses can only be accessed through narrow alleys, where the vehicles that bring the material for the system's installation cannot properly access.

There was a notable issue regarding the material component that was explicitly addressed by all interviewed practitioners. When asking about the system itself, everyone mentioned that the size of the tank that stored the captured water was not sufficient for their water consumption needs. The tank provided by Isla Urbana as part of the capturing system can store 2,500 liters of

water. When discussing the satisfaction of clients and beneficiaries with the system, all mentioned at some point that a higher tank capacity would provide them with a greater level of water autonomy, that it does not meet their consumption needs, that they capture more water than the container can hold in times of rainfall, and that the stored water does not last long without continuously refilling it with harvested rainwater. The issue of tank capacity has influenced how the practitioners use the captured water. For Jesus Silva (personal interview, February 19, 2020), he has been limiting the use of the harvested rainwater to activities that do not involve human use. When I asked if he would use the water for, e.g., dish or clothe washing, he replied by saying he would if he had more of it to sustain such use. This issue was so relevant for Pilar Torres (personal interview, February 20, 2020) that she purchased a much larger container, which has made her completely autonomous from public water consumption. However, what Pilar did is not an option for many since a custom-made tank or simply a higher capacity one involves a hefty investment that not many can afford. Furthermore, the issue of space where one can adequately store a larger container near their home did not seem to be addressed by interviewees, but in a city with limited space, it would certainly be a problem to be pondered.

When this investigation began, it was speculated that there was a possibility for carriers to change their water consumption practices when adopting the rainwater harvesting one, however, this was not the case. Every single interviewee said they did not change their water consumption after adopting the capturing system. Private clients who carry the practice mentioned they did not change their water consumption practices because they were already environmentally conscious and already performed water-saving practices. Public program beneficiaries mentioned they already only use the water that is necessary, and that the capturing system does not provide them with more of the resource to generously utilize. A notable difference between both sets of interviews, is that for the private clients it was implied that a change in their water consumption practices would mean using less of the resource, whereas for the beneficiaries it meant using more since they considered they already use modest amounts. Nonetheless, to see how their water consumption has changed, it would require a quantitative study that unfortunately is beyond the scope of this research. Yet, by focusing on the qualitative aspect of this question, it is interesting to see what interviewees perceived adequate and/or prudent water consumption.

In terms of adopting the rainwater capturing practice, there was an interesting phenomenon that was pointed out by the beneficiaries. It was said that there were many clients of the public program who received the system and decided not to use it. Instead, they disassembled it and sold its components. The immediate need (or want) to profit from the system surpassed their water provision needs, which could signal at the lack of water precarity in that area or the lack of meaning attached to the practice at hand.

All in all, by exploring the material element related to the rainwater capturing practice, we encountered interesting insights about how this practice has been adopted. Furthermore, we have discovered some relevant aspects of how the program and the adoption of the practice could be improved, which will be more thoroughly addressed in the policy recommendations' section of this paper. The points that will be addressed are as follows. Firstly, we encountered that two of the private clients of Isla Urbana considered that they had suffered water scarcity, while the rest did not consider that to be the case for them, even though their saving practices and perception of them could signal at a level of scarcity at some point in time. Secondly, the issue of faulty public infrastructure hinders the access of vehicles and therefore the ability for the program representatives to install the capturing system, excluding a segment of the community. Thirdly, an issue that all interviewees addressed was that of the small size of the water container, which has influenced how they use the captured rainwater.

The Competence Element and the Rainwater Capturing Practice

The competence element refers to the understandings, the background knowledge and the know-how (Giddens, 1984; Reckwitz, 2002) necessary to evaluate and perform a practice (Shove et al., 2012, p. 23). Its importance is pertinent in as far as how well a practice has been adopted. In our case, the already existing performance of water-saving practices proved to be a relevant constant among the interviewees. And while the reason of why they performed these eco-practices (addressed in the "meaning" section) somewhat differs between the private clients and the program beneficiaries, the outcome is that of adopting a practice that facilitates and expands water-saving practices: rainwater capturing. Jesus Silva (personal interview, February 19, 2020) mentioned that he had been harvesting rainwater before the program helped him, he even had installed a more rudimentary system. He also mentioned, along with Mayra (personal interview, February 19, 2020), that the tradition of capturing rainwater is something that was done by their not-so-distant ancestors and that continues to be practiced by them and their community. The *Xochimilco* community, which is where I did all interviews to program beneficiaries, possibly has a different relationship with water than its neighboring districts. That is because of all the areas in Mexico City, this southern district is the only one that is left with canals, boats and manmade islands, similar to how the Aztecs lived and built *Tenochtitlán*. Because of this relationship with their environment and their proximity to bodies of water, people from *Xochimilco* likely have developed a certain kind of knowledge about saving and harvesting water, which in turn could have aided in the adoption of the rainwater capturing practice. As Shove et al. (2012, p. 51) state, some competencies are easily transferred because they are common enough in certain previous practices.

Knowing how to perform a given practice requires a particular set of skills and knowledge, which are usually learned through learning and experience, becoming embodied in the practice carriers (Ropke, 2009, p. 2492). When introducing the rainwater capturing practice to the carriers, the instructions of how to use and maintain the system had to be learned through a specialized presential training since procedural knowledge can be efficiently absorbed through means of "mimetic apprenticeship" (Lizardo, 2009, p. 9). As I was discussing the success and weaknesses of the public program with Isla Urbana, Emilio Becerril (personal interview, February 11, 2020) stressed that there was an issue when communicating the knowledge necessary to use the system. He said that beneficiaries of the program had issues understanding the systems' components and how to maintain them. However, as the interviews were conducted with the beneficiaries, I addressed this issue and whether the instructions were difficult to understand. To this, all beneficiaries did not think the knowledge of how to use the system was difficult to comprehend. Jesus Silva (personal interview, February 19, 2020) mentioned a few ways he thought he could improve and adapt the system to his household and needs, which means that the competence element of the practice was being evolved by him (Shove et al., 2012). As for private clients, they all mentioned they did not encounter any issues when using the system. Yet, as I prompted them to elaborate on their answer, they mentioned some interesting insights. For example, there was some other knowledge that had to be developed due to the use of the system. Like for Paola Barranco (personal interview, February 17, 2020), who had to learn about plumbing because sometimes she would have to switch between public water and captured rainwater. Additionally, when discussing the public program, all private clients pointed at the importance of making this knowledge and know-how understandable and digestible for the average person. To this, Shove et al. (2012, p. 49) explain that for knowledge to travel it must be abstracted and packaged from its previous form into whichever understandable format works best; next it is introduced, and then reversed or de-coded by the receiver. However, to de-code this knowledge, it is necessary to have some previous competence. (Duguid, 2005). Plumbing is a good example because there are some things to understand about the system that requires some basic plumbing knowledge; or as Omar Zamora (personal interview, February 19, 2020) mentioned, to make the rainwater potable, some extra competence is required to know how to purify it adequately.

Even though every practitioner exercised water-saving practices, not all were informed about the importance of doing that and/or about the water crisis in the Mexican valley. Again, both subsets of interviews, private clients and public program beneficiaries differed in this aspect of the competence element. When asking about the benefits of capturing rainwater, all private clients were very well informed about such benefits, e.g., fewer floods, less stress on aquifers, more water for those further down the pipelines, etc. The program beneficiaries, on the other hand, were not completely aware of the collective positive benefits of the practice at hand. Rather, they perceived it as an individual benefit rather than a collective one, which will be

addressed in the following section of the meaning element. Nonetheless, some beneficiaries, like Elianne Garcia (personal interview, February 19, 2020), mentioned that her environmental knowledge increased after going through the program training and the installation of the system. That is because when recruiting practitioners, the governmental program briefly mentions the benefits of capturing rainwater (Emilio B., personal interview, February 11, 2020). In a different regard, when asking about Mexico City's water crisis, we encountered a similar variance between both subsets of interviews. The knowledge about the crisis was well explained by private clients. Beneficiaries of the program were aware of the water crisis, yes, but they were not able to accurately elaborate on what it consists of. Both of these aspects of the competence element are related. Private clients who were interviewed are eco-conscious; after all, that is why and how they discovered Isla Urbana and their novel system. Beneficiaries may also be eco-conscious to a degree, but in their case the program sought them out, not the other way around. The public program is aimed at communities that lack secure access to public water. Such communities predominantly are located in low-income areas. There is a relation between income and access to quality education, wherein lower-income areas, they tend to have a less secure access to good education (Garcia, 2018), which would likely reflect on how well informed an individual is.

"Undoubtedly, to ensure the long-term survival of an environmental practice, it must be introduced through education at an early age", is what was said by Omar Zamora (personal interview, February 19, 2020), a private client of Isla Urbana, a biology professor at a university and a science communicator. Surely, he signaled at a relevant issue regarding the importance of being well informed. After all, when discussing the positive effects of capturing rainwater and the water crisis in Mexico City, all public program beneficiaries were not fully aware of these details. Having the relevant knowledge could play a significant role in the development and perdurance of this practice. To exemplify, we could look at the other subset of interviews, the private clients, who were informed and sought out the installation of this system because they were consciously aware (and they could afford it). Environmental education certainly plays an important function as an instrument of social change, which can generate a shift in attitudes, beliefs and values towards the natural environment (Acevedo Carrillo et al., 2018). However, as I discussed with Emilio Becerril (personal interview, February 11, 2020), this requires a multidisciplinary approach and the involvement of key actors.

While looking into the competence element of the rainwater capturing practice, we rescued two important issues revolving around this essential element. The first one has to do with the knowledge necessary to perform the practice, which is taught by Isla Urbana and supported by employees of the *SEDEMA.* Before the interviews, it was expected that the instructions on how to use and maintain the system were not well understood by those program beneficiaries. But as the interviews were performed, we discovered that that was not the case. However, private clients did signal at some issue when transmitting this knowledge. The second

issue of relevance for this element is the knowledge about the water crisis in the Mexican capital and the positive effects of capturing rainwater. Private clients were very well informed about these issues, yet, beneficiaries were significantly not. Here, environmental education represents an important problem to ponder when introducing this practice.

The Meaning Element and the Rainwater Capturing Practice

The element of meaning is about making sense of the practice performed. It includes the notion of what activities are beneficial or harmful for, the emotions related to them, the understandings and the beliefs associated with it. (Ropke, 2009, p. 2492). During the interview process, I sought to understand the underlying meanings that were present at the time of the adoption of the rainwater capturing practice. Across both subset of interviews, there was a phenomenon that was already performed by both, that of water-saving practices. This is a key aspect when adopting a practice that had facilitated their already existing ones because it served as an underlying meaning that cushioned the landing of the rainwater harvesting practice. Elements of meaning can be shared across practices (Shove et al., 2012, p. 62). Moreover, associations of meaning are relative, emergent and situated (Shove et al., 2012, p. 53). Again, when referring to the program beneficiaries, the fact that they are near to water has been a relevant factor in their relationship to this resource and why they care about how they use it. For private clients, it was more about their eco-awareness that led them to "want to do a bit more (O. Zamora, personal interview, February 19, 2020)".

In terms of environmental awareness, the Mexican capital's water crisis, and the impact harvesting water has on it, the two groups of interviewees considerably differed, as mentioned before. Across the private clients' interviews, the meaning of adopting this practice was pretty uniform, they saw it as a collective benefit for the environment and everyone in the city, especially those who suffer water scarcity. This is explained by Reckwitz (2002, p. 255) as a category of meaning that is defined as a shared or intersubjective one which is derived from a "consensus" of meanings, referred by Shove et al. (2012) as shared meaning. Furthermore, Ropke (2009, p. 2492) argues that these practice-related purposes, emotions, and beliefs belong to the practice, rather than to individuals, which makes the meaning inherently social. On the other hand, program beneficiaries did not give the same meaning to the adoption of this practice, they saw the benefit as an individual one, rather than a collective one. This could be mainly due to their lack of information about the impact of the practice. Groves et al. (2016, p. 316) argue that the attachment an individual has to a practice derives from its psychosocial biography, which depends on how they perceive the rewards of the practice (subjective); however, such meaning is simultaneously different and related to the shared meaning. Mayra (personal interview,

February 19, 2020) said, "the benefit of harvesting rainwater is for me, not the others". Overall, among the *Xochimilco* community of beneficiaries, there does not seem to be a shared meaning of the positive collective impact of the rainwater capturing practice.

"I would like to teach rainwater harvesting to my grandchildren, so it lasts, and they do not suffer from water scarcity", said Jesus (personal interview, February 19, 2020). "I want to teach my children to be ecologically responsible and aware citizens, so I taught them about this practice", said Omar Zamora (personal interview, February 19, 2020)". Undoubtedly, across both private clients and beneficiaries, they understand the importance of involving younger generations in this practice, regardless of how they perceive the benefits. The entering of recruits into a practice usually signifies the exit of others, as they come to pass. These dynamics matter for the practice because it defines how many participate in it at a given time. Furthermore, the relation between new and old carriers is key for diversity, and ultimately, essential for practices to change from within. (Shove et al., 2012, p. 72).

In the following paragraph we address the issue of water scarcity and the meaning attached to the practice that represents less precarity for those who adopted this practice. While private clients did not suffer severe water scarcity, the mild presence of such, along with the water crisis they are well informed about and the eco-practices they already enacted led them to give a greater meaning to the practice of capturing rainwater. These particular kinds of contexts incentivize pro-environmental behavior for those who are aware, which indicate plausible transformative moments. At the same time, they also signal at patterns of individual experience and their influence on commitments to specific meanings or competences. (Groves et al., 2016, p. 312). For the program beneficiaries, on the other hand, they have experienced more severe water precarity. Something that all interviewees of this subset group mentioned was the 2017 earthquake, where *Xochimilco* (their district), was one of the most affected areas in Mexico City, leaving communities without water for months (Suarez, 2017). The outcome of this event is a more conscious awareness of how easily they could lose this essential resource. Based on Groves et al. (2016, p. 312) understanding of such phenomena, this meaning was not introduced as knowledge or consciousness of the water crisis in Mexico City, instead, it is perceived through an event where people are intensely emotionally-invested because it was an emotionally-intense experience, which has exposed for them a deeper truth (reality) and rooted long-standing beliefs about their access to water. In this sense, the value (meaning) they have given to having sufficient water is significantly different from that of private clients.

One of Isla Urbana's main points they use to promote the rainwater capturing practice is by emphasizing the level of autonomy one can achieve by procuring the system. "By installing the system, depending on the area you reside in the city, you can become autonomous of public water consumption for up to 8 months out of the year ("Isla Urbana", 2020)". Regarding the

public program, one of the main selling points is the possibility to save money (according to E. Becerril, personal interview, February 11, 2020). When analyzing these two selling points, I made sure I sought them during the interviews. It results that they have been accurately targeted to the relevant audience. For all interviewed private clients, the level of autonomy represented a major meaning attached to the practice. Like Pilar Torres (personal interview, February 20, 2020), who wanted to become completely autonomous and managed to do so. For private clients, saving money was not of great importance because it did not represent a significant saving, considering the initial investment to install the system. However, it is worth mentioning what Paola Barranco (personal interview, February 17, 2020) said. She is an environmentally aware individual because it is related to her profession. She directs a type of sustainability consultancy where they asses how they can make a client's house more sustainable by installing and/or purchasing certain products and services. It is through this business that she got in contact with Isla Urbana. Nowadays, she promotes the rainwater capturing system with her clients. During the interview, when discussing the incentives to install the system, she mentioned that her clients cared more about saving money, rather than being "green". On the other hand, for the public program beneficiaries it was not of great importance the fact that they are partially autonomous from public water consumption. For them, a weighty meaning was that of saving money and that they received the system at no cost. This selling point was so significant, that according to Jesus and Elianne Garcia (personal interviews, February 19, 2020), some beneficiaries of the program had it installed and then sold the system's components. In addition to this, it is worth mentioning that for the beneficiaries what also motivated them to adopt the rainwater capturing practice were their neighbors' participation in the program. That is exactly why Mayra (personal interview, February 19, 2020) decided to join the program. As Shove and Pantzar (2005) say: "practices spread through social contagion".

The final point I will address in this section is that which was signaled by Emilio Becerril (personal interview, February 11, 2020) during the interview: the skepticism towards governmental programs. This paragraph also excludes the private clients of Isla Urbana since they are not being benefited by the governmental program. When constructing the interview guidelines, I made sure to inquire about the perception of public programs. To this, I received different responses to those predicted by Emilio, since he mentioned that people do not fully trust the government and their efforts like these projects. Out of four interviews with beneficiaries, only Elianne Garcia (personal interview, February 19, 2020) mentioned this skepticism towards governmental programs. However, she mentioned something that Emilio Becerril also did: an interesting phenomenon occurred when the program became popular in these neighborhoods, the skepticism was being overtaken by the word-of-mouth of those neighbors who were adopting the practice. When the perception of these issues was shared, it remained uncontested in the context. Hence, opportunities to change their perception were constrained and enabled by distributions and patterns of meaning (Shove et al., 2012, p. 56). As

soon as the interpretation of adopting this program changed, the meaning attributed to it followed.

Through the analysis of the meaning element of the rainwater harvesting practice, we encountered a few issues that are worth remarking in order to refer to them further in the upcoming section of this paper. When discussing the impact and benefits this practice has on its carriers, the two subsets of interviews differed in as far as how they perceive it. For private clients, it was a collective benefit, whereas program beneficiaries perceived it as a rather individual benefit. In a different vein, when considering the meaning that is attached to having less water precarity and sufficient amounts of this resource, each group of interviewees had a different motivation. For private clients, it was more the eco-awareness and the already present exercise of eco-practices. For beneficiaries, it was rather the lack of water that they have ominously experienced beforehand. Along with this, there is potential to better emphasize the aspect of partial water autonomy for program beneficiaries.

Findings and Policy Recommendations

The Material Element

In the beginning, this research was based on the assumption that those who suffer some level of water scarcity will be more inclined to adopt the rainwater capturing practice. However, it seemed that most of the interviewees (six out of eight) did not consider that they suffered water scarcity, even though for some their consumption practices and how they perceived them signaled at a level of water precarity. It seems like the understanding of what scarcity represents is not well understood, which is why in the campaigning and promotion of this program it is important to represent what water scarcity looks like, while emphasizing how the capturing practice could aid in decreasing this. In a different vein, the issue of infrastructure for the public program beneficiaries is one that must be pondered. The study showed that some households did not have the adequate space to install the capturing systems, while other households were in a difficult to access area (like a narrow alley). In the former, Isla Urbana and the government could inform beforehand about the space that must be freed to install the system. In the latter, the government should aid in the creation of a solution to this issue, since it is currently excluding certain members of communities for something that is beyond their ability to change (urban planning). The following important issue that was addressed by all interviewees was that of the water container. Everyone mentioned that the size of the tank was too small for their consumption needs, the harvested water did not last long, and it became a selective issue of what to use the water for. The suggestion to this critique is straightforward, the program and Isla Urbana can simply offer different container sizes to suit more of people's water consumption needs and/or the spatial availability in their households. If this is done, then people will have the option to capture and store more rainwater, and therefore expand and diversify its uses.

The Competence Element

When interviewing the public program beneficiaries, they all seemed to already perform water-saving practices, including rainwater capturing. Given the proximity that this community has to bodies of water, we speculate that their relationship to this essential natural resource is different, which likely provided them with previous knowledge that aided them in decoding the competence necessary to use and maintain the rainwater harvesting system. This insight signals at the uniqueness of this community and perhaps why they were welcoming to the practice at hand. Hence, Isla Urbana and *SEDEMA* should and could better direct or specialize their

campaigns for certain communities and/or districts around Mexico City. In turn, this would likely enhance the adoption of the practice. In a different vein, the competence necessary to use the system was expected to be an issue, but as the interview process developed, we discovered that the public program beneficiaries did not have issues understanding how to use and maintain the system (which may be due to their previous water harvesting practices). Yet, private clients did stress the issue of this knowledge being too abstract for the average person. The suggestion here is straight forward: simplify the competence necessary to an understandable format. Isla Urbana is already addressing this issue by identifying the least understood aspects of the system's instructions and transforming it to videos and other easy to digest designs ("Isla Urbana", 2020), but there is still some contemplation to be done in this point because these formats are mainly online.

The final issue that is of significant relevance for the adoption of this practice is that of the awareness and knowledge of what the water crisis in Mexico City is, and the positive impacts harvesting rainwater has on it. Here we found a notable discrepancy between both subsets of interviews, where the private clients were well informed while beneficiaries were not. During the analysis we discussed the importance of environmental education for the perdurance of a practice like that of capturing rainwater. Isla Urbana is well aware of this and they have certain programs where they try to promote community education about these issues, yet they also think it would be ideal if it could be done at a governmental level and reflected in public education (E. Becerril, personal interview, February 11, 2020). To exemplify their effort, a partner program of Isla Urbana is that of "*Carpa Azul*", where they go to communities and perform workshops, plays, songs and other things to represent the importance and simplicity of harvesting rainwater ("Isla Urbana", 2020). Additionally, they have another program called "*Escuelas de Lluvia*" (schools of rain), where they install a rainwater capturing system in a school and teach students about it, along with the importance of embracing this practice ("Isla Urbana", 2020). Both of these partner projects serve one purpose, to educate and spark consciousness in the young minds of those communities, which will hopefully grow into action and the successful adoption of the rainwater capturing practice. Needless to say, such an effort would see itself benefited by the involvement of the public sector.

The Meaning Element

Wants and motivations are the result of practices, furthermore, the standards and conventions of practices have the potential to steer behavior (Warde, 2005, p. 137). When prompting answers to find out what were the underlying meanings that led current actors to embrace the rainwater capturing practice, I encountered a variance that carries potential. For

private clients, they have opted to adopt this practice because of their existing awareness of the water crisis and the previous eco-practices they performed. For program beneficiaries, on the other hand, it is about having the resource and not lacking it. The community of *Xochimilco* has suffered water precarity, so the value they have attached to this resource is greater than those who have not lacked much of it. It is in this distinction that we can find the possibility to better target the campaigns and marketing efforts to program beneficiaries. The potential to integrate the partial water autonomy meaning of this practice remains unexplored. After all, according to Isla Urbana (2020), partial water autonomy is a key goal of the installation of these systems. For beneficiaries, the aspect of saving money is already of relevance and the main attraction, but since they also suffer water precarity, the feature of water autonomy should be emphatically attached to this. This is certainly possible because meanings mutate, move and replace each other, but they never remain intact (Shove et al., 2012, p. 61). For private clients, on the other hand, not many suffer as significant water precarity, and therefore this aspect needs not to be stressed.

We continue the discussion of this element by addressing what seems to be an issue of crucial relevance. When discussing the benefits and impact of harvesting rainwater with the practice carriers, the two groups of interviewees differed significantly in their responses. For private clients, they perceived the benefits of capturing rainwater as a collective one that contributes to the treatment of the water crisis in Mexico City, which overall is a positive impact of this practice. For public program beneficiaries, they did not perceive the enactment of this practice as having a collective benefit or positive impact in the capital's water situation, but rather it was seen as something that mainly benefits them and their households. According to Isla Urbana (and E. Becerril, personal interview, February 11, 2020), the aim of introducing this practice with its socialization aspect is to make citizens aware of how this contributes to the solution of an urban issue that affects us all ("Isla Urbana", 2020). Moreover, for this practice to endure, it should be introduced with a meaning that can be embraced and evolved by its carriers. As Shove (2010, p. 1279) declares, social conventions that created the context by which behavior is defined, are themselves changed and sustained through the continuous reproduction of a practice. And while behavior is a matter of choice, it is influenced by recognizable characters in which beliefs and attitudes are influential (Shove et al., 2012, p. 141). Hence, when presenting this practice, the meaning should be firmly framed within the context of Mexico City's water crisis and the positive impact such practice will bring. This task belongs to Isla Urbana, *SEDEMA,* further governmental authorities, and last but not least, the communities themselves who have motivated each other to install the system. It is a collective issue that requires a collective solution—it is inherently social.

The meaning that was present at the time of adopting the rainwater harvesting practice and the meaning that is introduced with it, are of prime importance for the development of the

practice. As previously mentioned, this will be defining in how the practice develops. Furthermore, it matters because, throughout all the interviews, it was evident that the way by which they heard of the program and defined its significance was by the influence of their community. "Interaction is a process of transference of meanings that have been internalized in the mind (Reckwitz, 2002, p. 249)". Hence, procuring and monitoring the meaning is what will ensure the long-term perseverance and sustainable evolution of this practice.

Isla Urbana

Isla Urbana is the leading business that is installing the most rainwater capturing systems around Mexico and its capital: Mexico City. Because it is technologically pioneering the market, and because it includes the aspect of socializing the practice of harvesting rainwater, it was chosen by the Mexican capital's government to lead the effort in introducing this practice to those who suffer the most water precarity. Besides, Isla Urbana has been active in this business for over a decade, with many private clients and various public projects around the central part of the country. ("Isla Urbana", 2020). Their philosophy of socializing the rainwater harvesting practice is an initiative to educate clients and communities about the current water crisis the Mexican valley is experiencing and the impact the practice at hand has on it. This means that they are presenting such practice in context and providing vital information to those who install it, all with the aim to assure its long-term development for a more sustainable water management in the city. Eco-literacy, creating consciousness about the value of water, information about the practice and its impact, these are all components of the socialization of this practice. (E. Becerril, personal interview, February 11, 2020). Certainly, this sustainability-driven enterprise has continuously been expanding their socialization efforts. Nowadays, they have projects like those where they install systems in schools and educate students about it, or where they conduct workshops in communities who have installed the systems ("Isla Urbana", 2020). Nonetheless, while their philosophy as a business is ever-improving, it has not been completely reflected in the program funded by the government. The aspect of socialization is mainly exercised during the community meetings where they recruit the practitioners, which is only a brief introduction to the program and system. After this, there is no further discourse about the meaning of the practice. Emilio Becerril (personal interview, February 11, 2020) mentioned that this is something they aim to change, but since the program has only concluded its first yearly round, the *SEDEMA* who is regulating the program did not consider this socialization aspect essential for such pilot round. But as this study has portrayed, introducing the practice in context and with a defined meaning is crucial for the adequate adaptation and endurance of the practice. Hence, Isla Urbana

and the city's government should augment their efforts to include the socialization philosophy into the public program that is already in its second yearly round.

The following paragraph will be devoted to providing suggestions to Isla Urbana as a business and the rainwater capturing system as a product. When interviewing both private clients and public program beneficiaries about the system itself, four out of eight interviewed individuals addressed the appearance of the system. It was said by all four that the system is not visually appealing. Paola Barranco (personal interview, February 17, 2020), who owns a sustainable home-improvement consultancy, mentioned that this was one of the main complaints she received from her clients about the system. She stressed that it is important to diversify the appearance of their product to satisfy the preferences of clients. Here, she is signaling at something that could be accomplished by Isla Urbana, which would likely lead them to more sales and the overall benefit of everyone who is impacted by the water crisis. When interviewing Emilio Becerril (personal interview, February 11, 2020), I also sought to discuss the system as a product and the status of this niche market in the city. Emilio mentioned that while they are the leaders in technology and have even patented their system, they do not seek to monopolize the market. Their goal is to incentivize innovation through competition and diversify this niche market so that more individuals adopt the practice, and therefore it becomes a common one. Technologies are crucial in transforming and stabilizing the contours of a practice (Shove et al., 2012, p. 102), dominant technological designs set the scene for incremental development (Abernathy and Clark, 1985). Nevertheless, because they currently are pioneering the rainwater capturing technology, diversifying their products will provide them with more clients, more carriers of the practice, and also add a feature to their enterprise that other similar businesses can innovate upon. "Practices are better able to preserve commitment when they can afford a scope for innovation (Abernathy and Clark, 1985, p. 75)". Lastly, there is an issue that has been mentioned before and was addressed by all interviewed individuals. Regarding the promotion and advertisement of the capturing system, Isla Urbana has not been active in this front. Understandably, they have a sustainability-oriented philosophy that trivializes the for-profit aspect of their business, but if they want to expand their impact and the adoption of the rainwater harvesting practice, they must exercise a better, yet still adequate marketing campaign. The following paragraph elaborates on this.

In terms of the rainwater capturing system and its promotion, Isla Urbana should follow a strategy like that of green businesses. While Isla Urbana sincerely cares about making an impact and helping those in need, it also provides a product to those individuals who happen to care about these issues as well. As a business, it must define its marketing strategies according to its target market, since at the moment, they mainly present their capturing system and its use as an ecologically responsible practice that makes its users partially autonomous from public water consumption ("Isla Urbana", 2020). However, this study has shown that many program

beneficiaries and private clients (refer to the Analysis of Interviews section) care about the saving money aspect of this endeavor, not only the positive impact it has on the local environment. It is important to clarify that even though capturing rainwater does save you money by not consuming from the public network, it is not framed like this on Isla Urbana's platforms, which does make a difference in how it has been (and is) perceived. So, to improve their marketing strategies, it is suggested for them to merge the aspect of saving money into their current profiling of the system. Then, it could attract more public program beneficiaries and private clients.

The Government's Role

This paragraph is dedicated to discussing the rainwater capturing practice related to the water crisis in Mexico City. The urban area around the city is growing at a faster rate than public services are able to match. Faulty urban planning is greatly responsible for the situation the city is in. It has led to the lack of secure access to public water, which is a pressing issue for the Mexican capital where people are being presently affected by it. The role of public policy is certainly crucial, but the way this is currently constructed is incapable of conceptualizing the needed transformation of daily life at the necessary rate and scale required (Shove, 2010, p. 1283). To address this issue, the government has launched its rainwater capturing program as an effort to introduce this practice to those in most need. Yet, it is important to extend this initiative to higher-income households, since they tend to consume more water. Nonetheless, this novel practice does not resolve the crisis because it has not been adopted by sufficient people, it is not viable for everyone to adopt (like those in large buildings), and because it does not rain all year. However, it is an effort to address a major problem that must be undertaken. The potential of this practice could be enhanced by the adoption of it by key actors. Initiatives like these must be benefited by interests and discourse coalitions, where the networks that result can be a channel where they share ideas, concepts, terms, intellectual frameworks and financial means to execute projects like the one under study. Returning to the role of the government, the proposal to address the water crisis must be followed by several initiatives and policies, not only the introduction of the rainwater harvesting practice. For example, some measures are more relevant in some parts of the city than others: like taxes on water consumption in higher-income areas, and lower taxes in lower-income areas; or as Paola Barranco (personal interview, February 17, 2020) suggested, having a preferential water price for those who are capturing rainwater. The water crisis in Mexico City should be tackled from all fronts, only then we can transition to a more sustainable management of this essential resource.

Now, we turn to discuss the rainwater harvesting practice as a governmental program and how it could be improved. Firstly, it is important to clarify that based on this study, it is not sufficient to rely on the environmental consciousness of those plausible program beneficiaries to gather recruits for this practice. Throughout the interview process, it was clear that the awareness of the water crisis in Mexico City, and the impact capturing rainwater has on it, was not the first thing that came to mind when beneficiaries declared their motivation to adopt the practice. It was proven that the most relevant aspect (or selling point) for them was that of saving money and/or receiving the system at no cost. Because of this, to recruit the most beneficiaries, the money-saving feature should be polished as a selling hook. It is relevant to mention that the study of these practitioners was done in one district in Mexico City, one that has a peculiar relationship with water. Hence, when recruiting carriers, a focused and efficient strategy to gather as many as possible would be to conduct a study beforehand in each district (or even community) to uncover the underlying motivations that could best lead to the extensive adoption of this practice. Then, the program can better target its advertising to a diversity of communities that make the city. After all, all interviewees, whether they were private clients or program beneficiaries, considered that the social practice of capturing rainwater does not have enough coverage. The governmental program should device targeted incentives to different sectors of the population, so they adopt this practice, regardless if they can apply to the program or not. Exposure and publicity are keywords in this sense. It is a practice that requires specialized promotion.

The final recommendation for Mexico City's government and its effort to introduce the rainwater capturing practice to the capital's community, revolves around a key component that I argue is an underlying requirement for the practice to be successfully adopted: awareness and education. Creating consciousness among the communities of the city about the water crisis and the positive effects harvesting rainwater has on it, is what could inspire more households to adopt the practice, regardless of socio-economic background and/or water precarity they may be experiencing. When conscious of this, the value they attribute to water will likely increase. The campaigning for the awareness should be firstly targeted at schools, which is already being done by Isla Urbana, and secondly, it should also be targeted to those who can benefit from the practice at hand. As was discovered throughout the interviews, the dominant way by which practitioners learned about the rainwater capturing system and its benefits was through acquaintances, whether they were neighbors, friends, family, etc. That is precisely why it matters how a practice is presented because that will define how a carrier of it communicates it to others, and ultimately, how the practice is adopted and eventually evolved. For a change in paradigm, awareness is necessary.

Conclusions

In the Mexican valley where water provision has seen itself hindered by the incremental growth of the urban area and the inability of urban planning to keep the pace, the novel practice of rainwater harvesting has appeared as a means to address this and benefit those who are the most vulnerable. This study has sought to understand how the practice at hand has been adopted while denoting the differences and similarities between the private clients of Isla Urbana and the public program beneficiaries. In an effort to switch the current unsustainable regime, this practice and its governmental backing aim at intervening in the ways of life of the city's inhabitants. Based on this, I have made recommendations to the state actors and Isla Urbana who are leading the public program and the market (please refer to the "Findings, Suggestions and Policy Recommendations" section for a more detailed description of these). Here, we will briefly recapitulate on the outcomes of the research.

Regarding the material element, a few aspects that could be addressed appeared. It was uncovered that the perception of water scarcity is derived from a local consensus and/or subjective experiences because it differed among interviewees of both groups. In order to accurately know if they are suffering from water scarcity, we would have to consult some figures about their water consumption, which would enrich this study, but it is beyond the scope of this research. There was a significant issue regarding the infrastructure where the systems are installed and the access to households. At the moment, there is only one type of system for residential areas, but this is not one-size-fits-all. There were some instances where interviewees had to adapt the system. Also, it was mentioned that there are certain areas where the program representatives could not access, and therefore not able to install the systems. These issues should be pondered by both the city's government and Isla Urbana because they are presently excluding some potential practitioners in need. Moreover, a problem mentioned by all carriers was that of the size of the container that stores the captured rainwater. All mentioned it was too small, which limited their ability to store more of this resource and also led them to strictly select what they use the water for. Here, the solution is simply to offer different size options to accommodate the water consumption needs and the spatial limitations of households.

Throughout the analysis of the competence element, there were a few issues that signaled at some measures that could be taken to improve the adoption of the rainwater harvesting practice. When diving into the interview process, it was assumed that the competence of how to use and maintain the system was not fully understood by the practice carriers, as Isla Urbana mentioned (E. Becerril, personal interview, February 11, 2020). Yet, it was discovered that this was not the case for the interviewees. Nonetheless, Isla Urbana has taken measures to address this by diversifying the formats in which the competence is delivered. In a different vein,

we speculate that the interviewed program beneficiaries who were all located in one community (and district) of the city have a close relationship with water, given their proximity to the canals. This has likely enabled them to develop a specialized type of competence that could have facilitated the adoption of the rainwater capturing practice. After all, the practice of harvesting rainwater was already existent in most interviewed households in this area, which is likely why the practice under study was not completely new to them. Here, this feature indicates the uniqueness of that community and how specialized competence is key in the adoption of a practice. Finally, a significant issue that was encountered was regarding the knowledge the two sets of interviews had about the water crisis in Mexico City and the impact harvesting rainwater has on it. Private clients were well informed and program beneficiaries were not. For a relevant social innovation to occur and endure through a practice, the necessary configuration of elements is necessary (Shove, 2010), which includes but is not exclusive to the competence one. While Isla Urbana is aware of this, mainly expressed through their socialization philosophy and the mentioned community projects they conduct, it is not a task that can be solely completed by them. The public sector should venture into the task of educating citizens and communities about the water crisis and practices like that of capturing rainwater.

Now we turn to the meaning element which has proven to be a crucial one in this study. Firstly, I sought to understand the underlying meaning attached to the adoption of the practice under study. It was evident that the meaning attached to water was a defining aspect. For those program beneficiaries who have suffered water scarcity, they seemed to give a higher value to this resource. Regardless of this, what seemed to attract them to the program, as opposed to the private clients, was the money-saving aspect rather than the partial autonomy one. Here, again, the contextual particularity of the *Xochimilco* community indicates the importance of studying the target population before configuring an element like that of meaning. If this is effectively done, they could recruit more practitioners. Conversely, the following issue is of prime importance and it is related to the meaning practitioners give to harvesting rainwater. Here, both subsets of interviews differed, where private clients saw the collective benefit of adopting this practice, while program beneficiaries perceived the exercise of this practice as having mainly individual benefits. The positive impact this practice has on the water crisis that affects the whole Mexican capital is clear, but due to lack of information, it was not for the beneficiaries. The solution here must be led by the public program and Isla Urbana, robustly declaring at the beginning the impact this practice has in the city's context. If this element is not procured, a mass defection is possible. Where practices are not continuously rewarding, loaded with symbolic significance and not entangled in larger networks of meaning, defection could become a common phenomenon (Shove et al., 2012, p. 75). The meaning element will be crucial in as far as how the practice is adopted and ultimately evolved. Hence, it is imperative to procure and monitor the meaning attached.

Isla Urbana is guiding the effort to make the rainwater capturing practice a common one. This is the main reason why they emphasize the socialization aspect of their endeavor, since, as Shove et al. (2012, p. 68) mention, community and practice constitute each other and a social practice cannot be brought into existence from afar (top-bottom). This is why their effort introduces not only the harvesting system but the awareness and knowledge necessary for it to persevere and propagate on its own. However, these efforts have found themselves hindered during the governmental program. They have not been exercising their usual procedure because, being the pilot program, it mattered more to reach the target of systems installed. Isla Urbana (E. Becerril, personal interview, February 11, 2020) aims to change this in the following rounds, and the public authorities should aid in such initiative. In a different vein, there was a notorious amount of feedback regarding the capturing system and Isla Urbana as a business. As a sustainability-driven enterprise, they do not seem to care as much about profit as for their goal of popularizing the practice under study. They do not want to monopolize the market, but improving and diversifying their products and marketing strategies will not necessarily lead to this outcome. It would initially grant them more publicity, which will gather more recruits for them and likely incentivize competition in the market. Specifically speaking about the promotion of the practice, it was suggested that they could merge the aspect of partial water autonomy and saving money into the same feature. Overall, Isla Urbana is leading an important effort to spread the practice of harvesting rainwater, and while they have some aspects to improve as a business and public program provider, it is safe to say that they are continuously improving their initiatives.

The durability of a practice depends on the parallel perseverance of the necessary elements, and on cohorts of practitioners that are able and willing to integrate these elements through the enactment of a practice (Shove et al., 2012, p. 128). The government of Mexico City, to address the present water crisis, has introduced the rainwater harvesting practice. The pilot round has been successful, but throughout this study we have encountered some characteristics about the program that could be perfected. Firstly, it is important to have key actors involved in the adoption and promotion of the practice. Also, it is essential to tackle the water crisis from many fronts and with diverse measures. Technological novelty like that of the system will not suffice in addressing this problem that affects millions. This must be accompanied by measures justified on systematic accounts of the molding context and the complexities of the internal dynamics. Such initiatives must also be complemented by adequate values, institutional reformation and legislative measures. (Hughes, 1993, p. 465). Considering this, it is still worth emphasizing that education and awareness about the rainwater capturing practice and the water crisis, are essential in the successful propagation of the practice and the mitigation of the crisis. The public sector must serve as the facilitator of this. That is because state actors can influence the distribution and circulation of elements, which means they can create and break links between such elements and the practices that forge our daily lives (Shove, 2012, p. 426). The

practice has already been introduced, but it is prudent and still possible to reconfigure the elements of it. Only then, if managed adequately, we can start to transition to a more sustainable regime.

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