

**Regaining the Shore Agency of Maracaibo.
Coastal Waste Narratives**

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ABSTRACT

Regaining the shore agency of Maracaibo.

Coastal waste narratives

Stefania Hernández

Maracaibo has lived from its territory, particularly the Maracaibo Lake. Throughout the years the lake has been exploited for its oil, resulting in a clear degradation. If design can serve as a narrative by interpreting the traces of the space, how can we read this broken space from the perception of its inhabitants? Understanding the notion of the area's vulnerability, how can we acknowledge and have preferable measures for recognition and respectful use of the shore? The research is based on the concepts of spatial justice, community participation and empowerment to accomplish the regaining of this coastal space.

It was observed through a historical and geographical analysis that the city has had little concern in integrating the coast to its planning, causing a fragmented space, and looks on the reasons and consequences this has had. This research develops a proposal through the selection of a case study community, Lago y Sol. This is made recollecting the community's insight and narratives through participation methods like workshops and interviews. The data compiled served as a base to develop the design that aims to create a place for them to enjoy while addressing the issue of coastal waste. The intent is to present an example of how the natural and the built environment can bridge for a better urban development based on the imaginary of its direct users. Responding to the necessity for a better development, especially because of its rich potential for social encounter, in a country where much reconciliation is needed.

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Introduction

This research comes from a personal necessity of conciliating with the city where I was born and raised, a city that has been in a constant struggle with its natural context since its foundation and reinforced lately by the socio-political crisis that the country is going through. The geographical setting of Maracaibo has a prime location but a difficult ground. Combined with the ungovernability that is now facing, there is a need for alternatives to unify its landscape and built environment, giving to its citizen the ‘rights to the city.’ The drift from the natural environment started when the colonization implemented its typical “checkerboard” grid. Afterwards with the modernization of the urban core, a new grid was overlapped, resulting in two cities that coexist within one. Initially the focus of the planning was the port in the historical centre. Later, with the advent of the oil boom the focus was the comfort of the petroleum industry workers, and expansion of the city, all omitting its prime component; the lake.

The Maracaibo Lake, which was the reason why the inhabitants first arrived in the territory when the oil exploitation began, was forgotten as a background character in the city’s growth. The unplanned and spontaneous expansion that Maracaibo has had, has left many communities aside, the planning has favoured the commercial development creating a sectioned and broken coastline. The disparities that exist are evident, specifically on the shoreline. In the 40 km that encompasses the coast, almost 70% are unplanned settlements. The degradation that the lake has gone through, because of the lack of control and policies from the government is affecting the quality of the water and the citizen’s quality of life. The absence of public spaces combined with this degradation of the environment, has resulted in the fact that leisure areas that can be shared and enjoyed have become very limited.

The interesting issue to study is: How has this natural space been neglected through the years? How do people interact with it? How is it used? Is it accessible to citizens? These questions are discussed in the second chapter of this paper at an urban level to later being answered more in detail in the third chapter with the case study. The aim is to lead a path of discovering: How can the gap between these two entities (city and lake) be bridged? The objective of this research work is to create a proposal that serves as a space of opportunity for the citizens of this distressed city.

Chapter 3 explains how these questions were answered by collecting stories of the inhabitants of the shore in a specific community. The significance of these interviews was to know more about the perspective people have of this shoreline, its accessibility, and what they foresee in the future from it. Also, as a way of contextualizing the problem, it is important to conduct a historical overview of how the city shore has developed. This study will include an overview of the areas that are publicly accessible, their conditions and portray the actual state of degradation, contamination, and abandonment as a main factor of its inaccessibility.

This project has tackled the notion of spatial justice. The first part of this work is going to explain this concept and later how the project approaches it not only on a social level but also an ecological one. A participatory approach was utilized to address environmental/sociocultural issues in the use of public space. Accumulation of waste on the shoreline has led communities to drift apart from their landscape. Based on data collected through interviews, workshops and observation in a selected community, this project proposes a way for citizens to reconnect with their waterfront. The framing of the problem is key, as well as having a clear interpretation of what the people want.

In the last section presents the outcome of the historical and environmental in-depth study, as well the result of a participatory fieldwork done in the community Lago y Sol. The proposed elements reflect the analysis of this information gathering. The project is a flexible design that can be arranged according to the needs of the users. Using architecture and design as a medium to bridge this gap between nature and the human being, as architect Juhani Pallasmaa explains in his book *Senses and Architecture*:

“Architecture is essentially an extension of nature into the man-made realm, providing the ground for perception and the horizon of experiencing and understanding the world. It is not an isolated and self-sufficient artifact (...) gives a conceptual and material structure to societal institutions, as well as to the conditions of daily life. It concretizes the cycle of the year, the course of the sun and the passing of the hours of the day.” (2012, p. 44).

Following this premise, the design is seen as this extension, the medium that bring awareness by creating an experience than is useful and advocates for this inequality. The aim is to transform the barrier of objects, especially plastic-based products, into something that reconsiders the consumption problem as an economic and social growth opportunity.

CHAPTER I: Theoretical Framework

This paper considers different concepts that relate to the belief that design can be an empowerment tool for communities to help communities take their concerns into their own hands. In this chapter the notions of participation and public's involvement in design are studied, along with the claims of spatial justice. The concept of spatial justice advocates for an inclusive design thinking in the terms of allowing the same rights to the space for all citizens. Looking at design as a medium to accomplish this where the role of the designer is conveyed as facilitators that assist in addressing the pressing issues and needs.

These concepts are brought to discussion in order to have a perspective of possibilities for countries where the injustices overflow, as it is the case of Venezuela, where this project is set, and where the lack of governance drives unplanned settlements to create their own justice.

1. Spatial Justice

« Space is a fundamental dimension of human societies and that social justice is embedded in space. The understanding of interactions between space and societies is essential to understand social injustices and to reflect on the planning policies that aim to reduce them. » Gervais-Lambony, Dufaux, Quentin (2009)

The concept of spatial justice reclaims the beliefs on the 'right to the city' of Henry Lefebvre. According to geographer Edward Soja (2009) "spatial (in) justice refers to an intentional and focused emphasis on the spatial or geographical aspects of justice and injustice" (p. 2). He challenges the notion on how to understand the impact of thinking spatially when referring to justice, he continues saying:

"Spatial (in) justice can be seen as both outcome and process, as geographies or distributional patterns that are in themselves just/unjust and as the processes that produce these outcomes. It is relatively easy to discover examples (...) but it is much more difficult to identify and understand the underlying processes producing unjust geographies." (2009, p. 3)

With this concept Soja "seeks to promote more progressive and participatory forms of democratic politics and social activism, and to provide new ideas about how to mobilize and

maintain cohesive coalitions and regional confederations of grassroots and justice-oriented social movements.” (2010, p. 5)

Spatial justice, a subcategory of social justice, is the notion of the effect that policies and actions have on the way people relate to space; it advocates for the right of the city, claiming power over the process and in the shaping of their communities.

The urban context of this research is the reality of a city where the citizens are constant victims of the state’s policy failures, what is needed urgently is the advocacy for the rightful use and appropriation of space. The devaluation of the common natural area has to be reclaimed. This is one of many changes that have to happen in the society of Maracaibo for a future collective healing. The coast is a space of multiple possibilities, from community building to touristic potential.

This space for opportunities is part of the heritage, where today it is just seen as a territory to exploit financially. The impact of current policies has affected not only the water of the lake but also the way people live. The division and segregation of the space reinforce class demarcation and resentment that enhance the social unrest.

Access to the common resources, especially ‘clean’ ones, is the right of the citizens. It is acknowledged that architecture as a profession has its limits, but it has also been demonstrated the strength it can have in creating a platform for community empowerment and participation:

“The search for justice has become a powerful rallying cry and mobilizing force for new social movements (...) Combining the terms spatial and justice opens up a range of new possibilities for social and political action, as well as for social theorization and empirical analysis, that would not be as clear if the two terms were not used together” (Soja, 2010, p. 4)

The revindication of the natural space’s meaning and value needs to co-emerge from the combination of design and community participation. The engagement of the direct users and future public is vital for a successful initiative of this type. The materiality of the space must then come from the reflection of the user’s values and needs. Translating these values with a clear notion that it would be a collective work instead of a “*designer knows it all*” situation.

2. ~~Architecture without Architects.~~ The designer as a facilitator

Each day we are seeing the shift from the belief of the all-knowing architect to one of a humbler position. Even though it is difficult to acknowledge that the practice has contributed

or enhanced many of the social disparities that exist today in the world, especially by following preconceived standards, we can observe that there are efforts to repair this situation.

Architect Vikram Bhatt addresses that the role of the architect is not an all mighty “God” figure, but more of a facilitator or conciliator between the human and its environment. He emphasizes the notion of being aware and sensitive to local resources and practices of the community to have more thriving results. He gives the example of Mumbai, where he performed ethnographic studies in different settings. The focus was on observing, and learning the traditions, in order to follow local patterns of the culture, to then be able to build on that site. This approach, as Vikram Bhatt referred in his article "Alternatives for a Developing India" is a much conscious method that would help introduce change into the system incrementally.

“(…) Social commitment and creativity as an architect does not necessarily negate to each other (…) The grassroots tactics are overly empirical; activists manage to reach only a limited number of people from their alternative camp.”
(Bhatt and Scriver, 1990 p. 97.)

Bhatt draws attention on how important it is the architect’s role as a facilitator of techniques for these communities, as a way for them to move forward. The aim is to help them intertwine their knowledge with the new technologies. This means that architecture serves as a bridge for them to enhance their built environment, providing a self-supporting system. As highlighted by Bhatt:

“(…) transferring this responsibility is no easy task but considering the failure of previous dogmas of design, it is one that we need to try to see if it can really be the way to go for the future of the practice; *In their work, there is a consciousness that change must be introduced incrementally through the system itself*” (Bhatt and Scriver, 1990 p. 97)

On *How the Other Half Builds*, Bhatt (1984) explains that ‘standards’ in poor settlements do not apply the same, as he refers “they reflect a view of optimal solutions that is not only culturally inappropriate but also inadequate” (p. 1). Therefore, not only do we require a practice that is respectful of the natural environment but also one that is sensitive to the socio-cultural context:

“A new set of settlement standards needs to be evolved. These standards should seek to accommodate, rather to organize. They should reflect the (sometimes

harsh) reality of the urban poor, and they should respond to their special needs, not to an idealized set of criteria.” (Bhatt, 1984, p. 1)

The approach to a ‘solution’ of a site shifts accordingly to its context. When working with developing communities where problems overflow, it is tempting to create an ideal version. But, in the end, the least imposing solution, which serves as bridge that facilitates their growth by their own means, instead of trying to implement regular first-world standards is best:

“From the pre-industrial perspective of the Third World Village, the philosophy of optimizing the use of local resources and labour promises tangible results, such as improved agricultural output, cottages industry and innovative low-cost housing, all of which constitutes a plausible, intermediate alternative to the uncertain rewards of full-fledged industrialization” (Bhatt and Scriver, 1990 p. 97)

It is important for this research to have a clear understanding that participation within the community is important for the design to be successful and respectful to the setting that is intended. The public is key in the design, and it should be reflected in the final outcome.

3. On Architecture’s Public and Community Design

Going further into this notion of ‘to whom’ or ‘with whom’ we are designing, we can overlap the concepts presented by philosopher Roland Barthes and urban planner Gian Carlo Di Carlo. Many of the issues they raise at their times can be applied still in contemporary practice and academia. These critical articles challenged the worldview of the moment, questioning the ‘to whom’ and the ‘for’ of the creation. For Barthes was the issue of giving credit to the user’s interpretative capacity, for Di Carlo was the shift from the design process, opening it up to the user’s involvement in the creation.

Moreover, if we take Barthes (1977) idea that a text lies in its destination, the reader is someone who holds together all the traces, and relate it to the architectural experience, we can start realizing that the user's perception of a space cannot be controlled. This perception is up to them and their needs and desires what they do with it, even if we attempt to do so with our forced design. The importance of this notion for this research is that, by acknowledging the user as a primary component in the design, it is through him that the project is completed. The experience and interpretation cannot be controlled but nonetheless has to be taken into consideration.

That is also a common point with Di Carlo's critique on not addressing and/or understanding the user's real needs. He talks about how modern architecture had failed by trying to be pragmatic and 'designing for all' and instead it became an impersonal experience. The architect took the prime role as an author and imposed his/her views on the people. This authoritarian planning as Di Carlo calls it, is still being seen in academia and in practice: "Collective participation introduces a plurality of objectives and actions whose outcomes cannot be foreseen" (2005, p. 15).

Even though a fully open process like he explains is not easy to comply in a semester of school, the critical thinking that the proposal of a design is never truly a finished object without the user real interaction and experience, must be acknowledged:

"... but identifying with the users' needs does not mean planning 'for' them, but planning 'with' them. In other words, it means enlarging the field of participation through the definition and use of plan, introducing into the systems based on a continual alternation of observation, propositions and evaluations" (Di Carlo, 2015, p. 15)

As Di Carlo states, in architecture there is no new idea, much has been already done and without the architects help sometimes, it is a question about ego, of seeing your ideas as a 'saving the world' formula. Further, it's the notion of humbling yourself and understanding that a project has to have room for other views. It is also a posture of tolerance, which is the main concern nowadays, to respect the real needs and desires of the others, even though you may think the design would not be the best.

Professor Jeremy Till's views on architecture align with the concept previously discussed in Barthes, *Death of the Author*, this being the issue of the isolation of a piece from its audience. Barthes acknowledges the reader's interpretative capacity and this capacity being the death of the author as sole controller of the piece. On this scope, Till (2009) recognizes that as much as we control the means of production of the work, the final making is never going to be able to know the full picture of how, and where, and by whom it's going to be received.

Another interesting point he makes is that he calls to look further for inspiration, "to the gods, the specialized, to the rational, to the high minds of philosophers, to the extraordinary" (Till, 2009, p. 140) but after looking upward he goes back to look inward. This being that the

design can be made, and should be made from excellent criteria, but not distant from its reality, the valuable content will come from wherein it is made for.

He calls for a more socially attuned architecture, one that accounts the reality of everyday life, but one that doesn't demean the value of design. This balance is what he calls *Lo-Fi architecture* a challenge that can be accomplished just by not letting oneself be absorbed in the rationality or the rigidity of the profession. He enhances the notion of how things are portrayed in popular culture, the role architecture plays in this action, and the effects that this can have in the way we design and our intentions.

It is easy to lure yourself into what is 'common' or a 'trending' just by complying to the standards, but isn't this one of the reasons of how modernity became a failure? The vague interpretation of the modernist paradigm. The fact that just following recipes and what looks good, accounted as the ordinary and people started rejecting this 'pure object' as they didn't reflect their reality. In present times, new paradigms need to be adopted, one that acknowledges the public and its conditions:

“Lo-Fi architecture thus asks the architects to design to the highest ability and, at the same time, be acutely conscious of the conditions which that design will finally encounter.” (Till, 2009, p. 137)

The act of design has a lot of power. The means that is used and performed should reflect on the concepts presented, seeking the spatial justice for a site and giving opportunity to the community's voice to be heard through the design. The critical view of a subject has to be observed according to its setting and with regards to its direct users. Designing not only means the new creation of something but also the reflection on the problem. In the following section, the problems of context, the project's setting, and the goal of creating a platform for the design to happen, will be studied.

CHAPTER II: Coastal Waste Narratives, Introducing the Main Characters

In this chapter, the city of Maracaibo as the context of the case-study community is explained. The historical and environmental aspects that are affecting the development of communities, specifically the ones located in the coastal waterfront are highlighted. This study is done in order to have a more comprehensive understanding of the setting that is being designed for.

1. The city: Maracaibo, a city that has turned its back towards the lake.

The evolution of cities rests on the various circumstances and events in which they are surrounded and affected. On a broader scale, the geography and the environment play a major role, depending on how people take these circumstances into actions when developing these urban territories. The circumstances of this coastal city development have happened in a way that the built environment has not been respectful to the natural environment in which it shares the territory.

1.1 The Water, the City Origins

Maracaibo, located in the western region of Venezuela, is a city that originated from the water. The indigenous people that inhabited the land thousands of years ago, settled above the water next to the shore, (Wagner, 1980). Their houses are made from the mangrove, a native tree in the lake, and a cosmic element for the Añú (indigenous people) that is also thought to have inspired the shape of these dwellings. According to their mythology, the man builds his house from the tree, this creates an intrinsic relationship with the natural environment since its origin (Quintero Weir, 2004; Wagner, 1986; García, 1996; Espina, 2014).

The habitat they created resembled the one from the mangrove, they were still dwellings, called *palafitos* that rose over the lake (Figure 1). “A *palafito*, just like the mangrove, along with other *palafitos* in its surroundings, also roots in the waters and below them. That multiples around the central trunk, the maternal trunk” (Servigna 2007). The mangrove a common species in the lake is a tree that is known to have qualities of habitat for animals inside and outside of the water because of its several roots. In this sense, the natives took

this as analogy not only to create their dwellings but also to organize their territory. According to architecture professor Andrés Garcia (1991):

“Different from other latitudes, in Zulia, the first lodgings were linked to the water. This, as a response to the inclement sun and the need to protect themselves at night from animals. There, the man isolated himself and raised its stilts on the furrow of the water, in the rivers, lagoons and the lake, to receive the tempered breeze that crosses its channels. There, the palafitos, like the mangroves erected their roots of aerial pretensions. There, the water inhabitants, who, like the land people, have chosen their element as the core of their myths.” (Quote translated by the author) (p. 60)

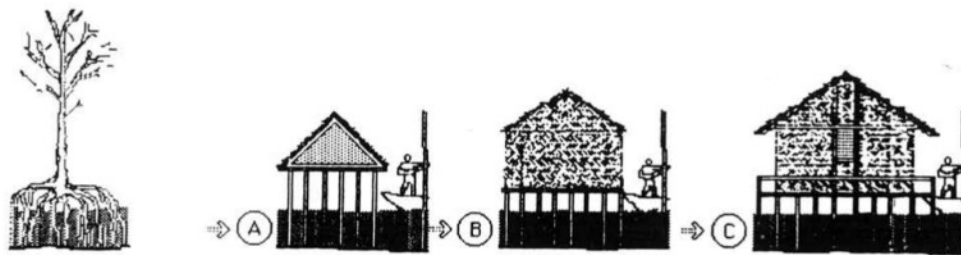


Figure 1: *The evolution of “Palafitos” the indigenous people’s stilt houses on the Maracaibo Lake.*

(Source: Garcia, 1991, p. 6)

The Añú’s also known as ‘parajuanos’ meant ‘people from the water,’ the significance of the lake and the water was very intricate in their being. Spaniards called them ‘*pueblos de agua*’ (water villages), the lake was their essence, they performed all of their activities in this natural environment, until their mode of living was disrupted by the colonization in 1499. Some of these settlements have evolved and are still present in some areas of the coast, but most of them have been displaced since those times.

The fight for the territory meant the control over rivers, coastal fronts and marine routes in the lake, causing the narrowing of the indigenous population. Historians Urdaneta, Parra and Cardozo (2006) discuss how the fight for the land was, how these ‘pueblos de agua’ were eradicated for Europeans to have control of this territory, and specifically in Maracaibo they state, “In an old map by an unknown author is shown the palafito settlements by the middle of the 16th century, when it suggested a ‘pueblo de agua’ in the vicinity of the current Santa Ana church, one of Maracaibo’s the oldest chapels (dates from 1602)” (p. 12).

The natural value of the mangroves, the lake and the water were all left behind after this moment. The ‘official’ foundation of Maracaibo dates back to 1572, after the first ‘discovery’ in 1499 and just half a century later, it had become a prosperous port due to its location. It was a converging point for import routes between South America, the Caribbean and the Andean Hinterlands (Cardozo, 1983; Parra, 1991). This meant that as any other colonial settlement, it was planned with the grid, without taking into consideration the surroundings (Figure 2). According to architecture professor Pirela (2007):

“The foundational city had the reductionist function, as it had the duty of facilitating the indigenous submission to the new conditions; it had to be representative of the undoubtable presence of the emblematic Kingdom of Spain; and it had to be on the defensive, since it had to come to its own help due to the greediness of other European monarchies. All of this function had to be supported by an orderly and self-sufficient structure to ensure the growth and stability of the town.” (Quote translated by the author) (p. 28)

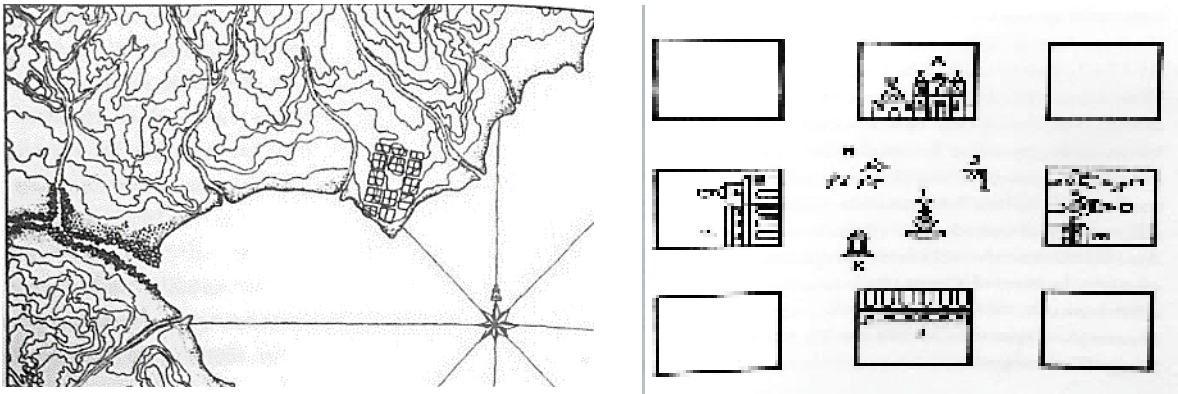


Figure 2: *Location and foundation of colonial Maracaibo.*

(Source: Sempere in Pirela 2007 p. 28, 29)

The grid reinforced the power of the monarchy in the region. For them the value of the city at that time relied on its location and the money it produced from its port. The economic prosperity reached a level such that it also became a target for pirates (Exquemelin, 1992; López Zea, 2003; Lucena Salmoral, 1994). The commercial port was the heart of the area and its proximities for centuries, making many other colonies prosper in South America.

1.2 The Development of the Port City



Figure 3: *The Maracaibo oil expansion development*

(Source: Sempere in Pirela, 2007, p. 35)

Maracaibo, from being a '*pueblo de agua*' became a port town, leaving the significance of the water behind and exploiting it for a commercial purpose. Historian Ileana Parra (2006) states:

“It can be concluded by affirming that the historical dimension in the space of the aboriginal lake basin changed with the new European and Hispanic mercantilist order. The routes and exchange networks between Lake Maracaibo’s water towns and land people, the mercantilist trade of the XVI and XVII centuries was consolidated in response to a great Caribbean and Atlantic demand.” (Quote translated by the author) (p. 16)

This prosperous commercial trade centre by the late 1800s had become one of the most developed cities in the country. But this all changed by the early 1900s with the discovery of oil, which accelerated the urbanization.

The urban development in Venezuela is intrinsically linked to the remuneration that came from the oil exploitation, it went from having a stable agricultural economy to an incredibly rich oil-based one (Oquendo, 2008). In the case of Maracaibo, with the oilfields found in the lake and inland, the city became a target for oil companies and their campus template to settle themselves in the region. As stated by Pirela (2007):

“In 1914 the Caribbean Petroleum Company drilled the first oil on the eastern shore of the Maracaibo Lake. Thus, by concessions to several foreign companies, there was a vertiginous development of the oil industry in the lake basin, establishing then the first oil enclaves in the Zulia region.” (Quote translated by the author) (p. 24)

This meant creating new settlements, services and institutions for oil company employees. These campuses were normally segregated from the immediate environment, the built services were exclusively for their residents, oil workers and their families, according to architects Quijano and Rodriguez-Espada:

“During the historical conjuncture of the 20th century’s first decades, when the petroleum activity bursts through the region, Maracaibo begins its

transformation from a monopolist centre of Venezuelan western land-exporter circuit to a transaction centre of oil exploitation of the country. From an urban point of view, the most significant expression of that transformation was the emerging of a population settlement, separated and differentiated from the traditional city, because of its geographical location and for its urban texture.” (2006, p. 2)

This caused a rupture in the urban fabric of the city, these foreign guidelines made it develop inwards and forgetting the shore. The campuses were located in the inner land, away from the coast. Eventually they were absorbed into the urban structure, but it created the development of a second city aside from the original commercial downtown of the port.

The intermediate spaces between these two cities evolved as a part of the structure. And with the booming oil economy during the '50s to the '60s important architectural works were built, it was the period of the modernization. Later, in the 70's and 80's there was a major boom of residential towers. The city went from having a horizontal profile to a vertical one, especially around the coastal area (Cestary, Petit and Rodríguez, 2005), as depicted in Figures 4 and 5 that show up-to-date images for this area.

These developments were mostly done by developers focusing on a capitalist agenda and not giving to the city, reinforcing the division with the lake and other public areas (Echeverría and Chourio, 2001). Although these high-rise residential developments were 'planned,' the urban context surrounding them was not, this left space for unplanned settlements to take over, Cestary, Petit and Rodríguez (2005):

“When the real estate market selected sectors in which to invest, the construction of buildings was concentrated and intensified there, revalorizing these areas and leaving the others marginalized and impoverished. This determined notable imbalances that were generated by different urbanization processes that created a city image defined by the architect Ethel Rodríguez Espada as a 'patchwork quilt'.” (quote translated by the author) (p. 75)



Figure 4: *Residential towers blocking the waterfront.*

(Source: José Ildio Spinola)



Figure 5: *Residential towers blocking the waterfront, view from the water*

(Source: <http://derechosyalgomas.blogspot.com/2012/08/hermoso-lago.html>)

The economic differences have always existed in Venezuela and reinforced in later years. The spontaneous growth from these unplanned settlements is part of the Venezuelan City's urban structure. This is a phenomenon that is very present in Maracaibo, it is part of the state's negligence to address the housing issue priority beforehand.

This urban dynamic has resulted in many disparities of social and physical nature. These improvised settlements do not have a pre-thought urban design, the land is usually divided and maximized for major occupation, leaving little or even no area for public spaces (Pérez and Castellano, 2008). The conditions of these communities are normally embedded with violence and low quality of life. Due to the municipal negligence and overall political malfunction, these issues must be addressed in a grassroots manner, considering that they have the same rights as do any other planned settlement.

1.3 The spontaneous growth of the city. Issues that have affected the coastal development.

The unplanned and spontaneous growth of the city has resulted in having more than 70% of informal settlements on the coast. There, the contrast lies in having high developments like residential buildings or private clubs, leaving little possibilities for public space for the rest of the citizens to enjoy. This has translated into a lack of relatedness to the coast from the communities in Maracaibo.

In a historical study of the city planning, the architects Elisa Quijano and Ethel Rodriguez-Espada (2006) stated that it was due to its privileged location that it became an important port during colonial times and later the country's second most prosperous. The lake was vital for development, but the dispersion towards the peripheries, unequal income distribution and inadequate planning from the public entities have undervalued this relationship:

“In the eighties Maracaibo initiated a process of periferization and thereby increasing exponentially the areas of irregular habitat that are a dominant pattern—genetic code—of occupation and urban expansion. In 1985, poor neighborhoods occupied 41% of Maracaibo's territory, ten years later 60% of its territory was occupied by 400 poor neighborhoods.” (Ferrer and Arroyo, 2009).

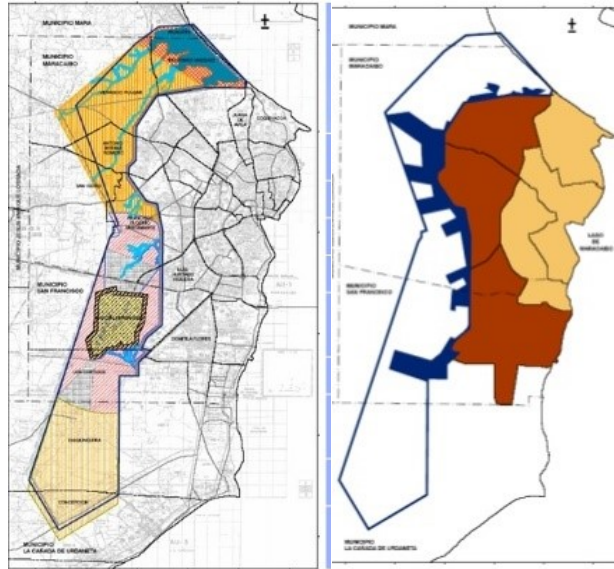


Figure 6: *Maracaibo peripheries (the blue zone is the peripheries)*

(Source: Arquiluz in Ferrer and others, 2006 p.2)

In Figure 6, growth towards the inner territory is seen. As explained by Ferrer and Arroyo, these developments are mostly informal settlements with little access to public services. This planning issue has accentuated the problems that affect the lake and as a result the city. These problems are being discussed into further detail in the next section of this chapter with the aim of understanding the coastal narrative.

2. The lake: abused natural resource.

The Maracaibo Lake is part of what encompasses the Maracaibo System (lake, channels and rivers):

“The aquatic component of the Maracaibo System and the drainage basin cover approximately 120,000 km² (...) Located in northern South America, the Maracaibo system comprises the two main bodies of water, Lake of Maracaibo, the largest in South America and 17th in the world, and the Gulf of Venezuela...”
(Conde and Rodriguez, 1999, p. 300)

Not only is it the largest lake in Latin America (14000km²) and one of the biggest in the world, but it is also rich in minerals like oil. The significance of this extends to the fact that “If the Maracaibo System were to be defined with just one word, petroleum should be the most obvious choice. Located in the heart of Venezuela’s oil industry, Lake Maracaibo

harbours one of the most important oilfields in South America and also one of the largest in the world” (Conde; Rodriguez, 1999). This has been the source of joys and troubles, throughout the years, this natural territory has been exploited.

Venezuela’s economy is based on the oil rent: “... drawn out from the lake’s bottom (...) Venezuela most valuable export is the petroleum: the incidence of the oil industry on the national economy is 60%.” (Conde and Rodriguez 1999 p. 297) Oil, one of the main reasons why the country and the city developed in the last century additionally is why the lake is currently so polluted. As stated by writer Mike Ceaser (2003) Maracaibo was once a pristine colonial trade centre, Venezuela’s second-largest city and is now facing environmental and social issues intricately linked to its vast petroleum resources. The country’s landscape has been taken up by the industry and filled with pipelines and refineries (Figure 7); the invasion of this infrastructure causes at least 15 monthly minor oil spills, 2 major ones a year. Ceaser (2003) reflects on the state of the lake:

“...Besides being the continent’s largest lake, it is also commonly referred to as the most polluted. That is because while the city of Maracaibo has boomed, its lake has suffered. The lake’s bottom is pierced by some seven thousand petroleum wells, and if the water could be dried away, it would reveal a network of some fifteen thousand miles of petroleum pipelines—many of them abandoned and leaking.” (p. 13)

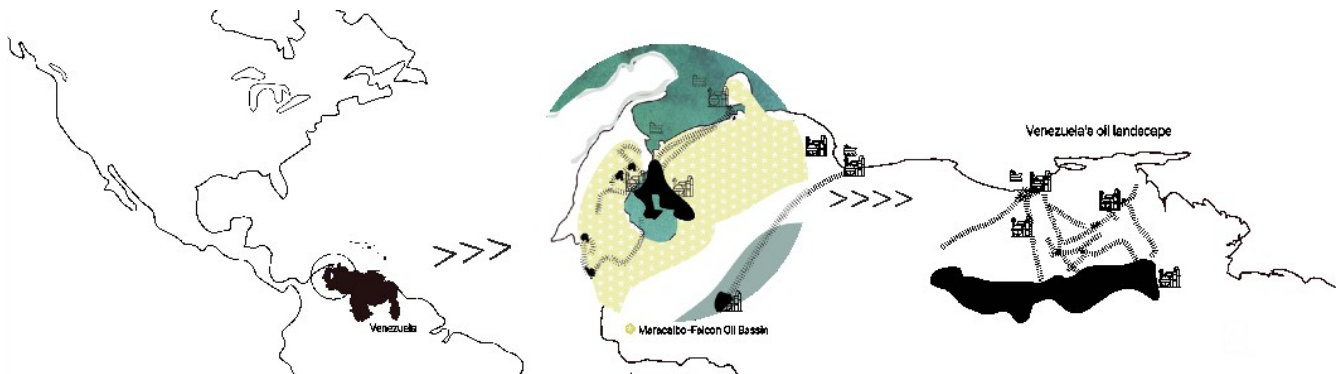


Figure 7: *Location of oilfields and pipelines in Venezuela*

(Source: by the author)

The oil industry in Venezuela is managed by the central government, PDVSA (Petroleum of Venezuela, S.A.) who has the responsibility over the lake oilfields and the maintenance of

this infrastructure. The engineer and president of Cidez (Order of Engineers of Zulia State), Marcelo Monnot, presented figures of the impact in 2017:

“In more than two months, approximately 15 thousand barrels of oil have been dumped into the estuary, which in itself is considered not only as an environmental crime according to the Environmental Penal Law in Venezuela, but a crime against humanity for the serious damage that this situation is causing to countless rural communities and urban settlements and neighbouring states.” (Quote translated by the author) (Interview to Monnot by Jimenez, 2017)

Considering that the first oil well was discovered as an eruption in 1914, more than 100 years of abuse of this natural landscape has passed. There is a very profound issue of environmental degradation. This is not a new concern. Since the 1960s preoccupations were raised, in 1964 the Ministry of Mining and Hydrocarbons ordered oil companies to create a committee to prevent water pollution.

Unfortunately, those regulations have been followed poorly in the past years. This lack of management causing the pollution is also the reason for the drift of the population from the lake. The intrinsic value of the natural environment has shifted to favour the economic growth of the city with no regards to the preservation of the quality of life. In Figure 8 is observed an image of the rigs in several areas of the lake that partake in this degradation.



Figure 8: *Lake Maracaibo oil slicks, platforms and rigs*

(Source: <https://pwmaracaibolake.wikispaces.com/Physical+Limnology>)

In the lake a variety of other economic activities are performed. This diversity goes from heavy industrial activities like offshore and coastal oil exploitation and petrochemical industries, to more local commercial one like trawl and artisanal fisheries. Resulting in a space where according to biologists Conde and Rodriguez (1999) urban development, oil tankers transit, maritime trade, oilfields and petrochemical industries, untreated rain and sewage discharges, solid waste disposal, engineering works, pesticide and fertilizer laden runoffs, management of conservation units and fisheries converge and interact in a complex fashion.

The lack of regulations is not only restricted to the oil industry, other fields take advantage as well of this ungovernability, as stated by Ceaser (2003) “Petroleum is not the only problem. There are also coal barges, which periodically sink while carrying their loads of exports. And the cities on the lake’s edge have insufficient water-treatment facilities, meaning that the lake receives a steady flow of sewage.” (p. 13)

This problem of untreated sewage directly affects the communities on the shoreline, which are the daily recipients of great quantities of waste in their coastal fronts. According to Jorge Pedroza, director of the ICLAM (Institute for the Control and Conservation of Maracaibo Lake), in an interview in 2017 states that the root of this is “that the polluted glens located in Maracaibo and San Francisco empty into the lake, without having any treatment, they fill the body of water with incalculable kilos of non-biodegradable waste.” He holds accountable the city’s municipalities for not creating a plastic recollection system to control the high levels of contamination.

One of the most latent issues nowadays is the global environmental preservation and awareness. The Maracaibo Lake is one of these examples, the industrial boom made us forget the importance of protecting the natural landscape. The lake currently is viewed as a petroleum generator and the negligence of proper maintenance have caused many problems to the people and the living beings that inhabit that space.

3. The coast: a broken shoreline.

The lake was the source of life for the Añú, the first inhabitants of the area, it provided food and water, as well as a channel of transportation. And the coast’s value was the means of connecting the lake and the land. This value was enhanced throughout the years when the city became one of the country’s main ports. The people had a dependency to the lake, but in

a positive respectful manner, as explained by architecture and design professor Bermudez (2012):

“The lake was without a doubt the most significant natural reference for maracaiberos at the time (late 19th century) and for the foreign people who visited or moved into the city. Practically everything revolved around this natural resource, it was the guarantee of the economic wealth of the region, source of inspiration for poets and writers, place of recreation, water reservoirs for wealthy and poor people, in short, a city devoted to the lake, linked to it in every way.” (p. 76)

The shore once part of the citizens' daily routines an element integrated in the collective urban imaginary; it was used for bathing, cleaning or just playing, now due to its current state and lack of space to recreate, the activities in it are limited, “a few decades ago, people flocked to the lake’s shores to bathe and swim. But then all but four of the lake’s 112 official beaches were declared to be too polluted for safe swimming” (Ceaser, 2003, p. 13). Architects Camacaro, Caldera and Cestary (2007) recount the recreational factor that the lake had in the early 20th century before the oil event, they state:

“The Maracaibo Lake was the main natural resource for the recreation of natives and foreigners, in it took place boat rides, competitions of schooners, tours to the different ports and rivers that flown into it, and bathing in it, these activities constituted the main ones in this natural medium for pleasure, tourism and business.” (Quote translated by the author) (p. 105)

People’s relation to the coast evolved from being a positive dependence to a negative one. This happened early in the 20th century with the oil discovery, with this event, as explained before the relation to the lake had now become more of economic connotations. The planning of the city took little consideration to the shoreline development and water treatment, causing division and segregation to the space. Leaving behind the other values, to the extent that recreational activities on the coastal space have declined in the past years due to the downgrade of its environment.

The 40 km that encompasses the whole city shoreline has a variety of uses that range from industrial, commercial, recreational and residential. Industrial mostly being towards the south area and a mixed commercial and residential towards the north, the break being where the original centre of the city is located and where the port is found. In this 40 km only 3-4 km is accounted as public space. An inherent quality in any good city is its abundance of public or green spaces. In Maracaibo, there is only 2 sq m. of green space per inhabitant,

falling short on the 9 sq m. recommended by the World Health Organization. The city is lacking adequate public spaces for the communities, as explained by architect Monica Montero (2001):

“During the last twenty years of urban development, Maracaibo has experienced rapid population growth and uncontrolled urban expansion, all of which have negatively affected the environmental quality of many urban spaces. Maracaibo displays complex urban conditions: extreme temperatures and humidity, high levels of crime, poor infrastructure maintenance and a lack of many physical amenities. These conditions make Maracaibo an extremely difficult place for people to use outdoor urban spaces.” (p. 2)

As stated before, the coast is one of the greatest examples of the inequalities in Maracaibo, and of the country’s unstable conditions. The profile of shoreline towards the north is comprised with residential settlements that are quite contrasting. This, a consequence of the 70’s and 80’s economic boom, where the city was left to the developers and promoters without having a collective planning. Resulting in pieces of leftovers land and no public space between these upper and middle-class residential towers and anarchic settlements. Montero (2001) states:

“Maracaibo is the land of the beloved sun, of the uprooted culture that has risen from anti-ecological attitudes towards the environment and towards other people. Maracaibo is a city of laziness, of carelessness, of contrast between rich and the poor and the abandoned lake. Marabinos have turned their backs on Maracaibo Lake. The waterfront is a barrier of tall buildings that provides views for apartment residents, and aligned together to make a virtual wall, which disconnects visually the rest of the city from the lake. There seems to reflect a careless attitude about the everyday environment.” (p. 36)

Additionally, to this historical research, in order to provide a more macro understanding of the city’s problem in a more didactic way, I completed a digital story video, *A Broken Shore. Understanding the relationship of Maracaibo and its lake*¹. This digital story concisely frames a comprehension of this city. From there, I illustrate the issues of the main narrative that I see happening in Maracaibo. This narrative being the relationship of the city and the lake, and how this struggled relationship, is defined by what happens in this vulnerable limit of the coast.

¹ Video link: <https://vimeo.com/248429122>

This video exposes the already explained degradation in the coast and the lake. The purpose is to provide a broad context of the city's problem, unfolding the narrative of the lake, the way it has evolved giving its back to this natural element. The lake, as noted before, is not only rich in oil but was also a connecting point to the world, either commercially and for leisure. Even before the colonization, the indigenous communities that inhabited the space, their houses, were built on the lake.

Therefore, the video reinforces the idea of the lake being the essence of the city since its origins, and this has become my motivation to address this problem through design, by advocating for this issue of landscape degradation and finding ways to repair the consequences it has had on people and their relationship to their environment.

The conditions of public spaces in the city are not easy to work with, nevertheless, this adds to the reasons why different ways to reconnect to the waterfront must be looked at. In the next section the approach that was taken for this research project is explained. The coast has the potential of enhancing the identity of the city and design provides the possibility of community making and social integration. How bringing together the notions of participation with the site narratives will help find a bridge between the people and the coast of the lake, which is nowadays a broken shoreline in many aspects.

CHAPTER III: Regaining the shore agency of Maracaibo through design—case study: Lago y Sol Community

As explained in the previous sections there are multiple issues that affect the relationship of the city and the lake. The intention of this chapter is to explain the ways in which I had a more direct contact with a community of the coastal area. This interaction was intended such that I can better understand the impact of these general issues of the coast on the community as well as what other problems they face in their daily reality. The goal of this understanding is to propose a design for the public space that this community has, tackling the needs that were discovered in this fieldwork, with the overarching theme of narrowing the gap between the community and their coast.

1. The Lago y Sol community, waste victims. A case study that exemplifies the disparities along the Maracaibo shoreline.

Noticing the differences between the way people relate to the waterfront, and the evident contrast between the various communities and areas, it was aimed to work with a coastal settlement that is an example of the shoreline's inequalities and injustices. A gap that has been the result of years of unplanned and spontaneous development. That happens not only between the landscape and the built environment, but in the way people from less privileged areas have access to the benefits of public spaces and services, more than in other ones.

The choice of the community was made based on ease of access and location, along with geographical, historical and urban elements. Finally, the selected site is located in the north, one of the coast's less privileged localities, as seen in Figure 9.



Figure 9: *Location of the Lago y Sol community.*

(Source: the author)

This community was an informal settlement that throughout the years has developed on its own, slowly incorporating all the services necessary to live. Nowadays, it is a cohesive community that even though they have water and electricity from the city grid (contrary to some other settlements of this type) they still do not have paved roads and a public space with proper amenities and services. Figure 10 depicts the site through a collage of images that show the conditions of the community, with self-generated buildings that lack urban regulations and city standards.



Figure 10: *Collage of the landscape of built environment context*

(Source: the author)

The Lago y Sol (lake and sun) community, appropriated the area they currently live in, 30 years ago. According to residents, the previous owners left that space, a private beach, abandoned in the late '80s. Then, the division of land was made by themselves and it has organically and spontaneously been settled since then. The notion of land ownership is

carried through that division, and they have since slowly incorporated public services, but without any road infrastructure or any other public space infrastructure.

This is a recurrent pattern in many ‘unoccupied’ lands over the country, in Maracaibo, up to 1995 these squatter settlements called ‘invasiones’ (invasions) account for a 65% of the population (Echeverría, 1995). A consequence of uneven income distribution, unplanned amenities and leaving little space for opportunities for the less privileged (La Roche, Gonzalez, Echeverría, Velazco, 2004). The community is just another result of the unequal and conflicted nature of the Venezuelan social structure, as explained “...the increased poverty levels have transformed cities into infra urbanized, informal, violent, auto-generated spaces with a precarious and marginalizing pattern of urban development” (Echeverría, Chourio, p. 2, 1999).

The community has self-generated a space for their living. They have conditioned this once abandoned land and appropriated it according to their needs. A prime land where they have since built their own homes and developed it into a dwelling for them and their families to live and enjoy.

The area of Lago y Sol encompasses 150,000 sq m. with a total of 102 families. The nearest hospital and schools are less than a kilometre away and the space where they mostly recreate is a 300m length lot on the shore that they have also conditioned and maintained by themselves. In this space, a former private beach they have planted palm trees and other non-native species, creating a self-designed landscape that is kept by the facing neighbours. They have additionally built their own furniture and lighting to condition a gathering space, which is the heart of the area, as observed in Figure 11. The goal of the images of the collage is to show the way they have appropriated the space.



Figure 11: *Collage of context of the built and natural environment*

(Source: the author)

There have been some projects from the local government together with the community council, to improve different areas going from tourism, housing, energy and water treatment. Even if most of these projects were approved, they have not been executed in the end.

1.1 Community Dynamic and Relationship to the Lake

Contrary to other areas of the city, this community has direct access to the lake. Since the beginning one of the main economic activities was fishing. And the coast has served as the core congregation place for them. This coastal lot area is collectively designated as their public space. This lot is the space for gardening, gathering, cooking, playing and sailing or harbour point for fishing and kayaking.

The people who mostly use the space of the coast are the immediate residents of the area but there are also some visitors during the weekends and holidays. At those moments, the community takes advantage of the people's influx and creates an economic profit from these, selling food, drinks and renting furniture to enjoy the beach.

Although there have been some minor issues with the security of the area, overall it is a crime-free zone. This is because of the overall cohesion they have developed, where they set up a network to keep the area secure. In case of any incidents they investigate among themselves until discovering the culprits who either get punished or expelled from the community; on the most part, a self-organizing community. The matter of security as many other issues of the space has been in their hands to take care of due to municipal negligence.

1.2 Community's Concerns

One of the area's main concerns is the lack of public planning and interest for the proper development of services for the community. The public administration has neglected providing services such as sidewalks, road paving, waste recollection, public lighting, among others. This has led them to take matters into their own hands. They have accomplished so far with collective action the greenery around the coast and maintain a safe area for children and residents by creating their own safety and patrol system.

For future actions they have the concern of their public space, how to better manage it in terms of preserving the coastal front clean and waste free. All the achievements they have done in the area have been in a collective manner. Since the beginning they have developed

it by themselves and have had control over how the territory is managed. Therefore, any future action should also have embedded this notion of collectiveness and with the respect of the community's values and goals. The nature of their land was by appropriation it is vital that this is reflected in any future project as it is their essence.

2. Participation as an Insight into the Coastal Community Context

The Lago y Sol (lake and sun) community appropriated the lot they live in 30 years ago, and they lack many services. Currently, the only public space they have to gather and recreate is a site along the coast. They have self-organized it, but nowadays pollution in the waterfront makes it difficult to really enjoy this space.

The activity of community participation is based on the principle “that the environment works better if citizens are active and involved in its creation and management instead of being treated as passive consumers.” (Sanoff, 2000) This concept is fundamental for the gathering of data for the project. Developing a design with the community and creating a sense of awareness and ownership that would make it more successful in the end and giving them tools to critically think these spaces.

Another notion that is important as well is having a direct contact with the participants in the space that is considered to work with, Creswell (1998) establishes that “conducting a qualitative study means that researchers try to get as close as possible to the participants being studied. In practice, qualitative researchers conduct their studies in the "field," where the participants live, and work, these are important contexts for understanding what the participants are saying.” (p. 18)

Additionally, although this project is not developed completely as participatory design project some ideas of this approach are taken for the methodology of this research. If we go further into the concept of participation, participatory design is part of the broader concept of community design, which talks about “...involving people in the decision-making process for shaping their environment” (Toker, 2007, p. 312). This previous statement reinforces the idea of advocating for design to help empower communities for a better living. Participatory design englobes the notion of working with local communities with local resources, driving design in a sustainable way. This notion is important to acknowledge because if not done with locally found materials and resources the design will not be fully adapted to the site and the community will not relate in the end.

Going further into this subject of participatory processes, Kemmis and Wilkinson (1998) summarize the key features of advocacy/participatory practice:

“It is emancipatory in that it helps unshackle people from the constraints of irrational and unjust structures that limit self-development and self-determination. The aim of advocacy/participatory studies is to create a political debate and discussion so that change will occur. (...) completed "with" others rather than or "to" others. In this spirit, advocacy/participatory authors engage the participants as active collaborators in their inquiries.” (As cited in Creswell, 1998.)

Based on this, the project aims to work with the community in order to find a medium to help in the self-development of the area through a collaborative design strategy. In the end the key in participatory processes is that “the "voice" of the participants becomes heard throughout the research process” (Creswell, 1998) with the final goal of having “an action agenda for reform, a specific plan for addressing the injustices of the marginalized group.” (Creswell, 1998)

This project builds on an established community, and their way of living, enhancing their positive values through the design and complementing their lack of public space services and furniture through up-cycling strategies. The methodology approach for this research is based on this notion of participation for a collective action to improve the space. An action where the voices of the community’s multiple actors are heard. To accomplish this, it is studied through a series of qualitative methods their relation to this coastal space and the objects that comprise it, including the waste, to ultimately find strategies to manage the pollution in a playful manner.

The use for a qualitative method approach is based on the notion that it “can be central to the effort to reframe dominant narratives, which seek causal pathways to and from individual-level problems, to a view that also takes into account individual- and community-level strengths and resources, which are active in responding to, and changing, systemic, broad-based issues.” (Glenwick & Jason, 2016, p. 13)

According to Crabtree & Miller (1999) “qualitative methods in community-based research typically involve observing, listening, and engaging with people in their natural settings in order to learn about particular phenomena in their lives.” (As cited in Glenwick & Jason, 2016, p. 15) Following this premise the methods for data recollection for this research includes participant involvement through interviews and workshops at Lago y Sol, as well as

field observation and documentation of the community through photographs and videos, particularly of the coastal space.

The aim of these methods is to collect from multiple viewpoints the values and needs of Lago y Sol especially their experiences around the coastal landscape. The structure established for each of these data recollection methods varies accordingly with the ultimate goal of finding a design strategy that helps manage the pollution.

The **participatory methods** (interviews and workshop) objective consisted in collecting the “voices” of the different community actors about the use, experience and appreciation of the coastal space.

The **interviews** were conducted with approximately 15 adult residents and visitors of the coastal front area in an individual and group manner with women and men. The interviews utilized a semi-structured, open-ended, and iterative framework to gain first-person narratives of participant experiences in this space.

The idea of recompiling the narratives and experiences of the residents was to gather a general notion of the values, their needs and concerns. Additionally, getting to know the history of the settlement, and how it has changed over the years. As stated by Glenwick and Jason community narratives consist:

“Residents are asked to tell about their own lives, about their lives within the context of the community, and about the community’s history, challenges, and changes perceived, as well as about the intervention itself. Barometers of change are discovered through dialogue about residents’ stories, about family, organization, community, societal, and political interactions over time, all in discrete and vital episodes of their lives” (2016, p. 45).

The interviewers selected were the residents who directly face the public space lot that is located along the coast. Mostly adults and some young adults; as well as some parents of the children that participated in the workshop which allowed to obtain a comprehensive picture of the family’s needs. The subject focus of the interviews was the revitalization of the coastal area: how the residents relate to this space, what their experiences have been, what the most valuable elements are, and their main concerns and discuss with them about any future envisioning of the area.

The interview questions can be categorized with three major themes: (1) knowing the history of the site, (2) what the present life of the space is and (3) what could be a future vision for it. For the first theme we discussed questions like:

—How long have you been living here?

—What had been some memories/experiences you had in the space of the coast or in the lake?

For the second theme was more about the current state of the area, like:

—What do you value the most about this space?

—How do you live this space? What is your relationship?

—What are your concerns about the site?

And for the last subject the questions went along the lines of envisioning like:

—What could enhance the value of the place?

—How do you think it can be revitalized?

The **workshop** method was created for the children of the area, considering that they would be the future leaders of the community and acknowledgement of the surroundings is key in their formation. These activities were made for children between the ages of 4–12 years, in total there were approximately 20 children from that range.

The main goal of the workshop was to bring awareness of the coastal space while doing playful and pedagogical activities with the children. Architect Ana Cristina Vargas developed the ‘Tracing Public Space’ project where she generated a methodology for low-income communities in Caracas, Venezuela “based on observation, representation and design by using a toolkit that enables a two-way learning process between the designer as an ‘outsider’ and children as ‘insiders.’” (Vargas, 2014, p. 5) The general aim of this project was to “create awareness and inspire future leaders, children, to take action to transform public spaces in high-density informal settlements” (Vargas, 2014, p. 5). This case study provides foundation for the type of participatory process that the research is aiming, while using design as a tool for improving and forming a new platform helps the community become more conscious to its surroundings.

Therefore, the idea of these encounters was to get them involved in the well-being of the coast’s common area. Creating an awareness to the natural potential it has, through playful and creative activities fostering reflection and hopefully have a more respectful and caring attitude towards the lake in the future.

The workshops were initially to occur on different days (3–4 sessions). The intention was to develop the redesign of the area with the community throughout these workshops. Unfortunately, due to the political/civil unrest of the city (daily manifestations against the

government that led to road blockages and other irregular situations) at the moment of the fieldwork this was cut to one day of activities, and multiple days of interviews and observations.

The workshop with the children was condensed due to the uncertainty of the circumstances as it was difficult to plan much in advance. Because of this the main goal of the workshop was restructured from being design focused to an environmental and site awareness of the coast and to discuss any future visualization for the site.

To accomplish these goals the activities were structured along **three objectives**: (1) *identifying* key elements of the coast, (2) *recognizing* the importance of the coastal space and (3) how they *perceive* this space. For the **first objective** of *identifying the coastal space and the elements*, the children were invited to draw their favourite element of this area, and briefly explaining why they considered this element valuable. The **second stage** after having set the context of what area was being discussed, the participants were asked to *recognize the importance of the coastal space* by doing a collective collage. There, they drew their favourite element and any other that they would like to see in that space. The **final activity** was done in the coastal area, to have a direct connection with the space that was being discussed. There, different pedagogical dynamics were done in order to compile data on how the children *perceived* this space and how they relate to it.

Complementary to the participatory methods, the fieldwork study also included **observational data** through the gathering of photographs, videos, and personal notes of the area dynamic and state at various times of day and week. The data accumulated through each of these methods was analyzed and processed in diverse ways but all with the final intent of finding strategies to enhance the value of the coast and empower the community to do so.

The experience of the fieldwork was key for the development of the design proposal. The interviews were used as a method to collect the Lago y Sol narratives from the perspective of the users of the waterfront. This insight to the panorama of the community coastal narrative was later complemented with the children's workshop, creating awareness and empowerment for this group.

These methods were used to enrich the final design project. They complement the criteria that have been developed throughout the investigation, which will always rely on the notion of being representative and respectful of the site. These activities were not only a gathering of data to complement the project but also a way to bring to the community a different

approach and thinking of what they are used to. The intention is to give them a deeper sense of ownership of the site through this participatory process (Braa, 1996).

2.1 Community narratives, understanding their values and needs.

The main point of the interviews was to involve people's voices into the design, knowing and understanding the history of the area and the development up to the present. Nestor Bracho (2017), who has been living for 25 years in what he says to be his own built construction but not land (as the area is an invasion from a previously private beach), introduces the notion of the lake's importance. He states every question in prose mode, as he clarifies that he is a man who likes to talk in lyrics. Regarding the value of the lake he said *"el lago nos da riquezas, alimento y diversion, y no entiendo la razon que lo tratan con maleza"* (the lake gives us richness, food, and fun, I don't understand the reason why they treat them with such great evil) he then continues:

"ay hija, déjame que te diga, que verso te invento para decirte... yo vengo de frente al lago disfrutando de sus virtudes y en premio solo le pude contar los versos que le hago, pero vivo viendo su estrago por la contaminación, por gente de mala intención, por desechos naturales y también los industriales"

("oh girl, let me tell you, let me look for a rhyme to explain... I come from the waterfront, enjoying its virtues, a gift that I can only give you back through these rhymes that I'm doing, but I live to see the havoc caused by contamination by people of bad intention, by natural waste and also the industrial waste").

Bracho a retired track and field sports trainer, highlighted that the conservation of the space must be their fight and goal, the coexistence with the environment is a key for a good living *"salvar el ecosistema debe ser nuestra bandera, nuestra lucha verdadera, nuestra aspiración y lema. Debe ser principal tema en el diario trajinar, es un problema vital, mantener nuestra armonía, defender la ecología, y el medio ambiente con él"* (author's translation: saving the environment must be our flag, our fight, our aspiration and our anthem. It must be our main theme in our daily lives, it is a vital problem, maintain the harmony, defending the ecology and the natural environment as well). He also recalls when moving to the area that you could not even see the lake because of the vegetation but they have since prune and remove the bushes to have a more direct contact.



Figure 12: An image of the interview with Nestor Bracho.

(Source: Elsy Zavarce)

Other residents of the waterfront discussed the activities they normally did there, which ranged from seasonal parties to weddings and daily gatherings to cook or just talk and play. Oscar Gutierrez (2017) one of the newest residents, has been living in the community for 3 years, about what he values the most from the coast he states: *“me gusta todo, por ejemplo, todas estas matas y esto las he sembrado yo. Antes esto era un peladero, y les doy cuidado. La mata de coco del medio fue la primera que sembré.”* (Author’s translation: I like everything, especially the greenery, all those plants in front of my house in the waterfront I have planted them and take care of them. That big palm tree was the first one that I planted.)

He explained about the use of the coastal space in seasonal times, how they make a profit when people from outside the community come to the area in those times *“eso es un quiosco que pusimos pa’ semana santa pa’ vender pastelitos y esas cosas, para aprovechar que viene mucha gente para esas temporadas, se llena toda la costa, es increíble.”* (Author’s translation: that’s a kiosk that we installed for the holidays to sell food and snacks, during those times many people come here, the coast gets packed. It is incredible.)

As Bracho, in terms of the state of space and the future vision Gutierrez also says that there is a lack of maintenance that is impairing the use of the space, *“...el lugar es bonito y es tranquilo, pero cónchale a mí me gustaría que aquí lo mantuvieran, porque mira, esto es un bien común y lo que hace uno es mantenerlo.”* (Author’s translation: the place is beautiful

and quiet, but I would like more if people helped in the maintenance and cleanness of it, this is a common good and it should be well maintained.”)

Aside from the residents of the coastal front, I also took the opportunity to interview people that were using the public space on the coast. For example, like a group of 3 friends that had been gathering there for more than 25 years, and they currently do not even live nearby the area. When we were discussing what is it that makes them come to that space is the tranquility, the peacefulness. They discovered this coast when they were children, playing and exploring, they said that before this was an abandoned area, full of weeds and bushes. The space is rooted for them, the quality of the breeze, the water, “it is an oasis in the middle of the chaos of the city.”

After the workshops, some of the parents were also interviewed on their views about the space and how the children relate to it. Most of them focused on the degradation and pollution issues of the coast, their concern being that it was not a safe space for their children to bathe and play in the water.



Figure 13: *Interviews to the residents and visitors of the area*

(Source: Elsy Zavarce)

In the next matrix are presented some of the outcomes of these interviews, which were then included in the design criteria:

Table 1. *Interview Matrix*

	Themes Discussed			
	Present use			Future vision
	<i>What do you find most valuable of the site?</i>	<i>What type of activities you do there?</i>	<i>Concerns</i>	<i>What could be enhanced or changed?</i>
Interviewees				
Nestor B.	Relaxing space, a unique environment, away from the chaos of the city.	Fishing, playing domino, pétanques	Mistreatment of the area by other users. Trash that is brought to the coast from the sewages.	It could be a great waterfront with a nice beach furniture for people to enjoy the coast.
Oscar G.	Everything, especially the greenery.	Gardening, events (daughter's wedding). Seasonal commerce.	The neglect and inattentiveness to the upkeep of the area.	Create a harbor to have access with boats and have a nice boulevard to walk and furniture to sit.
Nestor B.	Above all the tranquility and openness of the space.	Talking, a gathering space to play in the afternoons after work.	Security, and the pollution now caused by the abuse of the lake.	The pollution
Julian S.				Security
Danilo A.				-
Emilia + Lino	The calm, which contrasts with the busyness of the downtown. The open space	Improv restaurant where they sell fish and coconut water. Help with the upkeep of the area	Proliferation of the trash in later years	More stands and furniture for people to do more activities in land and water
Yesenia O.	The community environment	Gathering space to plan future projects	Government lack of involvement in the development of the area	Being able to accomplish the pipeline and commercial projects that are proposed by the communal counsel
Group of neighbors	The flexibility of the space, it evolves according to the season	Commercial and recreational fishing play area for the children	The problem with the water contamination and trash	-
Parents				
Ninibeth S.	A space that is safe for the children to play in	Family activities, like cooking on Sunday's	Pollution	Have a proper space for children to play
Oslaisy P.	The green space	Don't use it that much, sometimes when the kids go to play there	The bad smell that creates the trash in the coast	Find a solution to the trash so it is more attractive to use

The interviews served to compile data in terms of use, concerns and vision for the space. The residents questioned agreed that the coastal space is an asset for the community in terms of having a place that is flexible that accommodates different needs and activities.

Overall it is seen that the community values the green space of the coast as an area to gather and relax nonetheless in later years their concern has been the waste that accumulates in the waterfront this has had an impact on the use of the area.

For the design is important to preserve this nature of *flexible, spontaneous and communal* space while addressing this pollution problem. Although not expressed explicitly when questioned about the vision for the space the criteria that is drawn from this information is the need for an element that is not fixed and still allows them to have freedom and control over the space. The more suitable way to address these needs is through a *modular element*. An element that is easy to arrange as well as store due to security concerns for some of the resident. A modular element will fulfill their request of building their own furniture for the area depending of the activities whether it is a space for sitting, cooking, gardening or playing for the children.

2.2 Children's workshop for a collective sensitization and imagining of the coastal space.

In reiterating, the three general objectives were: (1) *identifying* key elements, (2) *recognizing* the importance of the coastal space and (3) how they *perceive* this space in order to enhance the values of awareness and respect towards this space and the lake.

Activity 1. Identifying the coastal space and its elements:

The children were invited to draw their favourite element of this area, and briefly explaining why they considered this element important. The goal of this activity was to know how much they value the space and what things they think are more important when they are in that space. Most of the drawings of the participants reflected the natural elements that are found in the coast like the palm trees, the water, and the fish as seen in Figure 14.



Figure 14: Selected drawings of the favourite elements of the coastal area by Paulina Quero, Maria Fernanda



Figure 15: *Workshop experience*

(Source: Elsy Zavarce)

Activity 2. Recognize the importance of the coastal space:

The second stage after having set the context of the lake, the water and the space, the participants were asked to *recognize the importance of the coastal space* by doing a collective collage. Each one drew their favourite element of the space and they were invited to also think of other ones that they would like to see in the coast (Figure 16 and 17).

The goal of this activity was to think of the space in a collective manner and have a general conception of the area. While doing the collage, it was discussed why they thought it was an important space and what they would like it to be in the future.



Figure 16: Making of the collective collage, and some zooms of it.

(Source: the author)



Figure 17: *Final collective collage from the workshop.*

(Source: the author)

Activity 3. Perceiving the space:

The final activity was done in the coastal area, in order to have a direct connection with the space (Figure 18). There, different pedagogical dynamics were completed with the intention of seeing how the children *perceived* this space and how they relate to it.

The importance of perception and the senses for design is stated by architect Juhani Pallasmaa (2012), for this reason, the last activity of the workshop was to have the participants synchronize with the coast. They were invited to the area and there, it was discussed what they were perceiving from the elements that surrounded them (natural and unnatural). The game consisted in channelling through movements or sounds the characteristics of this element, individually and then collectively.



Figure 18: *Images of the workshop with the community Lago y Sol.*

(Source: Elsy Zavarce)

Overall, the experience with the children was very fruitful, we were able to do a site recognition and exploration as well as gathering their interpretations and reactions of the experiences. Most of the participants were already conscious of the need to take care of the natural space, especially with the pollution that the lake is going through.

When in the coastal space an informal activity was done, and it consisted in collecting some of these debris and discussing the harm that it causes in the lake. At the moment came up questions like how the barrier forms and how can it better be addressed in the future?

One of the important points of the workshop was to acknowledge the notion of the body in the space: what it means being there and being able to enjoy that area aside from the pollution, being conscious of the advantage it has being near the water, different from other communities in the city. The workshop also reinforced the importance of the collective; to enhance this notion, most of the activities were done in groups, how from collective actions it is easier to achieve common goals. The attunement to the space and overall recognition of it was believed to be successful. Although the children already had some sensitization to the natural surroundings, even when reuniting with their parents after the sessions, they kept discussing and commenting with them the workshop. After the event there was still an engagement with the idea of the lake and the activities that were done.

Through this workshop comes to light the notion of the designer as a facilitator and mediator between the space and the community. The activities help encourage the upkeep of the public lot and enhance the value it has in their imaginary.

In the next matrix are presented some of the outcomes of the workshop which were then included in the design criteria:

Table 2. *Workshop Matrix*

Participants	Themes (main idea)								Values		
	<i>Identifying favorite elements of the coast through the drawings</i>								<i>Value imbedded</i>		
	Plants	Animals	Game/Sport	Sun	Water	Built environment	Boats	Clouds	Nature appreciation	Playfulness	Water Activity
Santiago F.		x	x	x	x			x	x	x	
Yuliannis D.		x		x	x			x	x		
Kendry R.	x	x		x	x			x	x		
Arianny F.					x				x		
Paulina Q.	x		x	x	x	x	x	x	x	x	x
Adriannys L.				x	x				x		
Francis G.									x		
Jose B.				x	x		x		x	x	x
Maria F.	x			x	x				x		
Naikelis	x				x				x		
Rover C.			x	x	x			x	x	x	
Roiver C.					x				x		
Roderi C.					x			x	x		
Daiminz		x		x			x	x	x	x	x
Anonymous 1	x	x			x			x	x		
Anonymous 2					x				x		

The workshop helped gather information on how the children perceive the space. In the drawings it was noticed that there is a great appreciation for the *natural elements* of the area like the *water*, the *palm trees*, and the *sun*. Some children also reflected in their drawings their tendency in using the coast as a *recreational space* in the land as well in the water.

The portrayed elements are key in the criteria of the design, they reflect what the area means to them, for this reason they should be integrated as well in the proposal. This data helps respond questions for the design in terms of the shape. The *shape of the element* that would be proposed for the area will follow some of the elements that were drawn by them like the palm tree.

3. From Waste Barrier to Bridging the Lake and the Community

When unpacking the narratives of the site, multiple injustices towards the landscape come to light. After the fieldwork, for the design development phase (the explorations and envisioning for the site) through the data collected was done a clearer understanding of the landscape and the relationships that surround it. Posing the questions of: how this relationship works, what is embedded in the landscape of Lago y Sol, and how it can be enhanced, were key.

In the observations of the site, the waste barrier is clearly noted as the core of the problem. In order to best portray this, a collage (Figure 19) that recompiles this observation, where the contrast of the nature and the debris is shown was also created for this research.



Figure 19: *Collage of the Pollution Landscape of the Community Lago y Sol.*

(Source: the author)

Going into detail, we can see that the barrier is composed of many objects, consisting mainly of plastic-based products as seen in Figure 20. Plastic, derived from petroleum, it is one of the major coast polluting elements globally.



Figure 20: *Accumulation of waste in the coast of the community Lago y Sol*

(Source: the author)

Another part of the site's narrative is the fact that not only is the plastic an oil derivative that directly affects them, but also is their visual landscape. The inherent significance that it has in the community is that is produced with the oil extracted from the lake, and their views from the public space is one of the region's largest petrochemical refineries (Figure 21). Therefore, they are constantly reminded of this ghost. This is one of the reasons why plastic is chosen as the central material to be used for the design, as it is already embedded in the community's collective meaning.



Figure 21: *Views of the petrochemical refinery from the community Lago y Sol*

(Source: the author)

The timeline of the elements that finish in this shoreline can be traced first from the basin of the lake. Then, extracted as crude oil and processed in the petrochemical industry located in the coast just across from the community. Later moulded into products, sold for various uses, brought into the households (Figure 22), then disposed when finalized their use. Finally, it gets transported to the landfills that dump some of their waste in the lake. Eventually ending up on the shore of this community by wave currents or via the rain drainage channels from all over the city (Figure 23). And, with this project it is proposed that the timeline continue to expand into a more positive action by transforming these elements into multiple configurations for the community to use or even sell.



Figure 22: *Timeline of the plastic in the Maracaibo Coast*

(Source the author)



Figure 23: *Part II. Timeline of the plastic in the Maracaibo Coast*

(Source the author)

Learning from the issues and addressing the needs through collective actions.

The role here was to mediate between the natural environment and the users of the space. From these enriching experiences the results that were drawn: the connection people have created to the space is linked to the greenery and the taking care of it, is a site for reprieve. The stories that developed there go from being a meeting point for friends for more than 20 years to a playground area for the children. The significance of the open space and the elements that have been self-built in it is rooted in the community's building.

As stated, an overarching theme that comprehends the research, refers to enhancing the importance of our surrounding landscape, how nature and nonhuman things can shape our being (Bennett, 2009). Nowadays at Lago y Sol the pollution shapes the way they relate to the coast. Through the interviews it was known that the use of this space has been decreasing due to this issue.

The main narrative right now is the element of obstruction. How this barrier of pollution caused by untreated sewage and landfill waste that has ended up in this space can be treated? The narrative of how residents now have to respond to this issue of obstruction, which they are not the primary cause of the problem. An issue that leads to having a less incentive to use the space and create not only a physical barrier but a rupture with the natural environment.

This is the main tension in this community aside from the general ones in the city (energy, water, food and/or medicine shortages). This recurrent issue has been present for the last couple of years, having some seasons more accentuated than others. The coastal pollution being a global consumption problem has to be rethought from multiple angles. First, the notion of reducing our plastic loads and then, because it is inevitable, what to do with this surplus material that washes out on all of the world's shorelines. This research is focused on one local example of this phenomenon in a context where there are multiple problems in the society, and to start healing from them, "is seeing architecture as a bridge to mend this gap." (Pallasmaa, 2012.)

A reference for this is the Mumbai Waterfront Center where the community reclaimed the space of a garbage dump along the coast. They accomplished this through a series of actions, with the help of public and private partnerships, and local associations, recuperating

this needed public space for the enjoyment of all, improving the quality of life in the midst of the busyness of this city (Rosa, Weiland, Ayres, Jacobs, 2013).

This example of a waterfront's successful rehabilitation done through participatory, and grassroots movement is a demonstration of the power of these alternative ways of doing architecture. The success of this project is based on the notion of the community coming together and taking into their hands the repair and claim of this previously unused and polluted space, transforming this coastal space that belongs to the citizens into an enjoyable waterfront.

For this research, architecture operates as a tool that will allow the community to come together over an issue, rather than a process of designing a beautiful project. This is constituted as an alternative way of undertaking architecture which takes the major issue of pollution in this public space—the plastic—to create a project that addresses the needs of the community through a collective experience.

CHAPTER IV: Design as a developing possibility.

The proposal: *A circle of life and play*

This research is grounded in the terms of a participatory approach methodology, advocating for the spatial justice of less privileged communities. The objectives of these projects can be summarized by the idea of an inclusive space created by the community while overcoming environmental and social problems of their surroundings. Generating a design project that gives empowerment through its creation and use.

As explained, Awan, Schneider and Till introduce in their book, *Spatial Agency, Other Ways of Doing Architecture* (2011), the concept of how there are other ways to address the issues associated with social, environmental and ethical justice. According to them, these issues “are best addressed within the dynamic context of social space, rather than within the static context of architecture as building” (2011).

This project presents an alternative spatial ‘solution’ to a problem that touches social disparities in the city and environmental injustices of the natural landscape caused by the society, not being merely a physical structure but also creating experiences and knowledge with the landscapes within. And, not only the final piece would do this, it would start with the conception of it, through the design process. The project compiles this through a proposal that can be achieved within the community, preserving the values of collectiveness that they already have. Addressing the coastal pollution with a proposal that has the capacity to adapt and evolve through time and space, accommodating the diverse needs of the people and reflects on the community’s imaginary.

This design process is explained in Figure 24. How the criteria were drawn from the fieldwork, specifically from the interviews and the workshop. This criteria leads to an element that is modular and shape that is representative to the site that uses as a material the plastic debris that is in the coast. This would create a proposal that will help regain the agency of the coast.

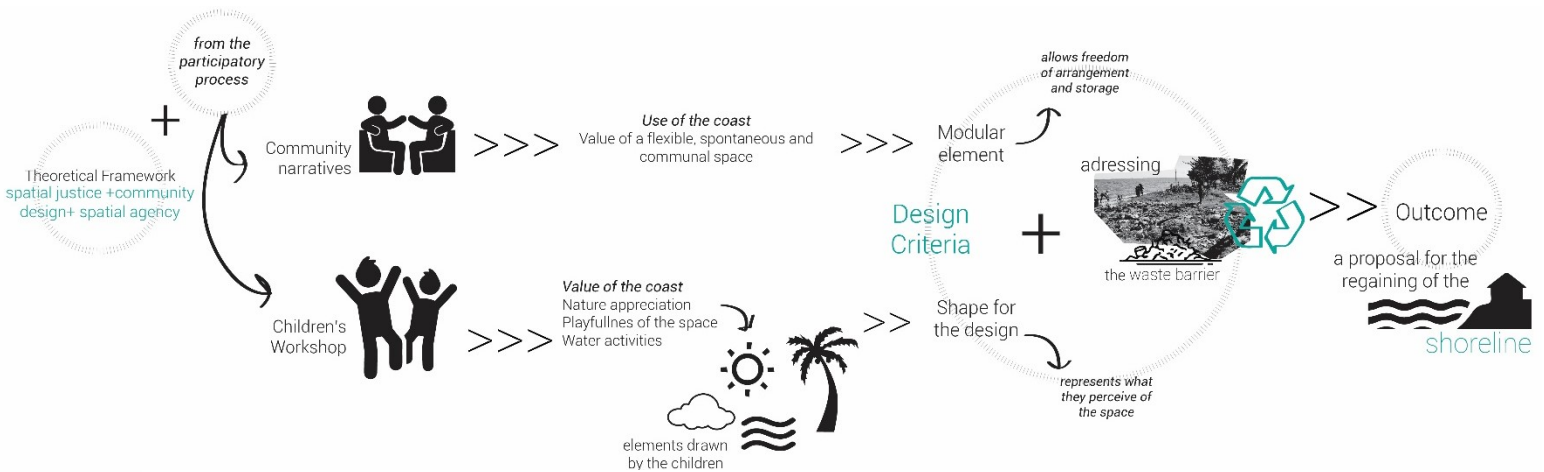


Figure 24: *Design process for the regaining of the Lago y Sol coast*

(source: the author)

1. The proposal: A circle of life and play. One representation of the community imaginary.

The design possibilities that provide down cycling plastic from this coastal waste are endless. The designs explored are a result of the interviews and an interpretation of their drawings. The shapes that these can take depend on the needs of the people. In the workshop the awareness and recognition of the environment were done through the different activities and some of these impressions were reflected through the drawings.

The data gathered from these drawings reflected on the value that children have on the coastal front as observed in Table 2. There, it was seen that the main elements they portrayed were natural ones, like the water, the trees and the fishes (Figure 25). Although for this research, it was only developed one module alternative, with the workshop's results, it can be further explored other shapes and alternatives for the public space. That can range from tile patterns inspired from the textures of the area to more functional elements like columns or slabs to build more resistant shelters.

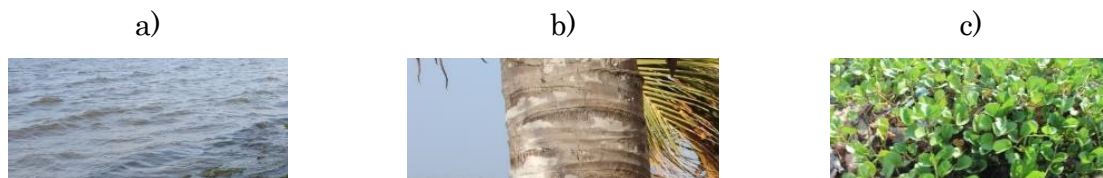


Figure 25: *Design possibility explorations. The imaginary reflected on the children's drawings.*
 a) From the palm tree trunk b) from the textures of the waves of the water c) from the leaves of the "Uva de Playa" bush.

(Source: the author)

Furthermore, in order to elaborate the proposal, it was taken the criteria of enhancing the elements that they find valuable in the space found in the data. In the drawings completed during the workshop, one of the elements that kept repeating was the palm trees. For the proposal, it was abstracted this element to its core. The trunk of the palm tree was broken down into a ring, the shape that it composed of. The design evokes this natural element of the coastal area, and it also relates to some other ones from the built environment that already exist in the public space. In Figure 26 is explained this process of abstraction from the multiple drawings of the children and later reflecting on observations from the site.



Figure 26: Drawings from the workshop activity No. 2 and pictures of the palm tree in the space.

(Source: the author.)

The symbolism of the element of the palm tree is abstracted into a shape that can be assembled into multiple configurations, depending on the needs of the community at the moment. The ring that constitutes the module is a reminiscence of the texture of rings of the palms along the lake (Figure 27). The rings of these trees show the age it has; the module also talks about the aging and evolution but of the plastic material too.

An embedded meaning in this module is the capacity of replication and reproduction that the trees along the shoreline have. The flexibility introduces a play and didactic element that is not only functional but also advocates on the ecological concerns of the coast.



Figure 27: *Proposed elements, from the abstraction of a palm tree.*

(Source: the author)

1.1 A Module for Flexible Configuration and Other Explorations

The element proposed is a flexible module that explores through the act of play and collective motion a beneficial action for the community (Figure 28). Through the process of making, playing and building, an awareness of the environmental injustice would be made while slowly improving the relationship between the city and its lake with a performative action.



Figure 28: *Proposed elements. These are made of layers of recycled melted plastic that allows multiple configurations depending on the needs.*

(Source: the author)

The design is composed of a single ring made of plastic collected from the coast and it can be arranged in diverse ways. This ring has the possibility of being used alone or stacked as a

module, in different heights. The proposed dimensions as seen in Figure 29 is 5 cm high x 5 cm thick and 40 cm diameter. The rings can be stacked up to any desired height according to the use, i.e. for seating would be 10 rings for a 50 cm element, or if used for a support system like a table would need 15 of them.

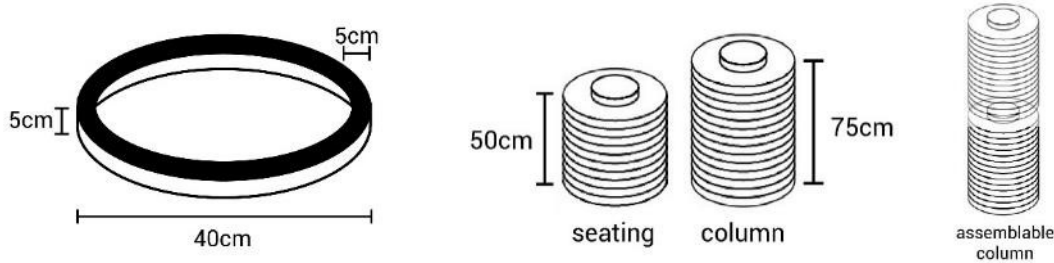


Figure 29: *Dimensions of the element*

(Source: the author)

1.2 Multiplicity of the setup

The proposed object, which is not a finite artefact, as it would require the community's insight and feedback. The process for the construction would start with the collection of plastic debris as a collective activity. This would then consist in the shredding of this plastic, and the melting in preconfigured moulds to create this ring like shape that would be assembled according to the needs.

Through the interviews it was found that they use the space mostly as a gathering area, to cook, talk, play or relax, as evidenced previously in Table 1. Therefore, the setup of the module could range from being a playground, a bench, a shelter or a dining / cooking area this or any other venue depending on the season. As observed in Figure 30, the maquette shows a possibility of the element arranged as a play space for the children. The cylindrical shape is part of this composite form and is representative of the palm tree that is rooted along the coast. The difference is that this shape would be made of plastic, the main element obstructing in the coast.



Figure 30: *Maquette of the proposal*

(Source: the author)

Part of the project's essence is the flexibility of the arrangement, this is fostered by the spontaneity of the community. It is important that it reflects their values, revealed in the different interviews with the members of Lago y Sol, and this capacity of freedom of arrangement according to what comes up in the moment, is an example of this.



Figure 31: *Illustration of the proposal for the coast of the community Lago y Sol*

(Source: the author).

In Figure 31, a perspective of the coastal space is shown, where the proposal for the area, ranges from different uses, starting from a landscape setup to a seating and playground space. In Figure 32 a zoom of this perspective is depicted, where an image of the element is arranged as a seating space than can be transformed to the users will.



Figure 32: *Illustration of the proposal for the coast of the community Lago y Sol*

(Source: the author).

The community narratives revealed that one of the needs for them was a safe space for the children to play. Figure 33 shows an illustration of the type of space that can be configured for them to play. The element can be stacked or used as a single ring to accommodate the different ways of playing in the coast.



Figure 33: *Illustration of a playground layout for the community Lago y Sol*

(Source: the author)

Another alternative for the plastic debris is to collect it and sell it for others to recycle, creating an economic activity for the community.

2. The project as a methodology

The idea of the project is to propose this methodology to the community, seeing that, in the long run they can benefit from it economically and create a more critical awareness towards the products that we use and how we use them. This could be applied in other's coastal communities of the city.

This methodology can be considered as a template that can be reused by other coastal communities. In deconstructing this template, the various stages that this methodology comprise:

- Having a *first approach to the community*. Talking to the people of the area, gathering some initial observations and evaluating if there is an interest and opening towards the project.
- *Hearing the different voices* through interviews, observations and workshops. Similar to Lago y Sol, it is thought of doing participatory, qualitative research, that it is structured to the particularities of the community.
- *Concluding with a proposal* (a 'solution'), which is based on the perspectives and insights gained in the fieldwork. As proposed in Lago y Sol, it would also be an alternative way of doing architecture while bringing together the community and creating awareness of the importance of the lake.

In the end, the idea is to transform this waste barrier, that is not only present in Lago y Sol, but in other communities of the city, into something that could help build more consciousness towards the direct landscape of the lake that Maracaibo has.

3. Next steps. Suggested development stages for the continuation of the project on site.

Due to logistic and time reasons the project during the timeframe of the master was accomplished until the design phase. Nonetheless it is contemplated the continuation of the proposal in the future, the phases that would encompass this process would be the following:

- Go back to the community, present the module to verify that it corresponds to their needs and desires, do a 1:1 prototype, and invite the community to do *feedback*

- sessions*. The goal is to make a local decision of the project and ensure the community's involvement in this stage of the process too. During this stage it would be open also to alternative scenarios according to the community choices.
- If the feedback is positive, the idea is to start an ***implementation plan*** that would include phases of budgeting (project cost estimate, cost necessary to perform all activities tied to objectives and work plan), funding (local or international partnerships, private foundations), planning and construction. Throughout this stage is important to ensure the creation of a self-sufficient model of the design, answering questions like: can the community carry the project when funding is finished? For this it would be necessary to assess the available resources (human, capital and financial) for the project development and determine long and short-term goals of the design in terms of the construction and set up the module on site.
 - For the construction of the module it would require working with local people to ***create a system*** to recycle the plastic, starting with the recollection, then sorting it out, arranging and cleaning it to process it with the machines built to shred and melt it into molds.
 - After the project has been accomplished it is also important to do an ***evaluation of its performance***. Overall the goal would be evaluating if the project's goal and objectives were achieved while measuring the effectiveness and efficiency. This can be done through observations of the space through time, how has been its evolution and management by the community. As well as assessing what has been the community's reception and identify if there have been any problems, needs for adjustments or improvements of persisting problems or missing elements.
 - In case of the feedback or the outcome not being positive it would be ideal to do another series of workshops and start the cycle again to accomplish a design that suits the community's needs.

Reflections

This interest on this project relies on my need to reconcile with my city. The most appropriate approach is a participatory methodology. The lack of participatory methodology training in architectural schools is problematic. Although there are some opportunities for this type of exploration, it is not the standard in the majority of schools around the world. Overall in the design schools, there is a large emphasis of the architect as the sole creator of a design, with a very much imposing attitude. This creates the myth of making the student an author worthy name, through their projects, of course, but losing the real intention of what the purpose of learning from a project is.

Based on my own experience during my undergraduate studies, authorship in architecture school is emphasised, leaving little room for the process of learning from the actual context. Usually during those undergrad year, the projects made, tended to isolate oneself from the 'real' world, not just the one that we think we are designing 'for' but the one we should be integrating the design 'with.'

Considering this, I challenged myself into thinking, what is the purpose of the profession? Is it to 'make life better' by solving 'problems' or is it to address issues from a critical perspective that doesn't account for the 'norm' or the 'standard'? Another questioning that I have had during my formation is the notion of power, who has power over the design: is it the architects, the user, or even the constructors?

The decision-making should be a democratic process but, in the end, how do you know if a design is successful? Is it by its perception by the community, by the media, by the designers, by the city officials? Or by its usage and the way it is being appropriated. All of this is as Till defines, a relative issue that depends on and is going to differ on how you see it, or who sees it, and when. The sole notion we know is that architecture has a powerful agency, one that can even shape a society, and this should not be underwhelmed for the sake of our future existence.

The way architecture is seen here is as a medium to enhance the local narratives, build from them and the traces of the area. Looking for an architecture that detonates the thinking of a better appropriation of the space and more cohesive relation to the natural environment. The quest for ecological and social justice first needs the recognition of inequalities, to then

reach out to vulnerable communities and advocate for an adequate use of the resources. The idea of the project is to improve the surroundings while addressing the urgent issue of the area's pollution.

The opportunity that this research brought was that it was the impetus to start a dialogue with the community on the subject of what to do in this troubled area. The nature of the ability to reflect with the community opens a window of opportunity. The process of design that started with the fieldwork enriched and sustained the project. Additionally, aside from the struggles that meant working with people and the uncertainty of the situation, without this fieldwork the design would have been lacking in content and meaning. Being on site and understating directly from the community gave another layer to the experience.

Although during the last year of the program I did not have the opportunity to go back and have a direct feedback with the community, the project was discussed during the M.Des Final Show (Synopsis). There, with the several members of the faculty of the Design and Computational Arts Department, it was brought to light the importance of highlighting the richness of the fieldwork (interviews and workshop) to the design; what this data recollection meant for the project. It was noted, that to understand the final proposal it was necessary to clearly show the voices of the community in the documentation of the process. These comments were addressed in the final writing of this thesis, it was key to understand "the role of the designer" in the development of the whole project; the importance it has as a mediator, not only with the community while doing the project, but also in communicating the ideas to others, so that they can properly comprehend the issues and the outcome.

Another discussion generated during this event was the need to clarify the openness of the proposal. How even though the design elements presented as the final proposal for this program it is still, as previously noted in the next steps section, in need of validation and testing with the community; acknowledging as not being the only solution that can come from the data gathered.

The proposal is one of plastic down cycling's many possibilities, based according to the narratives of the site specificities. It is a combination of the views of the different generations that live and use the public space of that area. The healing of the space can only happen if it is addressed through its direct victims. The circle of life and play brings a methodology that talks about life's cycle through materiality. It questions the purpose of objects and human's intents and impact on the environment. The vision for this project is to create a new cycle in this coastline, one that encompasses a beneficial purpose instead of a wasteful one. The

essence of this cycle is the value of resilience. How, through this action it can be a step to amend the harm that has been caused throughout the years. Finally, with this cycle, have a rightful appropriation of space through a participatory process creating a mean to heal collectively with design.

Future Possibilities and Self-sufficiency

The country is presently going through a series of economic, social and political crises that is evident in the city as well. For the past 20 years manifestations of social unrest are part of the city's panorama. During the time of the fieldwork Venezuela was immersed in a political conflict with daily demonstrations and street blockages. These were signs of protest against the governments due to its lack of management and corruption leading to constant water, power, medicines and/or food shortages, plus having a great increase in violence.

The unrest in the Venezuelan society has made that a large percentage of the citizens have fled the country. The regime's slogans and directions have been made stating that "are for the people," but the current conditions of the cities demonstrate that the government actions have been clearly the opposite.

The outcome of this project does not aim to resolve all problems, but through the process of participation give "the importance of the local, layout empowerment foundations and a new organizational structure" (Howard, 2004) and through this new knowledge, bringing awareness and respect to this coastline for future developments.

The project one of multiple possibilities would be a great success if in the future can become a self-sufficiency model for this community and an example to appropriate by others in the city. It is thought that in the context of Maracaibo the possibility of replication can happen, but not only by taking the final module proposal, but by implementing the whole methodology that led to it.

The target is to critically see and address the issue, to make people understand the weight design can have in the changing of the surroundings. The state won't solve this issue as it is not close to them, it is on the citizens' part to take action and make it happen.

Limits to the research.

This research creation project had many limitations including time and space constraints. The main, being that during the fieldwork phase, the country was submerged into a political

turmoil that affected the planning and reach of the project in the community. It was originally planned to do a more extended series of workshops but due to road closures and general instability of the city, the planning of the activities was reduced. Another constraint was the physical limitation of not having a more direct contact with the community after the summer because of the timing of the program and not being able to travel so frequently to the site. Aside from these limits it is still thought that the project has an important value for the environmental awareness of the lake's degradation and the injustice it brings to the coastal communities.

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Appendices

Appendix a

Parental Consent Form

Parental Informed Consent

Design Workshops for Coastal Front Rehabilitation, case study Maracaibo, Venezuela

Your child has been invited to join a research study to look at the Maracaibo coastal front Rehabilitation. Please take whatever time you need to discuss the study with your family and friends, or anyone else you wish to. The decision to let your child join, or not to join, is up to you. In this research study, we are investigating about the relationship people of the community have with the coastal **area** and how they foresee this space in the future. Your child will be asked to participate in activities such as sketching, prototyping, brainstorming about the space of the coast. This workshop session will take around 2 hours.

The investigators may stop the study or take your child out of the study at any time they judge it is in your child's best interest. They may also remove your child from the study for various other reasons. They can do this without your consent.

By submitting the present form, I grant permission for my daughter/son or ward to participate in the workshop Coastal Front Rehabilitation organized by Stefania Hernández as part of her Master Thesis.

As legal guardian, I grant Stefania Hernández license to use modify and display the Work produced by my son/daughter during the workshop for her research thesis as a graduate student of Concordia University. Stefania Hernández agrees to incorporate any appropriate copyright and attribution notices that I request. Any exceptions to these permissions are noted below. List of images, captions and credits attached.

Participant's name:

Parent/Guardian Signature:

Name (print):

Contact info:

Date:

Appendix b

Project exhibition in *Synopsis* (Master of Design students' final show)

In the context of the M.Des final exhibition it was intended to present the project in a narrative manner through a series of images, video and maquettes. The configuration was made in a linear way so that the public could interact with each of the boards individually or as a whole. The intent of the set up was to invite the viewer into the journey, to look into the window of what life is like in that community. The 8" x40" boards were shown in landscape mode, suspended by wire cables from the grid of the Black Box.



Figure 34: *Details of the exhibition panels.*

(Source: the author)

Display Purpose

The boards assembled for the exhibition consisted of a series of collages and engraved drawings that assimilated the aesthetic of the workshops. These boards were a combination of the collaged landscape that narrates the state of the coast, the built environment and the relationship that people have with the area.

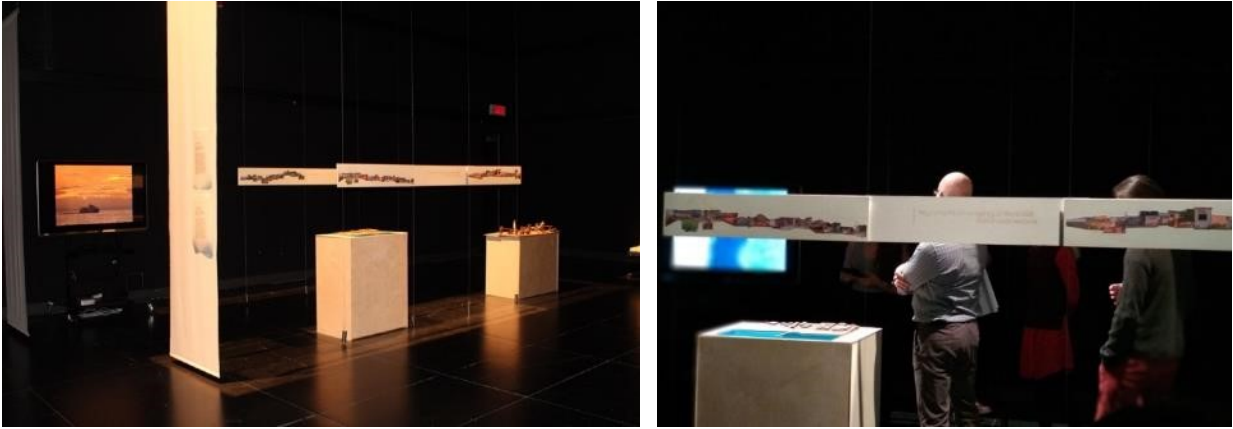


Figure 35: *Exhibition set up as part of Synopsis*

(Source: Aboozar Beheshti)

Exhibition experience

The exhibition display begun with the video that showed the general historical background and panorama of the issue of the coast. The journey then continues into the boards. These boards were made in landscape mode as a window manner. They were arranged lineally and in a parallel form, starting first with the context maquette and visual information, and then collages with the site's contrast of built and natural environment. The journey ended with the proposed maquettes and a board explaining the multiple possibilities of this module.



Figure 36: *Exhibition set up*

(Source: the author)



Figure 37: *Collage of the workshops experience.*
(Source: the author)

Appendix c

Material possibilities, plastic down-cycling examples



Figure 38: *D-I-Y machines for plastic processing*

(Source: Precious Plastics <https://preciousplastic.com/en/index.html>)



Figure 39: *Plastic process, from waste to new object*

(Source: Precious Plastics <https://preciousplastic.com/en/index.html>)



Figure 40: *Different shape and finishing alternatives of the recycled plastic*

(Source: Precious Plastics <https://preciousplastic.com/en/index.html>)

Appendix d

30/6/2018

Basura y plástico tienen en "coma" nuestro Lago

María Gracia Salas

Basura y plástico tienen en "coma" nuestro Lago



María Gracia Salas



Abarrotadas de envases plásticos y desechos sólidos inorgánicos no-biodegradables: Así se encuentran las costas del Lago de Maracaibo, el más grande de Latinoamérica. Bolsas, cauchos, botellas de vidrio, metales e incluso petróleo crudo, impiden el desarrollo óptimo de la vida marina.

En muchas ocasiones, esta situación puede llegar a provocar la muerte de especímenes marinos.

Desde El Bajo, en San Francisco, hasta Puerto Caballo, vía El Moján: 34 kilómetros de extensión en costas altamente infectadas de basura que resulta tóxica para el ecosistema lacustre, ésta es generada en gran magnitud tanto por fábricas que desconocen las formas óptimas de manejar sus desechos, como por personas particulares.

Jorge Pedroza, director del Iclam, afirmó que la raíz del problema se encuentra "en que las cañadas ubicadas en Maracaibo y San Francisco desembocan dentro del Lago, y al no poseer éstas un tratamiento, llenan al cuerpo de agua de kilos incalculables de desechos no-biodegradables".

Pedroza indicó que la responsabilidad de esto recae directamente en las alcaldías, ya que "son las encargadas de crear un sistema de recolección de plástico que ayude a controlar los índices de contaminación".

El director del Iclam también denunció que las compañías refresqueras son unas de las mayores generadoras de envases plásticos. "Si ellos son los que los producen en masa, están en la obligación de hacerse cargo del resultado".

En relación con el problema de derrames de crudo, Pedroza aseguró que Pdvsa ya se encuentra ejecutando acciones, en conjunto con el Iclam, para revertir los daños.

<http://www.panorama.com.ve/ciudad/Basura-y-plastico-tienen-en-coma-nuestro-Lago-20171001-0029.html>

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Antonio Padrino, pescador y residente del sector Cabeza e' Toro, señaló que el sucio lo arrastra la marea y se deposita en la orilla. "Tengo 17 años aquí y nunca han venido a limpiar nada. Ahora no encuentro ni peces".

La fauna marina se encuentra muy afectada. "Antes sacábamos 200 kg de camarón por día, anoche nada más pudimos sacar 15 kilos porque no se encuentra nada. Los pescados se mueren entre el petróleo y el sucio", contó Dírmo Morán, pescador del sur.

Gustavo Gallardo, dueño de una pescadería ubicada en el sector Cabeza e' Toro, añadió que las ganancias se han desplomado porque no se encuentran peces aptos para el consumo.

"Muchos de los peces que sacamos del agua vienen como enfermos y hasta llenos de petróleo, y así no los podemos vender", manifestó Gallardo.

Gustavo Carrasquel, director general de la fundación Azul Ambientalistas, concretó que la solución a la contaminación del Lago es acabar con el problema de raíz: "Dejar de utilizar plásticos, es el mayor enemigo del Lago. Hay que brindar educación ambiental".

Recientemente, Bernardo Morillo, representante del empresariado en la organización Amigos del Lago, realizó un llamado a la ciudadanía para realizar jornadas de limpieza.

"Invitamos a empresas, instituciones y público en general a ser parte de esta actividad".

La recuperación del Lago sigue siendo una tarea pendiente. La contaminación seguirá siendo su "eterno padecer", a pesar que cumplió 518 años.

Appendix e

30/8/2018

In Venezuela's Oil Hub, Prosperity Turns to Crime, Hunger - WSJ

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<https://www.wsj.com/articles/former-hub-of-venezuelas-oil-wealth-turns-to-hunger-and-rust-1516357801>

LATIN AMERICA

In Venezuela's Oil Hub, Prosperity Turns to Crime, Hunger

Decay of Lake Maracaibo region marks decline of oil giant

By Anatoly Kurmanaev and Sheyla Urdaneta

Updated Jan. 19, 2018 11:38 a.m. ET

CABIMAS, Venezuela—Oil from brackish Lake Maracaibo transformed this country a century ago from a tropical backwater into the world's biggest oil exporter and, for a time, South America's richest country.

Here at the lake today, thousands of idle derricks stretch to the horizon, crippled by lack of spare parts and routine maintenance. At its dozen oil ports, hundreds of barges, rigs and speedboats sit rusting in the scorching sun.

Workers here once enjoyed the country's highest wages, company perks and elite schools; in December, the local oil union evacuated an entire rig after finding its oilmen malnourished.



A broken oil platform in the lake. PHOTO: FABIOLA FERRERO FOR THE WALL STREET JOURNAL

Corruption, political purges and collapsing investment at state oil company *Petróleos de Venezuela SA*, known as *PdVSA*, have slashed output across this nation to levels last seen in the 1980s.

Venezuela still holds the world's largest reserves of crude oil, according to *BP PLC*. But a close look at its decaying oil industry shows it will struggle to get those reserves out of the ground anytime soon, deepening the country's worst economic contraction on record.

<https://www.wsj.com/articles/former-hub-of-venezuelas-oil-wealth-turns-to-hunger-and-rust-1516357801>

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Output in the Lake Maracaibo region in Venezuela's west has halved since 2015 to an estimated 350,000 barrels a day, according to consultancy IPD Latin America. That is a big reason why Venezuela's daily overall oil output plunged by 649,000 barrels in December from a year ago to 1.6 million barrels a day, according to figures released Thursday.

In the north, the Paraguana refining complex, the world's third-largest crude processing facility, is operating at 15% of capacity, according to a local oil union leader.

Paraguana was last near full capacity in the 1990s; PdVSA President Manuel Quevedo said this week he would bring operations to 100% of capacity this year, without explaining how he would engineer such a turnaround.

"There's no maintenance as such here anymore," said plant operator Pablo Céspedes. "They sucked everything out of PdVSA without investing. There's nothing to squeeze out anymore."

Nowhere is the collapse more visible than around the 5,000 square-mile Lake Maracaibo, an estuary that opens onto the Gulf of Venezuela.

For decades, the lake area was the jewel in PdVSA's crown. Workers lived in leafy company compounds with bowling alleys and cinemas. They shopped in company supermarkets and vacationed at its private beach resorts.



Hector Berti, a local oil union activist, in the PdVSA town of Lagunillas on Jan. 9. PHOTO: FABIOLA FERRERO FOR THE WALL STREET JOURNAL

Nowadays, that seems like a distant dream.

"It's as if we were animals, some wild beasts," said one rig worker, Jesús, who asked that his family name be withheld for fear of government reprisal.

PdVSA didn't respond to requests for comment about company operations and worker conditions.

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In Venezuela's Oil Hub, Prosperity Turns to Crime, Hunger - WSJ

On a recent Wednesday afternoon in the lakeside oil town of Ciudad Ojeda, PdVSA workers sat in empty air-conditioned offices adorned with Socialist Party posters.

Roberto, a foreman, said his oil barge had been waiting for three months to sail. Each day something was missing: food, motor oil, a tugboat. His team of a dozen people comes back each day and waits—until it is time to go home.

After two decades in PdVSA, Roberto earns an equivalent of \$8 a month. This Christmas, for the first time, he had no presents to give his seven children.

"I see the look in their eyes when they stare at the empty Christmas tree, I feel such a pain here," he said, pounding his chest.

From Venezuelan Jewel to Emblem of Decline

The Lake Maracaibo region that flourished with the success of state oil company PdVSA is now rife with poverty and piracy



Alexander Moreno stands at the polluted shore of Lake Maracaibo in Venezuela on Jan. 8. The 5,000-square-mile lake is an oil-rich estuary that opens onto the Gulf of Venezuela. FABIOLA FERRERO FOR THE WALL STREET JOURNAL

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Most international service companies, such as Schlumberger Ltd. and Weatherford International Ltd. , have cut operations to a minimum after years of unpaid bills, according to workers. The companies declined to comment.

<https://www.wsj.com/articles/former-hub-of-venezuelas-oil-wealth-turns-to-hunger-and-rust-1516357801>

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Dozens of local service companies were expropriated by PdVSA in 2009, their ships and barges abandoned or cannibalized for spare parts.

They have been replaced by military-controlled contractors and local firms like S&B Terra Marine Services, which took over the operations of Schlumberger's six rigs in the lake last year. Only four of those rigs still work, according to oilmen who have worked at both companies.

Of PdVSA's 560 speed boats in the lake, only six are operational, according to oil union activist Hector Berti.

S&B Terra Marine Services operated the PdVSA rig which was evacuated in December; some of the two dozen workers were taken to a hospital with dehydration and high blood pressure.



Clothes hang in front of a house in the town of Cabimas on Jan. 10. PHOTO: FABIOLA FERRERO FOR THE WALL STREET JOURNAL

The company's owner, Basil Al-Abdala, made local headlines in 2016 when he threw a lavish Aladdin-themed party for 1,500 people, featuring Colombian reggaeton star Maluma, to celebrate his daughter's 15th birthday.

Rig worker Jesús, who worked at Schlumberger and now works at S&B Terra Marine Services, said his salary was slashed by two thirds last year and that he hasn't been paid for four months. Supplies sent by the company to his offshore rig in the lake usually run out days before the end of the shift, he said. To cope, workers ration lunches of boiled plantain or spaghetti with mayonnaise.

"It's very painful to work hard and not provide for your family," he said.

Mr. Al-Abdala didn't respond to requests for comment on labor conditions and his daughter's party. Calls to the company's offices were repeatedly disconnected.

Venezuela's economic downturn has led to an explosion of crime. Production platforms and entire towns have been left without power by the theft of miles of copper cable, resold for scrap. Gangs of pirates roam the lake at night. Several attacks occur each week, and at least half a

<https://www.wsj.com/articles/former-hub-of-venezuelas-oil-wealth-turns-to-hunger-and-rust-1516357801>

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dozen fishermen and oilmen have been killed in the past year, according to workers and local residents.

In November, Jesús' rig was attacked at night by nine pirates in balaclavas armed with machine guns. They knocked out two workers with pistol butts, took a female worker hostage and went cabin to cabin, collecting each worker's valuables, including loaves of bread, before releasing the hostage and leaving.



Plant operator Pablo Cespedes, shown with his wife Karen, sustained third-degree burns when an outdated oven exploded at a PdVSA facility. BELOW Mr. Cespedes' arm. PHOTO: ANATOLY KURMANAEV



PHOTO: FABIOLA FERRERO FOR THE WALL STREET JOURNAL

Elsewhere in the country, lack of repairs have turned refinery jobs into dangerous ventures.

Last month, Mr. Céspedes, the Paraguana plant operator, was lighting an obsolete gas oven by hand because of a broken electric switch. The oven exploded, landing him in the hospital with third-degree burns.

"I wake up at night scared, thinking of that oven," the 30-

year-old mechanic said from his hospital bed. "I don't want to go back there."

The explosion was the last straw for his shift partner, Rene González. Mr. González made \$2 a month at black market exchange rates, forcing his family to skip meals. When his young

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pregnant wife started to hemorrhage last year, he couldn't afford the medicine. She lost the child.

A week after the explosion, Mr. González, 27, quit the company. He plans to move to the island of St. Martin in March, joining thousands of PdVSA workers leaving the country in search of a better life.

"I prefer to sell empanadas on the streets than to pray all day at work to stay alive," said Mr. González.



Broken oil equipment in Cabimas on Jan. 8. PHOTO: FABIOLA FERRERO FOR THE WALL STREET JOURNAL

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Appendix f

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Everything you need to know about the crisis in Venezuela - ABC News

Everything you need to know about the crisis in Venezuela

By **KAEALYN FORDE**

Aug 1, 2017, 7:58 PM ET



Lilian Tinior/Twitter via REUTERS

WATCH | Venezuela in crisis: 2 opposition leaders jailed amidst non-stop protests

The decision to send two prominent Venezuelan opposition leaders back to prison this morning in the wake of a controversial vote over the weekend has once again ratcheted up tensions in the South American country.

Leopoldo López, a former presidential candidate, and Antonio Ledezma, the former mayor of Caracas, were both taken from their homes Tuesday morning, where they had been under house arrest, according to their families.

The arrests come one day after the Trump administration's decision to sanction Venezuelan President **Nicolas Maduro**, and two days after a vote to hold a national constituent assembly to rewrite the country's constitution— the final version of which will have to be approved in a national vote.

<https://abcnews.go.com/International/crisis-venezuela/story?id=48966962>

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Everything you need to know about the crisis in Venezuela - ABC News



Oil platforms on Lake Maracaibo, Venezuela, June 2014.

De Agostini/Getty Images

Venezuela's Supreme Court said in a statement that the decision to transfer Ledezma and López back to prison came because Lopez violated the conditions of his house arrest by engaging in political campaigns, and Ledezma had violated the conditions of his house arrest by making statements to the media. The court also said both posed a flight risk.

On Friday, days before López's detention, Vice President Mike Pence had spoken by phone with him.

In a statement released Wednesday, President Trump condemned the decision to send the men back to prison.

"The United States condemns the actions of the Maduro dictatorship," the statement read. "Mr. Lopez and Mr. Ledezma are political prisoners being held illegally by the regime. The United States holds Maduro — who publicly announced just hours earlier that he would move against his political opposition — personally responsible for the health and safety of Mr. Lopez, Mr. Ledezma, and any others seized. We reiterate our call for the immediate and unconditional release of all political prisoners."



Ronaldo Schemid/AFP/Getty Images

<https://abcnews.go.com/International/crisis-venezuela/story?id=48966962>

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Venezuelan president Nicolas Maduro celebrates the results of "Constituent Assembly", in Caracas, on July 31, 2017.

Venezuelan opposition members denounced the decision as an attempt to round up their leaders after Sunday's controversial vote, which they boycotted.

"The detention of Ledezma and López – and the detentions of others, because there will be others – is a provocation, both for the opposition and the international community," Orlando Molina, president of the Latin American Institute for Strategic Studies and a member of the opposition, told ABC News on Tuesday.

But while Venezuela has experienced months of protest that have left more than 100 people dead, the roots of the crisis extend further back. Here's what you need to know about the situation in Venezuela:

Economic troubles

Venezuela has been an oil producer since 1914 and is currently a member of the Organization of Petroleum Exporting Countries (OPEC). According to OPEC, 95 percent of Venezuela's export earnings come from oil. But for decades, the country's oil wealth mostly benefited the country's elite. Former Venezuelan President Hugo Chávez was elected in 1998, partly on the promise to use some of that oil money to help the country's poor.



Christian Hernandez/EPA

Antonio Ledezma waves from a window of his residence in Caracas, Venezuela, July 16, 2017.

Chávez used oil money to fund many of his infrastructure and housing projects, which saw vast improvements in the quality of life for some of the poorest Venezuelans, according to Gregory Wilpert, a sociologist and author of "Changing Venezuela by Taking Power: The History and Policies of the Chávez Government."

"Inequality in Venezuela declined significantly and poverty declined significantly in many areas," Wilpert told ABC News from Caracas. "The problem was that this relied precisely on the oil wealth and at the time, it was assumed that the price of oil would continue going up. That was a very faulty assumption, which we have learned since then."

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Everything you need to know about the crisis in Venezuela - ABC News

In countries that export large amounts of oil or other natural resources, it's not uncommon for other industries to be underdeveloped in what economists call the "Dutch Disease." Oil is such a commodity in the global economy that some producers rely on it for nearly all their revenue, importing most of their other goods.



Fernando Llano/ AP Photo

Venezuela's opposition leader Leopoldo Lopez holds a national flag as he greets supporters outside his home in Caracas, ... more +

But falling oil prices upset that balance. Currency devaluation then led Venezuela to have less buying power when it came to imports. Economic decisions by Maduro to continue subsidizing food and other goods also played a role in the deepening crisis.

"On the part of the Maduro government, he made mistakes in terms of economic management, mainly by subsidizing food products so massively, which was a legacy of the Chávez government," Wilpert said. "But the subsidies kept getting bigger and bigger, so it became much more profitable to smuggle these products out of the country. That's one of the reasons you have so much scarcity. So the actual policy of supporting and redistributing wealth is actually working against many of the people it is supposed to benefit."

Many food and medicine products have been hard to find for the last couple of years. This, along with rising crime and skyrocketing inflation, has contributed to the protests as well as a decline in Maduro's popularity. "The real drama of this regime is hunger and the economy," Molina, a member of the opposition Social Christian Party (COPEI), said. "It's not the politics that are going to take this government down, it's the economy, it's the hunger. The economy in Venezuela is being strangled."

US announces sanctions against Venezuelan President Maduro

What's at stake in Venezuela's election?

Presidential elections are scheduled to be held in 2018, but some in the opposition, including Molina, want Maduro to step down and a provisional government to take over now.

<https://abcnews.go.com/International/crisis-venezuela/story?id=48966962>

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Other analysts said the opposition would do better to wait for scheduled elections to avoid destabilizing the country further.

"That's one thing I think is so disappointing about the opposition is that they have a very good opportunity to use the institutions rather than to sabotage the institutions," George Ciccariello-Maher, an associate professor at Drexel University and the author of "Building the Commune: Radical Democracy in Venezuela," told ABC News. "They won a decisive victory in the National Assembly elections, and the economy has not gotten any better. Now, under any other circumstances, they would be guaranteed victory in the presidential election, but the opposition is also unpopular because it represents the most conservative, elite, white sectors of Venezuela. So as a result, you see opposition polling above Maduro but not by a whole lot."

But opposition groups say that the National Assembly has been stripped of its powers and the institutional route has failed to bring about the change they want. Opposition groups *chose to boycott the July 30 vote entirely, but earlier in July held a symbolic referendum in which more than 7 million people voted against rewriting the constitution.

Additionally, there is gridlock among the branches of government: The opposition currently controls the National Assembly -- which has now been stripped of its power -- while Maduro's party controls the Supreme Court and the executive branch.

Worsening U.S. relations

Venezuela's government has had a frosty relationship with the U.S. for years, Ciccariello-Maher said.

"The Trump administration is definitely pushing a hard line against the Venezuelan government, but this is not exactly new. From Bush to Obama and Hillary Clinton when she was at the State Department, the underlying policy has not changed very much, although the language is getting sharper," he said.

Trump's decision to sanction Maduro on Monday, in addition to other members of his government, has already escalated tensions. Maduro responded in a televised address Monday night, calling the sanctions a sign of Trump's "helplessness, his desperation and his hatred." The U.S. may also be considering further sanctions against Venezuela's oil industry.

But the sanctions could backfire by making dialogue between the government and the opposition even less likely, according to Alexander Main, a senior associate for international policy at the Center for Economic Policy and Research.

"These new sanctions and threats of sanctions can only have negative, possibly disastrous results," Main told ABC News via email. "In Venezuela, these actions will lead to a hardening of positions in both

campes and a 'nothing to lose' attitude, greatly undermining prospects for dialogue. The U.S. would also almost certainly be affected by economic sanctions targeting Venezuela, as they would likely trigger an increase in global oil prices and a major wave of emigration of Venezuelans that would reach the U.S."

Diego Arria, a member of the Venezuelan opposition living in the U.S., praised the Trump administration's decision.

"Inaction on Venezuela is the only thing that could hurt us. Trump's actions contribute to legitimizing our demands for freedom and rights. More forceful actions together with other willing partners would make an even greater impact," Arria told ABC News via email.

Trump could do that by working cooperatively with other Latin American countries, Molina said.

"If President Trump's decision isn't united with similar decisions from the presidents of other Latin American countries, it won't do anything," Molina said. "Because there's a distinction between what President Trump can do unilaterally and what Trump can do with the leaders of Colombia, Chile, Peru et cetera."

But other analysts say that Trump's support could backfire against a government that has frequently denounced the U.S. as an imperialist power meddling in its affairs.

"The problem for the Venezuelan opposition is that whenever the U.S. weighs in, it hurts the opposition because they don't want to be seen as the sort of sell-outs and imperial lapdogs," Ciccariello-Maher said. "Especially when it's someone like Trump, who is so widely hated. If you have Trump on your side, it hurts you quite a lot in terms of popular support."

"The question is if those sanctions in any way will hurt the Maduro government or if they will provide more support or more reason for people to stand up against any sort of foreign or imperial intervention," Ciccariello-Maher added.

Avoiding a coup or civil war

Many on both sides are worried that the situation in Venezuela could deteriorate into a coup or a civil war. A 2002 coup attempt against Chavez, which declassified documents show the U.S. knew about beforehand, is still fresh in the minds of many Venezuelans, who want to see the crisis negotiated peacefully.

In announcing the sanctions against Maduro, U.S. Treasury Secretary Steve Mnuchin did not answer a reporter's question on Monday about whether the Trump administration would rule out supporting a coup or an uprising against Maduro that led to a new government.

"We are focused on the democratic process, and that's what we're focused on right now," Mnuchin responded.

But Arria believes that if part of the military were to overthrow the Maduro government, the Trump administration would be supportive.

"They will absolutely support the coup of institutional army officers to get rid of an illegal regime that Maduro has installed," Arria said.

"I don't call it a coup, I call it the recovery of the institutionality of Venezuela," Arria added.

But many Venezuelans on both sides don't want to see a return to military rule, which the country lived through between 1948 and 1958 and in which many suffered torture, murder and incarceration.

Ultimately, it's up to both sides -- and international players -- to ease tensions and urge the parties to come to the negotiating table.

"The problem is that it's not just the government and the opposition. Outside forces have a major impact on what is happening in Venezuela, specifically the U.S. government and the international media," Wilpert said.

"There are still opportunities to step back from outright confrontation, the question is whether the two sides will take it," he added.

Main agreed: "For the country to avoid civil war, dialogue is the only way forward."