Reimagining Our Neighborhood:

Participatory Design with the A.P.R. Community in Mexico City

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Abstract

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Angélica Elizabeth Pliego Alvarado

Alianza Popular Revolucionaria (A.P.R.) is an emblematic housing complex built for the workers of the Mexican state on the southern side of Mexico City. Its emergence — alongside other notable housing projects during the XX century — aimed to respond to the housing crisis by providing high-quality homes as well as financial means to acquire them. Close to its 50th anniversary, this thesis seeks to bring attention to the struggles that the inhabitants of the A.P.R. are facing in their process of coexistence with two important non-human actors: water and the built environment that this neighborhood represents. Relying on Bruno Latour's Parliament of Things and participatory methods, this design research highlights the matters of concern that emerge from the interrelationship among these three actors: The inhabitants, water and the built environment.

This thesis employed Participatory Design (PD) to develop a public space proposal that fosters coexistence with water and nature, while enhancing ways of inhabiting the selected site through an ongoing collaborative process with members of the A.P.R. community. This work relied on Lim & Stolterman's approach to relying on prototypes as a way to explore a contested public space collectively with A.P.R. community members, and to obtain new knowledge about their matters of concern. In addition, this research combined collaborative sessions and ethnography to learn about the challenges of A.P.R. inhabitants and how non-humans also influence process of decision making.

Keywords: *Participatory Design, Non-Human Actors, Matters of Concern, Urban Design, Sponge Park.*

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This project could not have been developed this way without the participation of some members of the A.P.R. community. Therefore, I give special thanks to them for their trust, friendship, and collaboration. But also, because they helped me understand their challenges and navigate the neighborhood. I would like to extend my sincere thanks to the Architects: Honorato Carrasco Mahr, Enrique Ávila Riquelme, Ricardo Gabilondo Rojas and César Buenrostro Moreno, for all their support and for sharing with me time to learn more about the history of the neighborhood where I grew up in.

I dedicate this thesis to my family, especially my mother, my sister and François, for their unwavering support. Without you, this project would not have been possible. Thank you for always believing in me.

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Introduction

"High quality, well designed and managed parks and urban public spaces play a crucial role in promoting individual well-being and contribute positive social, economic and environmental value to our towns and cities." (Beck, 2009, p. 240) According to Montgomery, a successful urban space can create a *sense of place* for people for it represents "a sense of identity for their users (in the sense of identifying with a place) of feeling involved and taking interest, or perhaps even an active part of its affairs" (Montgomery, 1998, p. 102). For this to occur, good public space has to consider mental wellbeing and the sense of safety, being inclusive and democratic, offer diverse options of activities throughout the day (Nasution & Zahrah, 2012), and have good transit of people that injects "vitality" into the space (Montgomery, 1998). Some of the benefits of incorporating these considerations can be reflected in the quality of life of citizens, and "lower the rates of crime and violence" (UN-Habitat, 2018, p. 3). However, despite these known benefits, it seems that fostering a sense of place, equality of opportunity, and inclusiveness is a complex task to achieve. The research by Arroyo regarding the status of emblematic public and private neighborhoods built in the XX century in Mexico City, shows that one of the units that presented significant socio-spatial problems was the A.P.R. neighborhood (Arroyo, 2016)

Currently the A.P.R. presents difficulties in achieving social organization and accessing government support to take care of trees, water infrastructure and public spaces. As stated previously, a good public space provides a better quality of life, strengthens the community's cohesion through cultural and social exchanges, improves our environmental relationship with nature and gives us a sense of security. However, the problems that researchers detected in different periods of time at the A.P.R. neighborhood about insecurity, lack of cohesive social organization and problems of maintenance (Arreguín Espinoza de los Monteros & Lepe Zúñiga, 1981; Arroyo, 2016), reflect that the quality of life and sense of place of the inhabitants might be at stake. Since the last research about the A.P.R. was conducted nine years ago, it was crucial to bring to light the new challenges that the community is facing. In addition, this research has identified that the problems that Mexico City faces related to water scarcity have permeated in ways that are transforming the neighborhood and shaping the life of its inhabitants.

The research question that will guide this thesis is the following: How can Participatory Design support the development of community-driven proposals for renovating public space, while reflecting—through ongoing discussions—on ways to coexist and integrate water and nature as relevant actors in these places?

This question will be answered gradually throughout the following chapters. Chapter 1 introduces the conceptual framework from where I am approaching the project. Chapter 2 presents the process of understanding the main Non-Human Actors as well as the issues identified as important by the community members who acted as collaborators and co-designers. Chapter 3 shows the ongoing process of collective reflection, the tensions that emerged during the development of the participatory design process as well as the final proposal that emerged from the close collaboration with community members. Chapter 4 shares the opinions that participants had about this process as well as feedback. Finally, I offer concluding reflections that provide recommendations for other designers interested in engaging with this type of Research Through Design approach.

Chapter 1. Conceptual Framework

Participatory Design

This thesis draws on the four core values of Participatory Design (PD). The first two—democracy and empowerment—relate to the collective process of generating new proposals and determining their potential directions. The third value seeks to support emancipation through "mutual learning" (Bødker, Dindler, Iversen, & Smith, 2022, p. 10). In this case, PD stresses the importance of facilitating spaces that encourage ongoing exchanges of knowledge because different actors might have different depths of information and experience. (Smith, Loi, Huybrechts, Simonsen, & Winschiers, 2025, p. 256). As a result, this process strengthens their capacity of decision making (Bødker, Dindler, Iversen, & Smith, 2022, p. 9). The fourth feature is that PD considers people as collaborators (Bødker, Dindler, Iversen, & Smith, 2022, p. 8). Finally, scholars of Participatory Design identified the emergence of a new wave that is interested in integrating Non-human actors in this field among other topics (Smith, Loi, Huybrechts, Simonsen, & Winschiers, 2025, p. 5).

Navigating the waters of PD can be a challenge, with tensions that emerge from the pursuit of this practice. In the work of Malvar, the team relied on ethnography as a means of understanding the indigenous communities in Oaxaca, Mexico; a phase that required time to develop (Malvar, 2023, p. 91). Her work demonstrates how the nature of the project required ongoing spaces of reflection about their role as facilitators (Malvar, 2023, p. 82). To respect the indigenous people — who invited them to their communities— and to prevent situations of imposition, the facilitators encouraged mutual dialogues (Malvar, 2023, p. 77).

Another example of PD is the work of Aravena and the architecture agency Elemental (Aravena & Iacobelli, 2012). Chile Barrio commissioned Quinta Monroy; a government program that had the goal of improving the housing situation for people that were under economic and social marginalization (Siclari, 2003). This program valued community participation and organization in the design process and its execution (Siclari, 2003, p. 76), values that were shared by the architects of Elemental.

In architecture the process of "meandering" (Bratteteig & Wagner, 2014, p. 5) allows the designer to put on hold a design direction to explore ways in how to advance the project. This is the case for Aravena, he describes it as the "capacity to postpone what is wanted until we have posed the

question" (Kallehauge, Jørgensen, & Holm, 2018, p. 39). This process helped them to understand the project deeply and from different aspects to identify which would be the best path to take. Finally, their work shows how designers become the consolidators of the forces at play, technical requirements of the project and community's desires into a final design concept (p.39)

PD holds a humanist and social approach that acknowledges the wisdom of the communities we encounter. It also invites us to reflect on how to approach the collaborative construction of our built environment. Furthermore, it is interested in including non-human actors respectfully throughout and after the project. This thesis considers two important non-human actors: Water in the Valley of Mexico and The A.P.R. as the material volume, recognizing in both cases their capacity to shape people's lives. To explain why it is important to integrate Non-Humans in design projects, I present Bruno Latour's concept of the Parliament of Things.

Parliament of Things

The Parliament of Things (PT) by Bruno Latour was a relevant concept to understand Water and the A.P.R. as Non-Human actors, alongside the inhabitants of the neighborhood. In a lecture given in 2020, the author reflected on the PT after 30 years of its publication and stated that the key concept was to be:

"…a practical way to allocate disputes and to hear all the voices which are simultaneously fighting for being heard in the public space." (Radboud Reflects, 2020, p. 14:05)

This research encountered different voices coming from different scales and angles, engaging in heated debates about particular things. For instance, from a macroscopic perspective, there is the situation of water scarcity in Mexico City, reflecting the tensions between different members of society. On a smaller scale, it emerged how this problem had rippled into the small world of the A.P.R., learning about it through the voice of its inhabitants. There were also tensions that appeared in areas of this neighborhood. Thus, the process of detecting disputes through ethnography and participatory design resonates with Latour's concept of the Parliament of Things (PT).

Latour's proposal of the PT sought to highlight the following question: "Who are the ones who speak for Non-Humans?" (Radboud Reflects, 2020, 7:05) With this he aimed to draw attention to the people that speak on behalf of them and whose voices, he considered, were as important to listen to as the political actors that represent people (Radboud Reflects, 2020, 7:05). This thesis

was inspired by this approach and listened at the same level of importance to the voices coming from different people representing human concerns or non-human concerns. For instance, listening to researchers about the History of Water in the Valley of Mexico, and at the same time, learning how this problem has rippled into the A.P.R., from the voices of its local spokespersons. Another point of view from the PT that has inspired this project is the acknowledgement that Non-Humans have the capacity to "fight back" (Radboud Reflects, 2020, 20:40). Now a days Mexico City has a battle with Water. Thus, it was important to consider manifestations of Non-Human actors at the A.P.R.

Finally, Latour uses two concepts in the PT and that are relevant to this thesis. The first is the notion of Thing. Drawing on Heidegger's philosophical distinction between Ding (thing) and Gegenstand (object), Latour (2004, p. 246) Latour emphasized the transformation that occurs when an object becomes a thing and vice versa. For the author the crucial difference lies in the capacity of a thing to "gather" (Latour, 2004, p. 246). This means that an object transforms into a thing the moment it becomes something meaningful to the people who are interested in it. Also, because it pulls individuals towards it to discuss and preserve its "existence". (Latour, 2004, p. 246). The second concept is Matter of Concern. Latour, —as well as other authors that he mentioned— were concerned about how scientific facts became "indisputable, obstinate, simply there" (Latour, 2008, p. 39). Its lack of engagement and unmovable position made them vulnerable to being set aside (Latour, 2008, p. 39; Latour, 2005, p. 115). Furthermore, he noticed that objects of scientific study were only studied from a factual angle, removing their layers of meaning from the equation. Therefore, Latour stated that: **"***A matter of concern is what happens to a matter of fact when you add to it its whole scenography***"** (Latour, 2005, p. 39). Which means that the object of research has been contextualized and means something important to people. To explain this Latour proposed four characteristics to identify a Matter of Concern: First, the issue must represent deep interest for a group of people (Latour, 2008, p. 47). Second, it must leave room for debate and the outcome accepted because it was discussed collectively. Therefore, it rejects closing disputes by forcing facts onto people (Latour, 2008, p. 47). The third is that a Matter of Concern is a Ding/Thing (Latour, 2008, p. 48), and finally the fourth condition is the possibility to stand the test of time because people look after it (Latour, 2008, p. 49). This research has been informed by this approach and will highlight the matters of concern of the A.P.R. neighbors and that emerged in this research.

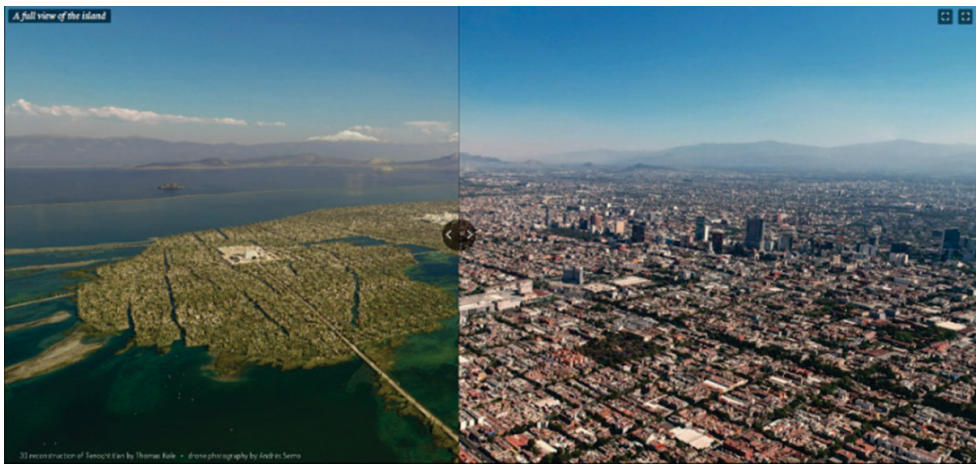
Chapter 2. Understanding the Neighborhood and its Actors

Context. Water scarcity in Mexico City

In 2024, Mexico City was at the brink of Day Zero according to the media. The levels of the Cutzamala hydric system were at their lowest according to CONAGUA (National Water Commission) (Voiland, 2024). See Fig 1. In addition, Mexico had been experiencing drastic climate conditions of low rainfall and heatwaves continuously for several years (Thiem, 2024). While it was true that the Cutzamala was in that state, the major source of water comes from the Lerma Hydric System, springs and water wells (Mexican Institute of Water Technology, 2021). Therefore, groundwater is the most important source for the city representing "72%" (Palma Nava, Parker, & Carmona Paredes, 2022), but it has been neglected.

Figure 1

A full view of the Island



Note. From "A portrait of Tenochtitlan, a 3D reconstruction of the capital of the Aztec Empire." [Photograph], by Thomas Kole, Drone Photography by Andrés Semo, 2023-2024, A portrait of Tenochtitlan Thomas Kole, (https://tenochtitlan.thomaskole.nl/). CC by 4.0.

The valley has experienced a dramatical transformation throughout the years (Fig 1). The historical expansion of the city and the design of its public water infrastructure almost erased the water bodies of the basin and have impeded the valley from absorbing enough rainwater to recharge. Palma Nava et alia argue that the valley's capacity to replenish its aquifer is lower than

the total amount of water the population requires, concluding that excessive consumption is leading to depletion, subsidence and water contamination (Palma Nava, Parker, & Carmona Paredes, 2022). The superficial transformation of the valley has rippled also into the underground.

Scholars have raised concerns about the state of aquifers in Mexico City and the risks of overexploitation. Chaussard et al. (2021) state that this process is altering the soil's composition and causing the land to sink. (Chaussard, Havazli, Cabral-Cano, & Solano-Rojas, 2021). They also stated that the damage done "is almost fully irreversible" (p.1). Furthermore, they mentioned that aquifer exploitation is altering the underlying water flow, raising the concern of potential water contamination. (Chaussard, Havazli, Cabral-Cano, & Solano-Rojas, 2021, p. 3). Another risk that experts have identified is that soil subsidence might create spaces prone to flooding (Boyes & Andersson, 2023). Finally, Solano-Rojas et al. (2022) have found that earthquakes like the one in 2017 might accelerate this process (Solano-Rojas , et al., 2022). The work developed by these experts reflects the urgency to join the efforts towards helping the aquifers to replenish and the land to heal.

Talking about Water also involves talking about its political dimension. The dire situation of the Cutzamala received heavy media coverage, and even though it raised the awareness of water scarcity and good practices, there was a suspicion that it was used for political gain (Brugada Molina, 2024) (El Universal, 2024). Therefore, it is important to state that this thesis does not aim to attack, but to join in the reflection about how to succeed in uniting forces for the benefit of land, water, and people. Furthermore, to think about ways to work together and materialize these efforts. Throughout the conversations I had with the A.P.R. neighbors, they expressed concern about the political tensions that exist between the government and the municipality (both from a different party). The inhabitants of the A.P.R. observe that this situation makes it difficult for them to get financial and material support. By being situated in the middle of political differences, people end up feeling lost:

"At the moment, there are many programs that because the central government and the municipality could not reach an agreement, we are adrift." —Participant 3

The issue of water and land restoration implies the willingness not only of citizens and researchers but also of the government, the municipality, public & private services and political actors to work

together towards a main goal, which is allowing the aquifers to heal, and develop a responsible and sustainable approach to the consumption of water.

Following Bruno Latour's theory of the Parliament of Things, I argue that the gradual absence of water from the valley has become a matter of concern to its inhabitants. In this sense, water possesses a gravitational quality that draws people together—sometimes in heated debates—to deliberate on how this challenge should be addressed. Finally, it is important to highlight that water scarcity, due to overexploitation, has become one of the forces shaping the small universe of the A.P.R. Not only has it transformed the way people live in this space and plan their daily lives, but it has also materialized subtly across space[1]. Therefore, the social relevance that this issue implies has motivated me to take water as one of the fundamental non-human actors in this research.

Process of Understanding the different actors that inhabit the place

Water as a Non-Human Actor across time

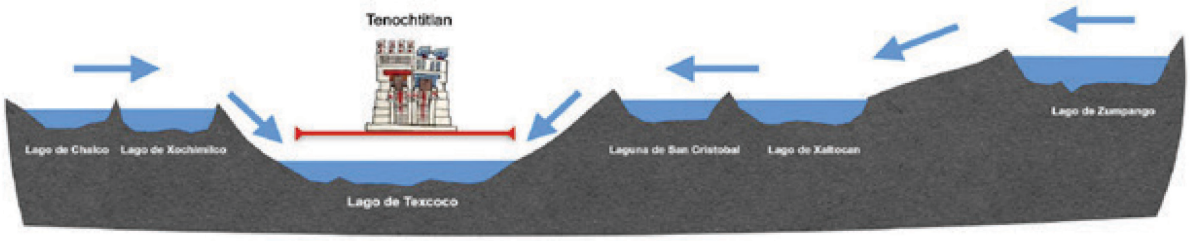
Historical research as part of an urban design project is crucial to unveiling some of the layers as well as non-human actors that inhabit this space. One local example that informed this research is: "Tacubaya Hydric District" by ORU (Urban Resilience Office). Their approach was to "Reveal the History" (The Architectural League, 2023). To understand the invisible layers that the site holds. Their work gave special emphasis to the hydric history of the city and its built environment. They relied on map consultation as well as the development of their own to make visible the layers that form the space (The Architectural League, 2023).

[1] Please consult page 34 to learn more about this topic.

As presented in Chapter 1, this thesis has also been informed by Bruno Latour's theory of the Parliament of Things, an approach that invites us to reflect critically about our relationship with nature, water and other non-human actors with whom we share this planet. For Latour, research can get us close to the comprehension of why these actors manifest in such ways in our surroundings (Radboud Reflects, 2020, 6:23). Like the Tacubaya project, where researchers identified the invisible layers of this district; it was my interest to use this as a reference to understand the neighborhood where I grew up. Therefore, I relied on secondary research to learn about what researchers have discussed about it from different angles and moments in time.

Figure 2

"The drainage from the mountains surrounding the Mexico basin…"



Note. From "El Lago de Texcoco y México Tenochtitlan: 1519-1521" by Ismael Montero García, 2022, Montero.org.mx, (https://www.montero.org.mx/texcoco#p=1). P.8, CC BY-NC-SA 4.0.

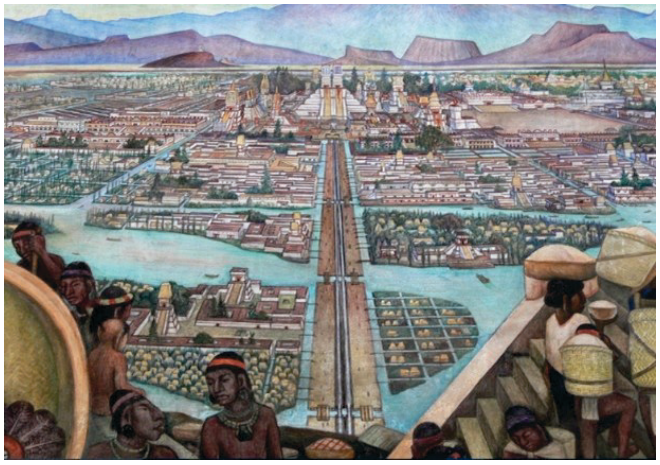
The work of Montero was helpful in acquiring deeper knowledge about the geological history of the Valley of Mexico and its former lacustrine system. His work shows the historical movements of Water in the basin (Fig. 2), that elevated or evaporated seasonally and throughout time (Montero García, 2022, p. 3). The abundance of water in the region allowed humans to settle and develop complex social structures that orbited around the basin's water bodies (Montero García, 2022, p. 49). One of the most important civilizations were the Mexica.

This society designed their city, Tenochtitlan —by weaving water into their daily life —to adapt to the challenging environment that represented the basin (Fig. 3). The work by Sosa Rodriguez shows the importance of Water for them and the challenges they faced in their process of co-existence. The author mentions that the lakes surrounding their island city were fundamental sources of food and served as a defense against attackers. (Sosa-Rodriguez, 2010, p. 678). On the

other hand, they suffered from environmental challenges, like droughts and floods (Sosa-Rodriguez, 2010, p. 680). The difficulties of living in the basin put pressure on the Mexica to develop a deeper comprehension of the water bodies surrounding them (De Urbanisten, 2016, p. 40). The need to survive in their promised land meant to design a city that allowed them to coexist with their gods and the forces of nature.

Figure 3

Mural by Diego Rivera of the Aztec city of Tenochtitlan and life in Aztec times



Note. From Palacio Nacional, by Diego Rivera, 1945, Wikimedia Commons (https://commons.wikimedia.org/wiki/File:El_templo_mayor_en_Tenochtitlan.png):CRT/Mexico #Freedom_of_panorama

The work of researchers let me identify moments when some pre-Hispanic leaders were successful in listening to Water and its spokespersons, while others failed dramatically. For instance, to avoid flooding, the Mexica King Moctezuma asked for guidance to his ally, King Netzahualcóyotl, ruler of Texcoco (Martínez, 1972, p. 67). The latter is known for supporting knowledge, like the creation of the most important documentary archive in the region (p.67). His proposal was to build a dike system and other projects that would allow the Mexica to regulate the influx of the surrounding lake and collect fresh water (p.67). The dike, as part of this amphibious infrastructure, had dual purposes according to Musset. During the rainy season, it protected the city from floods and throughout drought periods it served as a space for rainwater retention and to provide food (Musset,

1992, pp. 63-64). All these developments gave way to the creation of urban spaces like botanical gardens (Rinke, 2023, p. 61) parks, groves, etc. (Avilés, 2006, p. 145).

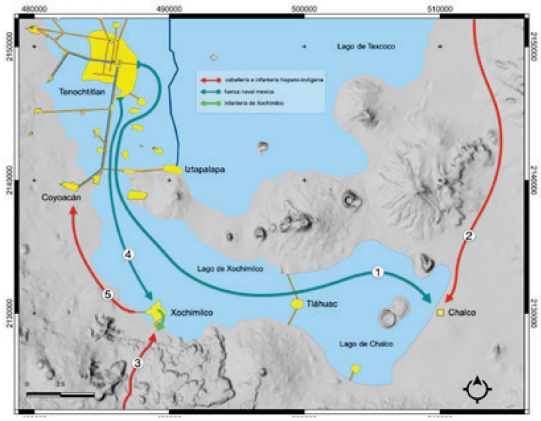
On the other hand, we have the case of King Ahuizotl. According to Durán, the king considered that the beautiful scenery of the city was because of water bodies, which allowed the inhabitants to have lush islands full of the harvest they produced (Durán, 1951, p. 383). However, when water was scarce, their crops withered, and this put pressure on its constituents and the king himself, according to the author. To solve the problem, he ordered to bring water from Coyoacán by force while refusing to listen to the people that had deeper knowledge about the spring (Durán, 1951, pp. 383-393). They built an aqueduct and performed rites to "invite the water to move into its new home" (Musset, 1992, p. 21). Despite all these efforts the water from the spring flooded the city (Durán, 1951, pp. 391-392). By presenting this example I aim to move away from romanticizing this civilization and instead recognize the contrasting approaches that two humans in the pre-Hispanic era took to coexist with water. One was successful in listening to the spokesperson of water, and the other, through imposition, failed to understand its complexity and requirements. The parliament of things also shows that refusing to listen to this non-human actor can lead to abrupt signs of protest.

In conclusion of this part, I present Montero's illustration (Fig. 4) showing the extension of the lake in the southern region of the basin. During this learning process, I was curious to know where the plot of land of the A.P.R. would be in the past. Therefore, I relied on Montero's map as reference for locating the lake's shore and combined it with a Google Maps satellite view, aligning the mountains on each map as longstanding witnesses of the passage of time (Fig. 5).

Fig. 5 shows how the land where the A.P.R. is now located used to be underwater. At first, I expected the parcel to be close to the lake, because I recalled the words of my collaborators remembering how this area used to look like a countryside, but after the exercise I experienced a feeling of shock and loss after the result. The making of this map motivated me to learn about how the transformation of this place happened. Following the traces that researchers have left, there was another historical moment in the basin that transformed this region.

Figure 4

Second and third naval battles in the southern lakes.

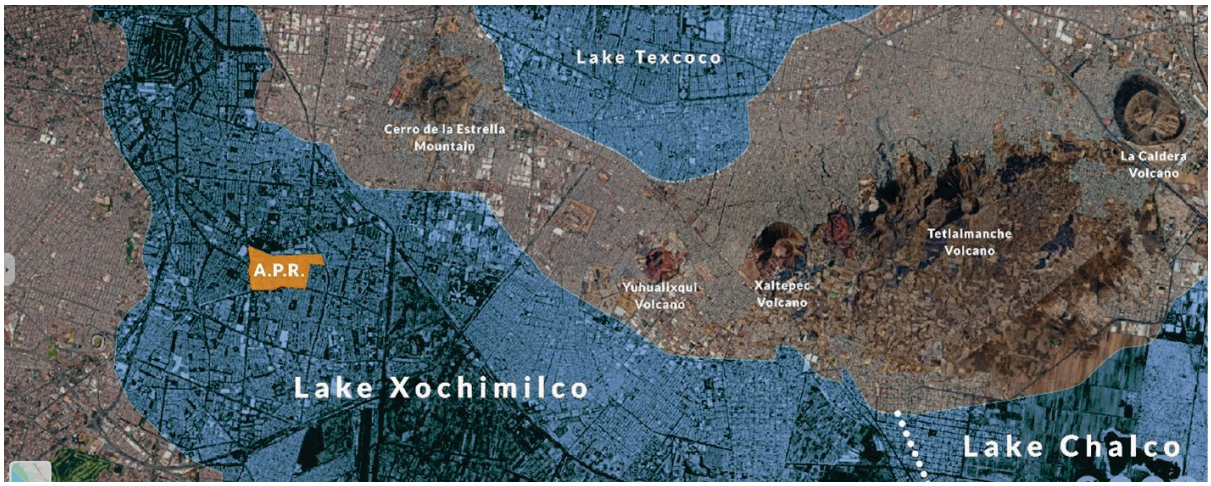


From "El Lago de Texcoco y México Tenochtitlan: 1519-1521" by Ismael Montero García, 2022, Montero.org.mx, (https://www.montero.org.mx/texcoco#p=1). P.173, CC BY-NC-SA 4.0.

Note. The map shows how the land where the A.P.R. is located used to be underwater.

Figure 5

Location of the A.P.R. in comparison with the ancient lakes of Xochimilco & Chalco.



Sources: Satellite view obtained from Google Maps. Lake shore was obtained from "El Lago de Texcoco y México Tenochtitlan: 1519-1521" by Ismael Montero García, 2022, Montero.org.mx, (https://www.montero.org.mx/texcoco#p=1). P.173.

The imaginary of water as a fundamental actor in the Valley of Mexico was erased during the Spanish colonization. The Spaniards had a completely different way of relating to it as researchers present in their work (Sosa-Rodriguez, 2010) (Montero García, 2022) (Musset, 1992) (Gordaliza, 2007, p. 13). The concept of water bodies and the city combined meant for them an insalubrious environment that could harbor diseases. Their view of a healthy place meant reducing the water influx of the lake "just as a physician might extract 'bad blood' from an unhealthy patient." (Sosa-Rodriguez, 2010, p. 679). As previously mentioned, the Mexica dike system was crucial to make it possible to live in the island, but after the destruction of this infrastructure by the colonizers, the water evaporated fast during dry seasons, creating "vast, nauseating extensions" (Musset, 1992, p. 63) of land. The remaining infrastructure was poorly understood and its maintenance disregarded (Gordaliza, 2007, p. 13) (Musset, 1992, p. 192). The radical change in how water was considered by the colonizers marked the start of our disconnection with it.

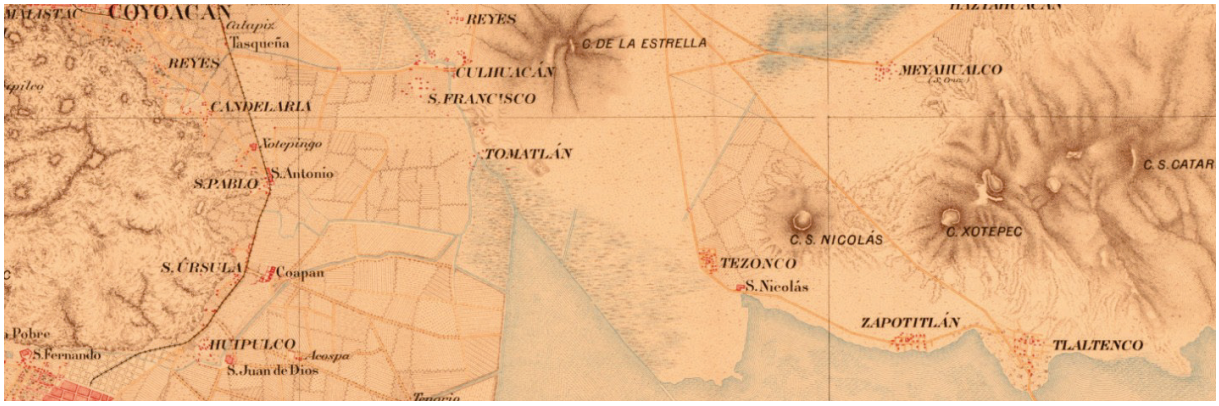
"For 3 centuries the Basin of the Valley of Mexico lived, therefore, to a great extent, following the pace of drainage." (Musset, 1992, p. 206). Musset's quote reflects the constant battle with water during the Spanish colonization and afterwards. There were several attempts at different periods of time to desiccate the remaining water bodies of the valley (Lacroix, 1978). These efforts rippled through the universe of the haciendas located in the south of the basin. This region was intentionally desiccated for agricultural and farming purposes (Terreros, 1956, p. 20). Despite these efforts, the inhabitants suffered from constant floods, as well as the loss of money due to the constant efforts to control water. One of the affected properties was Hacienda Coapa (Sarrelangue, 2012, p. 226). This property is relevant for this project because the plot of land where the A.P.R. is now located used to be part of this hacienda[2].

I consulted the works of Ortega and Espinoza (1894) and Fernández Leal (1899). Through the process of mapmaking, I used both a Google Maps satellite view and the shoreline drawn by Fernández Leal (see Fig. 6) as references. By combining these two temporal layers, I was able to learn more about my neighborhood.

[2] Except for A.P.R.'s North sector, this was part of Hacienda San Antonio.

Figure 6

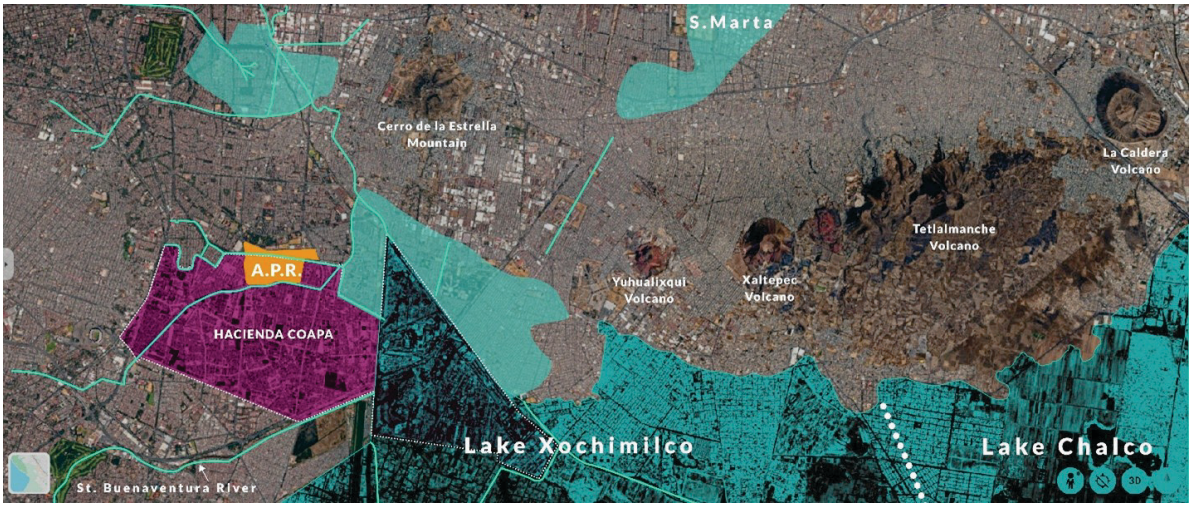
Chorographic chart of the federal district.



Note. From The Mexican National Archive (AGN), by Manuel Fernández Leal et al., 1899, AGN Digital Documentary Repository, (https://repositorio.agn.gob.mx/busqueda?idDesc=869809db-6b0f-48cc-a8e9-9124abcb23f7), AGN©, by permission.

Figure 7

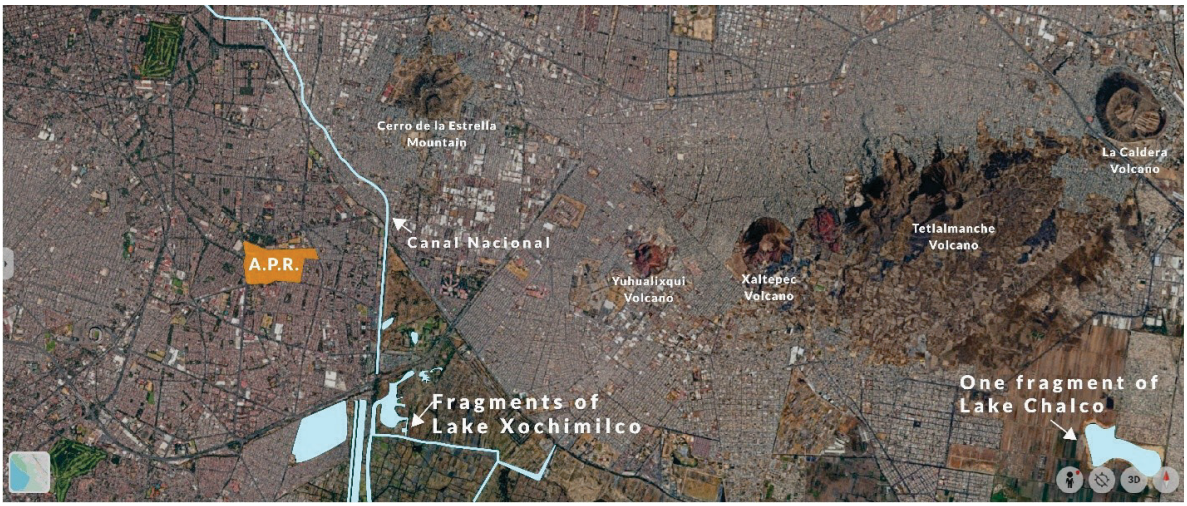
Location of the A.P.R. neighborhood in comparison with Hacienda Coapa and the ancient lakes of Xochimilco & Chalco.



Note. Green: reduced extension of the lake in 1899, purple: Hacienda Coapa, orange: the A.P.R. Sources: Satellite view obtained from Google Maps. Lake shore was obtained from AGN, by Manuel Fernández Leal et al., 1899, AGN Digital Documentary Repository, by permission, (https://repositorio.agn.gob.mx/busqueda?idDesc=869809db-6b0f-48cc-a8e9-9124abcb23f7). Location and silhouette of Hacienda Coapa obtained from Map Library Manuel Orozco y Berra (MOB), by Ortega y Espinoza, 1894, MOB website, by permission (https://mapotecadgsiap.agricultura.gob.mx/buscador/ficha.php?fichaNum=A7258205-677CC35B-342764D2-F263AC4B&registro=NTQzNjY=).

Figure 8

Last superficial waterbodies at the southern part of Mexico City



Note. This map highlights the remaining waterbodies in comparison with the A.P.R. neighborhood. Source: Satellite view and superficial water obtained from Google Maps. 2025.

Fig. 7 shows how the battle against Water reduced its presence in the region. However, there were still some extensions of fresh water (dark green) on the surface as well as seasonal wetlands (light green) and some creeks.

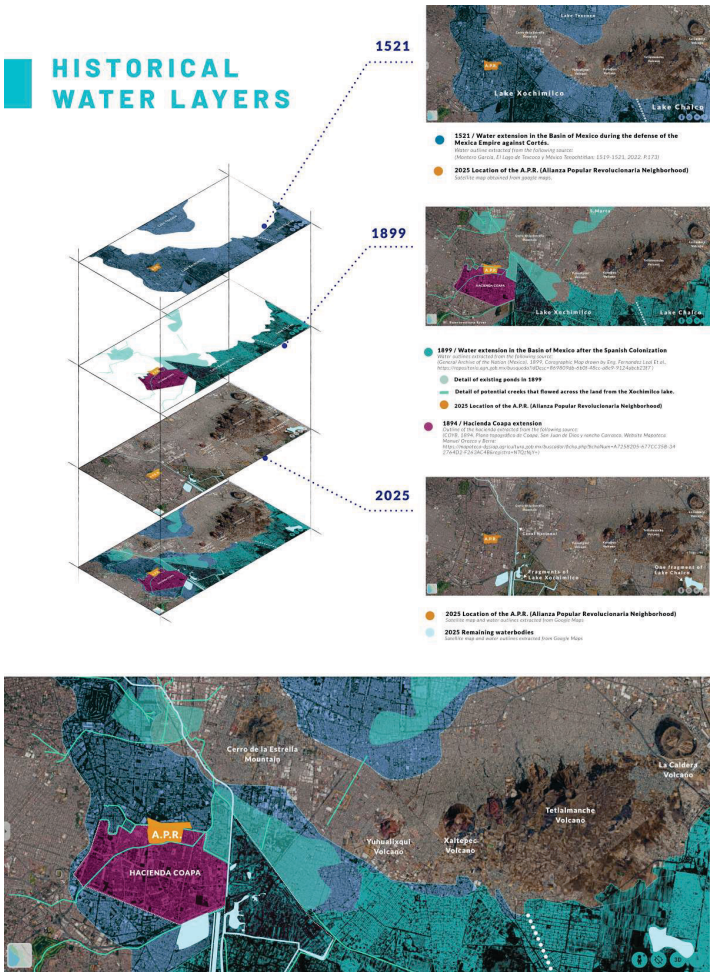
The struggle of financial investment and maintenance of hydric infrastructures that the owners of Hacienda Coapa experienced is quite present in the lives of the A.P.R. neighbors too. Nowadays, it has been manifested in the opposite way. Instead of sending water away, the efforts and financial resources are destined to maintain the water pipes and the pump system to bring water to the inhabitants' homes. Sometimes these efforts are not successful:

> *"I've spent almost two and a half years gathering information through "Transparency" ... to get information about everything that was invested there. It was 5.5 million, which went to the trash because the system isn't automated. If you notice, every time we lose power, we must go and restore it manually. Why? Because automation wasn't achieved."*
>
> *Participant 7*

Currently, Mexico City is slurping the rest of the aquifer while its pavement impedes water from being absorbed. This has left only few water bodies remaining on the surface (see Fig. 8). Fig. 9 synthesizes three important hydric layers in the history of the land and aligns with the efforts of researchers in raising awareness about the problems that has brought our inherited imaginary of water and current water infrastructures. As conclusion of this segment, this exercise made me reflect and feel concerned about the aquifer that lies below this territory, but also to think about how we can, through the process of designing a public space, explore ways of integrating this non-human actor in our neighborhood.

Figure 9

Historical layers representing the three hydric layers of time at the A.P.R.



Sources: Satellite view obtained from Google Maps. / Lake shore in 1521 obtained from "El Lago de Texcoco y México Tenochtitlan: 1519-1521" by Ismael Montero García, 2022, Montero.org.mx, (https://www.montero.org.mx/texcoco#p=1). P.173. / Lake shore in 1899 was obtained from AGN, by Manuel Fernández Leal et al., 1899, AGN Digital Documentary Repository, by permission, (https://repositorio.agn.gob.mx/busqueda?idDesc=869809db-6b0f-48cc-a8e9-9124abcb23f7). / Location and silhouette of Hacienda Coapa obtained from Map Library Manuel Orozco y Berra (MOB), by Ortega y Espinoza, 1894, MOB website, by permission, (https://mapoteca-dgsiap.agricultura.gob.mx/buscador/ficha.php?fichaNum=A7258205-677CC35B-342764D2-F263AC4B&registro=NTQzNjY=).

The volume. Learning about how the A.P.R. was designed to approach the project

> *"Appreciating the forces that shapes places -their roots, their character, their essence, their use…- before seeking to change them is the most fundamental and enduring value underpinning landscape architecture." Alan Tate* (Tate, 2005, p. 66)

Alan Tate remarks on the importance of developing a thorough comprehension of the site and its different dimensions. He mentions "the social, economic, geological, ecological and climatic forces" (Tate, 2005, p. 66) as elements that mould and establish the present situation of the space we encounter. In the previous chapter, I highlighted the hydric layer that shapes the A.P.R. However, there was another non-human actor important to understand for this project: the neighborhood -borrowing the lens of Dolores Hayden to see this place as a "storehouse of memories" (Hayden, 1995) and meaning. It wanted to learn the meaning of its design concept and learn from the memories of the architects that designed it or that know the project what were the values and objectives that permeated its configuration; shaping the way people move, organize and inhabit this place.

To learn from this aspect, I relied on ethnographic techniques — in this case, in-depth interviews — as a way of constructing knowledge together about the A.P.R.. The selection of experts was determined by their connection to Ar. Honorato Carrasco Navarrete, Miguel Herrera Lasso Attolini, and Ar. Ricardo Gabilondo, who designed the A.P.R., I relied on the snowball technique to approach architects. Fortunately, Ar. Honorato Carrasco Mahr kindly granted me an interview and referred me to Ar. Gabilondo and Ar. Ávila Riquelme, who also accepted. The knowledge constructed through this approach was complemented by secondary research. This, to understand the general socioeconomic context at that moment in Mexico City that gave rise to the A.P.R.

Context:

Mexico City's population tripled between 1950 and 1970, which triggered a rise in the demand for urban and architectural services that became increasingly difficult to satisfy (Canales-González, 2013, p. 110). There were different social responses at that time. One of them was stronger support from the government for architects (FCARM, 2022, 8:56). At the National Autonomous University of Mexico (UNAM), there were ideological movements that stressed the

social responsibility that architects have with society (Carrasco-Mahr, 2012, p. 279) (López-Padilla, 2022). To make it possible for people to acquire affordable loans to buy a home, the government created two public housing institutions in 1972. One of them was FOVISSSTE (Housing Fund of the Institute of Social Security and Services for State Workers). These events reflect the juncture at which it was possible to align the interest of various actors in favor of social benefit and that acted as a force capable of materializing several public housing projects, one of which was the A.P.R.

FOVISSSTE sought to work with architects who had experience developing social projects and who were recognized by their peers as being professionals of the highest technical and design level. As Architect Ávila, former executive director of FOVISSSTE, explained in the following fragment: *"What would you do, for example, in case you need a doctor?...You look for the best…That's what I did…, I said: This one doesn't need one architect, but two, and not of prosopopoeic names, but of work and quality known to me, so I said: "Nato Carrasco and Miguel Herrera Lasso". I made that decision, and there was nothing but success."* The design team was composed on one side by the group of FOVISSSTE, led by the architect Ávila Riquelme —who structured the design brief—and the architecture firm Herrera Lasso y Carrasco Arquitectos y Asociados. A.P. Represented by: Architects Honorato Carrasco, Miguel Herrera-Lasso, and Ricardo Gabilondo, authors of the design of the A.P.R. (INBA , 1979).

Figure 10

Top View of the A.P.R. and its sectors.

Note. Green: Area of the Towers. Blue: Ring of low-rise housing. White, A.P.R.'s perimeter.

Source: Sattelite View by Google Maps.

The A.P.R. was inaugurated on the 3rd of June 1976 (El Nacional, 1976). It consists of 3 big sectors: the East, West and North. It is large in extension and holds 4738 housings in total (INBA , 1979). To make it possible for the inhabitants to organize, the West and East sectors were subdivided. See Fig. 10. In blue we see the first ring of smaller houses all around the periphery of the site that holds a smaller population compared to the area of the towers (in green). The orange squares represent commercial spaces. The design considers areas for people to do sports, green spaces, commercial areas to do groceries, and parking.

Figure 11

Aerial photo of the plot of land where the A.P.R. is now located

Note. Alianza Popular Revolucionaria, 1972, Oblique Aerial Photographic Database, FAV_02346_01_10_00034, ICA Foundation Historical Archive ©, by permission.

When architect Ávila arrived at the site, the historical events and features that the land experienced through time were not visible anymore (see Fig 11). He described a landscape that looked *"bare"*. The first challenge was to structure the project's brief. Architect Ávila Riquelme, as an urban designer, analyzed which was the best way to approach it: *"The urban problem was, you find a bare terrain as a base, using that term, bare, there was nothing…there were some houses around…And you say: Will I use this terrain for single family homes? It is not affordable, it is not right; to my understanding of urban planning."*. When architect Ávila visited the site, he noticed that if this trend continued, the space and the chance of providing homes for more people would

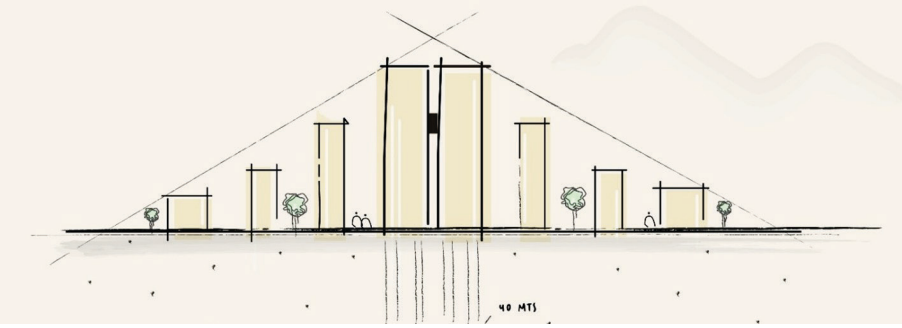
be wasted. Therefore, to make the most of the space, the team proposed the following design concept:

"We made this as if it was a pyramid. That is, if we see a cross-section view, the first level is one floor, and then we went up in floors until we reached the towers. What for? So as not to collide with a tower immediately." Architect Ávila Riquelme

With authorization of Architect Ávila, I refined his drawing to present the team's idea to the reader See Fig. 12. In this cross section, we see how the pyramid layout locates the small-height housing with a lower population density, at the perimeter of the plot of land. By gradually moving into the center of the neighborhood, the height of the buildings increase as well as its population. This design strategy created a buffer that helped the project in two ways: The first one was to visually reduce the presence of a large concentration of people living on this site, the second one was to integrate the neighborhood with the surrounding environment and the type of housing structures existent at that time.

Figure 12

Cross section of the A.P.R.



Note. Refined cross section of the A.P.R. from a drawing by Ar. Ávila. 2024.

Architect Ávila stated that this concept helped to: *"Provide balance to the area…In terms of densities. If you have a density of 60 inhabitants per hectare, and you want to increase it to 300 inhabitants per hectare but not affecting it visually …I would raise the density, and this would allow a greater number of people to enjoy all the services that this has (pointing out all the A.P.R.)"*. In addition, Architect Ávila shared that the distribution of the population was proposed by sociologists, who guided the team from different angles to make this project viable to be materialized: *"One of the best hits for me, were the sociologists... They would make budgetary*

criteria…they would say, put 30 houses here, 300 here…They would tell me, depending on the social and political pressure that existed. They measured it…we followed their ratio…and perfect, no problem." Therefore, we can see how the view of these participants permeated also into the design of the buffer and the configuration of this neighborhood.

The buffer as a design feature is still a relevant aspect for the inhabitants of the A.P.R., the topic emerged during the participatory design sessions where I learned that it not only works in one direction (from the street to the neighborhood), but back and forth. The region has developed in such a way that now some concerns of the A.P.R. inhabitants are the noise and some visuals of the nearby streets and markets. Participant 12 mentioned that some trees were planted to reduce the noise from the soccer field.

Figure 13

Detail of how single house units located at the perimeter of the A.P.R

Note. The ring of single-house units diminishes the towers' presence. Source: Google Maps, 2022, (https://maps.app.goo.gl/fssPD7wEw7sMCgKn6).

Figure 14

Visual contrast at one of the entrances to the A.P.R.

Note. Photo on the left: Google Maps picture that shows a street in Central St. On the right, photo taken by the author of one of the main entrances of the A.P.R. showing how trees and a small hill buffer the visuals and sound of the market. Source of the photograph on the left: Google Maps, 2022, (https://maps.app.goo.gl/R1emsNG5xK2YUjPeA).

Ar. Honorato Carrasco Mahr, son of Ar. Honorato Carrasco, observed that within this neighborhood where density and buildings gradually increase, so do public spaces: *"Public spaces increase…as the density rises until reaching the towers…which are at the center of the complex, where there is most of the open spatiality…Density responds also to the open public space."* This design configuration aimed to distribute green spaces equally and provide easy access to these areas without leaving the neighborhood.

Some of these public spaces also work as transitional spaces, where people have the opportunity to walk from a busy street into calm areas before arriving at their apartments. In Fig. 15 we see one of these well-maintained areas. According to my collaborators, the child population has reduced, making these public spaces important now for pet owners as well as elderly people who enjoy having enjoyable walks in their neighborhood. Another example of a public space that works as a transitional space is the corridor next to the soccer field presented in Fig. 16. I observed that this space is used by people who live close to the towers to go to the nearby market and do the groceries. The corridor also is part of the buffer that discretely reduces the visual presence of the towers from the main street.

Figure 15

Photo a green space at the A.P.R. that works as a transitional space.

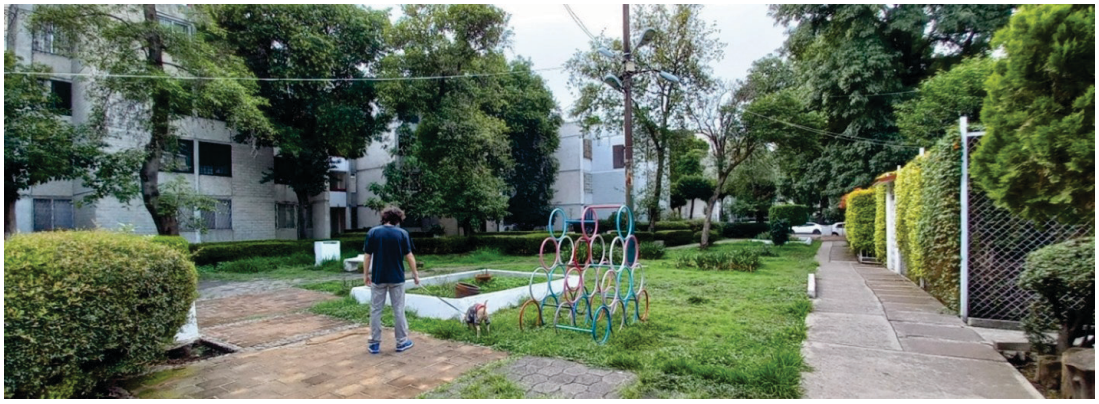


Figure 16

Photo of the corridor that works as a transitional space.

During the in-depth interview, Architect Gabilondo explained that Architect Herrera had a set of compositional values that permeated into the design of the A.P.R.: "*Architect Herrera-Lasso had the idea that perspectives should never be too prolonged. If you see, all the streets have breaks so that perspectives would be contained, and it would not be a completely orthogonal stroke that ended up being too rigid and boring."* see Fig. 17. The experience of walking in this neighborhood gives a sense of exploration due to the design of the sidewalk paths and how the buildings were placed. Sometimes it takes you to gentle and well-maintained public spaces (Figs. 15 and 17), but sometimes these paths take you to untended areas by the neighbors that feel unwelcoming and unsafe to walk through. (see Fig. 18.)

Figure 17

Management of perspectives and circulation by the architects.

Figure 18

Photo showing one of the small parks that the inhabitants have abandoned.

During the design process, the team thought of ways that public spaces could be maintained. They proposed distributing commercial spaces as well as 3 CATRAs, 1 per sector, so that they would be rented and provide revenue to maintain them:

"We managed this economically. The urban aspect has that challenge. I mean, you can't do it and let people figure out what it does and how it ends … why? Because it costs to maintain. It's the most difficult part of housing complexes. We invent every day: And now what do we do about this? Well, we're going to put in a series of shops, for instance… The House of the Worker (CATRA) — the idea was to rent it out for parties…and with that money try to maintain it." Ar. Ávila Riquelme.

Nowadays, the purpose of commercial and public spaces has been affected due to problems of social organization. The voids created have paved the way for some individuals to take control of them. Participant 10 explained: *"the module or the worker's house is a cultural space and for social events. However, the objective has been lost."* In the following section, I present the things and matters of concern identified by my collaborators, examining the challenges they face after nearly fifty years of living in this neighborhood.

Human Participants / Learning from the A.P.R community

Field research was essential to understand the things that motivate inhabitants to assemble and care for their neighborhood. To select the participants, I relied on Montgomery's concept of sense of place, which he defines as "a sense of identity for their users of feeling involved and taking interest, or perhaps even an active part of its affairs" (Montgomery, 1998, p. 102). Therefore, I contacted neighbors who were active participants in community meetings because this reflects that the place holds an important meaning for them. In addition, there was another view that shaped my relationship with participants. The opportunity I had to access teachers' classes and spaces that left their door open for other disciplines to enter and engage in rich discussions and knowledge exchanges -like the MDes classes, the Ethnography class, and the Waterways collective- motivated me to think critically about my discipline as an industrial designer. I did not want to arrive at the site with a preconceived idea of an object to develop. The work by Friedner warns us about the damage that designed objects can make to humans (Friedner, 2022). I did not want to impose a proposal on people or create more problems for them. Therefore, I relied on ethnography as a way to listen carefully to my collaborators, allowing myself to be guided by them and, through a process of analysis, identify the Things that they care for.

Even though I relied on ethnographic techniques to approach field research, this was not done to substitute the work of ethnographers. In fact, this is a friendly invitation for them to engage with this community. This next segment should be grasped as a map that can inspire the creation of other research questions[3]. The ethnographic techniques I relied on were qualitative observations, walking ethnographies in co-presence, and in-depth interviews. To protect the identity of my collaborators and their sense of place, the modality of the disclosure of this research presents their statements as coded. The total number of participants was shaped by their interest and availability; the total was 13. The recruitment was through the process of snowball sampling. Most participants belonged to the West and East sectors and only one was from the North sector. This influenced the location where the final project took place.

[3] Participant 2 was concerned about the "apathy" that people in this neighborhood have about the community's issues and wanted to know the reason for their lack of engagement. The word "apathy" related to this theme was also mentioned by Participants 3, 4, 8, 9,11 and 12.

The Things that are important for the A.P.R. inhabitants

Trees

"It has been 10 years since I have had a tree that has been certified, the tree has been paid, everything that you need to do for its removal because it's at risk of collapsing. Well now, we are going to celebrate its 10th birthday, because we submitted it to the Central Government, to the Social Prosecutor's Office, to the Mayor's Office, to the Ministry of Environment, everywhere…every deputy who came down, we said: "The tree, the tree, the tree!" The tree is still standing there. Then no one believe these people anymore." —Participant 3

Figure 19

The tree in question.

The quote from Participant 3 reflects how the tree, located in the West Sector (Fig. 19), represented a safety hazard because it posed a risk to both residents and private property. For this participant, it became a reminder of an event where different government representatives failed to listen to their needs and to provide the service they needed. Furthermore, this non-human actor reflects one of the administrative voids that people must sort out in order to take care of their neighborhood across all sectors. Even though trees are regarded as important for the people of this neighborhood, the impossibility of accessing this public service is causing the community to lose them, as I will present next.

It was morning when I met Participant 6 in the East sector of this neighborhood; after we greeted, she told me that there were some trees that she wanted to show me. This was the start of the walking ethnography with Participant 6, which allowed me to see more than what meets the eye. Where I saw trees with some vines hanging around them, my collaborator perceived a threat*: "These are two trees; they used to be full of leaves, and look how they are now… It's all mistletoe."* Throughout our stroll she explained to me tha**t** the plague of mistletoe gradually dries out trees, and this has changed the

landscape. When I asked her how she noticed these changes and why she decided to learn about the issue, she told me that, *"Because I started to notice that lots of trees started to turn dry, and then I said to myself: "Why are they drying out if they are young? … The branches are the only things that remains."*

Fig. 20 presents, on the upper right, a Jacaranda tree full of mistletoe. The vertical picture and the bottom right presents trees that dried out due to the plague.

Figure 20

Photos of Mistletoe plague at the A.P.R.

Participant 2 was also concerned about trees in this sector; he is currently working on a tree census. During the interview he explained to me the challenges of requesting government services:

"Tree management, I consider it to be a neighborhood obligation. Although the laws have made it the responsibility of the government to control it. Because the state is the one that says what can be done, up to what point, and what cannot be done. What the State lacks is supervision and maintenance for what they regulate. The only thing that they mark is if you make a mistake, you get sanctioned, but they never offer preventive measures… How do you show someone to take care of a tree? Well, I teach you how to take care of it…If you see this larva, report it to me. But one

reports it, and nobody comes to check it out... Then we fall into a circle of: "It can't be done, because there aren't enough resources," and the entity says: "It's your responsibility." But I say, I want to cut it off. Then I have to cut it off by clandestinely breaking the law. Then if the authorities catch me, I will be punished." —Participant 2

Figure 21

Mistletoe plague at the North Sector of the A.P.R

The quote of Participant 2 reflects the divide between what is expected to be done by the law and the government versus what people need and desire. The current law's structure creates a bottleneck that impedes people from taking care of their trees and stop the mistletoe plague in the North and East sectors. Sometimes this gap acts as a force that directs people to take "alternative pathways" (Laurence, 2014) outside what is determined by the state to solve these types of situations. In Latour's sense, trees are important *things* for the inhabitants of the A.P.R., this is why people come together to find ways to take care of them. The impossibility of accessing public services, give rise to disputes and tensions between the A.P.R. neighbors and the government around them. Therefore, trees also represent the stories of the challenges that people have to face at the A.P.R. in order to take care of them.

Water

"The whole city is sinking because it is a lacustrine soil, so by extracting all the water, it starts to settle, and everything starts to go down… In the case of some buildings, like this one… if you look closely, well… initially they were at street level, and now they are higher… That is why there are people (who say), "Oh, they're rising (the buildings). No, us; everyone else is sinking."—Participant 12

Figure 22

Photo reflecting the difference in ground level between the towers of the A.P.R.

Note. Source photo on the left: Architect Gabilondo [Photograph], by Architect Miguel Herrera-Lasso Attolini, 1973. Photo on the right: Taken by the author during field research.

During the walking ethnography, Participant 12 shared what the neighborhood used to look like throughout the years. One of his childhood memories was: *"The soccer field was like a puddle; it was like a small lagoon, then you could go in and splash around…there were frogs and lots of dragonflies."* This quote reflects that during periods of rain, there were temporary water bodies

that formed and gave way for other insects and amphibians to inhabit this place. In addition, my collaborator mentioned that the puddle was later *"leveled up"* so that soccer players could use the area for this sport. In our conversations, he also stated that the transformation of the landscape and the city expansion had to do with the reduced capacity to absorb rainwater.

Participant 7 has been involved in learning about our water infrastructure, sources of water and its maintenance. In addition, he has been working on a communication campaign about the "Efficient Use of Water". During our interview in a coffee shop during a day of pouring rain, he mentioned that the issue of subsidence is modifying the water infrastructure that lies underground:

"...if you see, the level of the towers is the real level of A.P.R. From there downwards, everything has been sinking…The good thing is that because the foundations of all the buildings are floating, they are like a ship; it goes up and down, which isn't such a problem, but the drains are because the drainage system isn't flexible. The drainage is a pipe. Then if it's sinking, the time will come when the pipe ends up like this (horizontal sign) and will not drain anymore." —Participant 7

This statement aligns with researchers' claims of protecting the soil composition. Our water infrastructure relies on it to maintain the right angles to keep on sending water to our homes. In addition, Participant 7 shared with me what he learned from engineers from the National Commission of Water (CONAGUA) about the well that supplies this neighborhood:

Figure 23

Location of the well in question.

Note. The well is one of the important sources of water for the A.P.R. and it is located in one of the corridor's edges.

"...Another important thing, the last time it was 125 meters that water was extracted; we have already lowered it 25 meters more, that is 150. The engineer told me, "Look, this is the last thing that we can do because below, further below the water is not fresh anymore; it is brackish." Why? Because we are in a basin of what used to be a lake." —Participant 7

Figure 24

Photo of the entrance of the A.P.R. and the well painted in red and white.

Participant 7 explained that engineers must dig deeper each time to reach freshwater reservoirs. The problem is that there is a limit. During the interviews, I asked participants about ideas that could be done in the neighborhood. Participant 7 shared that: *"The only way that has not been done… is to recharge the aquifers…. Instead of having absorption wells — just as we have wells to extract water — you can make another well to guide rainwater and recharge the aquifers."* My collaborator also mentioned that this idea was expressed in a public meeting to the Mayor of Mexico City when he visited the A.P.R.

In Latourian sense, Water scarcity has become another important thing for community members at the A.P.R. While map making allowed me to visualize how superficial bodies of water were reduced through time, ethnographic research allowed me to be aware of how water exploitation and subsidence are physically shaping this neighborhood. The conversations with participants made me aware of how they sense and track the compaction of the soil. Towers and the change in the angle of water pipes are ways in how people are conscient of these changes. Therefore, the idea of creating spaces for water absorption was starting to sound urgent, if we consider the statements of these participants and our hydric history.

The Area of the Soccer Field and the Corridor.

"The soccer field belongs to us, to all sectors, but no one is taking charge of the field… There is a person who took over the field… they are the ones who have invaded the CATRAs." — Participant 3

Figure 25

A.P.R. neighbors attending a community meeting outside of the CATRA.

During the field research I learned from participants that there are contested spaces at the A.P.R., like the soccer field or the West CATRA (Fig. 25) — the building in the back with the lights on— which was designed as a place for social activities and that used to be a source of revenue. Unfortunately, now community members have to hold assemblies outside of this building. Another important detail that I noticed was that community meetings — that discussed topics concerning both sectors — were held close to the well and the West CATRA (green) (Fig. 26), because they are located almost in the middle of the neighborhood. Making this an important place.

Figure 26

Area where I identified community meetings concerning all sectors.

Figure 27

Heat island at the basketball court

"Here on the court, there isn't a single tree in the middle. It does not give you any shade. So, there are spaces that become sterile. There is no coexistence; I think it could have a lot of possibilities. What I was saying before, on that side, is the 5-on-a-side soccer field, the dog park, and the little park for communal gatherings." —Participant 12

While I was interviewing participants, I was asking them if there was a place they considered important to renovate. For Participant 12, it was the area of the basketball court (Fig. 28) and the soccer field. This also emerged during the conversation I held with Participant 3 during the walking ethnographies:

"Several people gather there — the people with their dogs, the teenagers playing soccer — there is a lot of movement. That would be the main reason why I would start with the field because I could tell you about lighting and pruning, but those are things that we can do." —Participant 3

Figure 28

Dog owners using the soccer field to walk their pets.

Figure 29

From the towers to the well, a row of cages runs parallel to the corridor

At the soccer field and the corridor, I noticed the inevitable presence of the steel cages that pollute the public spaces of the A.P.R. During the in-depth interviews and walking ethnographies, this topic emerged:

"I think that the cages started to appear 20 years ago... Because of car thefts. There were a lot of them. You would leave your house, go to your car, and it would have no tires... Since people didn't see any response from the authorities... We had to do it ourselves."—Participant 4

Unfortunately, these hostile structures — that represent a lack of support from the authorities for these inhabitants in relation to security — have become a painful icon of the neighborhood, spreading all across it. As a result, this creates unsafe and dangerous spaces. Fig. 30 & 31

Figure 30

Photo of a hostile set of steel cages and a barbed wire fence.

While reflecting on the cages with Participant 1, about things that we could do about them, he mentioned that: *"This would be something that people wouldn't remove."* Understanding people's need to protect their cars, I suggested renovating the cages; My collaborator supported the idea of designing something that could integrate well. However, he warned that *"it costs a lot of work because it involves convincing…"* Therefore, this aspect was important to consider.

Figure 31

Photo of the little hill and the old garbage dump at night.

Another element that posed a threat to some women participants was the small hill that lies in one area of the corridor. Its presence makes the corridor feel unsafe and abandoned:

"Where the most horrible CATRA is, there was like a little hill. There's the CATRA, then the garbage dump, and behind the garbage dump there's like a little hill. It was horrible, girl, we already rehabilitated it." —Participant 10

The hill sometimes ends up forgotten by community members and the grass can grow tall; this impedes people from clearly seeing at night if somebody is approaching. Fig. 32 presents next to the hill an illegal garbage dumpsite, recently removed because it was creating other safety hazards:

"There are lots of dark areas, like, the lights don't really help much…Where the temporary dump is, there is a little hill, sometimes people can come out from this way or that way…The three modules are dark (referring to the CATRAs). The courts sometimes don't have enough lighting." —Participant 8

In conclusion, the soccer field and the corridor are important public spaces for the A.P.R. inhabitants of the West and East sectors. Their location in the middle of the neighborhood makes them important transit zones and key places to hold larger community meetings. In addition, these two areas reflect the disputes that emerge from the challenges of social organization, security, and maintenance.

Chapter 3. Participatory Design as a form of diving deeper into Matters of Concern of A.P.R. Participants and developing a collective proposal for a park.

Participatory Design approach

At the end of the ethnographic research, the participants were invited to collaborate in the participatory design process. I kindly explained to my collaborators that they could keep on participating in the next phase of this research by connecting online with a nickname and the video off if that helped them to feel comfortable. Some participants accepted, but others decided not to continue. In these cases, their choice was respected. Sometimes, participants could not align with the time availability of the majority. To accommodate these collaborators, I developed the same activity twice so they could participate. In this phase, there were 7 participants, in which 4 were almost constant with the workshops, and 3 occasionally orbited around the project. Everyone was always welcome. The advantage that I saw in the outcome of having a smaller group was that it created a safe space for everyone interested in exploring potential futures together in the area of the soccer field and the corridor, without exposing them to the tensions these spaces entails. Therefore, participatory design was a method that allowed us to explore the waters of what could be possible to be done.

Workshop 1: Presentation of the history of the land, challenges that collaborators mentioned and session to propose ideas of projects that we can do together. Online

Figure 32

Untitled

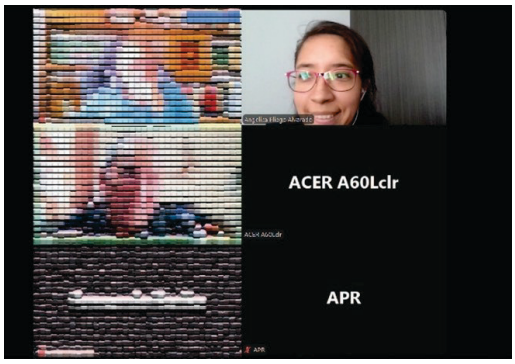
Note. Architect Gabilondo [Photograph], by Architect Miguel Herrera-Lasso Attolini, 1973.

The first workshop had four objectives. The first was to present the history of water, the land, and the A.P.R. The second was to share with my collaborators, insights about the inherited imaginaries of water and their impact on hydric regimes. The third was to present the matters of concern identified through field research. Finally, the fourth objective was to create a space for discussion of these themes and to identify possible directions for the development of the project.

This session was done twice because two collaborators could not attend the meeting. During our conversations the participants were interested and concerned about the state of the well of the A.P.R. Therefore, the interest flowed towards Water. To explore paths to take, I invited participants to share ideas about what we can do. Participant 1 suggested developing a communication campaign about the responsible use of water. I mentioned that I was open to doing it. There was a moment of silence. I noticed that the time was starting to stretch more than expected and the energy of my collaborators was lowering. Therefore, I decided to intervene and suggested the idea of renovating the corridor and the soccer field while transforming them into sponge parks to retain rainwater and allow the land to heal.

Figure 33

Screenshot of the first online session



The word "sponge park" built tension with Participant 2; he stated, *"But the soil absorbs water fast"*. Despite that, Participant 2 did not discard the idea of a park. For Participant 7, the combination of renovating the soccer field and water absorption was creating some concerns. He said that touching the soccer field would mean removing a place for people to do sports; to give an alternative, he suggested doing the project in another park. An area that was completely outside of the neighborhood territory. At this point, I felt almost kicked out of the A.P.R. and felt deeply puzzled by what I understood before from the in-depth interview with Participant 7 versus his reaction. After a collective pause, I kindly suggested continuing in the next session, while understanding that we were all tired and it was challenging to engage through video call. My assignment, I told them, would be to reflect during the following days about a theme that we could develop together.

I repeated this first session days later with the participants who could not attend the past workshop. For this one, I tried to make the presentation lighter in information and aim to be more dynamic so that my participants would be engaged. In addition, I left more space for discussion. The participants were glad to learn about the history of the A.P.R. and the land. Both also enjoyed watching the old photos of the neighborhood. For the design project, I shared the idea of the communication campaign as well as a project to renovate the corridor park where we could absorb rainwater to help the aquifer to heal. In this one, I received a good response from my collaborators about the idea of the park.

My reflection about these two sessions was that perhaps the length of the first interaction demanded a lot of energy from my collaborators; that is why I readjusted the approach with version 1.2 of the meeting, which helped to keep the spirits up for engagement. However, in my perception, there was something more about the reaction of Collaborator 7. I felt like there was a bit of tension about how I presented the concerns that the community had. To protect the identities of all participants and avoid affecting their sense of place, their names were coded. In our interviews, Participant 7 mentioned that he did not have a problem disclosing his identity; however, I kindly

re-emphasized that this was in order to protect all participants. Therefore, this invites me to think that maybe my collaborator felt unrecognized in this session.

This research notes the challenges that we have as facilitators in the process of providing safe space, protection and attribution. It also reveals the tensions that might emerge from the project's structure. For designers who would like to endeavor in participatory design, this is an important aspect to consider. Also, it is important to mind the time it takes obtaining ethics approval for this type of project. This is not to discourage design researchers - because this experience has been highly rewarding - the aim is to raise awareness of the preparation that this type of design approach requires. Another important aspect that I learned from these two interactions was how our role of facilitators also has to do with the process of regulating the energies of participants before, during and after the interactions to keep all the spirits up to keep working together.

Workshop 2: Structure of the second interaction. Sketches as forms of inquiry about invisible borders and matters of concern. In situ.

For the next workshop, I moved forward to working with the soccer field and the corridor based on the opinion of Participants 3 and 12 during the in-depth interview. Also, I considered the support of Participants 11 and 3 and the neutral position of Participant 2 during the first participatory design workshop.

For this session, I wanted to create a space where the participants and I could reflect on and discuss issues about the corridor and the soccer field. This thesis drew from the work of Stolterman and Lim — the approach that considers prototypes as ways of "framing and exploring a design space" (Stolterman & Lim, 2008, p. 2). The authors invite us to use them as forms of inquiry that enable an ongoing process of learning, encourage the exploration of design spaces and allows the iteration of design proposals (Stolterman & Lim, 2008, p. 2). Therefore, the goal of this second workshop was to rely on prototypes to develop collective discussions and explore the corridor and soccer field considering the surrounding tensions. Moreover, to reveal specific matters of concern from the participants and Things that are important to them. Through this activity I wanted to learn what the acceptable ways to renovate these places were and identify the essential elements that I should not touch with the purpose of respecting my collaborators' wishes.

Figure 34

Development of sketches relying on a satellite view of the area.

Note. Source of satellite view: Google Maps, 2024. Sketches drawn by the author.

For the workshop, I sketched four proposals: each with distinct features. Fig. 34& Fig 35. I reduced the soccer field in all sketches for two reasons. The first was that Participant 12 suggested that area to be transformed into a 5-a-side football pitch to have more space for other things while keeping its function as a sports area; therefore, I wanted to give this idea a place for discussion. Second, I wanted to explore the tension of: What does it mean to touch this place, and what would be the reasons people give to not touch it? Is it still acceptable to my collaborators to reduce this place? In addition, I wanted to show participants the features that we could integrate by shrinking the soccer field. For instance, Fig.35 proposed adding an open space to hold community meetings and other cultural activities.

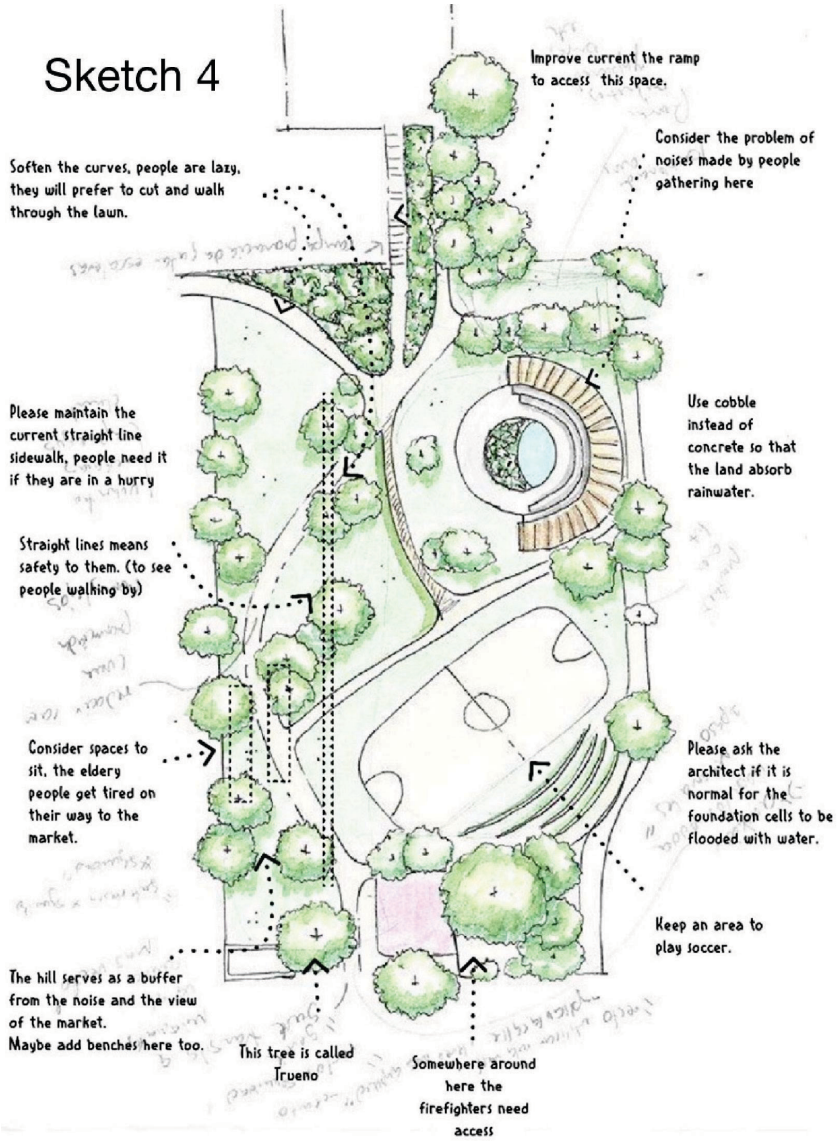
We developed this activity on-site. We walked through the area and sat facing the two spaces to discuss them. For this activity, only Participant 12 and Participant 2 were available to attend. During the session, my collaborators shared their opinions about the sketches, but the one that got more attention was sketch 4 (Fig. 35). We used this drawing as a base to pour all their observations. Gradually some Things and Matters of Concern started to emerge.

For participants, it was important to preserve the way people walk through the corridor. For instance, Fig 34 present sidewalks that were too curved in their opinion; they mentioned that this would only make people *"walk through the lawn"* because *"people are lazy"*. If I ignored their

feedback, then this potential behavior would become a problem of maintenance in the future, because people would damage the lawn or groundcover. Therefore, maintenance was starting to manifest as a matter of concern in these conversations.

Figure 35

Concept number 4 with comments from my collaborators.



Remembering Architect Gabilondo's words about the design composition of sidewalks at the A.P.R., I decided to omit in my sketch an existing sidewalk that divides the soccer field and the corridor with a straight line. However, Participant 2 requested to maintain it because *"people use it when they are in a hurry."* In addition, this participant also mentioned that straight sidewalks

meant to feel safe because that would let them see another person coming their way. It is important to emphasize how this participant noticed that this sidewalk was missing, thus, this is an important *Thing* for this collaborator and that needs to be preserved. In addition, Lim & Stolterman's approach helped me to identify — through ongoing conversations supported by sketches — other Things and Matters of Concern that will appear in the next segments.

Due to the objectives of this session, the prototype did not present a detailed resolution to represent the potential areas where benches could be located. However, the openness of the dynamic allowed me to mark the places where my collaborators thought it would be helpful to add some. It was in this session that Participants 12 and 2 mentioned that the hill served as a buffer to reduce the noise and visuals of the market. This was an element of space that required further reflection because some women participants mentioned that this area felt unsafe. Another highlight was reconsidering where I placed the kiosk for the community to gather, because the noise from this place would become a problem for neighboring buildings.

Figure 36

Site where the unexpected interaction happened.

So far, everything was flowing well, and I had received no negative comments about the proposal for the 5-a-side soccer pitch. Just that it was important to maintain an area to play soccer. We were almost done, when a complex person —related to the soccer field— approached us to inquire about what we were doing. To follow ethics compliance, I will not disclose the details of the event or the identity of the person. However, it is important to note that this event influenced the decision that

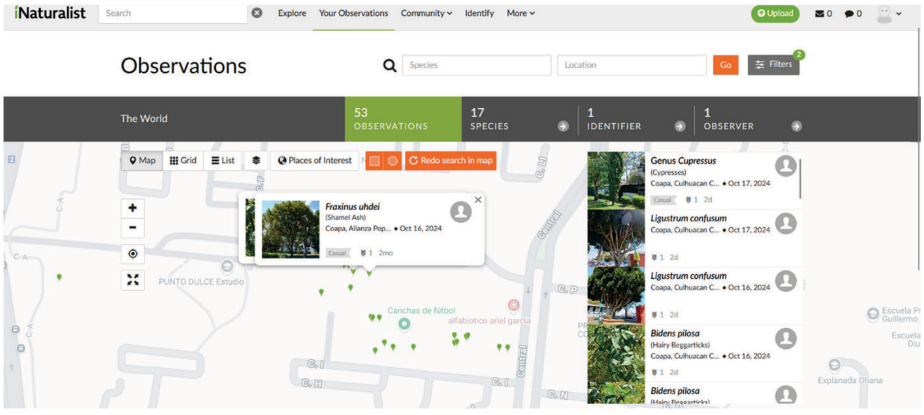
Participants 2 and 12 took about the location of the project. They recommended me to work only in the renovation of the corridor, not the soccer field, and integrate into the design the notes I took about the corridor.

This experience was becoming challenging and required further reflection about how to proceed. With these two workshops, my romantic perception of participatory design was fading away. Even though I welcomed all the first suggestions that my collaborators shared, I felt conflicted about being forced to accept the last "suggestions" that emerged from a biased "consensus". In Latourian sense, this interaction supported by my prototypes, demonstrated how the soccer field had become a *Thing* within the A.P.R.—not merely a piece of infrastructure, but a site where multiple interests, meanings, and power dynamics converge. Furthermore, it represented an epicenter of disputes that gathered actors like us to think about its future. Also other types, like the unexpected individual that was pushing us to maintain its status quo.

As the day to go back to Montreal was near, I decided to scan the trees located in these two spaces because I considered them as important non-human actors in space. I wanted to learn if the species we have were native or introduced. Due to time constraints, I could not scan all of them. Later, I uploaded the information to the platform iNaturalist — an open-source database — as a way to give back to the community.

Figure 37

Screenshot of iNaturalist website presenting trees and vines scanned by the author.



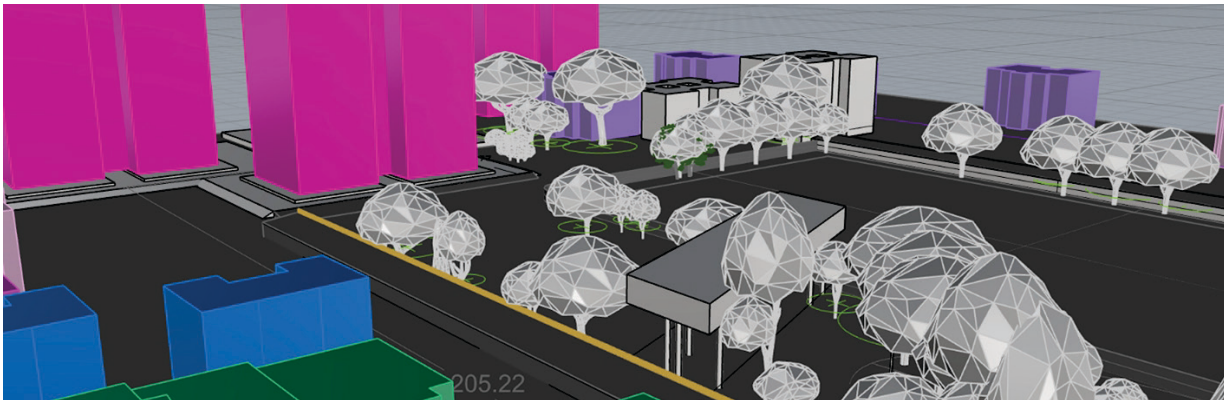
Note. From iNaturalist, 2025,

(https://www.inaturalist.org/observations?place_id=any&user_id=alvanaldis&verifiable=any).

Interlude. After the last challenging interaction, what might be the best path to take?

Figure 38

3D modeling during the process of meandering.



Now that I was back in Montreal, I wanted to explore possible ways to continue the project. For that reason, I relied on design research theory, in this case Schön's "Reflective conversations with Materials" (Schön & Bennett, 1996); to make a pause and reflect about what had happened. Also to find a way to design the next workshops, while I was making maquettes, 3d modeling and consulting satellite maps. I started by trying to comply with the wishes of my collaborators and worked with the 3D model of the neighborhood. While I was tracing the silhouette of the corridor

Figure 39

Google Maps satellite views reflecting how the area varies in different seasons.

2D Google Earth Pro / Satellite photo taken in July 17, 2024

2D Google Earth Pro / Satellite photo taken in March 28, 2025

3D Google Earth Pro / It is unknown when the satellite view of the 3D model was created.

as the “accepted” place to work. I felt troubled. I realized that the unexpected individual that appeared at the end of the workshop, was pushing us to a designated area far from that person’s interest. During this design process I kept reflecting: *Was there a way to move away from these limitations?* I chose, for the moment, to pause the search for an answer.

I placed my interest on the volumes and the trees that appeared in the satellite view of Google Maps (Fig. 39). While I was doing that, I noticed several things. For instance, how the grass changes through the seasons, the temporary presence of the market at Central Street with its colorful gradient of greens, the lines marked on the grass due to the transit of people and finally the absence of a row of trees that currently frame the north side of the soccer field.

It was interesting to see how enabling Google Maps’ globe view can make their presence disappear in an instant. During the process, I realized that if I omitted trees in my drawing, it would have a similar effect in this neighborhood. Therefore, I put emphasis on not omitting them by relying on both satellite views. After that, I built a cardboard maquette of the corridor only. Then, I placed the trees in their positions and started to develop concepts that integrated the participant’s requirements. In addition, I wanted to make visible the presence of water as a non-human actor on this site. Therefore, this was the start of a process to communicate its presence:

Figure 40

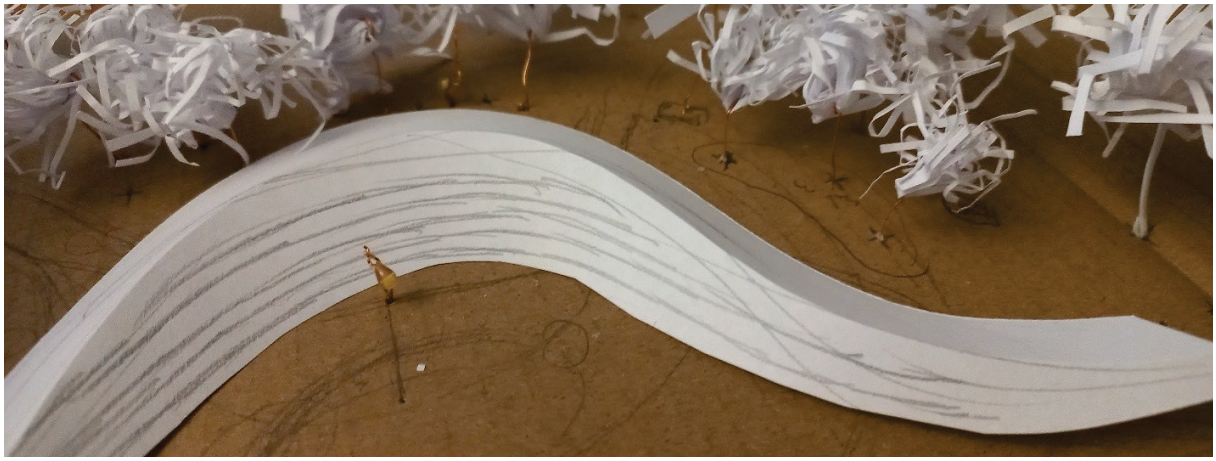
Paper sculpting explorations.

I relied on paper sculpting as a technique to create wave forms and represent the presence of the aquifer (see Fig. 40). One design concept involved adding an open-air theater (see Fig. 41). The

shape aimed to keep part of the shape of the small hill that exists on that site and at the same time, make it more inviting and safer to inhabit it:

Figure 41

Paper sculpture of an idea for the open-air theater.



During the in-depth interviews female participants mentioned the hill located in this corridor. To them this *Thing* represented a safety concern, as presented in chapter 2.

Fig 41 shows how this area does not provide any shelter from the sun or seating areas for people to rest. It has become so unwelcoming and neglected that people dump trash there. Therefore, it was important to think about ways to make it safer and nicer to inhabit so that the community could feel more connected to this area.

Figure 42

Photo of the hill at daylight with trash.

Figure 43

Paper sculpture of a promenade during the process of reflection.

Gradually, I started to explore other areas of the corridor and develop some ideas. One of them was an elevated promenade to make the space more interesting by providing different elevated spots for people to enjoy the park (see Fig. 43). During this process of "reflective conversation with materials" (Schön & Bennett, 1996), the thoughts of how to approach the project started to emerge under this creative process. The first idea was to re-listen the interviews I held with my collaborators carefully, but now from the angle of understanding the meaning of their words. This helped me to realize what Participant 3 — who chose not to get involved at the participatory design phase — meant by renovating the soccer field and the basketball courts:

"I would start with the soccer field. In that area... Before, the soccer field was the most beautiful thing. Why? Because it had benches. I mean, around the basketball courts we had benches, planters, and playgrounds. But I would start there. I mean, it's like you would give it that (pause). You fix up the soccer field, you enhance it, you add lighting on the courts and the soccer field. You remove the trash, and I think that's when people will start getting a little more motivated."— Participant 3

For this collaborator, the soccer field and the basketball courts meant a memory of how it used to be in the good old days when it was well maintained. Thinking about renovating these places meant bringing back hope and transmitting enthusiasm to other members of the community to take care of their neighborhood. In her statement, she mentions improving the football area, which doesn't mean changing its function.

After re-listening to this participant, I felt relief because now I could understand her requirements from this angle. However, I kept on feeling concerned about the aspect of representation. During this process I also had a conversation with my supervisor, Martin Racine, about these tensions. He kindly recommended me to consult the work of Aravena, which was helpful and marked several aspects of this project. The most important advice the author gives to designers is that:

"Whenever the question at the outset of the process is not clear, we suggest identifying the problem together with the client… Whenever you have a problem where the edges are blurred, we want to make sure first that we are all on the same page as regards of the question, and only then jump to what could possibly be the answer." —Alejandro Aravena (Kallehauge, Jørgensen, & Holm, 2018, p. 203)

Figure 44

Sketch 1. Geometry

This was the direction I needed to move forward. Therefore, I prepared another online workshop, relying again on prototypes to maintain an ongoing process of discussions with collaborators and reach together "the inevitable core of the given project." (Kallehauge, Jørgensen, & Holm, 2018, p. 39)

I wanted to take a few steps back from the previous design explorations and move at a slower pace. The goal of the workshop was to explore particular elements of space, like the circulation of the corridor and the amenities of the football pitch. I began working on the 3D model and added some ideas that Participant 3 mentioned in our interview. For instance, the running track and court stands for people to sit. A new challenge emerged during this process. Now that I had the real measurements of everything, I detected that the current size of the soccer field was not leaving any space for the running track to exist. We could add it if we reduced the size of the soccer field a little bit more. As the soccer field represents a matter of concern for the A.P.R. neighbors, this required further discussion with my collaborators on how to proceed in order to reach a consensus. In addition, I

wanted to learn their opinion about some layouts for the corridor. To facilitate the discussions. I developed 3 proposals.

Figure 45

Sketch 2. Reflecting pool

Figure 46

Sketch 3. Islands.

Sketch one (Fig. 44) maintained the soccer field as it was. It had one set of stands, and the circulation had a geometrical composition. This concept also proposed removing the basketball courts because there was already another set right at the back of the towers; this would help to reduce the heat island created by the surface of the basketball court, provide larger green areas that people could enjoy, and allow rainwater absorption.

The second proposal (Fig. 45) was informed by my previous on-site observations. I noticed that the population that used the soccer field were teens. Therefore, I decided to propose a smaller soccer pitch for adolescents around 15 to 16 years old. This solution would help to fit the running track inside the space. Regarding the corridor, the layout considered two large green areas where people could read and enjoy their public space. One of these areas had a small reflecting pool surrounded by trees that would let people sit and relax. Part of the flooring throughout the corridor considered gravel for rain absorption.

The third sketch (Fig. 46) had an organic composition, with lines representing water waves and islands of different sizes; all floating throughout the corridor. Some islands had new trees to provide shade and invite people to enjoy the park. Another idea that this proposal considered was to create a small open-air theater. I proposed this feature because during the field observations, I noticed that community members were sitting outside the CATRA. As a brief reminder, the original purpose of this building was to hold social events and community meetings. Unfortunately, the purpose was lost due to the control of a small group of individuals. Therefore, the idea was to create an open area for community

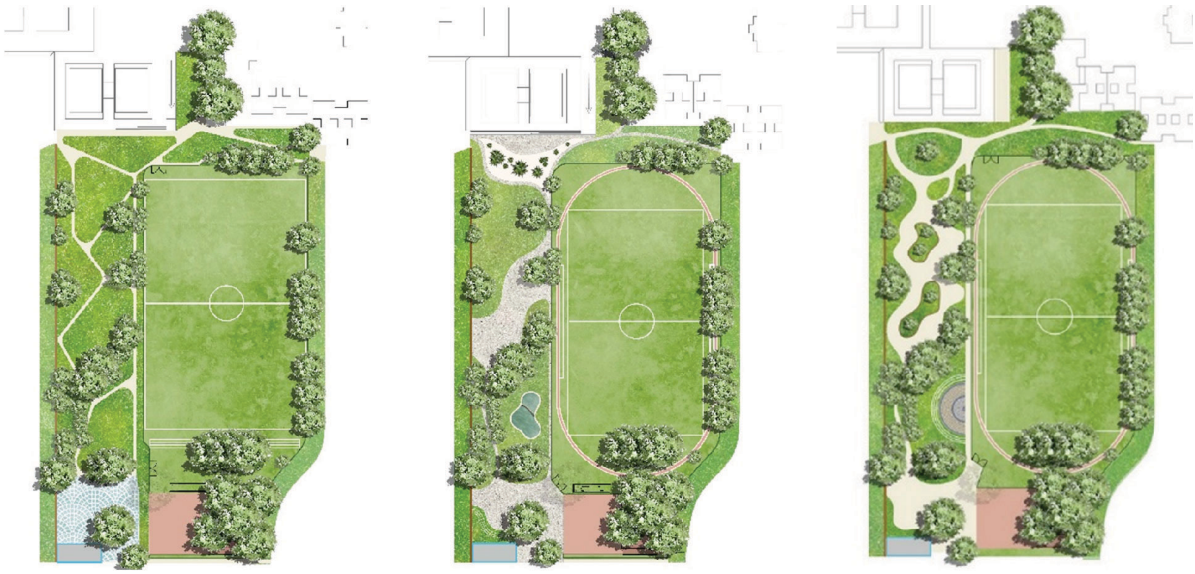
meetings and cultural activities in a place with no walls and nice seating spots to engage in these activities in the best way possible.

In all three concepts, I suggested adding green roofs to expand the area to catch rainwater and direct it into the park so that the soil could absorb it. Green roofs would also help to reduce the temperature of the space. Furthermore, all proposals maintained the straight sidewalk requested by Participants 2 and 12.

Workshop 3: Prototypes as an approach to facilitate discussions and make emerge the Things that matter to my collaborators.

Figure 47

Set of sketches that were shown to participants.



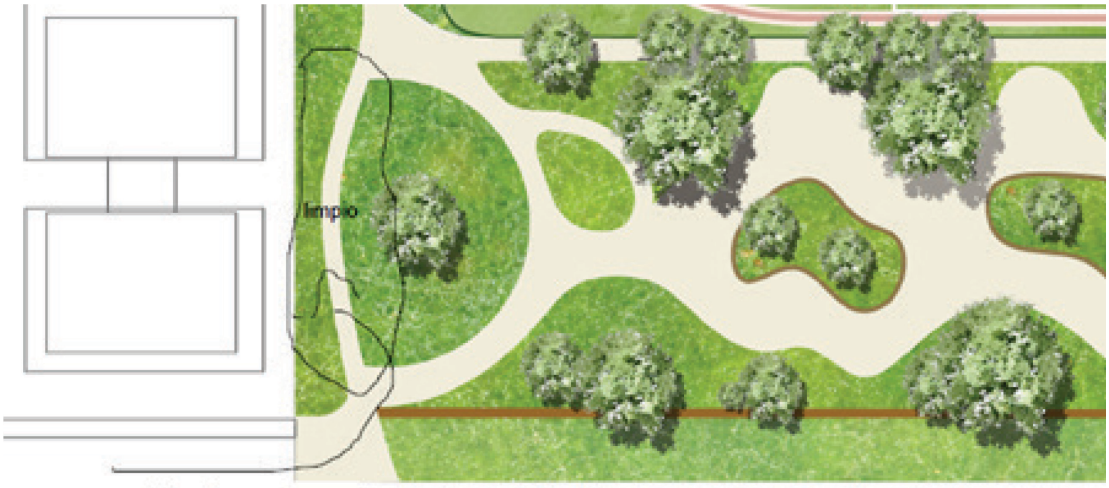
For this session, it was crucial to have larger participation. That is why I put extra effort into giving collaborators options of when to meet so that the majority could participate. The invitation included people from the in-depth interviews. In this meeting, Participants 7, 11 and 13 attended. In this session, I was glad that Participant 7 came back. Participant 12 wanted to take part but could not make it, this is why I scheduled a separate individual meeting to accommodate this participant. The session was structured so that it was visually engaging, with mood boards for each sketch. I aimed to have a light session where we could share ideas and would last a maximum of one hour.

While I presented each concept to my collaborators, they were sharing suggestions but also matters of concern. For instance, Sketch 1 (Fig. 44) had large green areas. This made Participant 11 feel worried about the amount of work and cost of maintaining them. This workshop revealed that expanding the area of the lawn represented communal and financial challenges derived from the problems of social organization. Currently, community leaders have difficulty motivating people to take care of their public spaces. This also affected their capacity to collect financial resources to keep these areas in a good state. At this point, it was interesting to notice how the issue of social organization and maintenance were relating to each other and how they were shaping Participants' decisions.

Another highlight of this interaction was that it let me comprehend how participants preferred to coexist with water and which other approaches they found unsuitable. For instance, Sketch 2 in Fig. 47 presents a reflecting pool. The idea was to create a space where water could be visually present and where people could sit around and enjoy the space. However, this was not my participants' idea of relating with water. I learned through our discussion that this proposal would create future problems of maintenance according to Participants 11, 13 and 7 — an observation that was not shared by Participant 3 at the other meeting, but that my collaborator respected as part of the process. Participant 7 suggested instead adding a tank to irrigate the soccer field with the rainwater collected.

Figure 48

Notes taken during the meeting regarding the water tank suggested by Participant 7.



At the end of the session, participants selected the third option (Fig. 46) because it had smaller green spaces, which meant that it was friendlier to keep. The proposal respected the behavior of walking through this place because the circulation of the sidewalks was not constraining; they also liked the idea of an open-air theater. In addition, they agreed to reduce the soccer field to incorporate the running track. Participant 11 liked the idea of the "green parking" that I suggested because it was possible to implement not only in this park but also in other spaces.

There were other important ideas that my collaborators shared in this process of mutual learning and knowledge exchange. For instance, Participant 12 recommended native plants and trees because they were easier to maintain and would adapt better in this park. Finally, some of the last observations and ideas that Participant 12 shared — while we were discussing the theme of water absorption of the park — was that rainwater flowed from the soccer field to the corridor. He suggested adding vegetation right at the edges that would work as a "*barrier*" and impede water to flow into the sewers. During our session we explored areas to locate them.

Figure 49

Participant 12's observations.

Note. The arrow indicates the direction in which rainwater flows, according to Participant 12. The yellow circle shows a potential spot for a sponge barrier.

Interlude. How to translate the observations of my participants and integrate Water and Nature with respect in the composition of the sponge park?

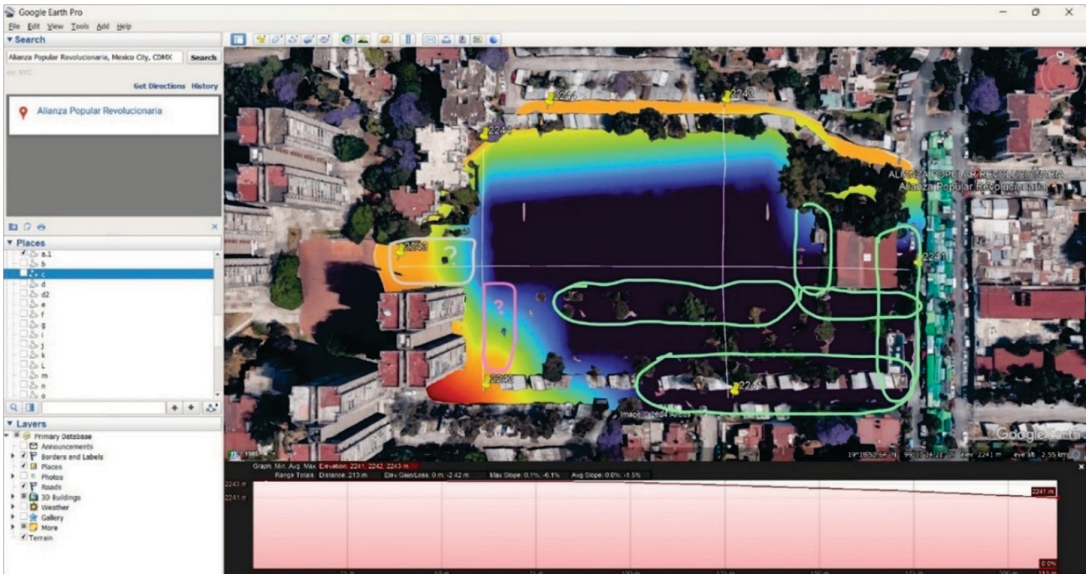
The essence of this project was finally revealing itself: The idea was to design a park that allowed the A.P.R. inhabitants to enjoy this public space, while protecting people's memories, the soil and the aquifer where we are located. Furthermore, expanding the available area to collect rainwater and gently guiding it into the park to be absorbed.

After this workshop, there were other important points to work on reaching this milestone. To continue with the project, I focused on understanding the water flow from the soccer field to the sponge park. To do that, I needed a topographic map to read the contours of this territory. To do that from a distance, I relied on digital techniques to get this information in medium resolution[4].

I dedicated time to learning this technique and contrasted methods to cross-check that the information I was obtaining was viable to be used. In a way, this exercise was part of the process of listening to Water on this site. From this activity, I could identify areas where we could catch rainwater and guide it into the sponge park to be absorbed, following the idea of Participant 12

Figure 50

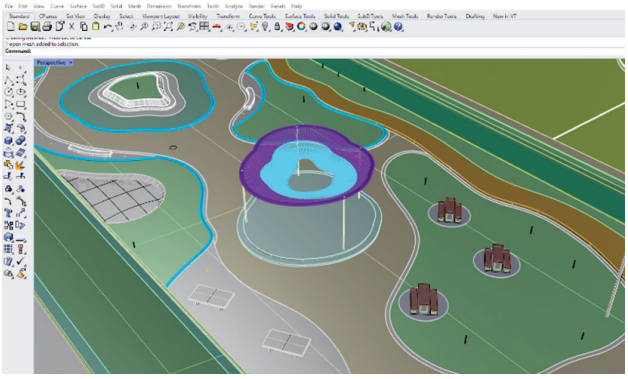
Screenshot of contours obtained from Google Earth Pro in combination with QGIS



[4] This thesis acknowledges the importance of investing on a detailed topographic map if this project gets adopted by the community.

Figure 51

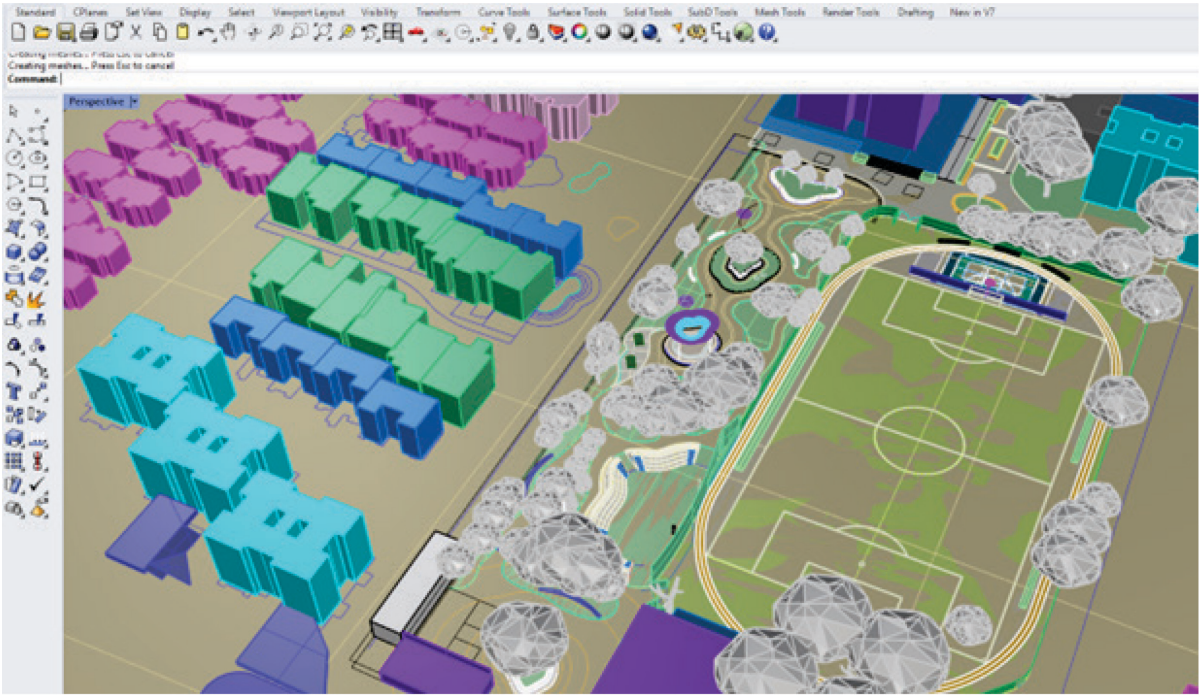
Designing the kiosk requested by Participant 12.



The next step I took was to work on the corridor and football pitch, while incorporating the observations of my collaborators and the things that I also learned about sponge parks in Montreal. Even though I was not addressing a flood problem, the techniques these amphibious places incorporate, were useful in guiding rainwater to different absorption points and preventing flooding.

Figure 52

3D model during the design process of the sponge park.



So far, I have presented how I relied on the "Filtering dimensions" (Stolterman & Lim, 2008, p. 11) by the authors as tangible forms of inquiry to reach the main essence of the project. Now I needed to rely on its "Manifestation Dimensions" (Stolterman & Lim, 2008, p. 11) to present the level of resolution that would help my collaborators to see in better detail the concept and

materials. Because I was preparing for the last session with my collaborators, I developed renders that communicated accurately the materials and the layout of the design proposal we created. In addition, I developed a video to present a walking tour, so that it was easier to understand the ideas from different angles.

The level of depth I wanted to reach in the last discussions with my collaborators informed the structure of the session. As I wanted to learn more about their experience participating in this project and feedback, I scheduled individual meetings. For this last interaction, 3 participants were available.

Workshop 4: Presenting the design proposal to participants and feedback about the participatory design process.

Figure 53

Bird's-eye view of the Sponge Park, Soccer Field and Open-air theater

The proposal considers social spaces where people can sit and enjoy the park, read or have a picnic. Fig. 54 presents Participant's 12 idea of having a ping pong area and a kiosk. The latter provides a space for people to do yoga, dance or use it for other activities (see Fig. 55).

Figure 54

Detail of the Ping pong area, the Kiosk, picnic benches and the towers of the A.P.R

Figure 55

Perspective of the kiosk in use, with native plants and ground cover as an alternative to grass.

To guide rainwater into the park, the proposal relies on green roofs and designed water canals that can gently guide rainwater into the sponge areas of the park so that the soil and plants can absorb it. Fig 56 and 57 present different perspectives on this idea.

Figure 57

Proposal of rainwater collector.

Figure 56

Detail of the green roof design discussed with participants at different stages.

Figure 58

Photo of the heat island at the basketball court.

As the West Sector of the A.P.R. had two basketball courts in different locations, my collaborators agreed to remove it from the corridor. In Fig. 58, we see how the concrete flooring creates a heat island. Participant 12 expressed: *"Here on the (basketball) court there isn't a single tree in the middle. It doesn't give you any shade. So, they are spaces that become sterile. There is no coexistence."* Listening to his concern, the proposal considers adding a green space in the middle of this spot. Participant 12 recommended adding native plants as ground cover in substitution of grass because the latter is difficult to maintain. The concept also considers a tree to provide shade and a seating area for people to enjoy the space.

Figure 59

Render that presents a tree island to provide shade to the inhabitants.

Figure 60

Refined sidewalk

The straight sidewalk that Participants 2 and 12 wanted to preserve maintained its current spot. However, the line was softened by adding light waves to integrate it into the composition. Close to the towers, there was another tree island that was added with a ring surrounding it that can work as a long bench (see Fig. 61).

Figure 61

Close-up of the tree island to soften the visual impact of the towers.

The area of the hill hosts an open-air theater, that was accepted by my collaborators. The area was carved to add a series of tiered seats to invite people to watch a cultural activity, host community meetings etc. The proposed materials are porous to absorb the rain. The rooftop protects people from the sun, and its open section guides the rainfall into the center of this plaza.

Figure 62

Render of the Open-Air Theater.

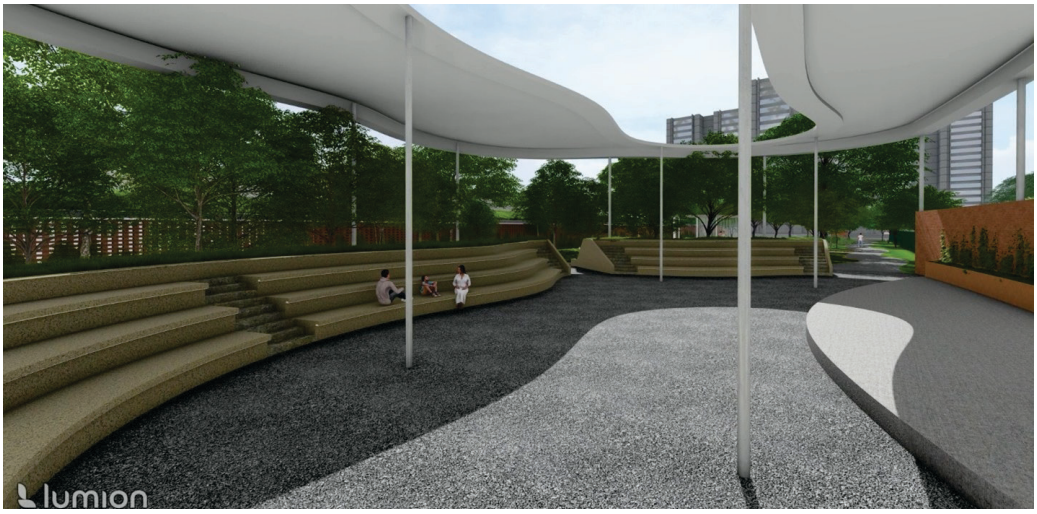
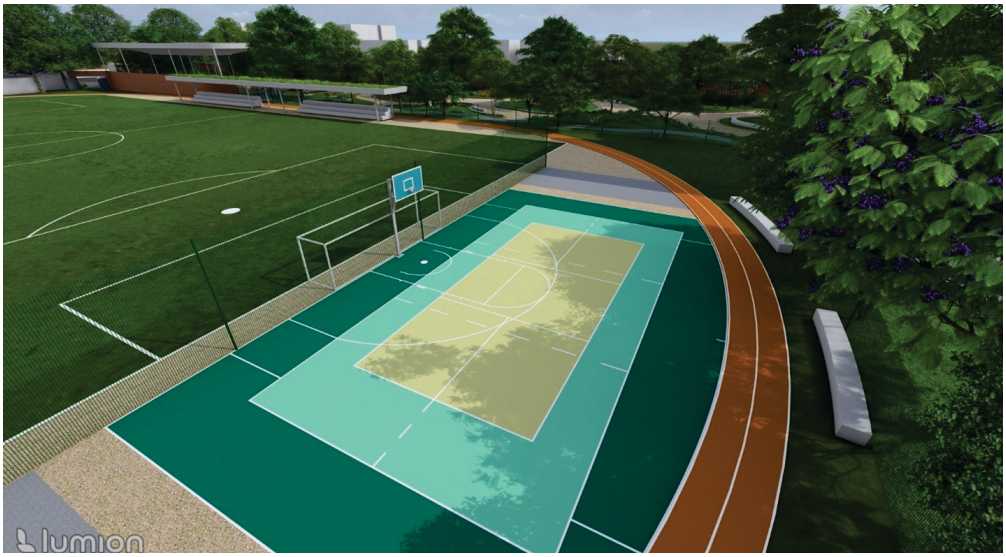


Figure 63

Another perspective of the open-air theater.

Figure 64

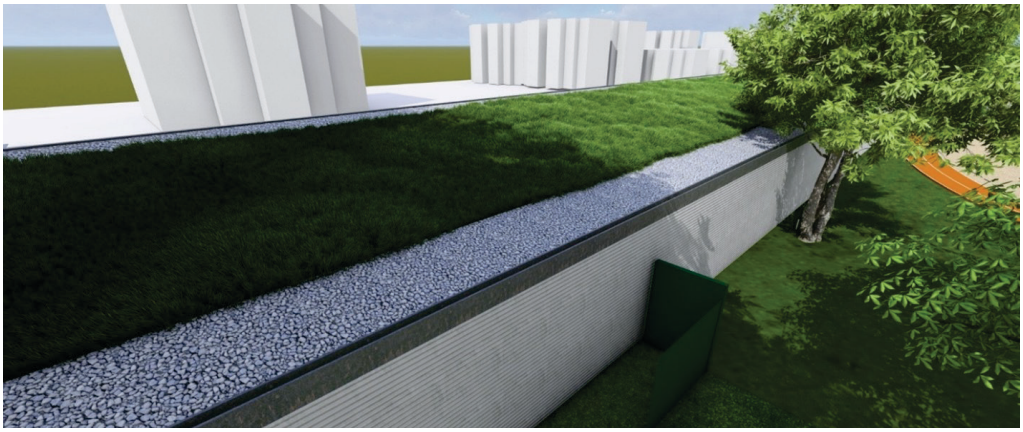
Photo of multifunctional sports area.



The new dimension of the soccer pitch was approved by my collaborators to have a size that respond to the category of 15 to 16 years old. This consensus allowed us to integrate Participant's 3 idea of the running track. This space will also have a small multifunctional sports area. Regarding the steel cages on the side of the soccer field, I proposed covering them with a lightweight metal sheet, painted in light grey, and adding a series of green roofs to guide rainwater into the football pitch.

Figure 65

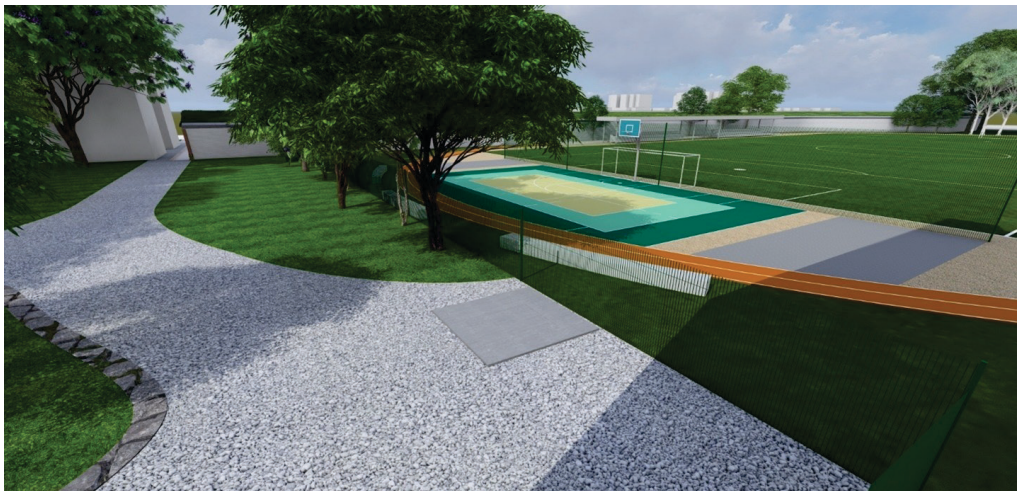
Green roof proposal for the steel cages by the soccer field.



The water tank requested by Participant 7 was located outside of the soccer field in a low transit spot to protect it from the transit of vehicles that could cross in case of an emergency. For instance, ambulances or fire trucks.

Figure 66

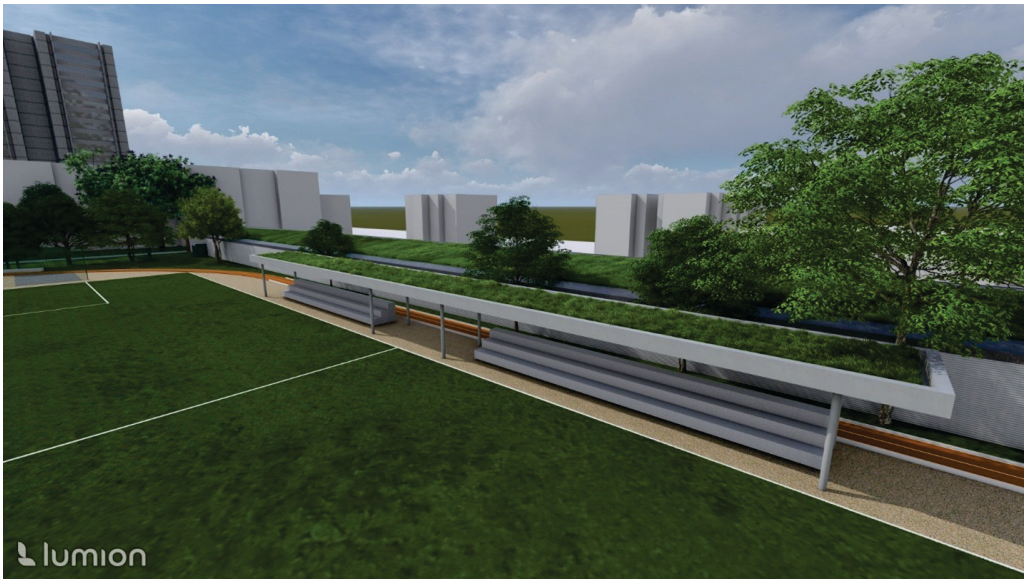
Location of the water tank.



The football pitch has a total of four court stands with green roofs to provide shade for people.

Figure 67

Detail of the court stands and green roof to provide shade.



The proposal presents the area where the hill used to be, now illuminated by the Open-Air theater.

Figure 68

Open-air theater at night.

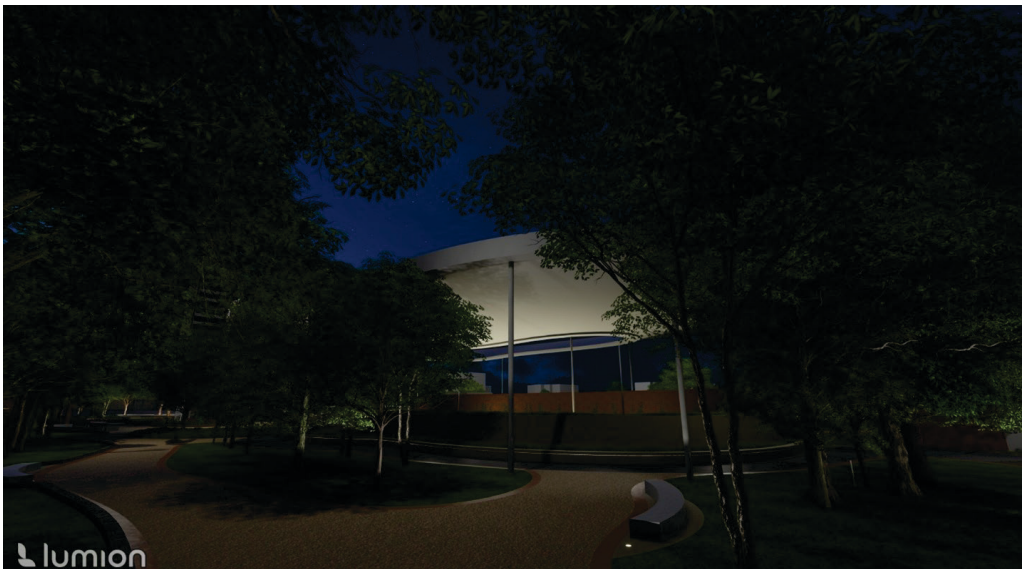


Figure 69

Detail of the Tree Island illuminated at night.

Chapter 4. Reflections

To conclude this project, I will present the feedback I got from Participants 7, 12 and 2, who were available and willing to concede one last meeting to provide feedback about their experience engaging with this participatory design project. In addition, I will add my reflections about this research.

Participant 7:

"Well, I think it's a very interesting project, mainly because we would get a benefit that we don't currently have… If we get the funding to carry out the project, we would gain benefit for our neighbors, and it would improve the image of the area…"—Participant 7

Participant 7 considered that there was a positive impact from the approach of this project, because it is listening to their needs and concerns. Furthermore, it would enhance the quality of a public space within the A.P.R In addition, Participant 7 recommended inviting a larger group of people for the next phase so that they can share feedback. He also would have liked the project to have more time to evaluate the costs to know what would be required to materialize it. Regarding the funding, this participant mentioned that, "*First, we have to create a civil association for the western sector to obtain available resources, and then we can start with this one."* This is a crucial aspect that needs to be achieved by the community. They need to become a stronger community, in order to reclaim, maintain and renovate their public spaces.

Participant 12

This collaborator mentioned that public lighting in the park would be a theme to explore in the next steps of this project, because it requires thinking about how to protect it from acts of vandalism. He also recommended using the light bulbs that the municipality provides so that it is possible for the community to change them. In addition, he shared that the benefits of this project was that:

"We, as users who are in contact with the area, can say what we like, what we don't like, what would look good, what works and what doesn't... this serves everyone who might walk over there." —Participant 12

Participant 2

This participant shed light on the responsibility that we have as designers. At the same time, he shares an idea of how to sort out the next phase of this project:

"This project could be very interesting, depending on the follow up… because there's people who are interested, but you have to invest time and find people who are specialists in the processes that are missing… and ask them if they can support the project." —Participant 2

In the conversation, my collaborator suggested that it would be a good idea to invite a larger group of participants to these interactions and find within our community specialists that would like to get involved. He also stressed the importance of on-site presence as a glue that helps to bind us. Furthermore, as a way in which people could organize and take care of the future sponge park:

"A council is needed to ensure that the project to be managed will remain valid. You make a change, add benches for resting, the forum, and in three years' time, who is going to maintain that work? On the other hand, if you form a group of people... a committee that does not feel like owners but rather representatives of the three sectors... those people are going to take care of that facility." —Participant 2

As a reflection, I consider that the corridor and soccer field are becoming matters of concern. I presented in this thesis how they represent a deep interest to my collaborators. In addition, this research under participatory design has created a safe space to hold debates and listen to different opinions and reach consensus. Furthermore, the combination of ethnography and participatory design revealed a rich set of meanings that both spaces contain. Finally, I think that the condition of endurance is in its first stages of development. The reason is that this is the first time that a research project has documented a PD case with this community, and this has opened the door to working differently with them. In addition, the proposal has considered important aspects of maintenance. However, from a critical perspective, this thesis acknowledges the importance of social organization. For this project to be constructed, it requires a larger group of inhabitants that adopt it, support it and participate in it.

Another important aspect that I learned from this experience is that collaborating as a team in the creation of alternative futures for a place implies that you cannot just drop the project after you complete your thesis. Facilitation also implies responsibility to the community. There are ties of

friendship, trust, and commitment that are made. Therefore, the recommendation for other designers would be to think about the ethics in the long term of this project. Even though I intend to keep on afterwards with the project, maybe not everyone has that possibility.

Regarding the approach of PD as a way to encourage emancipation, I think that if the community adopts this project and if we can hold open and larger group discussions, we could explore this aspect together. By now, Participant 2 shared his conclusion about the current mindset that some community members have about their relationship with the government:

"We think that the government should give us something, yet we give the government weapons that create overvalued support programs...we are partners in the good or bad use of resources." — Participant 2

Right now, because of the current regulations, the A.P.R. neighbors are dependent on the capacity of service that the municipality and government can provide. This dependency is also financial. My collaborator sees it as an alternative route to contact people within the A.P.R. to develop the project so that the community can be free and less complicit about how funding is distributed. Right now, we have a design layout that works, but some details can be simplified to support emancipation, and it is for that reason that larger participation is required to identify what type of resources we can rely on to move forward.

Chapter 5. Conclusions

This thesis demonstrated that Participatory Design (PD) can support community-driven approaches to rethinking public space in the A.P.R. neighborhood. By combining ethnographic techniques with collaborative workshops, the research revealed how both human and non-human actors—such as trees, water, and the soccer field — shape the community's sense of place and influence decision-making. In addition, the project contributes to design research by showing how Latour's concept of the Parliament of Things (PT) can enrich participatory processes, by making visible the tensions, negotiations, and values that emerge when communities engage in collective design. While the scope of this study was limited to a single neighborhood, the implementation of this technique might lay the groundwork for new research projects related to PD. The combination of PT and PD could help designers to identify the voices that represent human and non-human actors, who are directly involved in the problem and the solution of the given project. Future research could expand our knowledge by exploring how PT and PD can strengthen democratic processes by looking actively to integrate in an equal manner not only human representatives but also non-human spokespersons.

Lim & Stolterman's proposal to rely on prototypes as forms of inquiry and exploration of research questions (2008) also permeated and shaped this PD work. For instance, this thesis demonstrated that prototypes — workshops, sketches and 3D representations — supported processes of mutual learning and knowledge exchange. Furthermore, it allowed us to dive deeper into matters of concern because it created a safe space that encouraged ongoing discussions and reflections about them. My work as a facilitator in this PD work helped to inform my collaborators of the larger context, which I found important during the process of knowledge exchange. In addition, I could offer my design skills to renovate an important public space in this neighborhood. This PD process also provided spaces for ongoing conversations, negotiations, and consensus about the design proposal of the sponge park. But also aimed to integrate Water as a fundamental actor that still inhabits this neighborhood. The role of spokesperson for water organically moved to participants or me at some points. The final proposal represents the possibility of engaging differently with this important public space, respecting how people would like to relate to water and nature. It also represents the hopes of community members to motivate people to take care of their public spaces.

PD also involves encountering and managing challenging interactions that emerge from the different opinions, interests and energies of participants. This work relates to other PD cases and designers as presented in Chapter 1, where these actors stop to reflect about their role as facilitators, to find a way on how to move forward to reach the essence of the project and understand what participants are expressing. Schön's "Reflective Conversations with Materials" (Schön & Bennett, 1996) also influenced this research. This design theory approach encourages spaces for "reflection on action" and "reflection in action" (Schön & Bennett, 1996). By relying on this perspective, it grounded this PD process because it created moments to improve the design of workshops, while making and creating prototypes. Furthermore, it was helpful to find a way of tackling power dynamics and find an alternative path to keep on having spaces for collective discussions with community members.

Ethnographic research was crucial to learn from participants about their challenges, some of their memories of this place, but also served as a compass that guided me to respect their words and wishes. My formation motivated me to be guided by A.P.R. community members in order to learn how to navigate the neighborhood and comprehend how power dynamics work at the A.P.R. Ethnography allowed me to identify and highlight in this work contested spaces according to participants. For instance, the soccer field and the West CATRA, important public spaces for this community. This thesis also relied on the knowledge of this discipline in order to grasp how heavy water extraction and soil subsidence are materially shaping the A.P.R. Finally, it is also relevant to highlight that the ethnographic research conducted in this work is not a substitute for this discipline. The contribution of this work to this matter lies in the way it opens up new research questions. Therefore, this thesis invites anthropologists to engage with this community and offer more insight into the social challenges that the community faces that only this discipline can achieve.

As a form of listening to the history of water and land where the A.P.R. is now located, I relied on secondary research focused on understanding the geo social history of the land, giving special emphasis on how there was a moment of disconnection with water that happened after the Spanish colonization. The imposed vision that regarded this element as a mere resource is an inherited standpoint that has shaped our water infrastructure until today. Mapmaking allowed me to make visible the changes in hydric regimes and how the presence of water has dramatically reduced

through time. Therefore, this thesis raises the concern of preserving this imaginary and invites us to rethink in other ways to understand the water that inhabits this valley as well as other important non-human actors.

Finally, this work aims to bring attention from the authorities to this neighborhood, which is important for its architectural and geographical history and social value. This place holds the memories and experiences of a community that will soon celebrate its 50th anniversary. The fact that there is a large population living on this site, sharing public spaces and responsibilities under a condominium regime, adds an extra challenge to these inhabitants in their process of having a good quality of life and having access to adequate and necessary public services.

Future work:

There are several lines of action that can be pursued based on this project: One of the important steps that I will take after the completion of this thesis will be to present this project to a larger community of A.P.R. neighbors to learn their opinions and discuss together the next course of action. This thesis acknowledges the importance of the involvement of a larger group of disciplines in order to develop the sponge park. Therefore, the diffusion of this project to other professionals and government representatives will be key.

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Appendix

Video of the Sponge Park's Design Proposal:

https://drive.google.com/file/d/1L-n6luIj5GtNxbqWWWRE17RlHfG4By5z/view?usp=sharing