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Planning a new "city-park": from urban project to societal resilience ?

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Grenoble, Sept. 2020

Planning a new "city-park": From urban project to societal resilience?

A theoretical analysis on why and how sustainable urbanism
is expected to change our society's behavior.

Master 2: International Cooperation in Urban Planning

Institut d'Urbanisme et de Géographie Alpine

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ABSTRACT

This research arises from the will to investigate the role of the urban project in society's transition towards a more resilient system. The study is based on the idea of a "global" resilience (WALKER et al, 2009), that is, a long-term condition which considers a “crisis” or “collapse” as a continuous process instead of a punctual event (COCHET, 2019). Therefore, urban projects are analysed as a tool for creating “adaptable” societies able to rebound from the climatic change, ecological risks but also political and economic crisis through which cities are expected to go in the coming decades and that are already taking place. (SERVIGNE, STEVENS, 2015) Being aware of the central influence of environmental issues in this scenario such as the end of fossil fuels, the generalized pollution and a declining biodiversity, contemporary urban projects tend to return to and “rework” the ideals of a sustainable city that have already had their place in the history of urban planning since the last century. A “renewal” of concepts such as the one of a “city-park” is today proposed in different cities through what seems to be the rising of more ambitious urban projects, surpassing an aesthetic or morphological definition limited to urban design which is now replaced by a will of changing how society lives in cities.

Under this hypothesis, this study aims therefore to understand why and how these projects could be able to actually change our societies organization by "reorienting" the city's evolution towards a sustainable functioning and a resilient system. Considering that urban societies are not (only) defined by technical-scientific aspects, the research will center the discussion on the social aspects of a city's performance, that is, a focus on the effects and reactions of and on the urban project regarding human's behavior in society. Studies in Environmental Psychology are therefore the base to understanding how urban spaces interfere in individual and societal changings during the first part of this work, serving to define an analytical framework for a comparative study of two “city-park” projects on its second part. Urbanisms' history and theories are also reviewed through a social and ecological approach in order to identify how this relation has been evolving, pointing out the main challenges for today's projects.

Despite having a mainly theoretical approach, in fact, the present study suggests a reapproximation of urban projects to societal practices on daily life believing those are the real catalyzers to cities' transformation. Often separated by an assumed distanciation between its techniques and its scales, those two distinct “realities” - urban projects and society's day-to-day activity - are nowadays invited to converge through an integrated urban planning towards societal resilience.

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INTRODUCTION

In a collapsing society (SERVIGNE, STEVENS, 2015) and increasingly concentrated in cities, the search for societal resilience and the investment on big promising urban projects seem to have become two of the great priorities of politics and academia¹. Besides, a harmonious rapprochement with the natural environment is pointed as the best way out of the current thermo-industrial unsustainable system. After various changes in the "city-environment" relationship throughout the centuries, it seems that today, more than ever, there's a need, or a belief, that elevates urban projects to a place of hope for the "salvation of society" through the reintegration of our cities and nature.

This ambitious and almost utopian definition of planning has been sold and discussed throughout the years under the name of many terms created by urbanists but also by sociologists, psychologists, historians, and others. From Regional Planning (MAROT, 1995) to Biophilic Urbanism (BEATLEY, 2011), passing by Landscape Urbanism (WALDHEIM, 2006) and Ecological Urbanism (MOSTAFAVI, 2010), and so on, these theories and propositions had some operationalization attempts such as Unwin and Parker's Garden-cities (HOWARD, 1898) or Lucio Costas' "City-Park" (JUCÁ, 2009). Generally speaking, they all move with different strategies but in a similar direction: the will of finally constructing a sustainable society able to establish a harmonious relationship with the environment. In a profession initially limited to public spaces' design and architecture regulation (TABOURET, 1989), we now see, throughout a historical revision of these terms and projects, that urbanism gains responsibility for transforming social habits and systems, and with them the whole functioning of a society "condemned to collapse" (COCHET, 2019). Based on this hypothesis, the research establishes its first questions: could urban projects be capable of this transformation? What have been "falling" on these urban attempts? How can physical space act in the construction and formation of our behavior in society? Those will be some of the guidelines to the theoretical analysis proposed on this work.

¹ Institutions like the US-based Rockefeller Foundation "100 Resilient Cities", the first global learning collaborative environment for helping cities through urban resilience planning gain important visibility to urban projects on a global scale. <http://www.100resilientcities.org/>

In order to answer these questions, some important definitions and contextualization are necessary. The first chapter is therefore dedicated to clarifying some concepts and delimiting the work's approach in regards to them. It's defined, for example, that within the vast field of resilience studies, it is the idea of a long-term adaptation, that is, of a "global resilience" (WALKER et al, 2009) that will be taken under consideration to the research's discussion. Definitions on urban projects, society's collapse and sustainability are also reviewed and explained, establishing a more transparent background to the following investigations.

Furthermore, the research will try to answer the proposed questions through three different approaches based on (I) sociological and psychological studies applied to physical environments, (II) on the theory and history of urbanism, and (III) on the practical development of on-going urban projects. The first helps define the guidelines or "conditions" that would make of an urban project a tool capable of contributing to societal resilience. The second will highlight how the relations between city, environment and society have been evolving through history pointing out the main challenges and advances in urbanism theories and attempts when it comes to transforming or guiding societies to a resilient system. Finally, the third approach gives as a real understanding of urban projects operationalization through a comparative analysis of two case studies.

After discussing the theoretical framework that involves urbanism's concepts but also the environmental psychology field, a practical analysis of cities will identify the principles, strategies and challenges of urban projects that aspire, today, the conquest of the so dreamed sustainable society through projects of a "city-park" (directly translating from "cidade-parque", in Recife, Brazil; and "ville-parc" in Grenoble, France). Despite being composed of extremely different socio-cultural and environmental contexts, both cities lead urban projects guided by this same concept in search of the same societal resilience. Could this model be considered an effective "recipe" for resilience? (HEINZLER, 2019) working in different cities, different countries, and even a different continent ? How is the construction of the "city-park" interpreted in each one of those metropolises?

PART I: BETWEEN URBAN PROJECT AND SOCIETY'S BEHAVIOR

1. Context and definitions

1.1. The search for resilience: why and how does society need to change?

Since half of the 20th century natural disasters have been drastically increasing around the planet according to the International Disaster Database². Despite it being called "natural" it's known that the augmentation of these phenomenons, such as floods and wildfires, is directly related to the increasing use of fossil fuels and natural resources that are leading to a significant climate change (even if it remains difficult to quantify this relation). Within this context, scientists have begun to question if regardless of - or because of - the world's significant economic growth in the last decades, our society could be going into a total "collapse".

This term was first applied by the american geographer Jared Diamond. In his book "Collapse" (2004), the researcher proposed a look at the causes of the disappearance of civilizations, such as Easter Island, and questioned the likelihood that we will suffer the same fate. Anthropogenic global warming is accelerating with a strong probability that our society's current rhythm will lead the planet to an increase of at least 1.5°C, or even 2°C, between 2030 and 2050 compared to pre-industrial levels. This transformation is already declining global biodiversity at an accelerating rate, and will provoke irreversible impacts on our ecosystems (LECROART, 2020). With the population growth, and the consumption growth that comes with it, besides the great potential of these disasters for creating "cascade effects", the increased consumption of natural resources and the consequent climate change can be considered today as the main threat to our society. These effects can - and already are - resulting in a generalized pollution, in degradation and even disappearance of agricultural land, in the future depletion of fossil fuels and mining resources, in major financial crises and therefore in wars and in loss of legitimacy of power or political regime.

In 2015, the research on "collapse" was defined as a whole new discipline by the french ecologist Pablo Servigne and the eco-advisor Raphael Stevens. They've introduced the term "Collapsologie" that they've used to describe the study of the collapse of our societies (SERVIGNE, STEVENS, 2015). Together with the french ecologist Yves Cochet - former Minister of the Territory and the Environment of France -, they've defined "collapse" not as a punctual

² <https://www.emdat.be/>

episode, but rather as "a process at the end of which basic needs (water, food, housing, clothing, energy) are no longer provided at a reasonable cost to a majority of the population by services regulated by law" (COCHET, 2019). This means that instead of a "catastrophic" collapse (brutal) of our civilization, our current economic, political, social and environmental crisis are more likely to lead us to a "catabolic" collapse, that is, a progressive process with various "diffused collapses". To the historian Joseph Tainter (1988), "collapse" takes place through a rapid reduction of the population and/or of the complexity of our societies regarding its political, economical, social and institutional aspects.

Despite the optimism of some that could believe in the hypothesis of these previously mentioned disasters being preventable, for most of the researchers cited above, who are working on the issue nowadays, our society's "collapse" is today an inevitable future. For the ecologist Yves Cochet, when it concerns the city's collapse, it is not even a matter of optimism or pessimism, simply because it is not about feelings or intuition. For this french mathematician, the "collapsologie" is about looking at the figures and their evolutions (Le 20h, 2019). They don't seem to be the only ones to accept these ideas since along the last decades these studies have acquired more and more visibility. At the beginning of 2019, Servigne and Stevens' book, titled "Comment tout peut s'effondrer?" (2015) ("How can everything collapse?" in free translation), had already reached the best-sellers list with more than 45 000 copies sold according to France Culture's TV news.

Beyond the "pessimists" beliefs, most of the work in "collapsologie" shares another constant: that of cities being at the center of the decisions regarding these environmental changes. Besides the direct relation of the world's economy being highly concentrated in cities, the urbanization growth and the accelerating climate changes, it is also in urban spaces where "collapse" seems to appear first and stronger and where the search for resilience takes, consequently, a more important role. Besides, with globalization, geopolitical power is no longer concentrated on States but in cities, where environmental discussion can actually be measured and transformed into action. (MAMADOUH, 2018)

This major importance of cities, and in particular to metropolitan territories, when it comes to the possible collapse of societies, is also directly linked to the importance of their vulnerability. Many factors that define the attractiveness and wealth of metropolises today, such as high population density, availability of networks, the public and private organization that supports

economic, social and financial flows, etc; are also the seeds of those cities' vulnerabilities (FAYTRE, 2020). For example, the high concentration of people can considerably complicate crisis management in the event of a major disaster; networks (energy, transport, communication, waste) are of vital importance in daily and economic life, but because of their operators' interdependence it is also a big factor of a city's fragility; and finally, the importance of flows (human, economic, financial), the dependence on neighbouring or distant territories for supply (food, natural resources), the predominant role of public services, which weave the territorial link, are other sources of vulnerability in the face of a major crisis (FAYTRE, 2020).

Moreover, with climate change affecting agricultural production, rural migration takes place with a significant part of the rural population moving to cities in search for "land-independent" job opportunities. According to the United Nations's Department of Economic and Social Affairs, this increasing urbanization process will lead 68% of the world's population to be living in cities by 2050³. With more and more people concentrated in the same amount of space, the occupation of hazard zones such as the strong urbanization of flooding areas, keeps increasing and contributing to the rise of disaster. (FAYTRE, 2010; SCARWELL, LAGANIER, 2004; THOURET, LEONE, 2003). As a consequence, countries have been breaking records each year in terms of costs related to natural disasters (CATNAT.NET, 2011) being one of the many reasons of how urbanization affects disasters just as profoundly as disasters affect urbanization (PELLING, 2003).

All of these ingredients make the search for solutions against cities' collapse each time more relevant and urgent, counting on the hope that changing human and environmental processes could still be possible in time. For Norgaard (1994), when those processes of change - environmental and human - act in one place, like in a city for instance, it can be defined as a "coevolution". His definition works as a metaphor of an evolving biological system, where there "is no simple one-way line of causality in the production of human or environmental conditions: 'nature' does not cause 'natural disasters'; rather risk in the city is an outcome of a myriad of feedback loops and thresholds and competing ideas, mechanisms and forms." (PELLING, 2003) In this way, any event, natural or human, even a minor one, that breaks a critical "threshold" is

³ United Nation 2018's revision of the world's urbanization prospects available at: <https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>

actually capable of initiating a cascading series of knock-on effects with wide repercussions throughout the urban system.

This means that the collapse scenario in which we see our cities today is not a technical nor a punctual issue, but rather a holistic and ecological condition. Because of that, it can and will vary in intensity and time depending on each city's ecosystem. According to Pelling (2003), these variations depend on the possible "catalysing events" such as catastrophic disaster or a political reform, that can sometimes completely transform the context in which the combined "human-environmental system" operates. (PELLING, 2003). For Denis Meadows (2011), who has been writing about the limits of population's growth since the 1970s, these events are not a possibility but a certainty, which means that if cities want to survive crises, we must abandon some established "beliefs" such as the false idea that our lifestyle and our political system will remain the same.

It's within these circumstances of urban critical and complex vulnerability that the idea of cities' resiliency arises suggesting a proactive stance towards risk (TOBIN, MONTZ, 1997). It is supported by an "intermediate idea" of an "enlightened catastrophism" (DUPUY, 2004), where neither an inevitable collapse nor a total denial of the crisis are acceptable. Resilience defines the amount of disturbance a system can absorb and still remain within a similar state or domain of attraction and balance. It is also understood today as the degree in which the system is capable to (re)build and increase its ability of learning and adapting (FOLKE et al, 2004). Therefore, when a human or ecological system loses its resilience, it becomes increasingly vulnerable to disturbances that could, previously, be absorbed.

Each time more popular in different fields, and recently in urban planning, the term "resilience", in effect, has its origin in Psychology where it has being used since the 1960s as the "ability to rebound or to build a good result despite an unfavourable environment or event" (TISSERON, 2017). Therefore, it was initially characterized as an "individual competence" and was directly related to human's behavior, coming in order to distinguish some definitions until then associated with the idea of one's "stability" (FARRAL, 2012). Later on, in the 1980s, "resilience" started being accepted not only as an embodied competence or a gift of some people, but as a process through which everyone could pass in order to become resilient as long as you're helped by someone who already is - a "resilience tutor". (TISSERON, 2017) From then, this concept got

out of the individual and almost "exclusive" perspective and joined the idea of "collaboration" and accessibility.

Twenty years later, the term will once again suffer some changes and will start being perceived, until nowadays, not only as a reachable ability if taught from one to another, but as a "collective" characteristic, becoming a complex concept that binds on the entire society. (VOISIN-BORMUTH, 2018) This expansion of the concept seems to have transformed it into the best answer to today's shocks and crisis that, as previously discussed, could be leading our societies to its end. (SERVIGNE, STEVENS, 2015) Instead of accepting the tragedy, this new idea of a "societal" resilience brings back the hope of resistance and reconstitution of our existing systems in order to avoid what has been named the "collapse" of the thermo-industrial society (COCHET, 2019). It is therefore due to the recognition of the current "collapsing" scenario that resilience has gained such popularity in today's political and academic scene. That's why it is important to keep in mind the previously mentioned "causes" of this "ongoing" collapse in order to better understand, further on this discussion, why resilience strategies in its response are related to an "eco-urbanism".

With city's becoming so determinant on geopolitical and environmental issues and actions (MAMADOUH, 2018), one could conclude that achieving societal resilience must necessarily depend on achieving urban resilience. However, although resilience has been explored in many complex social-ecological systems (FOLKE et al, 2004) it has only recently been applied in the context of cities (ERNSTON et al 2010). It has been discussed within ecological theory, systems analysis and disaster studies and has therefore gained particular attention in urbanism within "urban ecology". This urbanism trend that seeks to create more environmentally sensitive urban spaces, has engaged with the concept of resilience mainly for introducing the thinking on the complexity of social-ecological systems and their vulnerabilities (McPHEARSON et al, 2015). Besides, studies show the benefits of urban resilience concept as an analytical bridging concept for urban planning which have certainly provided directions for the term's adaptation by cities (WAGENAAR, WILKINSON, 2015).

Very similar to the primary psychological definition of resilience, urban resilience can be defined by the capacity of a system to absorb and recover from an impactful event. However, it also establishes an important characteristic so far less explored by social studies when applying the concept: the need for systemism (BUNGE, 2000). That is because, unlike the psychological

origin of the term "resilience" and its later expansion to the scale of a whole society, the term "collapse" arises already within a social and even urban-oriented discussion context and therefore guides "urban resilience" to a more operational and holistic application than the psychological one. Because of the interdependence between a city's functions and its many actors' involved, cities are encouraged to always refer to a resilient system within a wide property. As a consequence, urban resilience implicates the involvement of different dimensions such as social, ecological, technological, economic and institutional (HOLLING, 1973). Urban resilience is, consequently, less a technical project than a primarily political one (VOISIN-BORMUTH, 2018), it combines the set of all collectivities of the cities including the population itself.

Because of that, resilience has been defined as an « umbrella concept » or as a « boundary object » (BRAND, JAX, 2007), in order to bring to light its transdisciplinarity and its holistic approaches to its implementation.

"Because research on the urban environment brings together diverse skills from the fields of urban planning, architecture, engineering, economics, geography, sociology, etc., the concept of urban resilience gives rise to multiple translations in terms of problems and methodological development, thus allowing for dialogue (confrontation) between these often segmented disciplines." (TOUBIN et al, 2012)

Moreover, differently from the past - and sometimes in the present, where developers would normally respond to risks in trying to mitigate them, cities are reaching a certain hazard limit in which risk can no longer be avoided at acceptable cost and disasters become inevitable. "In order not to fall back on the shortcomings of hazard, vulnerability and protection approaches, risk must now be taken as a component and not a constraint of city development." (TOUBIN et al, 2012) This is, for Faytre (2020), the first step towards societal and urban resilience, establishing a first guideline to urban projects, that of open - but responsible - communication about the city's risks. For the expert in natural and technological risks, there is "a need for society accepting our individual and collective vulnerability in the face of this collapse and also understanding that a complex world where 'zero' risk does not exist." (FAYTRE, 2020) Besides, as previously mentioned, within the idea of "resilience" disruption can actually create opportunities that need to be taken advantage of, but for this to happen, the development of the

city itself must have recognised, accepted and integrated the possibility of disruption, possibly unknown (TOUBIN et al, 2012).

"(The alteration of the context in which the combined human–environmental system operates)... creates space for rapid adaptation and hidden or new forms of human and/or environmental organization to evolve and rise to prominence – for a new equilibrium to establish itself before the next upheaval" (PELLING, 2003)

Unfortunately, today most people will relate the word collapse with respect to the word “crisis” which can refer to any event that is going to or that is expected to lead to an unstable and dangerous situation affecting an individual, group, community or entire society. It is also perceived as negative changes on various social structures like politics, environment and economy both individually or at the same time, being closer to the idea of "collapse" as a process in which we are probably already part of today. In both ways, since this vulnerability is perceived negatively, its acceptance remains complicated in our societies especially when considering that they are marked by economic or territorial competitiveness. The notion of resilience, however, carries positive values: anticipation, adaptation, sharing, transversality, innovation and so forth, (FAYTRE, 2020) and can consequently converge cities to more action. It comes therefore not only as a hope of change due to its definition, but also due to what it represents to society since its origins - a positive characteristic of humans that our cities now aim to conquer too. In this way, resilience is also beneficial to urbanism because of its both cross-cutting and creative characteristics (STRUNZ, 2012).

Due to the ecological character of the main causes of today's collapse, when operationalized, urban resilience tends to focus on strategies to minimize environmental changes based mostly on scientific data such as temperature, water level, gas emissions, etc. Moreover, in a context of high uncertainty, "the ability of science to provide concrete and scientific inputs to decision-makers to implement policy is no longer assured." (STRUNZ, 2012) Instead, a "post-normal" science is proposed defining a second guideline to urbanism where permanent exchanges and co-construction of knowledge and decisions make the foundation of planning. Society, of which cities are part and stage, are not only defined by their material networks but they are also, and mainly, built by the interactions and relationships between people which allows the whole urban system to work. (LAHLOU, 2017) These interactions do happen in

physical space (even virtual social interactions still depend on physical objects), but they are constructed and regulated by the redundancy of (at least) two other layers that must be therefore integrated to urban project as it will be discussed in further chapters (LAHLOU, 2017).

In this work, the choice for focusing on societal resilience was therefore an intentional decision in order to bring to light the social "layer" of urban systems, especially when it comes to integrating the analysis and contribution to life in society within the management of physical space in which we interfere as urbanists.

1.2. From societal resilience to urban project

As discussed in the previous chapter, today's large metropolises are in the front line in managing multiform vulnerable situations: risks of floods or hurricanes, health and migration crises, vulnerability of networks, social and economic impacts, etc. Even though they are often assimilated as “ungovernable” or “inert” because of its complex structure (material and immaterial), metropolises can be surprisingly malleable to change when experiencing a serious crisis. However, more than a simple operational action, when applied to cities these notions of resilience must be built as a group of plannings combining prevention, protection, anticipation and preparation for crisis management, but especially, of a constant reduction of vulnerability, (FAYTRE, 2020) which implies a change in the current way our ecosystems functioning. That's when strategic vision, the ability to seize opportunities, the leadership of mayors, governors or state representatives, and the engagement of the whole population, play a crucial role. When it comes to cities preparing themselves through mitigation and adaptation to climate change, those abilities are often materialized through an "eco-urbanism" project (LECROART, 2020) since it can no longer be treated as a punctual solution, but as a global and multi-scale intervention.

The research will later discuss these important conditions for urban projects towards resilience, but first, in order to understand until what extent this opportunity - or need - of urbanism to operationalize a change in society can be actually achieved by urban projects, we'll need to go into more details of how resilience actually takes place in space and time. Despite the important general approach given to the term in the last chapter, to translate a wish for resilience into an urban project, it has to be inevitably decomposed into phases.

Having a shock or disaster as a departure point, a resilience strategy will always take place in at least two (WALTER et al, 2009) or three different stages (VOISIN-BORMUTH, 2018), which will vary depending on the shock intensity (stronger it is, less time city's have to recover) (JOURDAN et PONTOIRE, 2019), but also on the city's primary goals and in the territory's scale. The first stage corresponds to an urgent reaction (VOISIN-BORMUTH, 2018) and is usually limited to the micro or mesoscopic system directly affected by the shock or disaster (WALTER et al, 2009). It is often materialized in a security plan made by the public or private institution involved in the disaster, and following established norms based on risk management strategies. Its main goal is therefore to put in safety what is in danger just after the shock

(VOISIN-BORMUTH, 2018) and it is apprehended on the short time. It can be named the "specific resilience" - of a given system in the face of a given disturbance (WALTER et al, 2009).

The second stage takes place in a longer period of time where, in order to identify the reasons that led to the shock and better plan the courses of next interventions, action and thinking work together. These actions can either try to improve the response to the crisis in order to limit its impact, or will to change the whole functioning of the system in order to act directly on the hazard and limit the probability of its recurrence. (VOISIN-BORMUTH, 2018) This stage is therefore a phase of adaptation - which can then take several forms, from the most conservative of the system (protection logic) to the most adaptative (questioning the system). (VOISIN-BORMUTH, 2018)

From the second stage to the third stage, resilience must reach the macroscopic scale where the long time is also essential. We're now talking about a "global resilience" (WALKER et al, 2009), that of the return to equilibrium, which implements the measures and manages the consequences of the crisis and the shock over the long term, without the urgency of the previous phases. (VOISIN-BORMUTH, 2018). The notion of "equilibrium" does not necessarily imply that the system has returned to the same state as before the shock, only that it has regained a stability that allows it to operate again at a normal regime. (VOISIN-BORMUTH, 2018)

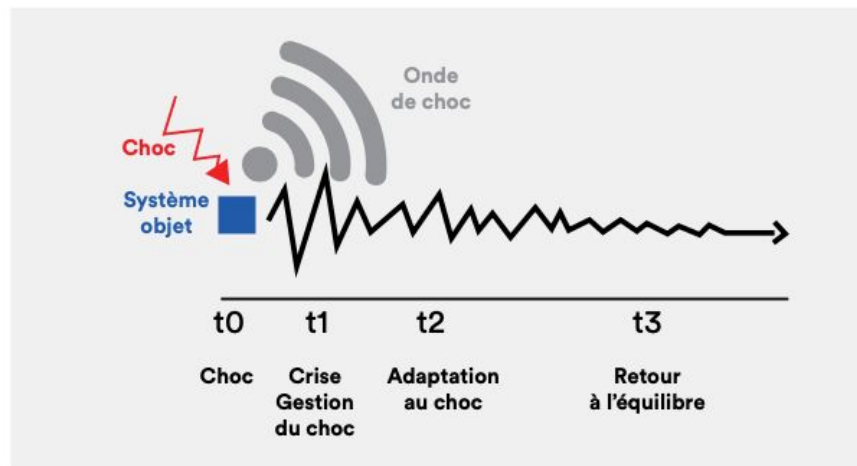


Fig. 1.2.1.: Diagram of the different stages of resilience (Source: VOISIN-BORMUTH, 2018)

The link with long-term resilience logically involves a continuous improvement process that aims to increase short-term resilience by taking advantage of the system's learning and

adaptation capacities. Developing methods for evaluating and then improving the resilience of urban systems with the aim of operationalizing the concept, is part of this perspective and seems to be in accordance with what an urban project could propose. Besides, because of the high costs and long time necessary to recover a large scale urban space from a shock, planning becomes even more fundamental since it represents an opportunity of anticipation and economy.

“... at the level of the urban sub-system (service, activity, population, etc.), short-term resilience would correspond to the capacity to react to a disturbance. On the other hand, at the global scale of the city, long-term resilience would be based on the maintenance of its main functions (prosperity, quality of life, attractiveness, etc.). The concept therefore favours taking into account the long-term impacts of the decisions and directions given to the city with a view to better preparing it to maintain its functions in the face of a disruption. It is no longer a question of responding to short-term protection and development issues, but of analysing and promoting the mechanisms that will make the urban system capable of responding positively to future, possibly unknown, demands”. (TOUBIN et al, 2012)

Moreover, today's “collapse” scenario is not only composed by punctual shocks or disturbances but also by many other urban issues, increasing with time, that have been already studied in urbanism and are now possible catalysers of disasters. Questions regarding the densification of urban space, for example, are not anymore discussed “only” as a major environmental and development issue (related to space consumption, climate change, biodiversity, urban transportation, etc), but it is also now a concern when it comes to its intensity and its adaptation to the challenges of a health crisis or major flooding for example, crossing, therefore, both fields of resilience and urban project. A similar movement is taking place within studies on the necessary solidarity between urban and rural areas in a metropolitan approach. A subject many times discussed in urban planning and urban design that is now analysed in a context of the city's vulnerability and society's transformation due to climate change.

With all its complexity, the “urban” dimension has ‘replaced’ the city” (OFFNER, 2020) and is clearly occupying a central seat on the search for resilient societies. Urban projects, however, seem to have still remained on the margins of discussions without having a clear definition of its role in the whole process of changing society towards resilience. Shared between design,

composition and strategic planning for particular areas, the practice of urbanism was not always so “complex” as we want it to be today, neither was it even precisely defined. Being previously limited to the regulation of architectural form within plots, it was only during the modern movement that the practice of urbanism suffered an important expansion to a political scenario. “When it gave superiority to the block over the building, urbanism insisted on the virtues of the parcel division while demanding mixed programmes, among other actions.” (CASTEX, DEPAULE, PANERAI, 1977) Only then, according to the mentioned authors, urbanism has resuscitated the idea of a continuous city and got engaged in the long debate of how to rebuild our cities. It was also at this time when new tools for intervention in the urban environment needed to be redesigned. With the new specific problems of the modern urban spaces during the XXth century, new types of projects emerged and they were all grouped together under the name of "urban project" (MAGHNOUS-DRIS, 2009).

An urban project has been since then, described in many different ways. It is at the same time the place to develop new and shared strategies (TABOURET, 1989) but also the recognition of what is already there, on which to build foundations for others that will come after. (DEVILLERS, 1994) It is a work on the collective consciousness, as well as a work on form. (DEVILLERS, 1994) In every way, an urban project reaches the whole "urban reality", not only being limited to a planning or architectural project, but being almost "forced" to also consider the economic, cultural and social factors that support its operations at all urban scales. (BOUINOT, 1995) It sets up the tools for building or rebuilding the city, designing and drawing the public space, cutting out the ground to be built on, after having defined long-term spatial objectives and strategies. (MAGHNOUS-DRIS, 2009)

Urban projects seem therefore to attend to the holistic and systemic approach necessary to achieve cities' resilience. Besides, it finds its place in the "resiliency timeline" since it can respond to the second and third stage of a resilience strategy. Moreover, since shock and crisis allow for better reconstruction, resilience is often attached to an idea of a great improvement. An urban project for resilience becomes therefore a great framework for planning the regeneration of cities for the benefit of its inhabitants since it works as a guide for action to adapt the city to societal demand (DEVILLERS, 1994). However, faced with so much responsibility and expectation, one could wonder if urban projects could be at the risk of leaning towards utopias and moving away from operationalization?

It is true that, in this chase for resilience, "just" surviving is almost not enough anymore. The search for resilience has become about "becoming better". As Samuel Rufat, lecturer at the University of Cergy-Pontoise and junior member of the Institut Universitaire de France remarks, "with resilience, wouldn't we be only a step away of making social Darwinism desirable?" (VOISIN-BORMUTH, 2018). In this sense, urban projects would not only be answering to resilience operationally, but as both dependent and a carrier of an important symbolic value, either as a prospective project proposing possible urban futures, or as a pre-operational project designating a future place and the rules of its shaping (TABOURET, 1989).

Just like Lewis Mumford believed in a "Fourth Migration" (1925) that would once again change the course of America's cities and society⁴, contemporary urban projects are invited to discuss not only small urban space interventions, but the possibilities of making big changes in society. Differently of the previously "established" values of urban space - planning and regulatory urbanism in one side and building operation in the other - urban projects have now, indeed, gained an important autonomy in cities that are in the search of new forms of development. However, as we refuse to define it as the reference or the guide towards the "ideal city", we tend to leave it "only" as a practice of today's urbanism (TABOURET, 1989) or as a small piece in the big "toolkit" of cities for making societal resilience.

Time comes here again as a decisive component to avoid utopias. Since resilience, from "resilere" means jumping or bouncing, it is opposed to resistance, which comes from "stare" meaning standing upright. This notion makes it indeed possible again to imagine a sustainable society but that was, according to what is discussed in "collapsologie", no longer reachable in today's society composition. If climate change is irreversible, differently from how modern issues were seen back then, resilience encounters urbanism today with a need of a slower but efficient transition where risks are mitigated, but not excluded, and society is able to adapt. What might seem logical or irrelevant, actually represents an important inversion of the

⁴ According to Mumford (1925), America's societies were changed and defined by three "migrations" and that the problem of urbanism - back in the beginning of the XXth century, was not to believe that a "fourth migration" could take place and change society again. "These three migrations have covered the continent and knitted its present structure; and our efforts to promote social protection, rectify dirty cities, and efficiently run the industry are mostly based on the idea that this framework is complete, satisfactory, and final." (MUMFORD, 1925) The framework to which Mumford makes reference, just like today's framework, are actually capable of accepting change potentialized by the new inventions and skills that have been and will keep on transforming our tools on planning.

previous modern urban logic where planning was often associated with a "perfect" and therefore "utopic" solution that could simply restart our systems from zero or start a new one from scratch.

That's also how resiliency gets distinguished from sustainability. Even though both terms, as theorized by ecological sciences, are often articulated with the notion of maintenance of functions, of persistence (HOLLING, 1973), they diverge on time and possibility of operationalization. A "sustainable-oriented" goal of urban projects suggests a "perfect" - and therefore "utopic" - stability and maintenance between society and nature, while resiliency, as discussed before, searches for maintenance but accepting a "never stable" configuration. The second term is therefore more useful for urban designers who strive to create cities that are adaptable to changing conditions and needs (GUNDERSON et al. 2010, PICKETT et al. 2004, VALE, CAMPANELLA, 2005 cited in SPIRN, 2014)

"Isn't there a certain contradiction between risk management policies that should be adapted and urban development that rarely takes into account potential failures in the event of a crisis? Two concepts have successively emerged to characterize the city and question its contradictions, one taking into account the management of disruptions: the resilient city, the other advocating balanced economic, social and environmental development: the sustainable city." (TOUBIN et al, 2012)

Despite its contradictions, sustainability and resiliency can still end up being confused. That is why it's important to distinguish them well. Sustainability constitutes a normative concept while resilience is a descriptive one, which aims to understand the procedure of the evolving system that can lead at some point to its sustainability (STRUNZ, 2012). At the same time, resilience can be considered as an initiative operation that can respond to sustainable urban development because of its systematic approach previously mentioned (VOIRON-CANICIO, 2005). Therefore, resilience can be seen as a necessary condition to achieve sustainability (FOLKE et al., 2002), even though some may consider it to be at some point insufficient or unnecessary to reach the sustainable goal (DERISSEN et al., 2011).

RESILIENCE	SUSTAINABILITY
Universal	Anthropocentric
Objective and Descriptive	Subjective and Normative
Short-term and Long-term	Long Term
The way	The finality

Fig. 1.2.2.: Characteristics of the concepts Resilience and Sustainability. (Translated from: TOUBIN et al., 2012)

The divergence of the two concepts is mainly marked when the "persistence" or "maintenance" that both seek is "achieved" by one without considering the external systems. "While the ultimate goal of any system is to maintain itself over time, an individualized system (such as a human being, an animal) cannot be considered sustainable. The animal seeks above all to maximize its chances of survival, its maintenance often to the detriment of other species - it therefore tends to be resilient." However, the ecosystem that shelters it can be sustainable by setting up self-regulation mechanisms (which could, moreover, go against individualized resilience). The spatial scale of sustainability is therefore much larger than that of resilience.

According to the previous discussions, resilience can play a role in the realization of the sustainable city, an ideally functioning urban system. The approach to improving urban resilience is then defined as a means of managing the shocks of an urban system subjected to numerous disturbances (short-time resilience) and maintaining it on the ideal trajectory of sustainability (long-term resilience) linked to a system state indicator (economic growth, carbon footprint, or demographics, for example).

"The sustainability of the urban environment then appears to be a purely theoretical concept, or even a technical utopia (Villalba, 2009). However, utopia allows the definition of an ideal that is certainly unattainable, but which we can nevertheless try to get closer to. The sustainable city would then be a prospective reference frame (Emelianoff, 2007), in relation to which cities seek to situate themselves and which can evolve over time in the course of social transactions between actors and around projects (Hamman, 2011)." (TOUBIN et al, 2012)

Sustainability is therefore very useful as a guide, determining the city's or global goals - just like the United Nations' seventeen Sustainable Development Goals. It established objective and

subjective values that are then translated by the many actors and projects constituting the normative and moral objectives to be attained. It can be defined as a group of indicators such as the quality of life, the quality of the environment, economic competitiveness, social justice, the attractiveness of territories, externalities, and so on. "However, in order to approach this utopian objective, projected over a long period of time, the city must be given the means to manage the multiple disruptions that result from: interactions between sometimes incompatible uses; fluctuations in the resources needed for its operation; or in the environment that surrounds it (TOUBIN et al., 2012)". That is when resilience must take place.

The possibility of changing the ideal trajectory must also be studied in view of the socio-economic changes that affect the stability of the urban system. In the case of a disruptive shock at first sight, it is possible to use resilience mechanisms to bring the system back to a state slightly different from the initial state, which would then initiate the new trajectory. For example, the movement of transition towns (among which Totnes, England, pioneered) is based on a disturbance that has already been proven, but which is worsening: the shortage of resources, especially energy. This movement advocates a new urban ideal defined by new objectives to be achieved, in particular a reduced ecological footprint. Similarly, climate change, particularly through the aggravation of extreme weather events, induces changes in the possible trajectories of the urban system and requires a reorientation, i.e. an adaptation of cities.

In other words, proposing and planning a resilient city means no longer fighting for keeping our same ocean levels or common temperatures - which is not anymore possible - but neither it is about proposing a whole new utopian system from "zero". It is rather about learning how to adapt cities to the imminent change while slowing down the increase of natural disasters. For example, a resilient city will probably not be able to avoid a food supply crisis due to our fuel and transportation dependence and meat based diet, but it will certainly give to cities the opportunity to reduce this dependence, and consequently our vulnerability, by encouraging an auto-sufficient food chain through an integration of spatial and behavior changes, and so on.

Thus, because of its "slow" characteristic and within a new democratic and decentralized non-technocratic context previously discussed, an urban project, even with determined sustainable goals, cannot be set up as a method, but rather as a series of approaches relating to each context, developing contextual planning tools that are close to each reality and open to

discussion. It has therefore to be defined “not as a profession but as a skill, not as a procedure but as a process” (DEVILLERS, 1994).

Just like resilience, urbanism should not be thought of as a "stagnant" concept that keeps the system (the city) within fixed boundaries, but rather as the tool for returning to a stable and desirable state (MANYENA et al, 2011) that evolves over time according to social, environmental and technical standards. "If the course of evolution dictates that at a point in time "t" a new trajectory is defined to be reached, then the concept of resilience simply indicates that it will be easier and healthier to operate this bifurcation in a progressive manner to avoid rupture and allow the system to maintain a certain identity. (TOUBIN, 2012)" It is the principle of "Build Back Better" carried by the Sandai protocol (United Nations conference on risks, 2015), even if we would prefer to have "Built Better Before". (FAYTRE, 2020)

Far from utopias, today’s evolution has contributed with science progress specially related to technological advances which claim to help reducing the damages of this big environmental transformation. But beyond the physical and political changes, there’s still a lot to learn in terms of how people actually adapt to a new sustainable framework. "Objects (here defining all the material layer that is part of our societies) have a potential for activity, but this potential will realize only if an interested actor comes into their field of potential". (LAHLOU, 2018), which means that nothing will happen by planning and building a "greener" and more resilient urban space if inhabitants don't enter it and act on it creating a "greener" and resilient system, that is, a resilient society. Therefore, if we need to change societies we'll need to change behavior and to be able to build a collective vision of the future by understanding the relation between the built and the unbuilt.

"...we can have the best technology that exists if the people who practice and live in the territory don't get involved in it, don't 'take possession' of those technological innovations, practices, and messages from urban planners, it's absolutely useless. And so there is a need for knowledge, for common construction..." REGHEZZA-ZIT, Maghali⁵

⁵ maitre de conference à l'Ecole Normale Supérieure Université PSL https://www.youtube.com/watch?v=oirP_MwnHgs&feature=youtu.be&utm_source=email&utm_campaign=6clics_1actu_de_LInstitut_Paris_Region_-_118_-_9_avril_2020&utm_medium=email

Despite this importance on social and individual behavior in what concerns the whole functioning of a city's system, urban planning still based most of decisions in the observation of previous data, ignoring the evolution and adaptation process of the actors and small groups. Even though many researches have discussed the spatialization of social phenomenons, the real relation between places and their population is still not defined as we still don't know the effects of spatial organization and urban landscape in the individual behaviour within a social framework.

"(...) But the question of how this relationship plays out is still circumvented. (...) Does the "urban form" have some consistency in associating a physical reality and a human reality in means of describing specifically each one of them and likely to account for their association that is still in need to be invented? The question remains open... (TABOURET, 1989)

2. A sociological approach to urban space and society's behavior

"We establish social relationships through the objects and things we produce and circulate (social relationships between people are mediated by material things). (...) Therefore, any reconstruction of things involves a reconfiguration of social relations: by creating and recreating the city we create and recreate ourselves, both individually and collectively. To build the city as a sensitive being is to recognize its potential as a political body." (HARVEY, 2015)

After the comprehension of the transition context in which today's urban projects are involved and understanding that urban planning is not (only) about rational technical-scientific structure, we'll now center our studies on how society's change actually evolves, in practice, along the time. It's known that a system's behavior is composed of and defined by individual behaviors, which are usually considered to be unpredictable. (CROIZIER et FRIEDBERG, 1977) These actions can therefore be considered a limit or a contribution to a collective transformation on urban functioning towards a city resilient to environmental crisis and its consequent risk of major social issues and disorganization of the security and civil protection systems.

According to the "Office Professionnel de Qualification des Urbanistes"⁶ urbanists' occupation is related to the comprehension of the city's functioning dynamics, through observation and evaluation urban planners conduct a prospective planification and spatialization of projects. This function is therefore guided by previsions (certitudes) which, in the context of resilience, does no longer exist. On the contrary, planning for resilience means considering that many different futures are possible, imagining them and preparing for them. It becomes therefore more important to understand the composition of its systems and how it may change then to actually master what will exactly happen afterwards. Is more about the process then about its result.

Beginning with a general but necessary explanation of how these systems are transformed from a sociological point of view, the research will then concentrate specifically on the urban environment's role in the process. To do so, choosing a "guide line" theory was fundamental since the Psychological Environment field consists of a very large field of study and often subjective. The "*Installation Theory*" published by Saadi Lahlou in 2017 presented a "practical"

⁶ <https://www.opqu.org/>

approach to this usually "intangible" relation, being therefore appropriated to apply to the urban studies proposed here.

The *Installation Theory* was, among other places, presented during the Fab City Summit Paris 2018 - an international event for architects, urban planners and designers with the goal of sharing recent and significant contributions for the creation of sustainable cities. Based on studies and experiments that he has been conducting for years, the sociologist warned the public that if we intend to change behavior in society in order to build a better and resilient city in the future, we will need to act mainly in "*Installations*" - the theoretical "framework" created by the author to explain the construction and regulation of human behavior in society through the articulation of three layers as will be soon explained.

It is important to remember however, that besides the *Installation Theory*, there are numerous other works that address this theme, each one under different methodologies and aspects. This is because Environmental Psychology⁷, in general, is part of a not very homogeneous set of study areas (GUNTHER, ELALI, PINHEIRO, 2004).

"The complexity of P (people) and E (environments) and, above all, the interaction between the two, is reflected in the fact that several disciplines (such as Architecture, Industrial Design, Human Geography, Landscaping, Urban Planning, Sociology, among others) investigate specific aspects of the person-environmental relationship". (GUNTHER, ELALI, PINE, 2004)

Despite the great variety of studies in this area in the field of Architecture and Urbanism, in general they converge to the conclusion that a physical space alone can hardly generate or determine the behavior of users, their temperaments, their satisfaction, interaction and action in a direct way, but they agree that it can facilitate, inhibit or channel them. (WEN LIN LIAO, 2018)

"Rapoport (1978) showed that there are indirect effects that influence the way people perceive the environment, altering their expectations or hindering their objective (rapoport, 1978). Almeida (2001 cited in fonseca, 2004) states that in the first moment, social and functional relations define architecture. In the

⁷ Environmental Psychology is the study of transactions between individuals and their physical environments (GIFFORD, 2007). Therefore, the Theory of Facilities is an example of research belonging to this group.

second moment, the architecture starts to mold these relations". (WEN LIN LIAO, 2018)

This and other findings of the Personal-Environmental studies emerged, not by chance, around the 1960s when several cities were in the process of rapidly building homes to fill the housing deficit left by the Wars (SACHS, 2018). It was in the midst of a period where the inhabitants' relationship with their homes and cities was trying to be rebuilt following a mass standardization, which led to a necessary speed of production, that sociologists, psychologists, architects and urbanists developed the first studies in Environmental Psychology. Since then a great volume of content has been produced in the area, without, however, having a systematization of the information made available, which makes the practical application of this knowledge for each specific niche difficult. This is mainly due to the enormous complexity that involves the behavior of human beings, which makes the task of categorizing the data quite complicated.

The choice to bring the *Installation Theory* as the main axis of the discussion of this research is due to the fact that it is a very recent study, which was born within sociology (therefore, embedded in a theoretical foundation that shares the main concepts and ideas of the most well-known studies of Environmental Psychology or the EAB⁸ in general) but which presented itself as a suggestion directly given to architects, urban planners and designers, designers of physical space in general.

"Installations" have already been partially described in the social sciences under various nomenclatures: 'behavioural settings', 'dispositif', 'frame', etc. The 'Installation Theory' is the first systematic analysis from the pragmatic perspective of design and intervention". (LAHLOU, 2017)

We must remember, however, that a theory is nothing more than a tool used to describe something. By creating the *Installation Theory*, Lahlou offers us, as urban planners, an analytical model that will naturally be very effective in the analysis of some projects and less effective in the analysis of others. It is only a pedagogical simplification. This means that an "*installation*" will never in fact have only three layers, as we will see below, but from the

⁸ Environment and Behavior, or simply BAE, is another nomenclature given to research related to the interaction of physical space with users. Besides it, there are also authors who cite "Environment-Behavior", "Pro-Environmental Behavior" or "Place Project", all as synonymous with Environmental Psychology. (GUNTHER, PINE, 2004)

moment we establish this systematization, we become capable of better analyzing the relationship between space and human behavior.

*"In practice, everything relates to everything else to some degree. Actor, objects, representations, institutions and most variables of a system are connected by transverse, longitudinal, functional, sociohistoric and genetic (etc.) relations. In a system, isolating the parts destroys the very nature of the system. Still, a handy theory should be simple and separate the parts to break down the problem into tractable units. That is a tricky trade-off. (...) That may not make a big difference when it is for description purpose only, but it can make a huge difference when it comes to cutting the phenomenon along those lines for practical purposes such as **intervention**."* LAHLOU, 2017

2.1. The *Installation theory*: how to change behavior in society?

How many times do we act "automatically" without actually making our own decisions about our behavior? To take a flight in airports, for example, from the delivery of luggage on the conveyor belt to its removal at the final destination, how many deliberate decisions are actually made by passengers? How many just "follow the flow" driven by the system?

Just like the structures that generally control airports, the numerous physical structures that make up our city also make up - and are composed of - systems that channel us all the time to have the same behaviors regardless of age, gender, socioeconomic conditions, or any other subjective characteristic (LAHLOU, 2017). Saadi Lahlou called these powerful "systems" "*Installations*", and it was from this definition that he developed his theory. His hypothesis was that, if we understand how these installations work, we will know exactly how to act to control human behavior, reversing situations where the person-space relationship does not happen in the best way and therefore, potentially changing the functioning of our society.

The professor of the Department of Psychological and Behavioral Sciences of the London School of Economics, began his research based on the compilation of the main conclusions already reached over the years by the studies of behavior in space. One of them consists in the fact that we share the same social references and that it is these conventions that allow us to have common actions, that is, that guide the behaviors to a certain "standardization". These conventions can be formed through communication when, for example, they are passed on

through generations, through education, but also through the practice of action itself (LAHLOU, 2017), and it is in this last possibility where the physical space enters as a possible behavior "controller". Naturally, when we perform a behavior in a certain space and we achieve our goal, we assimilate that this process works, and consequently we tend to repeat the same formula the next time (LAHLOU, 2017).

This happens because the *Installations* react to our behavior, giving us "feedbacks" or "feedforwards" as we act within it (LAHLOU, 2017). In this way, they allow users to continue or lead them to another direction. These reactions of the *installation* may come from different "layers", with origins in space, in social rules or in the abilities of the human himself who is performing the action (LAHLOU, 2017). He then concluded that there are always three layers that regulate the behavior that make up an installation: the layer of institutions (linked to social rules and conventions), the layer of the subject (which includes the personal competencies of the user) and the layer of built space (regulating the activities of users). (LAHLOU, 2017)

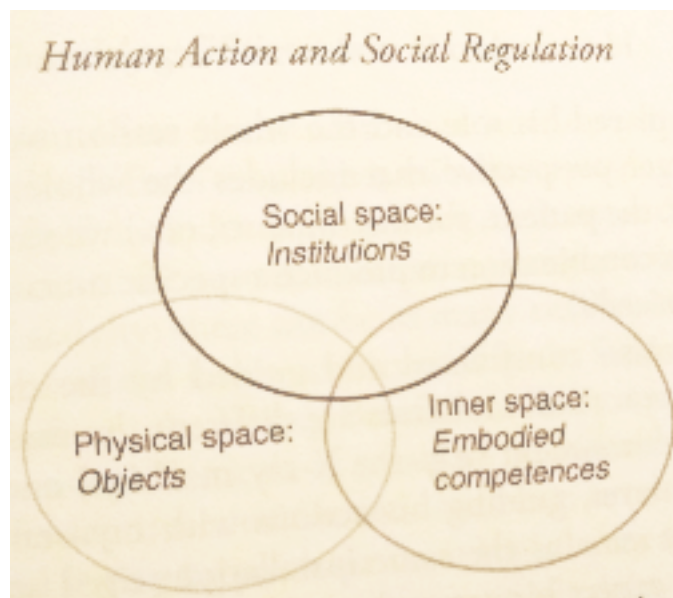


Fig. 2.1.1. "Sustainable behaviours are the ones supported by the three layers of the Installation, in a zone here represented as the intersection of the three ovals." (Source: LAHLOU, 2017)

This simplification in the triple layer structure is somehow confirmed in other studies of Environmental Psychology since most of the authors, when talking about the human perception of space, indicate that users experience the environment both by its physical aspects and social, cultural and historical one (KUHNNEN, 2011). It is known that this process is linked to the flow of

information and stimuli that the user exchanges with the environment allied to the capacity of his brain to process them and that this information is related to both social interactions and the physical aspects of space, in addition to depending on the culture and personality of each individual (CHENG, 2010; RAPOPORT 1978; GIFFORD, 1997; LEE, 1976; cited in WEN LIN LIAO, 2018).

Therefore, for the formation and control of behavior, we can act on three spheres: that of teaching, which enables the user to interpret things in order to then be able to act; the space of social control that determines the "tolerance zone" of a behavior (either through regulations of institutions or socially controlled by ethics and other conventions) (HAMILTON, 1932; cited in LAHLOU, 2017); and the physical dimension of the installation, which will give what is necessary to carry out the action, removing and thus restricting what would be necessary for other behavior (LAHLOU, 2017). These sectors of action confirm the hypothesis in urban resilience studies of a need for an educational and/or informative approach on the city's vulnerability, which would culminate in a socially regulated "culture of risk"⁹.

As showed in the figure above (Figure 2.1.1.), there is a place of intersection between the three layers. That is where "sustainable behaviors" operate. As we live actions that operate without difficulties, which means where the three layers contribute to an uninterrupted flow of activity, we create our own "catalog" of embodied competences, that is, our "formulas of behaviours" that we know that work and which we can therefore use whenever we need (LAHLOU, 2017). From these repetitions we create new habits, which means that in the long-term, by proposing a good *installation* that channels human behavior towards sustainable action, it is possible to transform the habits of those who use it leading society towards more sustainable person-environment relationships.

⁹ According to the glossary of French governmental "Georisques" portal (available at: <http://www.georisques.gouv.fr/glossaire/culture-du-risque-1>), and in free translation, culture of risk "is the knowledge by all actors (elected officials, technicians, citizens, etc.) of natural phenomena and the apprehension of vulnerability. Informing the population, from a very early age, is the essential driving force for advancing the culture of risk. This should enable people to acquire rules of conduct and reflexes, but also to collectively debate practices, positions, issues, etc., in order to develop a culture of risk. Developing a risk culture means improving the effectiveness of prevention and protection. By bringing out a whole range of adapted behaviors when a major event occurs, the risk culture enables better risk management."

The structure of an *installation* works, therefore, as a "model of agents" who arrive in a "raw" way, are channeled into the system, and leave the "model" being able to reproduce the action in the future (FIGURE 07). In any situation we are in, it is these new "models", combined with other mediation structures distributed in the context, that will produce the actions (LAHLOU, 2017). An *installation* is therefore a unit of "natural" behavior in society (LAHLOU, 2017). A certain arrangement, a place, where subjects behave in a predictable manner. They channel behavior by offering users a limited choice of alternatives.



Fig 2.1.2.: The mechanism of Installations' "channeling" behavior. (Source: LAHLOU, 2017)

Even if most of the time we don't realize it, we live almost all the time, "from the cradle to the grave", as says professor Lahlou, inside *installations* that channel our behavior. This means that when those frameworks do not work well the consequences go beyond our individual context, being capable of even delaying the advance in society as a whole (LAHLOU, 2017). To illustrate how a change in an *installation* can generate new behavior not only in the short-term but resulting in a new lasting process in the society considered most "appropriate", Lahlou cites the example of traffic intersections with roundabouts. Before them, crossroads were critical points responsible for causing numerous car accidents. Realizing this "unsustainable" behavior, urban planners proposed to modify one of the layers of the facility, the physical space, inserting a circular route that would unify all vehicles in the same direction in order to catalyze all directions before redistributing them. To do so, roundabouts were created which, from the point of view of safety, in a survey conducted in the USA, offered a benefit of up to 44.2% reduction in accidents on average when compared to common crossings, reaching a reduction of up to 75.1% of accidents in rural areas (NCHRP REPORT 572, 2007).



	Signalized Intersections	Roundabouts
Number of intersections	1238	179
Number of personal injuries	794	59
Number of crashes involving two-wheel vehicles	278	28
Personal injury crashes/year/intersection	0.64	0.33
Two-wheel vehicle crashes/year/intersection	0.23	0.13
Crashes to two-wheel vehicles per 100 crashes	35.0	40.7
Serious crashes/year/crossroad	0.14	0.089
Serious crashes to two-wheel vehicles/year/crossroad	0.06	0.045
Serious crashes/100 crashes	21.9	27.1
Serious crashes to two-wheel vehicles/100 crashes to a two-wheel vehicle	27.0	33.3

Fig 2.1.3.: Roundabouts x Intersections (Source: Transportation Research Board of the National Academies, 2010)

Today, since the use of this new element is already known to drivers, which means the behavior in roundabouts is already part of the layer of drivers' incorporated competences (Fig. 2.1.4.), and there are already traffic laws that support its functioning - consolidating the institutional layer (Fig. 2.1.5.) - when arriving at a crossroad with a roundabout, we know, even before seeing the movement of cars, how they will act in that environment. The activity of drivers at intersections with roundabouts has therefore become a predictable and sustainable behavior, making life in society easier. If there is no convergence between the three layers that form the system, the probability of repeating the error in a future experience increases (LAHLOU, 2017).



Fig. 2.1.4.: Conscientization campaign to the correct use of roundabouts. (Source: Transportation Research Board of the National Academies, 2010)



Fig 2.1.5.: Signs represent the new rules for correct use of roundabouts. (Source: Transportation Research Board of the National Academies, 2010)

Finally, it is necessary to understand that this "generalization" of the user proposed by the *Installation Theory* does not mean the elimination of his or her subjectivity, but rather a separation of physical activity from sensations, emotions or thoughts. Our behaviors are different from what we feel and resent (LAHLOU, 2017). For example, if observing a bus from outside, users can all appear to be the same passengers, because they behave, generally speaking, in the same way, but inside each one, at that same moment, they have different feelings. These feelings, however, usually do not influence people to the point of making them act in ways significantly different from other passengers (LAHLOU, 2017). Which means that no matter how sad or happy a person is inside at that moment, he or she, as well as the other passengers, will probably continue to get on the bus, choosing a seat in the vehicle, waiting for their stop and getting off, following the same behaviors.

2.2. The role of physical environment in construction and regulation of social behavior

After clarifying the theory's framework, it is time to better understand the role of the urban environment - and consequently the role of the professionals who design and build them - as a "training agent" and "behavior controller". Based on this finding, we begin to distance ourselves from the obscure complexity of the person-environmental relationship, and to approach techniques that allow us to truly understand and act in search of sustainable behaviors. The holistic and systemic character of this area can, however, distance us from a possible application. Therefore, since this is a set of varied influences, it is necessary to ask what is the real weight that the physical environment assumes in this responsibility? Which "part" is dedicated to it?

"An ant, seen as a behavioral system, is quite simple. The apparent complexity of its behavior over time is largely a reflection of the complexity of the environment in which it finds itself". ("Simon's Law" - HEBERT, 1996, our translation)

Many authors believe, as does Hebert Simon, that the complexity of a behavior is in fact simple when studying the context, since it is mainly an immediate reaction to the space in which it is inserted. If we understand, therefore, the environment, we will know how and why the behavior took place the way it did, and we will know how and why it can lead to what should or should not be done.

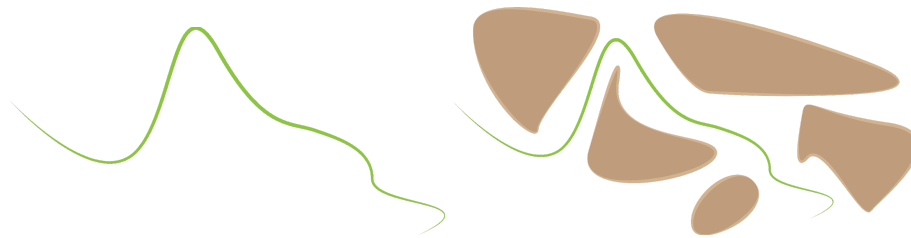


Fig. 2.2.1.: Abstract representation of an ant's path without and with its environmental context. (Source: Sean Newman Maroni - Medium, 2015)

Human behaviors can arise from different origins, each one reflecting on different types of actions. They are: perception (which makes us, for example, deviate from a stone), emotion (when it concerns our aesthetic experience or our sensations), cognition (or understanding of a certain thing), objective (those that define our actions called "goal-oriented", or "goal-oriented"), ergonomics (for example, when we turn sideways to pass through a very narrow corridor), and social and cultural factors. Besides the fact that an action is in reality generally linked to more than one origin - and not exclusively a consequence of one of them - it is possible to perceive that at least three of the mentioned origins are directly linked to the physical space: perception, objective and ergonomics. Moreover, emotion, cognition and social and cultural factors may apparently not represent a behavioral response immediately linked to the environment, but their indirect influence on all these aspects is indisputable. However, we will leave this unfolding for another occasion.

For Okamoto (1996) our actions are responses to the sensitive stimuli that come from the environment, although many times we do not even notice. From them, users naturally go

through a selection process choosing what interests them the most. These selected aspects are automatically perceived and the agent becomes aware of them. It is then that they generate reactions, which result in behavior. Still according to the author, a fluid and easy behavior is only possible with the existence of a "kinesthetic space" where the elements are perceived and processed by the agents.

"The 'kinesthetic space', according to Okamoto (1996), is the minimum space around the objects or for the use of the equipment to perform the necessary activities in a relaxed, fluent and comfortable way. Not foreseeing this kinesthetic space, when projecting the spaces, can cause restrictions to the movements of the individual that can become tiring and stressful". (NAKATA, 2010)

In a way, we see similarity in the author's statement to Lahlou's so-called "sustainable" behavior, because both are allowed or inhibited by physical space. While Okamoto's kinesthetic space deals with the moment before the awareness of the physical elements, the ability to allow (feedforward) or restrict (feedback) these elements is the very characteristic intrinsic to these elements. The definition most commonly used for this aspect, however, already existed even before the contributions made by these two authors. It is the concept of Affordance, the same term used by Lahlou, but which was first defined by James J. Gibson in 1977. For him, the affordances of the environment are what it offers to the animal, what is supplied or provided to it, either for good or for evil.

Although the verb "to afford" exists in the English language (synonym to Portuguese verbs: proporcionar, permitir, conceder, dispor, dar), the noun "affordance" was created by the author himself. "I invented it. What I mean by this word is something that refers to the environment and the animal in a way that no existing term does. It imposes the complementarity between the animal and the environment" states Gibson (1977) in his Theory. Still according to the author, the affordance of an element is capable of being perceived only by the observation of man, because he can immediately perceive the physical space and evaluate the possibility of its action. This happens because we are aware of our body and our limits. Even at times when we do not know the action to be performed yet, or when we make a mistake in the "calculation", it will be the environment itself that will teach us the answer. If, for example, we try to climb a ladder with a high step and we don't succeed, it means that we receive a "feedback" from the ladder, which

ends up restricting our movement. In the same way it happens when we come across a door that we don't know if it was installed in such a way to be pulled or pushed in that direction, but we just have to try to get the answer from it and learn the correct way to use it.

"And here we are encouraged to pay attention to the project that confirms or redefines places in the territory and relationships to institutions, but also to the fact that this collective project can be appreciated for what it provides space and chances to the particular projects of individuals or emerging groups. The dialectic of consolidation that risks drifting towards conservation, and of creation that responds to and reinforces dynamics of transformation is at the very heart of the urban project." (TABOURET, 1989)

Understanding which and how our city's spaces guides our behavior is fundamental to determine the critical points of urban systems. Even if today the technical networks of these urban systems occupy a special place, they can't be seen anymore only as technical, since they are the support to the flows of people, energy, information, etc. "In a more complex, and perhaps less tangible way, networks partly direct these flows. For example, in urban planning, from a purely functional point of view, accessibility issues are central and transportation networks appear to structure the territory. "(TOUBIN et al., 2012). Besides, because the material layer is always related to social regulation and individual abilities, technical networks are also not limited to the physical support, it is also accompanied by an organization with its structure, objectives and limits that constitute the urban service. The networks are then seen as "sociotechnical devices for controlling the environment (resources, environments) in order to satisfy the needs and requirements of human activities. "(LE BRIS, COUTARD, 2009).

Other theories have pushed the idea of affordance a little further when suggesting that not only a physical environment can afford an activity, but it can actually stimulate. It's the concept of "coup de pousse" or "nudge", an aspect of the "architecture of choice" that changes people's behavior in a predictable way without having to deny them any other options or significantly altering their economic motivations. It has its name because of its simple and "invisible" characteristic, which makes the behavior seem natural but also easy to be ignored. The "nudges" have therefore the risk of not working and no specific rule to be applied. It can be made by putting in evidence to the user what it is desirable for them to use, for example. This concept is supported by human's "Heuristics of Judgment", a well known definition in the field of social

cognition, which describes the "automatic", intuitive and fast mental operations made by man. These cognitive shortcuts are used by individuals to simplify their mental operations in order to meet the demands of the environment. (THALER, SUNSTEIN, 2008)

At approximately the same time as *Affordance Theory* was published, an important study of pedestrian flows was published based mainly on the concept of Level of Service (LOS) used to qualitatively evaluate the capacity of sidewalks and stairs in terms of the number of users they behave in the same instant (FRUIN, 1971). Initially created by traffic engineering in a period where the rise in the use of private cars was encouraged, the LOS defined a scale from A to F that determines the efficiency of roads as to the flow of vehicles, where A represents a route without retentions and F indicates stretches with great traffic restraint (HIGHWAY CAPACITY MANUAL, 1965).

Gradually, planners and teachers of the planning area appropriated the concept to apply the study of routes of public transportation, and finally, in 1971, the engineer and planner John J. Fruin published an adaptation of LOS for the study of pedestrian flow. According to him, the Pedestrian Service Level should not only indicate points of great concentration of people, but consider the effects of this variation of densities in the quality of the use of urban space by pedestrians, because, for him, the quality of the flow of the sidewalk or stairway for pedestrians is not only related to the quantity of pedestrians per square meter, but to their "walkability". For this, consideration should be given, for example, to the freedom of choice of the pedestrian's walking pace, the ability to overtake other pedestrians if necessary, the ease of crossing the spaces and the presence of contrary flows in areas of traffic concentration (FRUIN, 1971).

From the analysis of a sequence of photographs that form a time-lapse of the flow of pedestrians on certain sidewalks and stairs, the engineer identified the relationship between the density and the convenience of the "walkability" of the pedestrian within the physical dimensions of that environment. As a result, he obtained the values of A-F LOS adapted to the pedestrian available below.

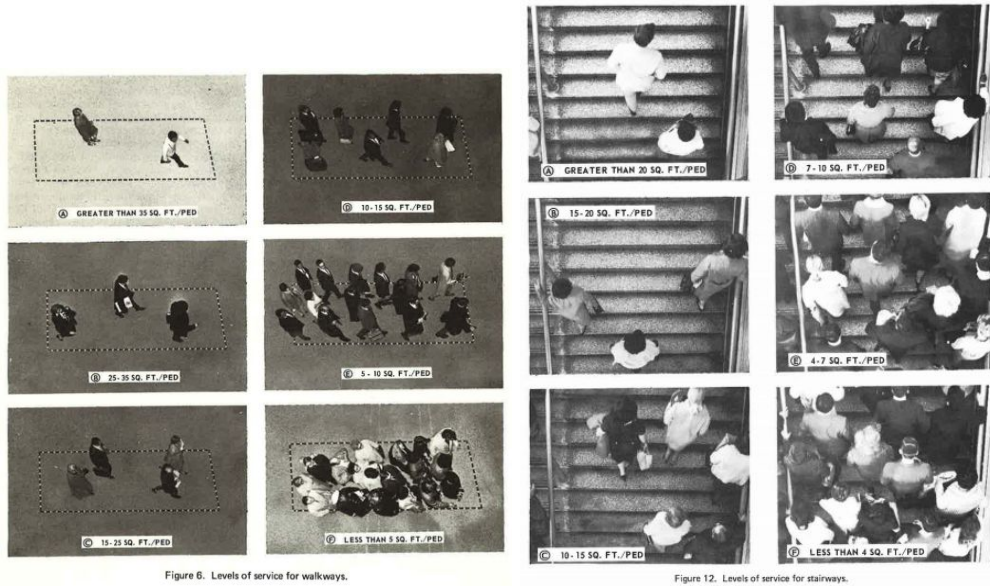


Fig 2.2.2.: Analysis of the “LOS” in sidewalks and stairs. (Source: FRUIN, 1971)

Despite its great contribution, which earned it an American Society of Civil Transportation Engineers award in 1983, Fruin's LOS scale for pedestrians is criticized for establishing low density as superior quality to high density, stimulating projects that disregard advantages such as the sense of security and vitality of urban spaces that high density offers. The contribution of Fruin's studies (1971) represents another aspect of the role of physical space in the control of human behavior, this time relating the dimensions of sidewalks and stairs to the possibilities of speed and displacement of users. However, like the other studies, this control is linked to another factor besides the environment, in this case, the amount of other pedestrians present in the same space.

Interested in finding out what the level of influence of each of the layers of an installation would be in controlling human behavior, Lahlou (2015) conducted some experiments using methodologies that try to separate the action of each of the elements: embedded competencies, social control and affordance of physical space. During the one-year period, the sociologist followed a Polish pre-school with the aim of improving the habit of drinking water from children and reducing the consumption of soft drinks by them, applying transformations in the installation in order to change one layer at a time. The intention was to be able to compare the effects in changing the behavior of each of the layers of that installation individually but also in combined ways.

To do so, the children were separated into groups that had different approaches: no intervention by the researchers (CONTROL), access to information that enabled them to understand the importance of water consumption (INFO), help from parents and teachers in social control that requires greater water consumption (SOCIAL) and transformation of the physical environment promoting an "affordance" of greater abundance and availability of water for them (W). These actions were combined in different ways in different groups. The results showed that a physical space that made water more accessible to children was able to increase consumption more effectively than the other layers. While the group with information and social control (INFO+SOCIAL) increased consumption from 45.9mL of water to 244.3mL, that is, a growth of 198.4mL; the group with information, social control and affordance (INFO+SOCIAL+W) increased from 38.1mL to 254.4mL, or a growth of 17.9mL. The transformation of the physical space therefore meant a gain of 17.9mL in children's water consumption.

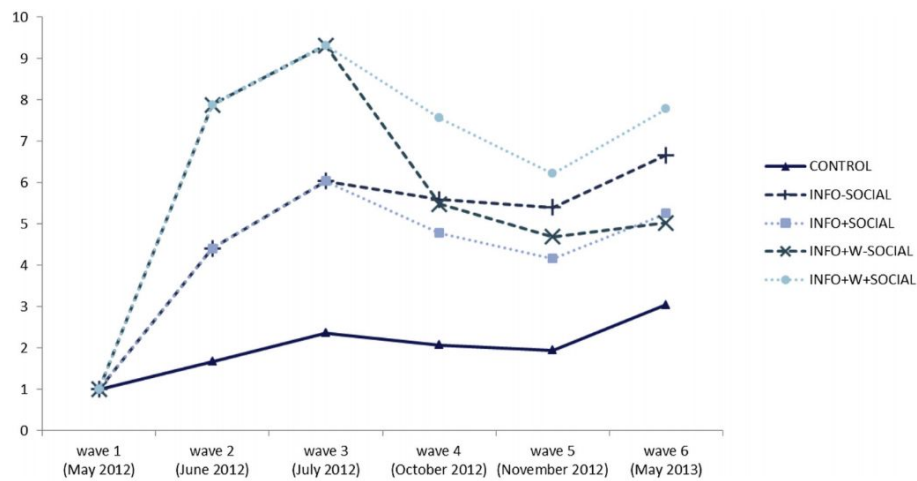


Fig. 3. Relative change in water intake from baseline in all groups across all waves.
Legend: CONTROL (Control): No experimental intervention; INFO (Information): Carers attending 6 online sessions; INFO + w (Information + Water Affordance): Carers attending 6 online sessions and receiving water at home for the children; +SOCIAL (Social Regulation): Carers invited to join a community online discussion forum for 3 weeks; -SOCIAL: Carers receiving no additional input.

Fig. 2.2.3.: The relative change on consumption of each studied group. (Source: LAHLOU, 2015)

"Our hypothesis was, according to Installation Theory, that an intervention combining education, affordances and social regulation would be more successful in changing habits. (...) An open question was the relative size of the effects of the various layers in determining behavior. It seems that material affordances (in this case, water affordances) have the strongest impact. (...) INFO + W was the strongest effect among all the groups that had affordance (...) increased consumption 3.8 times more than the CONTROL group, while

INFO increased 2.5 times more than CONTROL". (LAHLOU, BOESEN-MARIANI, FRANKS, GUELINCKX, 2015)

In the study on roundabouts conducted by the Transportation Research Board of the National Academies (2010), another example of research was also presented where the comparison between the responsibility of layers in controlling behavior is highlighted. This is an analysis of the state of the art of the use of roundabouts in France carried out in 1991 where the number of serious accidents per year per intersection was compared between signaled intersections - that is, where there was social control to avoid accidents - and intersections with roundabouts - that is, where not only the signaling but also the geometry of the physical space acts in favor of the reduction of confrontations. The result shows that there were almost 2x more serious accidents at the intersections only signaled (0.23 against 0.13 for serious accidents at traffic circles).

Despite this evidence, it is still not possible to say with precision which is the relative responsibility of the physical space in the control and formation of behaviors, and due to the specificity of each installation it is possible that this data varies considerably between one behavior and another. However, it is clear that the Environment-People influence exists in probably all situations in general, and can be extremely strong and important in many of them.

In Gifford's (2014) recent research which has investigated what factors influence pro-environmental behaviours specifically, among the eighteen groups of personal and social factors established by the author and composed, three are directly related to the physical environment or system in which the person or society is part of. The first one being "urban-rural differences". According to Gifford (2014), depending on which one of those environments the person lives he/she will have a different relation with the land and nature around which lead them to behave differently regarding sustainable actions. However, results are conflicting, in some cases favorable to say rural populations are more environmentally concerned than urban (i. g. the case of rural-students versus urban-students in UK, HINDS, SPARKS, 2008), but also the opposite (i.g. small cities versus big cities population in China CHEN et al., 2011). Results also vary regarding the "kind of concern", Norwegian farmers, for example, seems to be less "ecocentric" (putting nature's interest ahead of humanity's interest) and more anthropocentric (wanting to protect the environment mainly so that it can fulfil human needs) than other groups (research biologists and wildlife managers; Bjerke & Kaltenborn, 1999). Secondly the person's proximity to problematic environmental sites will also

interfere with this pro-environmental behavior. Thirdly, the person's "place attachment" which influences the will of the person to protect the place. Evidence from Canadian (SCANNELL, GIFFORD, 2013 cited in GIFFORD, NILSSON 2014) and Indian (BUDRUK, THOMAS, TYRELL, 2009 cited in GIFFORD, NILSSON, 2014) samples supports this proposition. For example, adding place attachment to the standard value-belief-norm model doubled the predictability of Australian landowner's conservation of native plants (RAYMOND et al., 2011, cited in GIFFORD, NILSSON, 2014)

In short, we could say that, as part of the "material" layer of *Installations*, every space of our cities shares therefore the responsibility of the formation and control of human behavior through affordance, nudge, level of service, or other methods. Environmental Psychology reminds and explains to professionals of areas linked to the transformation of the spaces, of how our built spaces are not only serving for shelter or programmatic functions, but are also one of the main agents capable of determining the way our society lives within its environment. Even though the "*installations*' tend to be localized as the point of delivery of activity (a Shop, a Gallows, a Lecture, a Service Station)" (LAHLOU, 2017), it is also the small part of a whole complex system, like our cities, which are composed by all those "micro-activities". Lahlou (2017) himself defends that the "objective material environment" in his theory's layers is only a simplification of what it really is, since "an object is not necessarily, like apples or chairs, some material entity that appears connex and rigid. An object, for an actor, is an entity that is, as a whole, relevant for action. (...)". In this way, Installation Theory gives us more precisions on how an urban system, in small to large scale, influences society's behavior.

2.3. *Installations* are resilient systems

“Resilience thinking has developed effective heuristics concerning change, i.e., adaptation, transformation, panarchy, but less focus has been given to the notion of stability, or theorizing the stable characteristics of a resilient system.”
(ROTARANGI, STEPHENSON, 2014)

By giving us a simplified framework, *Installation Theory* offers a stable view of resilience avoiding a complete disruption of all the elements that build our social behavior as if they were constantly changing, neither attributing resilience to each one of them individually. For Lahlou (2017), the *Installation's* structure on layers is a resilient system itself, as a whole, and therefore, although having stable and constant format, it is still capable of absorbing changes and adapting

to it without completely reinventing itself. For ihm, "the resilience of society is due, in part, to the relative redundancy of these three layers, which induce and sometimes force the participant to behave appropriately." (LAHLOU, 2017)

Therefore *installations* not only give us a new framework for urban space interventions from micro to macro and vice-versa, but also reveal the important role of these behavioural systems in societal resilience. (LAHLOU, 2017) Since the three layers of an *installation* are always adapting to the new "arrangements" placed, they are always controlling society into having more or less sustainable actions, varying in a scale of the amount of adaptations necessary - and possible - for each situation. In practice, when a behavior receives a "feedback" from the *installation*, it immediately seeks to adapt to the circumstances placed to achieve its goal. This also means that seeking for a "perfect structure" of *installations* and determining it as an absolute truth, besides being impossible, is not the best practice to take. This would be a only "sustainable" but no "resilient" vision of systems which avoids the inevitable variations in physical space, social conventions or in the inherent abilities of the user. Instead, interventions should focus on observing what agents usually do to adapt when one of the three layers is not working, in order to build spaces capable of absorbing these adaptations.

This also means that a "bad" *installation* does not necessarily imply the impossibility of a certain action. Through adaptations, it is possible that the behavior will continue to happen, just not in the proper or sustainable way. Moreover, even when a "perfect *installation*" is set up for a certain behavior happening in the present, it will never last forever (LAHLOU, 2017). The desired durability of a "sustainable behavior" means in practice a good functioning for a long but not eternal time. This is because we, human beings, tend never to accomplish something exactly like we did before. Instead, as mentioned before, we "catalog" sustainable behaviors in order to use this "database" to "get it right" the next time we enter that *installation*, but each time we return we arrive with accumulated learning from past experiences that make us seek to improve that same action more and more.

Putting it in a simple example of a wait line formation for controlling the access of some places, humans are likely to, in a first experience in this kind of *installation*, try to enter directly into the desired location until being controlled and guided by the security guard (social regulation) or by an isolation tape that will prevent us from proceeding with that action (physical environment). This will teach that, in order to achieve the goal of entering the place, the person must go to the

end of the line and wait. That is when he or she has been channelled to the desired behavior of the *installation* for the first time and has now produced the "piece" (the action) that fits that model. In the next situation where this *installation* repeats, the persons will probably already go directly to the end of the line and wait standing there. He or she might realize it can be a tiring exercise, and in order to fit his new goal (resting) into the previous action, he or she might search for a bench or somewhere where he or she could line in more comfort. If the *installation* responds with "feedforward" to this action - with no social control and with the needed affordance of the physical space - the action will be adapted to this new configuration. The next time the person arrives in a tiring line, he or she will probably look directly for a bench or similar element without even waiting to be tired. And so on.

It is these learnings and adaptations that allow innovations to be created. In the long-term, these new habits become new social conventions, possibly generating new institutional rules, and making the spaces adapt to that new way of acting in society. We then have a future with completely different installations that direct to the same end but adapted to the convergence of the new three layers of that arrangement. Therefore, the influence of the environment is such that, each person - thinking or not thinking about "fitting" in society - helps reproduce the social structures and the dominant cultural characteristics of the group. An observation that pushes towards the analysis of places in their perennality. On the other hand, it is through the implementation of common projects to respond to the tensions of a new situation, that groups are formed and identities take shape.

Although being the layer that generally varies the least (when compared to the incorporated competencies and the organizational layer), the physical space can and will vary in the real world. An urban structure might break, a corridor may be interdicted, a door may not open, disaster may occur, and so on, in these cases, by the attribute of resilience of the *installations*, the two other layers will always seek adaptation. When more than one of them varies together, the *installation* requires extraordinary adaptations, more difficult to be systematized, but when it is only one part of the *installation*, adaptations will be made easily as it will be considered a "mundane" variation. (DIECKMANN, PATTERSON, LAHLOU, MESMAN, NYSTROM, KRAGE, 2017). Surprisingly, it is mainly with these last types of adaptation that we must stick to learning the most. It is only by understanding how we society adapts to small day-to-day *installations*

failures that planners will be able to design better arrangements and guide long-term transformations.

In addition, Dieckhman and Lahlou (2017) point out that it is not only with adaptations that we must learn. We also need to create the habit of using the structure of analysis of an *installation* to practice the interpretation not only of situations where behavior is not sustainable, but also of daily sustainable activities that present perfect functioning. Used to focusing on mistakes and trying to correct them, we have stopped learning from the space-behavior relationships that operate successfully in our daily lives, a strategy defined by the cited authors as "Learning From Success".



Fig. 2.3.1. Lahlou's presentation in Fab City Summit. Slides show his belief in Installations as a (re)-designing tool, being the design target to change behaviour. (Source: the author's archives)

2.4. The paradox of environmental determinism and nature's freedom

The controlling character of an *installation* can sometimes frighten the user or the designer himself who starts to recognize the possibility of being, in a certain way, a dictator of behaviors with his working instrument. In fact, the sociologist himself puts the concern of his theory possibly becoming "the tool of a small dictator" since, by learning to design "well done" *installations*, the planner will be able to make what restricts us look like what actually supports us. It is by giving society only a few choices, and among them making the desired one the simplest, the most fluid and the most accessible (the nudge), that the *installation* "controller"

could always make people have the false impression of being able to choose what is best for them, even if in reality they would just be following the plan. This logic is commonly used in marketing since it is able to guide humans to perform actions sometimes quite specific, with the wisdom to make everything seem natural. The better an *installation* is done, the more invisible it is, and therefore the more "automatic" will be society's steps when following the systems.

This supposedly simple determinist definition of the human-environment relation brings however important discussions to urban planning and especially to "ecological urbanism". It must first be pointed out that many authors do not agree with this line of thought considered as "architectural determinism" (Broady, 1966) or "environment determinism". Some argue that experiments which support theories where the physical space influences human behavior, are too generalist. Through other researches, such as the Hawthorne experiments in the industrial environment of the 1920s, they defend that actually any design changes are perceived as positive, even when it is a reversion to the old environment. (MARMOT, 2002) Others justify that "environmental determinism" can be seen as a concept that is too simplified to describe the complex relationships between individuals and their physical, social, and psychological world.

As previously mentioned, it is known that human-environment relations are indeed mediated by many contexts. Therefore, environmental psychologists have increasingly applied sophisticated research methods; for example, prospective longitudinal studies in multiple locations, using multi-level analysis. All in order to prove that, in the words of Winston Churchill: 'We shape our buildings; thereafter they shape us'. (MARMOT, 2002) This way, speculation has now shifted from whether the environment affects healing to understanding just how design contributes to healing. Since we are in an era that highly values performance measurement, there is a call for an evidence base to substantiate this largely anecdotal approach based on common sense. "In architecture as in other areas of action, evidence-based design will help achieve better results. (MARMOT, 2002)

Secondly, regardless of how much this "determinism" is believed or not, for Lahlou, the "catalysing" characteristic of physical spaces should not be seen as a negative one. The truth is that for everyone who lives in society, even for those who enjoy the feeling of freedom, they will at some point feel that being inside a system is actually easier and comfortable. This is because, when inside an *installation*, a part of our actions "are already done" and it's up to us just to "follow the given path". These paths, in turn, when they are in a well done *installation*, give us

security and confidence, since we'll be following them based on what we already learned through communication, education or based on our own past experiences. Therefore, we know and we trust that it will lead us to our goal. Moreover, it is only through *installations* that our behavior becomes predictable, and it is only with the predictability of our actions that we can avoid randomness and actually cooperate in society.



Fig. 2.4.1. (up): Entrance and exit in metro without and with spatial control. São Paulo, Brazil. (Source: the author's archive). Fig. 2.4.2. (down): Examples of unsustainable behaviours. (Source: internet open image stock)

Taking the example of theaters, for example, it is possible to understand how, when not in such configuration of stage plus audience, it becomes more complicated to make a performance work and be watched. Whether because of visibility issues, or acoustics problems, or physical confrontation between the actors performing and the public, or even because of a difficulty related to the light, and so on, another configuration could not be impossible but would probably make the performance of that action more difficult. At the same time, it is exactly by being inside a theater *installation* that we are more restricted on actions and will be, in many cases, prohibited from testing new configurations.

This means that creating good *installations* can be a powerful way to conceive complex systems that do not admit deviations for a good functioning, but it is important to keep in mind that we will always win and lose for being inside a system. In general, the *installations* are a victory for an arrangement in society overcoming the "chaos" that existed before. But by using them, people lose some individual freedom and win advances as a society by simplifying processes.

These "contradictions" or "win-lose" conditions of *installations* are also true in many other social studies on human-environment relation. It is present in the concept of "Stigmergy", for example, which defines how individuals can influence the behavior of others through the modification of artifacts. For example, it is through "stigmergy" how termites, by depositing building material at a specific place, induce others to build at the same place, which results in a column (GRASSÉ, 1959), that is, a positive influence pushes towards cooperation. However, stigmergy has also been pointed out as a negative effect in urbanism when the ex-New York City mayor Rudy Guiliani, in his late-1980s cleanup action of the city, showed that graffiti, trash, broken windows, traffic light squeegee hustlers, all foster a lawless, crime-oriented set of subsequent behaviors. This thought has generated a "zero tolerance" policy since it was deduced that by suppressing such traces from the public space, the 'me-too' vandal behaviour would also disappear. (ARRUDA, 2016)

In order to contribute to the mitigation of this "negative" side of implementing *installations*, Lahlou (2017) recommends that any redesign or creation of a space should always be done through a participatory process. In this way the planner, or supposedly "little dictator", will lose his centered power and will build behaviors based on the opinion and work of those who can best define their needs: the citizens themselves. Moreover, the sociologist points out that the system will never be absolutely restrictive since we will always have the possibility of choosing between one *installation* or another, and we will always be free to think and feel whatever we want. The only difference between the behaviors coming from an installation and the "free" behaviors being that the first one will remain more predictable.

"Of course, human beings are not robots, and facilities do not control all aspects of life; they govern mainly functional aspects of behavior, especially those that matter for practical cooperation. For example, at a family dinner, the content of the conversation or the nature of the menu (potatoes or beans?) may be of no interest to the outcome of the family being fed, with a fair distribution of

available food and strengthening of family cohesion. Aspects like these (discussion, menu) will vary in content. But many other aspects of the dinner as a script in that particular family will remain similar from one dinner to the next. This makes the meal a predictable activity and allows cooperation between participants". (LAHLOU, 2017)

Thirdly, for Lahlou (2017), it is also still technically possible to live outside the zone of intersection of the three layers previously explained, that is, living outside any *installation*. For example, we can do something that we know how to do (embodied competence), that the physical space allows, but that is outside social laws (illegal or not socially accepted), but we will probably be punished in a certain way. It is also possible to do things that we have the competence to do, that are socially accepted but that space doesn't allow (like jumping up a ladder), but we will probably fall down and hurt ourselves. Finally we can, without wanting to, do something allowed by law and by space, but unimaginable to human capacities, and that, therefore, will probably not be understood or won't even be done. All of these situations would define a "unsustainable" behavior for society.

However, for Lahlou, wild nature would be the place where true liberty exists, defining it as the best example of a "non-installation" since there's where society doesn't exist either. This can be intriguing when brought to the discussion of using a "green urbanism" in order to achieve sustainable cities since it means that, for behavior to be channelled and for us to be able to live in society, the environment cannot be natural but actually manipulated by society itself. At the same time, urbanism evolution increasingly expresses a will for having "less-controlling" cities' natural spaces (different from the previous geometric gardens and artificial parks that would clearly represent human's intervention and power over nature...). Sustainable urbanism somehow invites our urban spaces to give back a place to the wild, in order to return to a harmonious coexistence between society and the not-manipulated nature and its ecosystems. Following Lahlou's thought, could ecological urbanism be, at its extreme expression, related to a certain anarchism? To a revolution not only against the way our society is organized today but to the very notion of society itself? In this case, we could not talk later on this research about the idea of a "park-city", but rather the one of a "jungle-city", a paradoxical word for the *Installation Theory*.

In the encounter of the city with this no-social structure called nature, either the first one becomes an element out of society's system - which, by its definition, does not seem possible - or the second one is added into society's system losing, just like human beings, its individual freedom to the detriment of a balanced ecosystem. In reality, from the moment nature or any element even in its "raw" shape enters the system, it is necessarily part of the urban territory, which is the case of most natural resources. It is in fact because man is in society, that he is no longer resilient as an individual, he is now controlled by the three layers that surround him. These three layers together, in turn, form the resilient system of *installations*, like previously explained. Once again we notice a need for loss of individuality, in order to achieve a societal resilience. As Lahlou says "we open our hands to our freedom to live in society" (LAHLOU, 2017).

This conflict between determinism and "freedom" which is often confused with "flexibility" but also with "resilience", makes of this last term that often encourages exchanges and innovation, also a concept that could encourage vagueness and lack of rigour, which would be detrimental to its use (TOUBIN et al, 2012). For recall, resiliency's challenge is no longer linked to foreseeing and preventing all risks, but it's related to the acceptance of inevitable damages in order to prepare cities to quickly refer to a catastrophe, which is the ultimate disaster. Therefore, there is "behind" this notion a certain legitimacy of the precarious management of institutions and a potential obstacle in the promotion of equality. Following this definition the informal settlements, for example, would be the most resilient form of the city (DJAMENT-TRAN et al., 2011) since it keeps functioning despite having accepted its risks. It is not, however, the most sustainable form, which is why it's important to separate and keep both notions.

This potential for legitimating "negligence" within the concept of resilience can be very dangerous as city's actors take up environmental issues to legitimize development projects which very often have strong shortcomings on one or the other "side of the tables". In France, there's been lately innumerable "eco-neighborhoods" promoted in flood-prone areas. (TOUBIN et al, 2012) One can then wonder about the operational scope of these displays and especially about the real contribution to the sustainability and resilience of these territories.

Besides, the culture of risk in the strict sense is the knowledge that allows actors to adopt appropriate behavior in the event of a disaster. However, if risks are present and visible in the landscape and in everyday life, an addiction effect tends to encourage individual denial

behaviors. (BENITO-ESPINAL, 2019) Assuming that people do not access the many sources of information on the subject available to them, the risks are particularly visible, especially in certain mountainous and inhabited areas. This visibility is due in particular to the plurality of protective structures and the signposts, which are very present on communication routes. (BENITO-ESPINAL, 2019)



Fig 2.4.3: The “normalization” of risks. (Source: BENITO-ESPINAL, 2019)

"The exposure of a neighborhood in a flood-prone zone can be justified from an economic point of view (inexpensive land), or even from an environmental point of view, but it cannot get free of technical measures (construction of networks and resilient buildings) and social measures (awareness raising, training and preparation of the inhabitants for risk) accompanying urbanization. The use of these concepts to influence the urban territory and society must therefore be critically and always comprehensively analyzed in order to really identify the contribution of such projects to the resilience and sustainability of the city." (TOUBIN et al, 2012)

This paradox between the benefits of "controlled" spaces that could channel behavior and orient society into sustainable actions, and the "free" or "neglected" context that would be closer to the resilience of wild nature, is dissolved in "ecological urbanism" from the moment that it proposes the extinction of the limit between what is city and society, and what is nature. Now seen as a biological, physical, and chemical process that creates and sustains life, nature is necessarily part of society despite being directly integrated or not in urban systems. It is therefore fundamental to ecological urbanism.

"If one embraces this idea, then the false oppositions between city and nature, the given and the built, fall away. The idea of nature as a nexus of processes resonates with the approach of contemporary ecological science (Botkin 1990, Pulliam and Johnson 2001). In this view of the natural world as shaped and structured by processes, ecology has much to offer urban design (Johnson and Hill 2001, Leitao and Ahern 2002, Reed 2011)." (SPIRN 2012)

3. First conclusions: defining guidelines to build societal resilience through urban projects

When talking about "adapting" and "resilient" urban systems, discussions are still mainly focused on scientific data observation, related, for example, to the city's infrastructure's vulnerability when facing earthquakes, inondation, or the heat increase. Based on the *Installations* framework seen in previous chapters, chances are that if we only make material changes cities won't build a societal resilient system. Even though the *Installation theory* (of the sociologist Saadi Lahlou) "is about analysing society at ground level, not from a bird's eye view." (LAHLOU, 2017), basing on Lahlou's reasoning and explanation for the societal construction and regulation of behaviour, allows us to analyse, also on a big scale, how urban projects today considers (or not) its physical proposals as part of society's construction.

The previous discussions confirms the hypothesis in which, both by the importance that the cities themselves have gained, but also by how Environment-People's studies show the influence of physical space on the human behavior in society, the urban project seems to have been "elevated" to a category of greater responsibility on society's future. Moreover, the request of global resilience for a process-based approach, far from unique, fast and utopian solutions, arises the need to focus on urban project's development better than to its result. In this scenario, understanding the individual contribution and limitation to the formation of a resilient system must be part of urbanism's daily practice.

Aware of how "the scientific work that points out the risks of the collapse of our society also questions the way in which us, urban planners, practice our profession" (JOURDAN et PONTOIRE, 2019), a simplified framework for operationalizing urban projects within the guidelines suggested during the previous discussion is proposed bellow. Because planning is not (only) based on techno-scientific rationality, the suggested following list will be centered on what is needed for achieving societal resilience. It proposes a scope in between a methodological individualism - according to which the ultimate causes of any social phenomenon lie in individual acts, beliefs or attitudes (BOUDON, 1984) - and the previous movements of structuralism very diffused during the XXth century.

A) Social consciousness of urban vulnerabilities

As defended by Faytre (2020), despite the city's increasing power on geopolitical scenario and consequently increasing competition, it is time to put aside the positive-only propagandas in order to build a social consciousness regarding its risks and vulnerabilities. This corresponds to the educational layer of an installation system, which will give to individuals the embodied capacity of reacting and adapting to crisis.

B) Systemism

Everything is either a system or a component of a system. From interventions in micro *installations*' functioning to global resilience approaches, the ecological context of a relation between city, environment and society requires a systemic strategy. This means that all sectors must have a transversal global vision of the project's goal in order to be able to cooperate. Even in daily activities, a "one-layer" action is proven to be less efficient in behaviour changing and adaptation. Urban projects must therefore be integrated in a horizontal complexity, where each part is seen as essential do the sustainability of future actions.

C) Participation

It is absolutely necessary that people participate in the construction of *Installations* since the participants will be the bearers of the action, will lead others to do so as well, etc. Besides, "what you do 'for' people, you do 'to' people. So you have to do WITH them." (LAHLOU, 2017) It is by letting people pass through the built installation that they will be able to learn, adapt and repeat the sustainable behaviour. Moreover, participation contributes to the reinforcement of the democratic framework of our societies, development solidarities (between inhabitants, territories, institutions, actors, etc.), and therefore developing the social fabric.

D) Cross-disciplinarity

With new demands comes new necessary abilities. As explained during this first part, urban projects are facing a complex and holistic scenario which requires a strategic cross-disciplinary action. In order to achieve a resilient system, it is necessary to reach the three (and more) layers

that structure society's behavior. Contemporary cities need not only urban design, not only a composition, but a cross-disciplinary project.

E) A return to "sobriety", to what is empirically identified as necessary, to honesty

As resilience does not necessarily mean a return to the beginning state, but rather an adaptation with "acceptable" losses which therefore requires a reconnection to what is essential and a consequent detachment to excedents. Besides, with our physical spaces each time more vulnerable, it is only by having a consolidated basis on cultural traditions well structured - and not on superfluous materialities or programs - that society will be able to rebound to crisis. Moreover, like previously discussed, in this time of major risks and unpredictability, scientific forecasts on "regular" planning are less reliable, establishing a need for more "on-going" reactions with no place for anticipated - sometimes unnecessary - investments. Finally, "sobriety" will also lead to an urban "honesty", avoiding the "covering" of vulnerabilities and risks in favor of a "false" stability or "idealization" of a "luxurious" future. Planning for societal resilience is therefore structuring essentials and saving for now.

F) A Design for pro-environmental "affordance"

As demonstrated in previous chapters, physical spaces' contribution to the construction of behaviours in society is directly related to what it "afford" as actions. Either by blocking undesirable habits or by creating "nudges" to influence and channel individuals and groups' actions, urban spaces, fruit of planning, will participate in the development of societies towards resilience, and must respond to its level of service.

G) Procedural

Passing from the sustainable utopia to a real resiliency need, urban projects are asked to abandon static plans and embrace a procedural methodology, accepting, just like cities themselves, that changes along the way are inevitable. The time of the project has changed, just like nature doesn't flourish on a click, neither will urban areas achieve prosperity instantaneously. This requires urbanists new abilities of management more than capacities of prevision.

H) Reversibility

Because it accepts to be a process, urban projects will also need to be reversible, evolving and “provisory”. Despite the negativism that could bring this characteristic, it is only an incorporation of the concept of urban resilience into the tool of urbanism itself.

I) Multi-scalability

Finally, an urban project that builds societal resilience understands the equal importance of micro and macro scales. Because of the systemism of ecosystems, every punctual change is a potential of big impacts, either in positive or negative circumstances. This means that urban projects must not only be “horizontally connected” (like suggested in guideline B), but also “vertically” integrated. Local intervention alone is doomed to failure. Solutions may require taking action in a different location than where the problem is felt. Designers should identify the systems to which their project site is connected and track the flows of energy, materials, information, and capital. No matter how small or large the project, the designer’s responsibility is to address the impact on the ecosystems to which it is connected. Design proposals should not be limited to the area enclosed by the client’s boundaries, but should be expanded to include that area necessary to effectively address the challenges posed by site, program, and context.

“The many ecosystems that comprise the larger urban ecosystem are linked by physical space and by the channels through which energy, material, and information flow. There are ecosystems within ecosystems. A pond ecosystem, for example, exists within the larger ecosystem of its watershed (and there are watersheds within watersheds, from that of a small stream to a continental river basin); a building is an ecosystem within a neighborhood. Given this connectivity, changes to one ecosystem may produce repercussions in many others, and an ecosystem may be externally regulated” (PICKETT et al. 2004 cited in SPIRN, 2014)

PART II: URBAN PLANNING AND THE DREAM OF A SUSTAINABLE SOCIETY

"It seems impossible to change a whole company by small installations, but let's look at the evolution we have already made from cavemen to the present day... There is no miracle, we have to analyze and change one by one to have the system evolve with the externalities we want (more sustainable and with less environmental impact)". (LAHLOU, Fab City Summit Paris 2018)

From micro to macro. With the theoretical and sociological approach of the last chapters, we've discussed how urban projects could be capable of changing social behaviour in the current "collapsing" context from the specific "micro" framework of *installations*. These theoretical analysis make possible to evoke the methodological tracks to concretize the sustainable city by a socio-technical approach of the adaptation of the urban system and its components, (TOUBIN et al, 2012), resulting in the "guidelines" list previously proposed. In order to bring the discussion of the research closer to the real practice of urban planning, this second part of the research is based on a historical review of the interrelationship between urban planning, society's changes and the place of natural environment within our cities, in order to understand how, in practice, these fields have evolved through time. It is there for a more "macro" analysis, although installations framework will keep being used as a descriptive tool. Has urban planning been engaged on the changes between social systems and the role of the natural environment in cities until nowadays? How? A literature review focused on those questions contributes thereafter to understanding how did we get to contemporary's urban planning's "ecological" approach, its benefits and current challenges. Finally, based on the sociological and urban approaches on society's changes, it will be time to return to the proposed guideline points proposed this time through a short comparative analysis of two "city-park" current urban projects.

4. Environment, society and cities: towards an Ecological Urbanism?

4.1. Historical analysis on how environment, society and cities have evolved together

Since the neolithic agrarian revolution, the relation between men and nature has been influencing directly on the construction, functioning and organization of our cities and societies. (WALDHEIM, 2006) Leaving a hunting nomad lifestyle to a fixed and "sedentarian" one based on agriculture, the human kind made a huge step into the construction of societies around agglomerations that we will later on define as a city. Agriculture is considered therefore to be a "prerequisite" for cities. The pre-industrial cities were later defined as commercial and political centers, where lords and communities were free from rural obligations. It was therefore a spontaneous process where social organization and its new rules, reinforced by individuals' new habits and human's new abilities, have changed the physical environment.

After the first Industrial Revolution with the introduction of steam machines, weaving machines, use of carbon and other advances, cities had an important growth. Due to the expansion of the textile factories, the creation of trains, the success of the metallurgy industry, among other evolutions, economy increased significantly and by the middle of the 19th century cities became home of bourgeois each time more disconnected from the natural environment. Lands outside the urban space were no longer their home or a simply natural field, but were rather associated with capital and power regarding its value, at the same time seen as a "distant paradise" where no one, now used to the modernities of cities, could or would want to adapt to actually live again. (HARVEY, 2015)

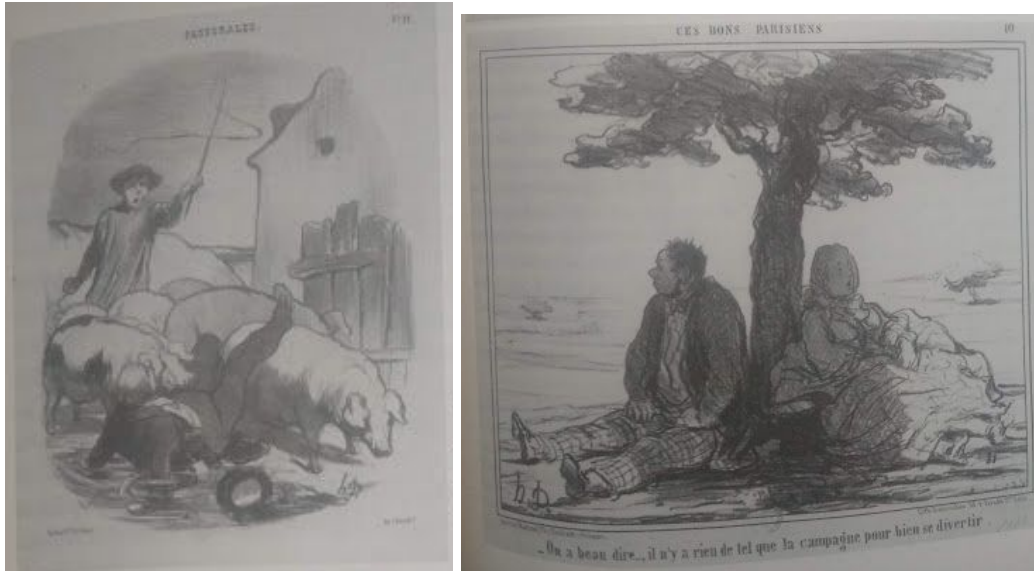


Fig. 4.1.1.: Daumier's interpretation of bourgeois' relationship to rural life often related to accidents or boredom.

(Source: HARVEY, 2015)

For most of the population bounded by the economic need to live in cities, but suffocated by the numerous factories and constructions that wouldn't stop arising around, the feeling about rural areas becomes romanticized. The natural environment outside the urban spaces aspires to them an idealization of the day when it would be possible for society to return to a healthy relationship with nature again. (HARVEY, 2015) "Industrial progress and social poverty went hand in hand. The period before the Industrial Revolution seemed in comparison a real utopia; and the key to this utopia was the land." (MUMFORD, 1922) At that time cities were clearly dependent on rural towns, but this dependence was eagerly denied, what seems to be a common attitude of urban areas until nowadays since denying dependence is also denying vulnerabilities. With this new growing physical environment (the urban) and new social rules, human's habits change completely. The distanciation between cities and nature although sometimes regrettable, becomes also intentional especially to richer families to whom living in the countryside would now represent a boring and outdated style of life.

The benefits of living in an organized society structured by cities, were also rapidly the causes of urban spaces first vulnerabilities such as the faster diffusion of disease in particular related to the unhealthy conditions of cities back in the 19th century. Between 1850 and 1872 in Paris, guided by the goal of "hyginising" the city, Haussmann not only built a huge infrastructure of sewage and large straight avenues, but invested in bringing green spaces to cities in order to

reopen spaces where wind circulates and people could breathe fresh air again. In 20 years, Paris went from 47 acres to 4.500 acres of park in the city. (HARVEY, 2015) Back then, the practice of planning with the natural environment was "the art of organizing the city by the pictorial composition of the landscape" like it was theorized by the Count of Choulot by the end of the 19th century (BONNEAU, 2016). Therefore it was not directly related to a desire of change in social functioning even if it has probably changed the way citizens related to its neighbors, streets and the city itself. The insertion of nature and vegetation in urban projects at that time was rather moved by an anthropocentric will of improving the quality of life of the population and for composing the city's image, far from a (F) design to pro-environmental *affordance*. This movement, which has evolved in parallel to the strong industrialization of the period, was later defined as a "vegetal urbanism". (CUEILLE, 1989 & STEFULESCO, 1993).

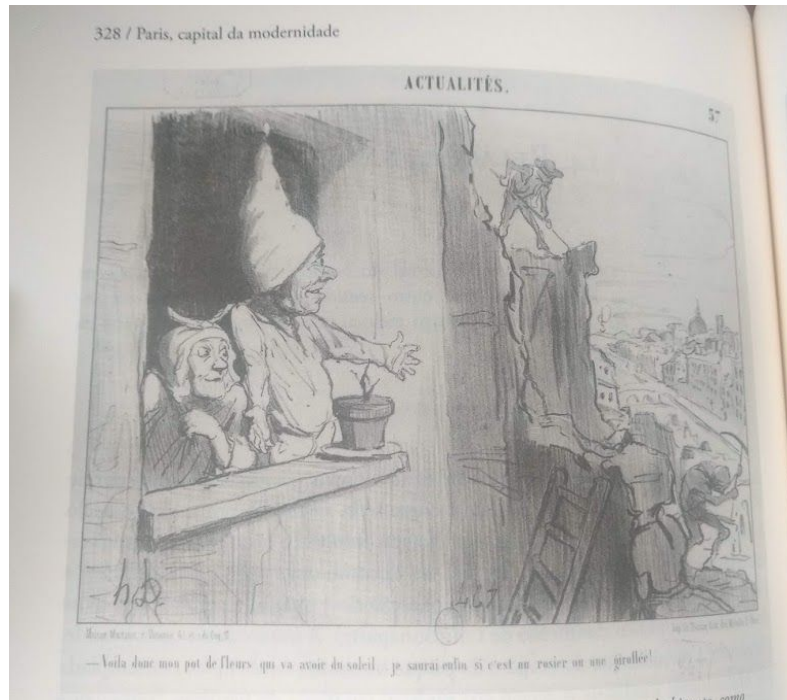


Fig.4.1.2.: “The neighborhoods' openings to the sun and fresh air will allow this inhabitant, like represented by Daumier, to finally find out if he’s planting rose or clove.” (Source: HARVEY, 2015)

These important technical and “environmental” advances that have improved the quality of life in urban societies, was followed by the beginning of the “belle époque”, characterized by the ascension of an intellectual society marked by profound cultural transformations that was translated into new ways of thinking and living in daily life. It is considered to be “the golden age

of beauty”, innovation and peace among European countries, and so the green spaces in cities were built as a symbol of this new and sophisticated era. Between 1872 and until the beginning of the First World War, new inventions made life easier on all social levels and the cultural scene was in effervescence. Cabarets, cancan and cinema were born, for example, defining an era of the growth of the entertainment industry (MAGALHÃES, 2014), of art, and of a society and urbanism of abundance completely opposed to the (E)“sobriety” we suggest today.

By the end of the 19th century, the tremendous expansions of existing cities due to the rural exodus caused by the first industrial revolution, changed the practice of urban planning. Taken before as the art of building and “beautifying” cities, it is now seen as the action of reorganizing, managing and actually planning its galloping expansion. (MAROT, 2020) This period revealed different lines of thought regarding the many different constitutions that could be imagined to these growing cities and societies, triggering in quite (D) "interdisciplinary" urbanism theories. One of them was composed by the enthusiasts of the industrial advances, the so-called "progressivists". By proposing a rational and universal view of cities, just like Haussman's plan for Paris (1852), and Cerdá's plan for Barcelona (1860), the progressivists were usually defended by engineers making use of geometrical, mathematical and scientific urban solutions. Within this theory, society's organization and urban space were completely integrated in the idealization of a systemic spatialization of a city that would usually leave the natural environment in “second plan” as a decoration enclosed by the building blocks or as an “outside” park or landscape functioning separately from society's day-to-day activity.

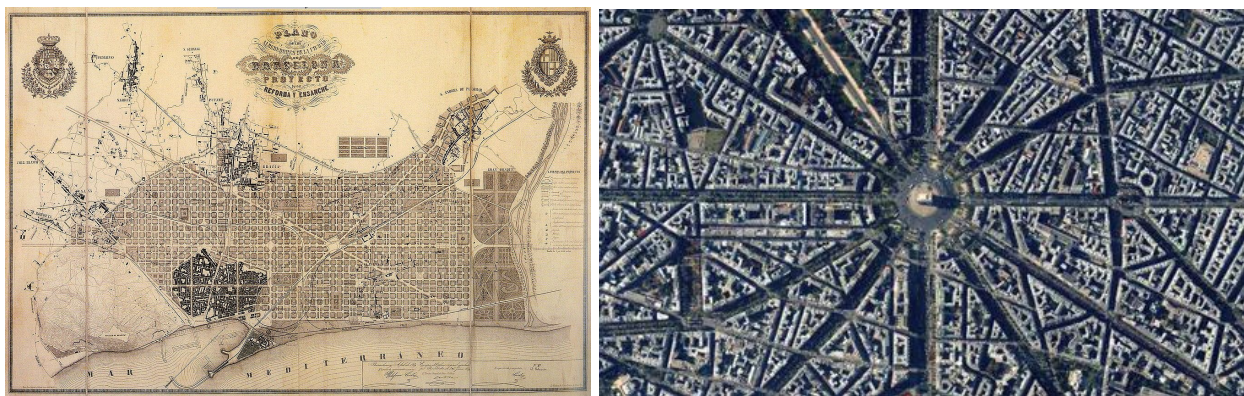


Fig. 4.1.3. (left): Cerdá's plan for Barcelona (Source: URBANO, 2016), Fig. 4.1.4. (right): Paris' radial urbanism planned by Haussman (Source: The Guardian, 2016)

With the consolidation of the new inventions of the second Industrial Revolution, urban planning benefits of the unlimited expansion of cities made possible by the new communication systems, lighting, use of petrol, and many other technological evolutions. The 20th century's urbanism meets therefore the possibility to imagine and recreate a whole new idea of cities, starting from zero. Not anymore limited by distance or lack of infrastructure, and facing an important growth of totalitarian politics, city planning reaches a territorial dimension and still moved by the power of the new machines and industrial advances, it becomes a tool to propose "utopias" that could respond to the still growing expansion of urban spaces and at the same time build a whole new society. For the first time, urban projects are seen as the instrument for orchestrating a new society's functioning. The previous theories gain even more incentive and space in the urban discussion, representing a tool of hope during a period of strong social, economical and political crisis between the two World Wars.

The "progressivism" beliefs evolved from design ideals to the rational desire of organizing cities according to its program, increasing urbanism's level of (B) systemism. The growing production of the capitalist societies, which follows the economical expansion, transforms the program into the primary reason, almost exclusive, of all urbanization. (FROMNOT, 2011.) These beliefs are materialized in Le Corbusier's manifesto known as the "Athens Charter" (1933), where he establishes the characteristics of a Functional City, that is, one where land planning would be based upon function-based zones. These projects' (I) scalability are therefore very monotone, in large, considering that urbanists are sought to use statistical information for designing zone uses rather than designing them in any detail. (MUMFORD, 2000)

Thirty years later, a "pilot plan" for Brazil's new capital, Brasília, became the materialization of many of Corbusier's beliefs. Designed by the brazilian urbanist Lúcio Costa the plan not only follows the modernist principles, but also precises and amplifies Le Corbusier's concept of a "city in the park".

"Rarely in urban history has a city project created a spatiality that integrates, in an harmonic way, a set of buildings with the nature of the site and, at the same time, enhances the perception of its landscape. These aspects are evident in the winning project of the national contest of the "Plano Piloto" for Brasília, of 1957, and also in the observation of the implemented city. These characteristics are due, in the project of the new capital, to the "invention" of a city by Lucio

Costa, who "named" it a "park-city". Wouldn't these factors, in fact, mark the plan of Brasília (2) as the invention of a new urban category?"(JUCÁ, 2009)

Brasília and the “city-park” are constituted by the following aspects: definition in scales (I), opening of the city, public ownership of the soil, parceling, road hierarchization and harmony of the volumetric set of its physiognomy, integrated to the land. (JUCÁ, 2009) Curiously, that is when the term “city-park” appears for the first time. It comes therefore very related to a political and social will of equality and fluidity of spaces. The virgin land of Brazil’s central area is for Lucio Costas’ plan as a “stage” where the city’s program respectfully rests on “pilotis”. This set makes the vegetation essential for the constitution of the open spaces, structuring and characterizing, along with architectural, aesthetics and environmental elements, the “city-park”. (JUCA, 2009)

It is worth mentioning that, in Brasilia, the built and verticalized scale evidences the symbolic crossing of the two main axes of the city, while the bucolic scale - of the "rarefied" spaces that dissipate in the green, amplifies its meaning as a monument. These scales adapt the monumental force of the sublime nature of the site - on a slope and wide opening of the horizon - to each of its urban meanings. These spatial arrangements thus aggregate immaterial, symbolic references. They are important aspects for man's sensibility, translated into ambience and, equally, into urbanity. It can be seen, then, that in the correspondence between the spatial arrangements and their meanings, the (I) scales become value and, thus, a patrimonial good - a parameter of preservation constitutive of the city-park. (JUCÁ, 2009)

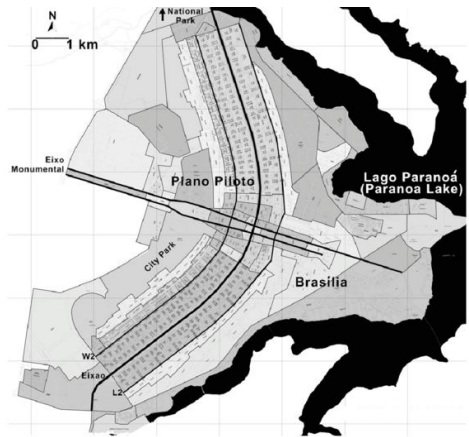


Fig. 4.1.5. (left): Brasília's "Plano Piloto" designed by Lúcio Costa. (Source: FARIA, OGURA, SASHCIDA, 2013). Fig. 4.1.6. (right): Brasília "city-park" (JUCÁ, 2009)

"On July 15, 1972, at 3:32 pm, the demolition of the Pruitt-Igoe residential complex in Saint-Louis eliminated a reference to rationalist urbanism, marking a new paradigm in the architecture of the future". (BENEVOLO, 1994; cited in FRANCO, FRAGA, FARIAS, 2010).

The postmodern period is also marked by the beginning of the Movement of Methods, when, influenced by the logical-positivist scientific perspective of the time, several authors tried to frame the design process within a well-defined sequence of steps. (BARROS, 2016; LAWSON, 2011) In this movement several authors started to propose new methodologies of project design, including a large group of researchers in the areas of social studies (professionals in psychology, sociology and philosophy, mainly) who have suggested a more empathic look with the user of the projected physical spaces. It is the emergence of the great area of Environmental Psychology, which, as seen in the first part of the research, is getting closer and closer to the practice of Architecture and Urbanism from the growth of disciplines that are based on the same theoretical principles, but that apply to the field of action of architects.

"Unlike today's 'starchitects', 'environmental planners' have considered themselves decision-makers rather than authors of form and style." (SACHS, 2018)

It is in this context that remarkable works will emerge in urbanism, remaining as important references to the present day, such as Kevin Lynch's "Image of the City" (1960), Jane Jacobs' "Death and Life of the Great Cities" (1961) and Gordon Cullen's "Townscape" (1961). All of these authors acclaimed for more sensible cities, closer to human scale and perception, some of them even proposing applicable methodologies for space analysis through personal experience, like Lynch's mental map (1960) and Cullen's serial vision (1961) - a "kick-start" to (C) participation? -. The growing contact with (D) multidisciplinary knowledge related mainly to the social sciences also brought to urbanism the birth of morphological studies under the social logic of physical spaces, such as the Space Syntax (HILLIER, HANSON, 1987). From the development of its analytical methodology, this discipline allowed us to understand the spatial configuration from the point of view of the social structure, that is, related to the behavior and use of its users.

The functional approaches of modern architecture would thereafter evolve into different strategies. When applied within existing cities, it could be related to what Fromonot (2011) called a new "programmatic urban planning" or "post-urbanism" which has kept until nowadays the program as the place's main attraction overcoming even its morphology. Rem Koolhaas is one of the main examples of an architect and urbanist who have largely used a programmatic strategy for his projects, for example, in his urban plan for Euralille, a business neighborhood in Lille, France. (1990) In this urbanism, the project is usually marked by big scale "urban artefacts", such as commercial centers, train stations or entertainment equipment, the program of a park or natural environment not being sufficiently defined or valued. This means that social actions, particularly related to human's consumption and economic exchanges, lead urban and architectural projects more than aesthetic or environmental goals. Consequently, it also means a maintenance of the "generalization" of cities proposed since modern times, besides establishing that urban spaces should "overlay" nature, becoming the supremacy of society's functioning and therefore going on the opposite way of the desired (B) horizontal connection proposed in Part I. These cities represent therefore the perfect "affordance" to capital movement, establishing production, consumption and material and services exchanges as priorities in society's behavior.

"The large scale architecture makes it possible to erase the different scales by absorbing them into a single container, like a 'black hole'." Rem Koolhaas

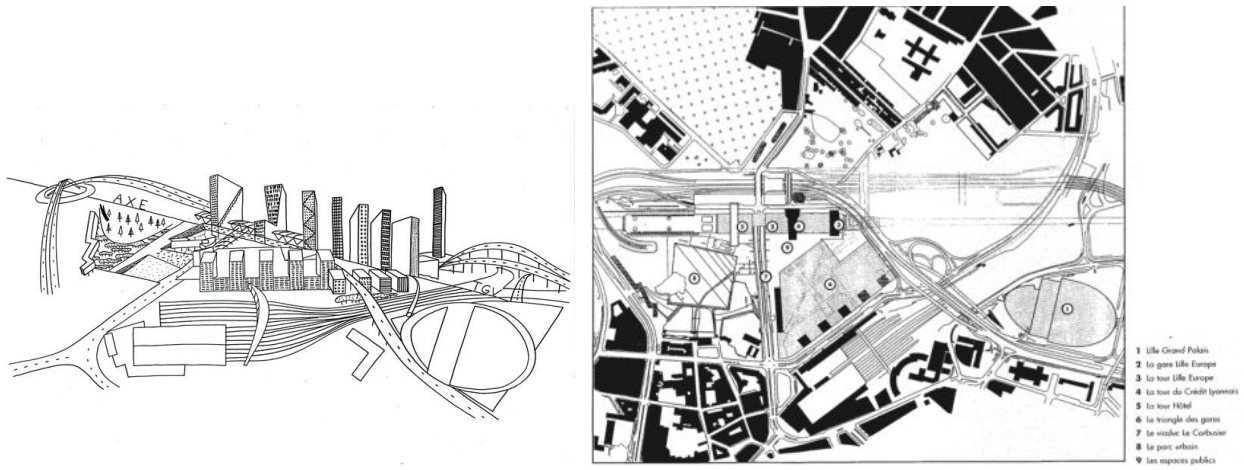


Fig. 4.1.7.: Rem Koolhaas' project for Euralille. (Source: "Nouvelles de la métropole froide", accessible at: <https://d6metropolefroide.wordpress.com/2012/04/10/euralille-la-grande-echelle-de-rem-koolhaas/>)

On the other hand, back in the end of the 19th century, another thought of line, known as "culturalism" would propose different approaches to urban planning. Instead of a generalized model, for the "culturalists" each city should be considered as a unique occupation in space, having its own syntax and grammar and a specific culture. Contrary to the materialistic and functional thinking, Camillo Sitte in "The Art of Building Cities" (1889) and later Ebenezer Howard's in his proposal of a Garden-City" (1898), developed a reasoning centered around the collective sense of cities and not on the individual daily routine. To this is added an integration of cultural needs, not reducible to mechanics and material needs. It is therefore defined by diversity and guided by aesthetics.

The culturalism ideals had some attempts of operationalization especially through Raymond Unwin and Barry Parker's project to Letchworth Garden City (1903). In the project urban spaces are delimited and circled by a green belt that limits the city's expansion and also contribute significantly to the production of food for the population. Differently from how it was commonly cited previously, this rural area did not respond to the principle that every house in the city should have a garden but it was rather an intention of having a city located within an open and shared agricultural belt. The concept outlined in Howard's book was therefore not simply urban planning ideas, but also a suggestion of a new community behavior in a different management system. Once again urbanism seems to act with consciousness of its behavior changing systemic

power, but through a very anthropocentric approach. It is, by the way, in Letchworth Garden City where the first roundabout of England was built in 1909, which reminds us of Lahlou's (2017) example of sustainable behavior initiated through urban space intervention that we have discussed in the first part.

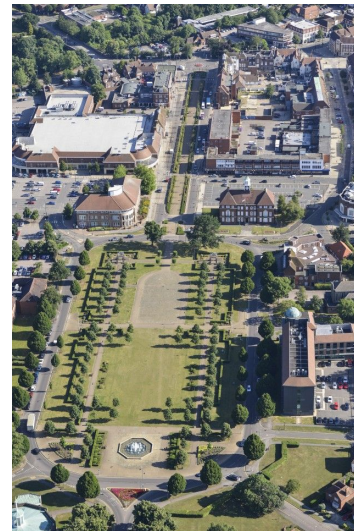
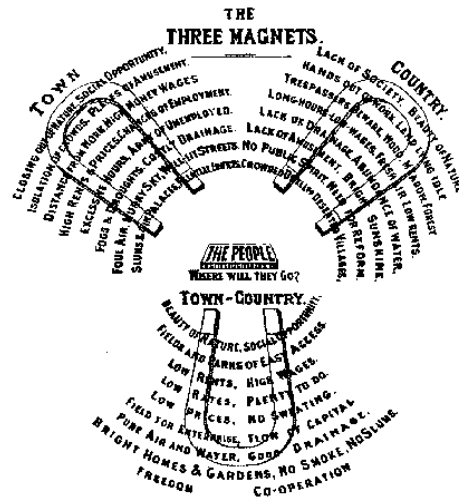


Fig. 4.1.8 (left): Howard's "Garden-city" three magnets diagram. (Source: *The Guardian*, 2014). Fig. 4.1.9. (right): Raymond Unwin and Barry Parker's Garden City project to Letchworth (Source: The International Garden Cities Institute)

Around the same period, a similar but still different line of thought was also growing strong, considered to be a more "naturalistic" approach. It defended that "only in contact with nature man can return to himself and allow a harmonious development of the person as a whole" (CHOUAY, 1965). In spite of an undeniable relationship with the earth, this theory does not reject the progress linked to industrialization, but on the contrary, it believed that the progressivist movement would in fact allow us to free ourselves and instinctively return to nature. For naturalists, it is the topographical, hydrographic, and more generally speaking, ecological characteristics of the city's "surroundings" that must guide the urban planning process and serve as its landscape framework. The idea of "park systems" very used by the american landscape architect Law Olmsted since the XIXth century, as well as later publications such as Ian McHarg's book "Design with nature" (1969) were attributed as representations of the "naturalism" ideals. For Marot (2020), it is also from this theory that Landscape and, later, Ecological Urbanism are defined.

The “naturalists” theories could be related to what Françoise Fromonot (2011) called an urbanism of “revelation” or urbanism of the site which aims to highlight in the city the characteristics of the natural site. It brings an important disruption in the time of urban transformations, now related to natural growth and therefore to a “slower” progression. We are talking here about long term planning, which, for Fromonot (2011) is not a constraint, but rather an opportunity to invent new ways of conceiving and operationalizing urban projects. In this way, the urbanism of “revelation” contributes to both evolution of the temporality of a project and its relation to the different scales of a territory, since the living spaces that are part of the city are in its surrounding landscape but also in the small scale of private and public gardens. (CHAMETTOF, 2000)

In 1932, Frank Lloyd Wright theorized the “Broadacre City” (WRIGHT, 1932), an urban project that mixes both culturalist and naturalist strategies towards what he would later define as a “Living City” (1958). For him, only when values are put first technology will become a tool rather than a master of the cities’ functioning, and in order to define those, a good architect and urbanist should plan based on his practices and ideals of the society’s he wants to live in. (F.L.W. FOUNDATION, 2017). According to Lionel March in “Writings on Wright” (1981) “perhaps the most pragmatic fact about Wright’s contribution to architectural theories of urban form is that he accepts that, first and foremost, a city is not an arrangement of roads, buildings and spaces, it is a society in action. The city is a process, rather than a form.” (BROOKS, 1981)

“His city would provide the space, freedom and beauty necessary for the growth of the individual. (...) Where the old city was seen as the result of impersonal forces that had diminished people’s dignity and possibilities for growth, the new democratic city would take advantage of modern technology and communications to decentralize the old city and its concentrations of power and unearned privilege.” Frank Lloyd Wright Foundation, 2017

According to Cornelia Brierly, one of Wright’s first apprentices, the architect believed that “with today’s modern technology, transportation and communications systems, (...) there was no longer any need for people to huddle together in cities as they did in the dark ages. He felt that the whole idea of space was so important that people should be out in the air and light. (...)”. The main thing to Wright’s plan was therefore to have architects and urbanists who knew how to

build in relation to the site and also understood the needs of the people (F.L.W FOUNDATION, 2017).

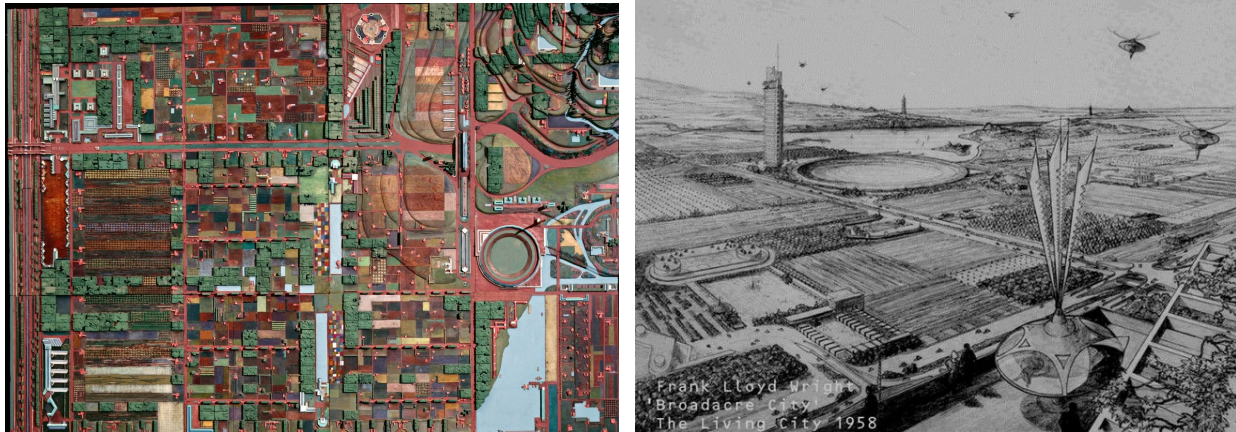


Fig. 4.1.10: Broadacre city. (Source: Frank Lloyd Wright Foundation and MoMa)

In this evolving context of contrasting theories, a new line of thought arises, considered to be a "post-naturalist" approach which will conceive the basis of today's ecological urbanism. It supports new technologies only this time not to enlarge big cities or create new ones from scratch, but rather, as also defended by Wright, to decentralize the existing ones. The so-called "regionalism" or "regional planning" proposes in its first expressions back to the beginning of the XXth century, an optimistic perspective of the advances of the 2nd industrial revolution believing it would give to society the possibility of "rebalancing" the concentration of people. For them, urban planning should be materialized on a regional scale which means that even the concept of a city itself should be relativized. Their vision didn't limit urbanism to expansion, management, organization and planning of the urban spaces as they consider the city to be "just" the most dense fraction of an expanded territory from where it takes its subsistence. (MAROT, 1995)

This will of rebalancing the relation between city and rural areas, proposed by Lewis Mumford since 1915 in his work "Cities in Evolution" (1915), was endorsed by the creation of the "RPAA" (Regional Planning Association of America) of which the American historian was also part of. In its foundation in 1923, the Association reunited, in one side, the followers of the "Garden-city" model proposed by Howard - most of them architects and urbanists attached to the formalities of Howard's theories, and, in the other side, the "full" regionalists, that believed "garden-cities" were only a small portion of a bigger and more ambitious project of territory. Inspired by the

geographers of the 19th and 20th century, the botanist Patrick Geddes, “mentor” of Lewis Mumford and invited by him to a RPAA’s meeting, was considered by the Association as the father of the regional planning becoming a major actor of the movement (MAUMI, 2016). Years before, he was the one to first evocate the idea of a “green belt” which had an important influence on Howard’s “Garden-city” (DAVIS, 2006), besides being the author of the concept of geotechnics which has to be the study that would enable human beings to learn how to fully inhabit the earth.

Regionalism claims that cities and their surrounding territories should be planned together, this being the only solution to urban, environmental and social problems related to the increasing progress of technologies and economy (FERRETTI, 2012). A practical example of this approach is the Appalachian Trail project (1921) of Benton MacKaye - one the RPAA’s members, consisting of an ambitious hiking trail planning all along the Appalachian ridge. The trail was designed to be the spinal column of a series of forests and public parks, but also as a central axis of a vast project to restore and reactivate the remains of the rural economy of the site’s first settlers. (MILLER, 2015) Although the ideas of regional planning have had an important success in the beginning of the New Deal (1933), the “regionalists” end up breaking their technological beliefs disappointed by the exacerbation of machines in society, especially regarding the industries’ supremacy over urban planning through the installation of “megastructures” such as hydroelectrics.(MAROT, 1995) It remains, however, as an important step towards (B)systemism.

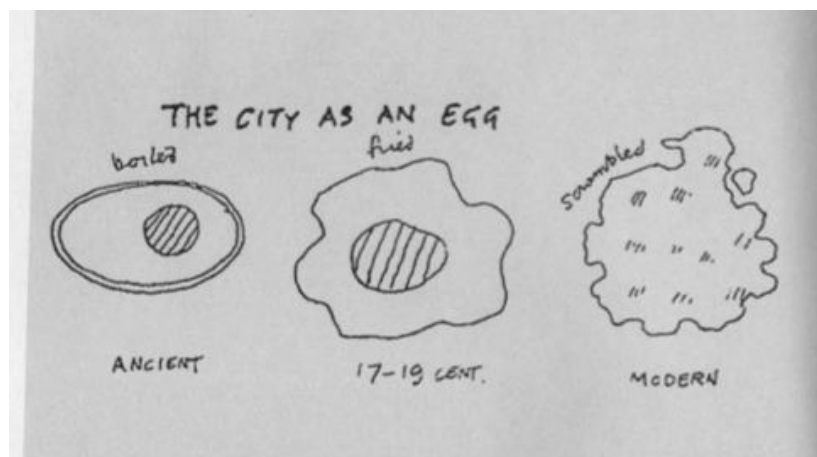


Fig. 4.1.11.: "Three eggs diagram" of Cedric Price (Source: WALDHEIM, 2006)

By the end of the 20th century, cities had indeed lived an important dispersion due to the increasing urban sprawl. However, different from the “decentralization” previously imagined by regionalists, the new “centers” became usually monofunctional and disconnected from the

“consolidated” cities (the historical centers) (MASBOUNGI, 2012). It is in this context that, the Italian urbanist Francesco Indovina theorized the concept of the “Città Diffusa” (1990) (“Diffuse City”), a model that gained important visibility mainly through the work of Bernardo Secchi (2002) who questions the process of “periurbanization” in particular in Europe. For Secchi, the “Diffuse City” will be the symbol of the 21st century culture, “it goes hand in hand with a way of life, that of single-family houses with a small garden.(...) This "ideology" has become very strong in Europe. I perceive it when people tell me, as a matter of course, that they are going to get married, have children and therefore move to the rural areas”. (CHARMES, 2015) Unlike common urban extensions in the form of suburbs where the rural landscape gradually fades away as the city expands, the “Diffuse City” extends into the countryside without making it disappear. In the “Diffuse City”, countryside and urbanization are integrated, constituting what Bernardo Secchi has named as a “leopard skin”. (SECCHI, 2002)

The “Città Diffusa” designates above all the interstitial spaces that reconnects these new centralities, which are, in this scenario, independent from each other without a clear hierarchy between them. An important particularity of this concept remains in its “spontaneous” growth, which makes it a city constituted without any intervention of planners. It is the result of the addition of individual initiatives, in particular the families mentioned by Bernardo Secchi who, one after the other, decide to settle in the countryside and often also to create a business there. (GROSJEAN, 2010) The main concern for urban projects in a “Diffuse City” configuration is therefore to understand the places and the “no-places” of these new landscapes and how to act on them. (MASBOUNGI, 2012). The landscape is thus perceived as a resource for planning urban spaces.

These ideas can be considered a “sub-urbanism”, antagonistic to that of “over-urbanism” that takes place. Created in opposition to Rem Koolhaas’ ideas where the site replaces nature, this new concept sees the landscape as a necessary resource. While Rem Koolhaas and other theorists were publishing about the lessons of a large metropole, this new subversive thought defined another way of qualifying the changes observed until then. In a “sub-urbanism” the landscape is a common cause that tends towards a new way of making the city “more inspired by the gestures of the foundation than by those of the edification” (MAROT, 1995).

4.2. Ecological urbanism: a way to societal resilience

It is with the emergence of a Third Industrial Revolution in the 1950s, that an even stronger antagonist movement begins to rise, not (only) about the urban form supremacy, but against the whole productive and extracionist logics of the actual societal system. It is based on pro-environmental consciousness, and evolves along new ideas, complementary to regional planning, such as that of “bioregionalism”. Defined by Peter Berg, this concept consists of “a geographic area defined by natural characteristics (...) [which] includes human beings as a species in the interplay of these natural characteristics” (EWERT, 2012). These new beliefs are the base to ecological urbanisme, and were reinforced by the work of Kirkpatrick Sale (1983) in “Mother of all: an introduction to bioregionalism”. The author stands against the “bigness” and “excessiveness” of the technical systems many times referring to Mumford’s ideals, but proposing this time an alternative way of organizing society, one through which humans would stop destroying life. To do so, the key relies on the (I) scale of actions, understanding that human beings are part of a whole living (B) system and should adapt to its ecological and biological conditions. It is therefore a world structured by ecological and cultural diversity, having no fixed physical limits between one ecosystem to another. (SALE, 1983)

Around the same period, Edward O. Wilson (1984) defined “Biophilia” as an innate affinity that human beings have with nature. Literally, the term means “love for our living systems” and defends that humans have coevolved with nature and therefore they need it in their daily lives. Tim Beatley has applied the idea to cities and tried to find what he calls a: ‘daily dose of nature’ (BEATLEY, 2011). “The biophilic city, therefore, brings landscaping both into and onto buildings, walls, roads and concrete watercourses to bring nature into every element of the built environment” (BEATLEY, 2011) surpassing the previous “distant” relationship between urban space and environment.

“The benefits are considered to include the cooling of the city (especially as the urban heat island effect grows with climate change); reduced stormwater surges, as rain slows down in the same way that it does in a forest; reduced energy needs in buildings, due to the mantle of insulation from plant life; improved biodiversity; and improved health.” (NEWMAN, 2014)

These movements show a considerable approximation to the guidelines proposed in the first part, beginning to demonstrate urbanisms’ interest in a systemic, “sober”, multi-scale, process.

Curiously the majority of these concepts, as well as the other theories previously discussed, were developed and defended by psychologists, historians, philosophers, biologists, journalists, mostly all theorists, ecologists and activists, but only a few urbanists. This evidences the distance between the evolution of theoretical strategies for society's transformation and its practical applications in cities through urban projects. In fact, as observed during the historical analysis, these theoretical frameworks become, in practice, very blurred, mixing these defined urbanistic "families" according to the phases of the project. That is why the current classification "can't take doctrines or theories to classify contemporary urbanism" (FROMNOT, 2011). They usually take parts from the projects, usually foundation in the site or the programs, in order to deduce its "categories of thought".

Besides, influences not to intervene in the rapid expansion of urban areas and the consumption or modification of environmental assets, nor to become directly involved in this process of environmental change, "were of course encouraged by the imperatives of economic growth on the one hand and survival on the other" (PELLING, 2003). Practical attempts were, and are, therefore way smaller than theories developments. With a few references and concrete feedback, today's urbanism, in the century of the Fourth Industrial Revolution, encounters other challenges that increments the difficulty of implementation of guidelines for societal resilience such as the ones proposed in Part I.

Typically controlled by urban regulations, contemporary urban projects restores a constructive mediation between conventional techniques and innovative ideas. In addition to its socio-spatial function, it must be the result of a junction of forms and norms that ensure the project's visual appeal, conveying an image of the city and the urban living environment and making the project an inescapable landmark in the deciphering of urban space." (MAGHNOUS-DRIS, 2009) This urbanism "à la française", for Fromonot (2011), are typically represented in french's "ZAC"s, having in a "masterplan" the synthesis of its intentions. It could therefore be called the "Urbanism of composition" (FROMNOT, 2011). It's primarily a challenge to societal resilience since it "stops" the project in time (and paper) again, but why not also interpret it as an opportunity since its "design-centered" approaches could be the door for establishing a (F) "Design for pro-environmental *affordance*" strategy.

"From now on, the functions of urban composition of functional mix, aesthetics and urban beautification, once considered outdated, are in the spotlight. The

application of these notions refers to the return to "urban art" abandoned during the functionalist era. In short, the city according to this new concept must regain its role as a pleasant setting for meetings, exchanges, and social life. The image it must give is as important as the services it must provide. (Including in the balance between green and built to achieve ecological concerns)."(MAGHNOUS-DRIS, 2009)

This exacerbation of the symbol and image of the city is very related to its increasing importance of these social structures in the world's geopolitical scenario. As mentioned in the first part, because of many reasons, including its major responsibility in environmental changes and its economic importance, cities are in the center of global discussions, its image becoming, within a capitalist organization of society, one of the most valued "products" of a globalized market. (MAMAHDU, 2018) In this context, political and commercial negotiations take an important influence on the construction and renovation of urban spaces. For Fromonot (2011), this characterizes the urbanism of "programmatic revelation" in which the city is not anymore a product of a plan, but rather a result of negotiations. Urban spaces are therefore not worked anymore as an "object" to be modeled, but it is the result of the implementation - or not - of various actor's strategies which can be identified and followed, but not always drawn. (GUARNAY, ALBRECHT, 2008) Despite its terrible repercussions due to the "commercialization" of cities and its culture, the "urban of negotiation" could be a step towards (G) procedural strategies, demanding a much closer collaboration between the public and private sectors for example.

Who says (G)"process", sets once again the "long time" condition, very mentioned in the first chapter, to urban planning. Just like nature, it is not in a "static" plan where solutions flourish, but rather in a continuous development during which project strategies are slowly spatialized. "The landscape is also 'the art of slowness'" (CORAJUD, 2002), as well as the time of politics is not the time of the town planner and even less the time of the inhabitant. With the landscape as a central actor, contemporary urbanism must accept that not all seed ideas will grow, and that those who do grow will freely take the form they wish, and all of this takes time (MASBOUNGI, 2002). This notion explains the importance of the (H) evolving, "provisory", and reversible characteristic suggested at the guidelines list, that allows urban spaces to be adapted to the "inconsistency" of environment and society. While modern urban projects like Brasilia's "Plano Piloto" built 472km² from a "premeditated form" in only four years, today's "city-parks" are

planned to be developed in more than 20 years even what it intervenes in “only” 4km² in the case of “Grandalpe’s” project (2040) and 30 linear km in the case of the “Capibaribe’s Park project (2037) as we’ll see on the next chapter”. Not used to this format, the short mandates, political (dis)interest, and tight budget of the public service usually do not contribute to the operationalization of these long projects. In any case, this important transition is also an evidence of how urban projects have indeed abandoned the will of “materializing” a design to the operationalization of a society’s change.

If today the landscape and urban projects are no longer perceived as a “painting”, but rather as a social and cultural production, it is also the product of a new way of looking at the territory as well as a new way of society's actions in space. (TOUTBLANC, 2009). The conflicts around the projects’ (I) scale are therefore an already important subject even if still an open question. There is, within the territoriality’s limit discussion, an increasing need to highlight and treat the “next spaces”, beyond the studied site.

All of these characteristics of contemporary’s urbanism, added to the previous context that have culminated in the present’s discussions, bring influences on the ascension of a “Landscape Urbanism”, an american theory seen as a “realignment” of the urban discipline since it proposes a replacement, by the landscape, of the traditional role of architecture as the construction unit of the urban project. (WALDHEIM, 2006). Its origins can be traced to postmodern critiques of modernist architecture and planning, when postmodern architects such as the landscape architect Charles Jencks, indicted modernism for its inability to produce a "meaningful" or "livable» public realm. Critics have also pointed to the modern urbanism failure when it comes to considering the city as a historical construction of collective consciousness. For Jencks and others, modern cities are incapable of communicating with multiple audiences. (WALDHEIM, 2006)

James Corner and other landscape architects, consider “Landscape Urbanism” to be established by four essential principles: the process of time, the game of scales and the stratification of surfaces, the operational method of work, and the imaginary (WALDHEIM, 2006). Later, in 2012, Ian Thompson, describes the ten principles of the theory which have increasingly taken on ecological issues. “Landscape ecology” and “Urban ecology” have matured as fields in recent decades (FORMAN, 2008; PICKETT et al., 2013), both offering insights and inspirations to new projects for contemporary cities which sees the fragility of the planet and its resources as an

opportunity for design innovations rather than as a form of technical legitimation for promoting conventional solutions. (MOSTAFAVI, 2010).

*“By extension, the problems confronting our cities and regions would then become opportunities to define a new approach. Imagining an urbanism that is other than the status quo requires a new sensibility—one that has the capacity to incorporate and accommodate the inherent conflictual conditions between ecology and urbanism. This is the territory of **ecological urbanism**.”*
(MOSTAFAVI, 2010)

The key is to think in terms of the ways that human activities and urban form interact with natural processes of air, earth, water, life, and ecosystems. This is not just a matter of imitating or echoing the shape of natural features (which would be closer to biomimetics) or of using indigenous materials, but of adapting urban form to natural processes. By focusing on the processes that shape and structure the environment, designers and planners can accommodate dynamic change, make connections among seemingly unrelated elements and issues, and can realize opportunities. (SPIRN, 2014)

Each time more recurrent, stories on fundamental questions of sustainability such as territorial environmental reactions from one country’s action to another, architecture and urbanism interventions accentuating social inequalities, and growing “auto-sufficient” methods; show us “all facets of the multiple realities that our individual and group actions shape in the context of the contemporary urban domain” (MOSTAFAVI, 2010). They are translated in Gregory Bateson’s argument in which, contrary to what Darwin’s natural selection theory affirmed, “the unit of survival is organism plus the environment.”(BATESON, 2000)

The characteristics of ecological urbanism makes it an appropriate approach to planning societal resilience not only because of its strong (B) systemic structure, but also because of its direct and clear communication to urban and social vulnerabilities - the acceptance of risks being the basis of this urban theory -which responds to the need for (A) social consciousness of urban vulnerabilities. Besides, the diversity of ecosystems predisposes the existence of a (D) cross-disciplinary team, which will consider inhabitants and the project’s members themselves as an integrative part of this living growing organism defined by the city and the proposed changes on it. (C) Participation is therefore a preeminent requirement for planning through Ecological Urbanism, culminating in interventions from human to territorial scales (I).

Moreover, embedded on the “sub-urbanism” idea very strongly in the Landscape Urbanism discipline inversion, ecological urban projects give priority to revealing the site’s existing and essential elements, instead of proposing an exaggerated abundance of constructions translated in the protagonist of the built layer of cities. It has therefore a (E) sober, economic and honest approach, with no future idealizations of biggnessess, but rather daily, literally, “foot in the ground” (realistic) actions. Because of this “empirical” characteristic, ecological urbanism also opens doors to (F) designs for “*affordance*”, since its intrinsically related to daily behavior rather than future previons making it possible to understand and intervene in *installations*. It is therefore a (G) process, open to its inevitable changes along the way to which it will be able, just like nature, (H) to adapt and reinvent.

5. The new "City-Parks": from urban project to societal resilience?

Fed by the discussion through the socio and urban points of view on the change of our societies towards resilience and sustainability, a quick analysis on how these concepts are being interpreted in practical projects currently being developed is proposed. Since the subject is embedded in Environmental Psychology studies, and therefore takes into account the local and cultural aspects, this practical analysis will take two study cases from different socio-cultural realities. This will allow us not only to understand how the guidelines proposed for urban projects towards societal resilience are - or not - applied in reality, but will also give an idea if and how the projects are adapted when in different countries' conditions, which means, different ecosystems.

With globalization, urban policies and concepts are traveling faster and being applied all over the world many times in a "standardization" model herited from the mass industrialization of modern urbanism. Powered by the influence of the industry of communication in urban interventions and its representation, the exchanges on urban solutions risk to be materialized in extremes, becoming either a generic urbanism or a commercialized urbanism. Furthermore, with resiliency no longer being considered as a quality owned by someone but rather as something that one, or a city, can learn and acquire, there's a certain stimulation to the development of general methods that would work as "resilience recipes". (VOISIN-BORMUTH, 2018)

Françoise Fromonot, known by her urbanism classification, does not believe in a "urbanism of globalization" (2012). For her, even though concepts and policies travel all over the world, when it comes to operationalization globalization "exacerbates certain factors on which urban planning directly depends, the quantities to be built, the demand for commercial profitability, the role of the private sector, image competition between cities, competition on a very large scale... so many constraints that are imposed on local players and urban projects".

Besides the legislative and commercial constraints, there are also local proactive measures stimulating cities to "return" to its particular characteristics. Movements like the "Fab Cities", which carries the ideal of cities being "globally connected, but locally productive", have been gaining more and more incentives in the context of pro-environmental actions. How are these

goals been materialized in urban projects? That is one of the questions that will guide the following analysis.

There are an infinity of contemporary ecological initiatives in urban planning each one with similar concepts but with very different approaches. Ideas such as the many “eco-villages”¹⁰ growing as independent territories all around the world based in radical ideas of sustainability, or the american “Regen Villages” who promotes high-technology to guarantee village’s auto-sufficiency, the french “eco-quartiers” label¹¹ launched since 2012 that have been creating a new eco- “market” for architects and urbanists, Portland’s “green loop”¹² who has adapted Howard’s principals to the new mobility and ecological organization of the city, or even more “polemic” project such as the new “Central Park”¹³ in Paris’ Courneuve, proposing an opening of vast green areas and human reintegration to the ecological environment.. Have been “flourishing” all around. The choice for analysing two “city-parks” projects was made based on the unexpected opportunity of having two on-going projects based on this same “renewed” concept in two very different contexts where I’ve had the opportunity to study and work. Recife and Grenoble share very few physical similarities as metropolises, but both carry what is more important to this research’s analysis: a will of making a change to its territory.

Before developing this analysis I had therefore the opportunity to work in one side as a voluntary student in some of the many workshops proposed by the Capibaribe Park, in Recife, besides studying in the University in charge of the project development (Universidade Federal de Pernambuco); and later, to work as an intern during the period of this Master degree, in the architecture and urbanism office charged of the elaboration of Grandalpe’s project plans in Grenoble (Aktis Amplitude, Architecture, Urbanisme et Paysage). The analysis will be based on the review of both project’s official presentations and plans, on personal experiences on both territories and project development, as well as on interviews with each project’s managers.

¹⁰ <https://eco-villages.eu/en/2017/01/27/welcome/>

¹¹ <https://www.grenoble.fr/302-flaubert.htm>

¹² <https://www.portland.gov/bps/green-loop/about-green-loop>

¹³ https://www.lemonde.fr/planete/article/2015/07/05/mobilisation-contre-le-projet-de-central-park-a-la-francaise-a-la-courneuve_4671137_3244.html

5.1. “Capibaribe Park” and “Grandalpe”: planning different “city-parks”

Urban Project	PARQUE CAPIBARIBE		GRANDALPE	
Location	Recife	Brazil	Grenoble	France
Metropolitan Area	3 216,262 km ²		545,50 km ²	
Project Area	30 km linear extension (15km in each river bank)	42 neighborhoods	4 km ²	5 neighborhoods
Territorial of influence	7 500 ha		1 000 ha	
Metropolitan Population	4 054 866 hab (2018)		443 123 hab. (2016)	
Population within project's area of influence	445 000		30 000	
Year of beginning	2013		First demand for a "Guide Plan" to the "Centralité Sud": 2013 A Metropolitan project, "Centralité Sud" to "Grandalpe" 2018-2019	
Expected year of ending	2037		2040	

Fig. 5.1.1: Comparing the project’s characteristics. (Source: the author, based on the project’s official documents)

The very different scales and profiles of the management teams between both projects, in addition to the significant cultural differences between Brazil and France, make it almost unfair to propose an equal to equal comparison based on the research’s guideline point as previously thought. The Capibaribe Park is a project that concerns the whole metropolis of Recife, not only in terms of territory, but also in terms of urbanism regulation and guidance to a city until now almost “unplanned”. Without a consolidated tradition of urban organization, brazilian cities are often empty of landscape and urbanism planning documents that would structure projects like the Capibaribe Park. This last one arises therefore not only as a punctual design proposition, but as a reinvention of the city’s urban evolution, bringing not only plans but an extensive conceptual basis rich on sensible analysis and subjective characteristics.

On the other hand, european’s traditions on urbanism have structured and organized the city’s project procedures, creating clear and consolidated methods from the creation to the operationalization of urban plans. Within this context, Grandalpe appears as a much more technical and “centered” initiative, making of the project’s development a more traditional and clear course, which is at the same time a positive feature - potentially accelerating the planning process and being closer to its actual materialization - but also a negative one - perhaps being

sometimes limiting to the planner's imagination and the project's ambition. Following a traditional procedure of urban projects, Grandalpe is managed by the public institution, in this case, the metropolis of Grenoble, but developed through specific "missions" submitted to private competitors. Under the public governance and leadership, the hired planners are usually framed by scheduling and budget limitations. They assume a difficult role at the same time proposing new strategies, but also serving as spatial "translators" to previously established principles which are not always clearly defined or transmitted due to political changes or management faults. Constrained by this common "discontinuity" of information and common decisions, the

On the other side of the Atlantic ocean, the Capibaribe Project was born and developed inside an academic research group part of the public federal university of the state of Pernambuco. Despite being also financed and coordinated by Recife's public authorities, INCITI¹⁴, created and directed by architects, urbanists and landscape architects, takes the role of manager of the project having complete freedom to propose and operate initiatives within the scheduled budget and accorded timeline. Based on a University, INCITI has the prestigious opportunity to incorporate numerous disciplines to the project's development. Centralized in one only open and innovative institution, the project was capable of concentrating a rich variety of researches, plans and actions in one solid "body" of planning. This was possible thanks to the Laboratory's new methodology named "PD&I+A", standing for "Research, Development, Innovation + Activation". This means that the project has a more academic and research based approach and consequently it is normal that it has more facilities to directly respond to most of the theoretical guidelines and discussions brought in during this work. Therefore, instead of comparing the projects' level of development of the proposed points for societal resilience, a quick demonstration of the two City-parks significant differences is proposed illustrating the important diversity that a same (conceptually) urban project strategy can have when applied in different socio-cultural environments proving "resilience recipes" to be an impossible abstraction.

¹⁴ Laboratory of Research and Innovation for the Cities - Federal University of Pernambuco (UFPE)

CAPIBARIBE		GRANDALPE	
Recife's City Hall		Grenoble's Metropole	
Institutional Coordination of the Capibaribe Park	Secretariat of Economic Development, Science, Technology and Innovation		Grenoble City
			Echirrolles City Eybens City
Federal University of Pernambuco (UFPE)		Programmation, Phasing, Pre-operationalization	
INCITI	General Coordination		Alphaville
	Executive Coordination		
	Strategic Planning Consultant		
	Administrative Management		
	Technology of Information		
	"Activation"		
	Communication		
	Design and Illustration		
	Engineering and Environment		
	History and Landscape		
	Water Resources and Drainage		
	Architecture, Urbanism & Landscape design		
3D Simulation			
Fauna and Flora			
Management and Urban legislation			
Lightning Design			
Accessibility			
Sustainability			
Geoprocessing			
Cognitive Psychology			
Urban Economy			
International consulting			
		Urban Planning	
		Aktis	Architecture, urbanism and landscape
		Skallians	Commerce, leisure, urban centers attractivity
		WSP	roads, networks, engineering structures
		Transitec	Mobility
		WZ et Associés	Social uses
		Environment	
		Setis Environnement	
		Evadies	
		Terre Eco	
		Acouphen	
		Dialogue & Communication	
		WZ et Associés	Dialogue & Communication
		Minimento	Graphical and video production

Fig. 5.1.2: The management structure of each project. (Source: the author, based on the project's official documents)

The previously discussed points are emphasized through the projects' actors table above which makes it visible the big difference between the centralized management of the Capibaribe project, united by a University's context, and the more cooperational and practical oriented organization of Grandalpe's team. These differences are also demonstrated on the project's official presentation documents. For the tropical project, a unique extensive book concentrates all the conceptualization, diagnosis, territorial strategies and detailed actions and plans, being presented elsewhere only by the recent "strategic plan for the future" built for Recife, the "Recife 500 Anos" plan, in which the Capibaribe Park is pointed and explained as one of the main operations of the city. In the Alps, many materials besides the main Aktis' "Guide Plan" for urbanism development presents the project's strategies through the different perspectives of each actor involved. Because Aktis represents a private operational actor among other members of the project, and INCITI a research group that unifies all the project roles, the documents are

also structured very differently from one to another, the second one with a clearly more methodological and academic approach.

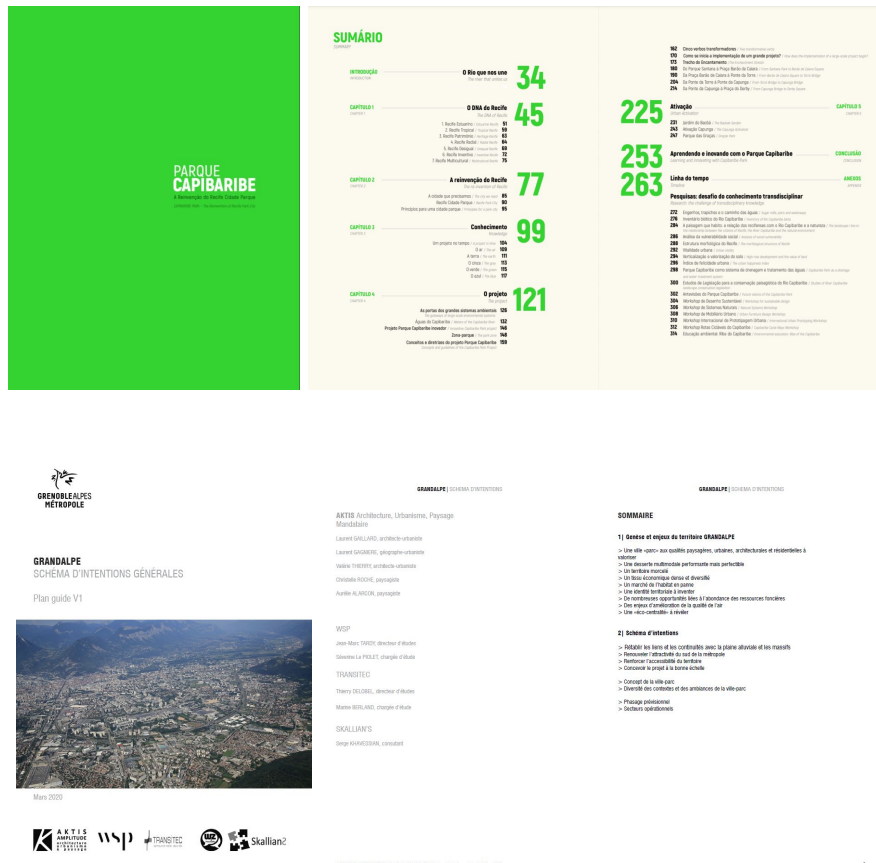


Fig 5.1.3. The project's official presentation documents.

Regarding the project's landscape strategies, both present a variety of scales. Within the big landscape at a territorial extension, Recife's project expands its diagnosis and proposition presenting a conceptual framework for the whole Metropolitan area. It is called the "Tree of water" which aims to highlight the role the Capibaribe River plays in the territory's environmental system comprising two other rivers, 94 tributaries, and various canals and streams. "This study has revealed that the city of Recife can be seen as a Water Tree: Its absorbent beaches and waterfronts form the roots of this system; the estuary holds the city together like a tree trunk; the three rivers Capibaribe, Beberibe and Tejuipió distribute the water like branches; and, finally, leaves, flowers and fruits represent the organized civil society."

At Grenoble, the large territorial landscape approach is not subject to the Grandalpe's project specifically since it is already established by the "OAP" (Orientations for Landscape Planning), a

Metropolitan document that makes a diagnosis and proposes guidelines for every project operating within the territory. The document aims to allow each project to take into account the specificities of its location by providing to the petitioners, project managers and instructors, as well as elected officials and professional mediators (consulting architects, town planners, etc): (1) a decoded reading of the landscape on which to build any project; (2) an approach to the biodiversity and ecological sensitivity of the sector (or territory) of the project, and (3) a framework, in addition to the “PLUi” (Local Urban Plan) regulations, to build the project in respect of its geographical context, landscape, cultural and ecological. (OAP Paysage, Grenoble Alpes Métropole)

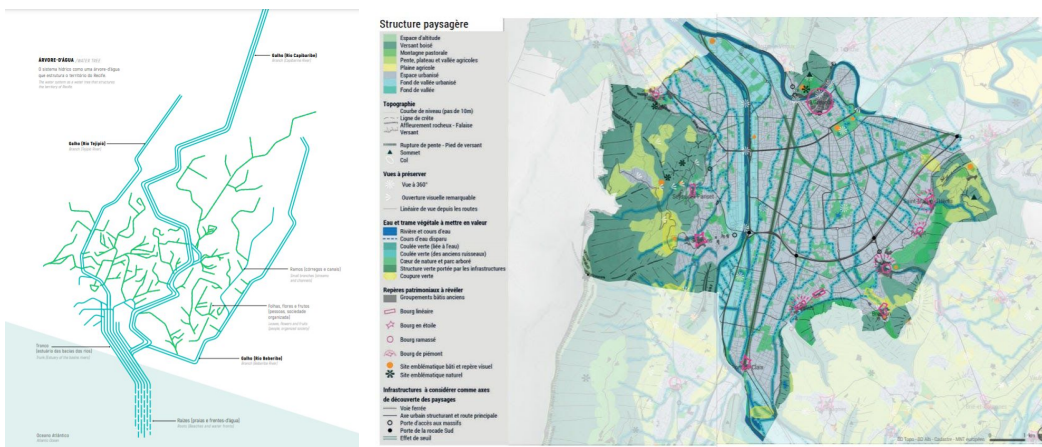


Fig. 5.1.4: The large landscape territorial guidelines of both projects. (Source: Capibaribe Park official document and Grenoble’s “OAP”)

To do so, Grenoble’s OAP defines the different landscape “ambiances” that compose the metropolitan territory, the “city-park” being one of them. Located inside the limits of this ambiance (Figure ___) Grandalpe’s follows the metropolitan definition which relates this concept to a certain urban morphology. Based on some spatial principles, for the metropolis this “ambiance” needs to be materialized in projects in order to reinforce and extend the tree and planted mass to form a structuring matrix in which the constructions are installed, to continue the vegetation patterns beyond the existing “islands” (isolated municipal parks) in order to promote ecological continuity throughout the urban spaces, to implement a vegetated frame on the streets that will accommodate shared uses and to develop ecological corridors in order to provide areas of tranquility for wildlife, free of traffic.

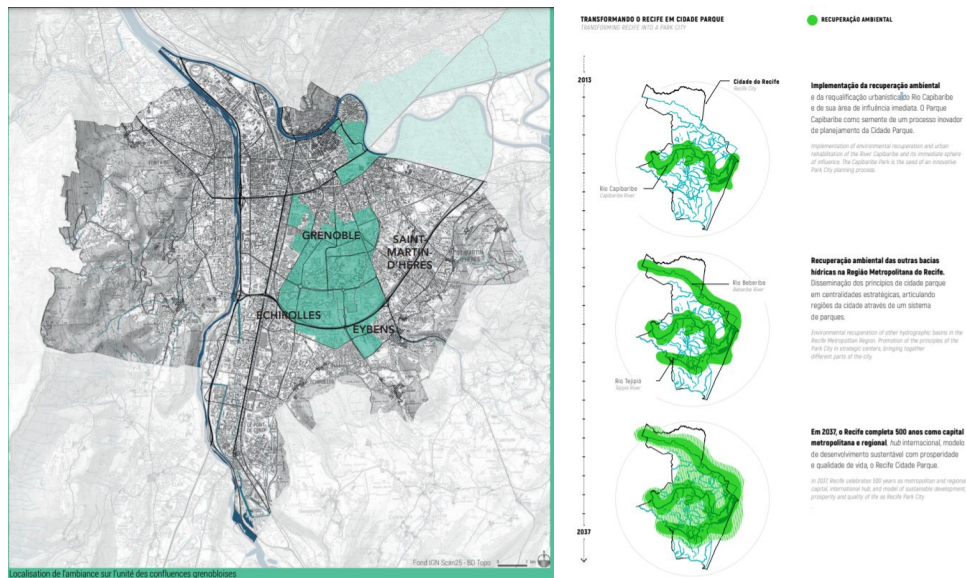


Fig. 5.1.5: Grenoble’s city-park limits, Recife’s city-park spatialization. (Source: Grenoble’s OAP, Capibaribe Park official document)

In Recife the concept of a city-park comes as an evolution of the initial “linear park” proposition suggested by the city hall. Understanding the territorial importance of the Capibaribe river, the research group INCITI answered the request by creating what was called a “park zone”, which englobes not only the river and its banks, but all urban areas in a distance of 500m from the margins structured by different urban elements. By proposing a replication of this same spatial strategy to Recife’s other two rivers, the group suggests Pernambuco’s capital potential to be a “city-park”.

In both cases, the projects have responded to these ambience’s goals through diagrams that explain the different strategies to be applied in specific areas. At Grenoble, Aktis’ propose spaces to be treated according to three different contexts: the “intense city”, for areas of a more important densification; the “inhabited” city, with a conviviality transition between public and private spaces; and the “passing” city, marked by the permeability and porosity of spaces. For Recife’s project, the “city-park” is spatially translated through five “transmative verbs” each one composed of different spatial elements. Those are: “Arriving”, composed by “green streets”, “green parkways”, the “park-streets” and the “pedestrian streets”; “Crossing”, spatialized through a system of boat crossings and pedestrian and cycle bridges; “Embracing”, including elements

like floating decks, landscape “windows”, terraces, passarels and sitting steps; “Following”, that makes use of elements like new separated lanes for pedestrians and cyclists, shared lanes and pre existing roads adapted for walkability and cycling; and finally “Activating”, composed by the existing cultural and social events, and by new “living hubs”.

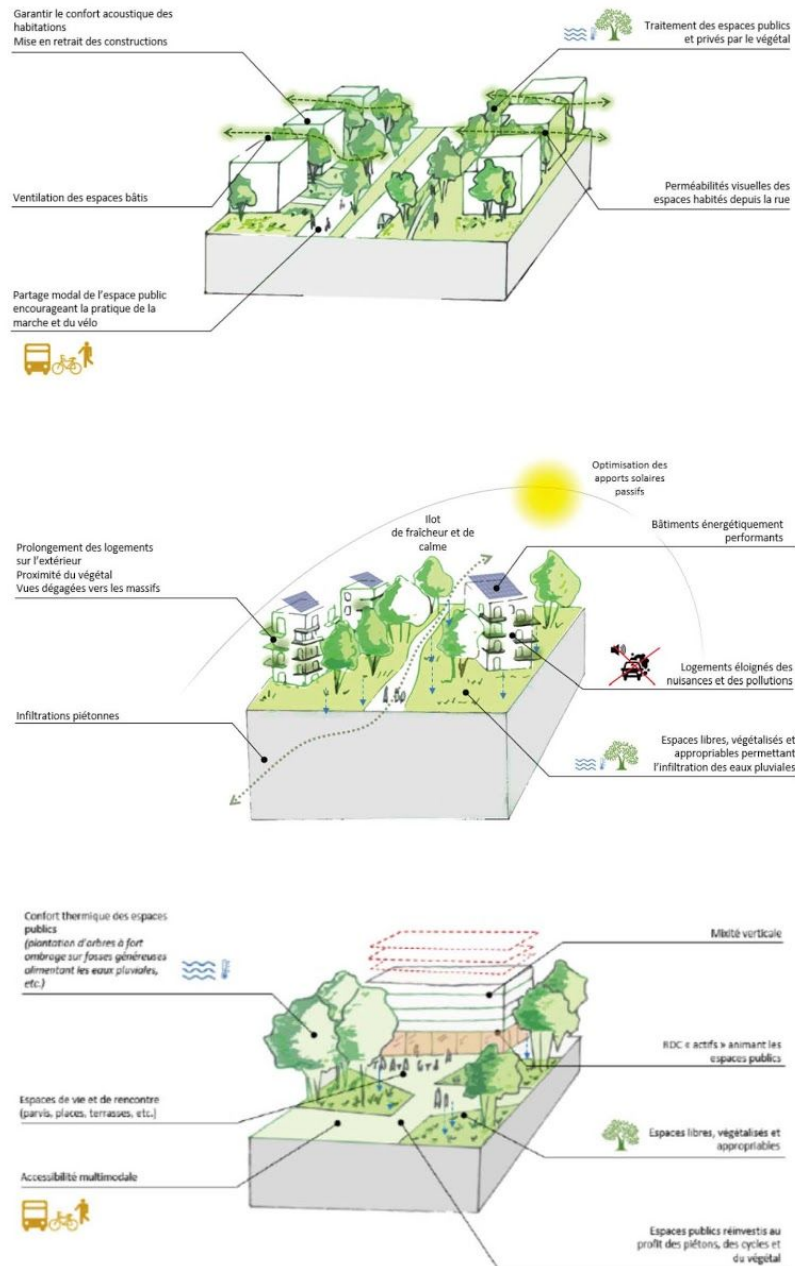


Fig 5.1.6: Grandalpe's proposed ambiances for the “City-Park”. (Source: Aktis’ “Guide Plan”)

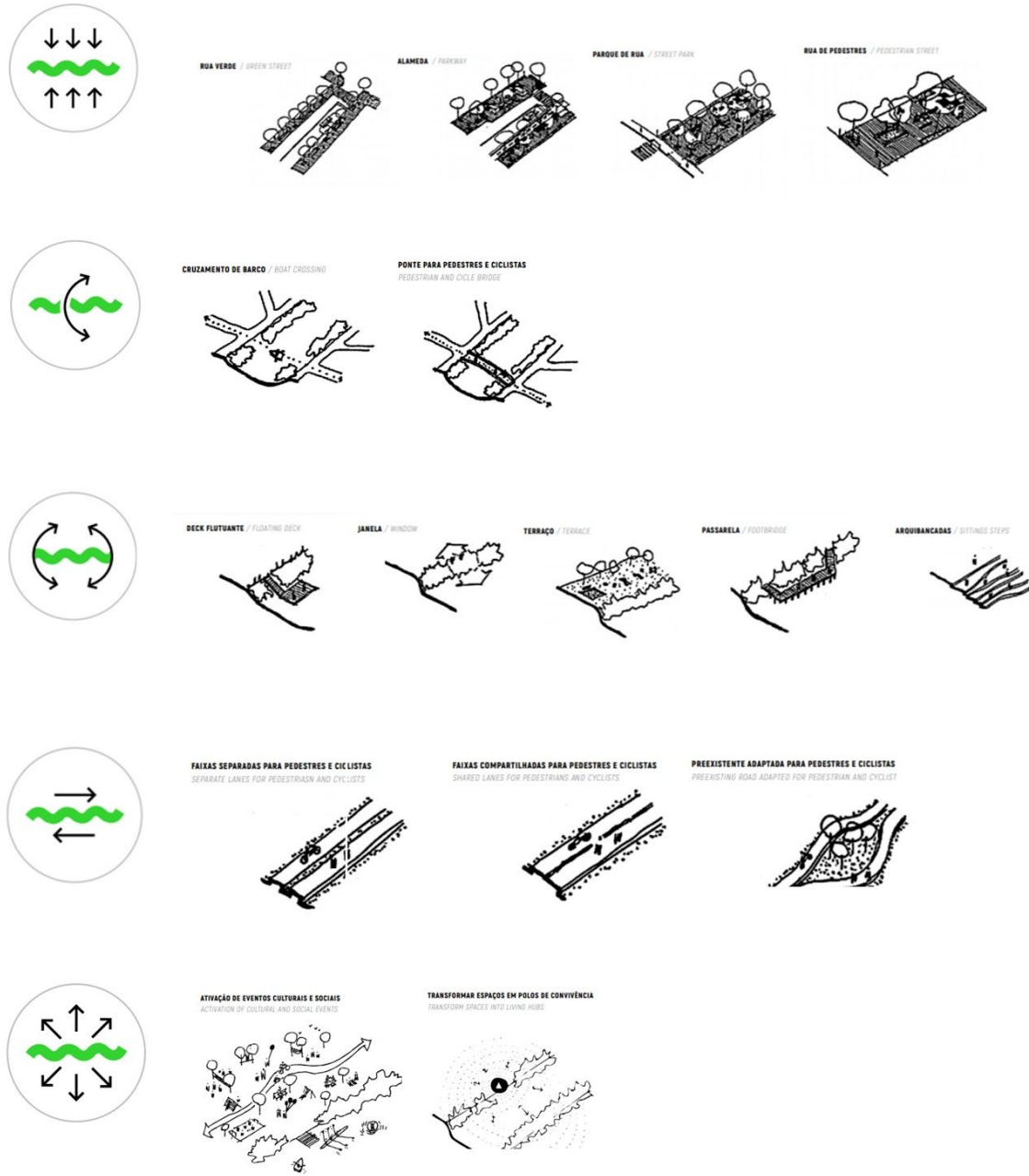


Fig 5.1.7: Capibaribe's Park proposed "transformative verbs" for the "City-Park". (Source: Capibaribe Park official document)

Based on the concept of the “City-park”, the idea of a system in both projects appears associated with the landscape natural structure, mainly that of the green areas. Grandalpe presents a systematic understanding of the landscape more simplified in plan since it is a project in a more operational phase and of smaller scale, pointing out the green and blue plot in plan. If accompanied by the OAP Landscape maps, however, the land gains scale and complexity by adding the areas in altitude, plateaux, and agricultural areas, for example like previously shown. The Capibaribe Park project, also influenced by the much larger proportions of its area of operation, destroys the city's systems in 5: the blue, the green, but also the earth, the air and the built environment.

Curiously, the word “system” appears only four times in the project’s presentation magazine published by Grenoble Metropoles, three of them to point out the mobility existing and proposed system. The fourth repetition makes reference to the “territory’s ecosystem that will, through Aktis’ “city-park” plan, be reintegrated to the city. In Aktis’ “Guiding Plan” the team mentions a “system” only once, making reference to the modern public spaces structures, built on a big system of slabs very characteristic of the existing architecture and urbanism of the Grandalpe territory. On the Capiberibe Project unique document, the word “system” appears 70 times, making reference to ecosystem, to mobility systems, parks systems, environmental systems, and so on. Once again the academical origins of the project makes its presentation and of itself, a project more dense in theory and concepts in comparison to a more technically advanced plan for Grandalpe.

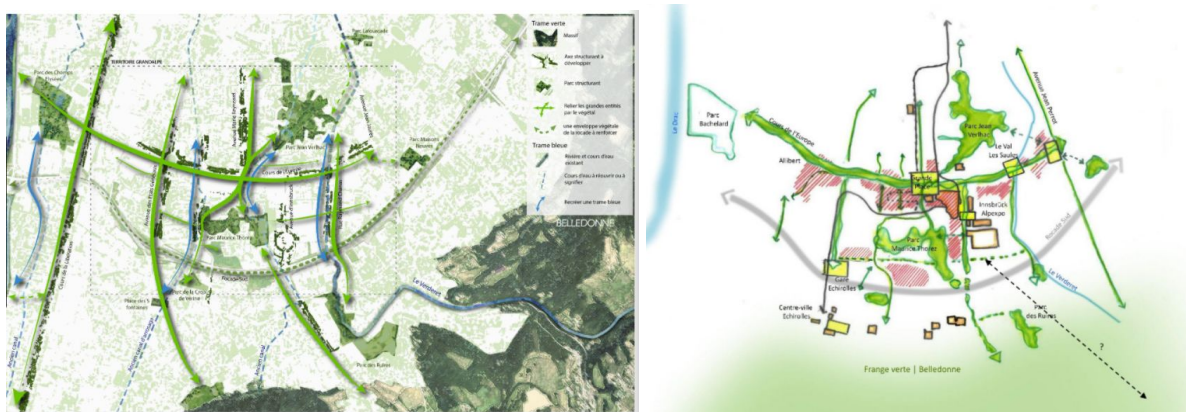


Fig 5.1.8: The ecological systems in Grandalpe (Source: Aktis’ “Guide Plan”)

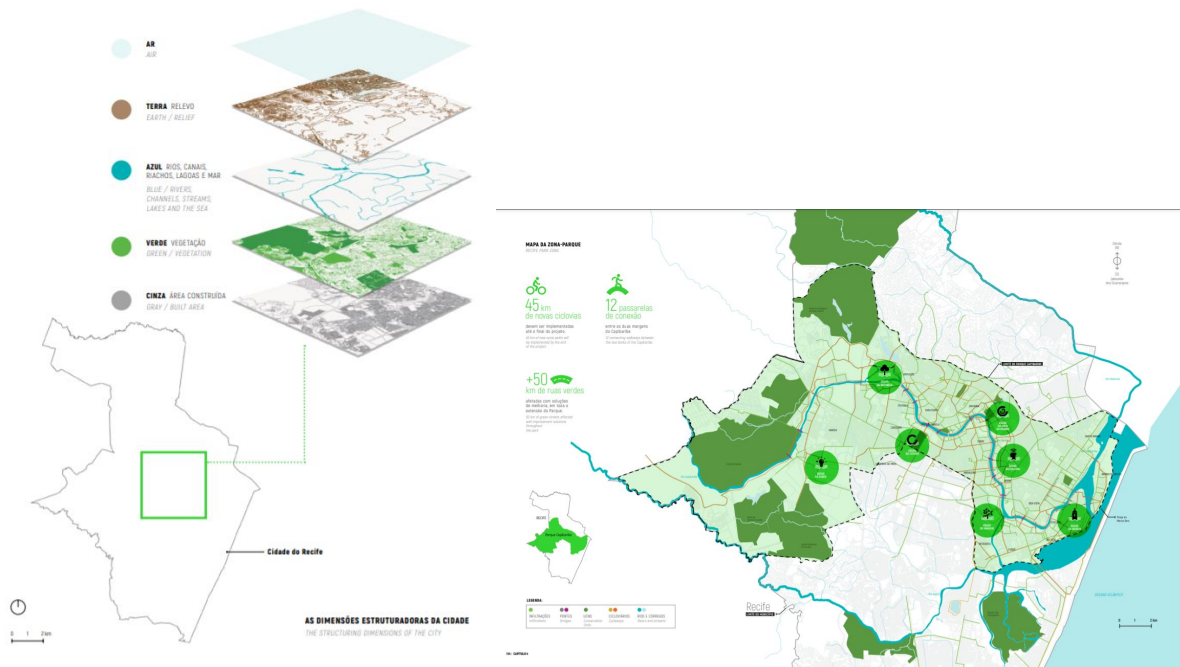


Fig 5.1.9: The ecological systems in Capibaribe’s Park project (Source: Capibaribe Park official document).

Regarding the operationalization strategies for starting the projects, at Grenoble, a Public-Private partnership attacked the center of the project through the renovation of a major equipment, the shopping center Grand’Place. The project takes the opportunity to start the intervention in the public space through the demolition of the viaduct and the agency of "Belledonne Square", which will be a mark of the projects’ starting point. To arrive to the the materialization of the design project, the project have been making use of many consternation artificials (such as open debates, site visits, “cycling” informative actions, academic workshops with students) that have enable Grandalpe’s project to exchange with more than 700 people in cumulated participation between inhabitants, transport users and employees of the area until nowadays. However, because of the technical complexity and the traditional scope of urbanism that characterizes the project, those participations are usually related to the master plans ideas, not crossing the limits into the “small” construction operations.



Fig 5.1.10: Grandalpe’s participatory actions (Source: Bilan de la concertation, Grenoble Alpes Metropole), and “Grand’Place” project 3d perspective (Source: Aktis’ “Guide Plan”).

At Recife, the project believes in a more “acupunctural” implementation that allows the projects to surpass the budgetary and organizational difficulties of the country. It is therefore started through small initiatives which a more “popular” approach making use of open workshops, cheap materials and simple design projects that involves the users of the space in a big part of the operation process. The starting point of the Capibaribe Park was therefore a small “window” intervention that eliminated an irregular parking lot from the margins of the river in order to give people’s access to the Capibaribe. Before building the fixed elements, the space was the place for many debates and activities with the inhabitants and workers of the place. Because of its simplicity, the idea of INCITI is that these punctual transformations can be easily replicated in other areas, spreading small but socially intensive interventions instead of a big, expensive, traditional master plan construction site.



Fig 5.1.11: Capibaribe Park “activation” actions before and after the “Baobá intervention”. (Source: <http://parquecapibaribe.org/jardim-do-baoba/>), “Baobá” project’s 3d perspective. (Source: Capibaribe Park official document)

This analysis could, and should, continue through many more interfaces that evoke these two projects’ similarities and differences. However, limited by the time and format of this research, we’ll leave it at this point, as a general introduction of what is actually a much more complex and detailed comparison. In light of the observations made until here, the two approaches described in this manuscript, despite being based on the same concept of “city-park”, seem to describe two distinct, even opposed strategies. Regarding the discussion on resilient cities, an innovative, anticipated, large-scale renewal project is proposed in Recife - Brazil, proposing a systemic, multi-scale, cross-disciplinary, sober, participative and with reversible/provisory interventions.

Failing only on the not clear promotion of a “culture of risk”, the project could be considered a great actor for building societal resilience according to the guidelines defined in this work.

For all that, the ideal and theoretical approach of the Capiberibe project is often challenged by the lack of structure, concrete decisions and actions, related to the country and metropolitan political and economical conditions. In the meantime, a more “technical”, “framed” and less academic strategy will be privileged in the city of the old continent, which seems to evolve through a more conventional and therefore “solid” materialization of the project. In this way, it is to be noted that, because of their respective qualities and imperfections, it could be interesting for these two singular strategies to agree on a “middle point”, as both can learn from each other. In this particular context, the ever-increasing need for international cooperation becomes more and more palpable and appears as the missing step for overcoming the theory-practice gap of the guidelines here proposed, making the dream of a building societal resilience a more possible one.

“Beyond a "magical" conception of the influence of form, we are left with a simplistic but fundamental certainty: it is in people's heads that everything is tied together, between the representations that each person can make of the places, institutions and people we meet there, and the collective behaviors and acts of identity with which they remain associated. Of course, these representations are only accessible indirectly, through what is said about them and the practices they induce, what we observe in the appropriation of places or the adhesion to the project. Representations are therefore a matter for interpretation. Sociology and semiology, however, help to clarify the situation.” (TABOURET, 1989)

6. Second Conclusion

In short, the history of cities' development showed how urban planning evolutions are intrinsically related to societies' relationship with nature. Since the beginning of agriculture activities, humans have been giving up on their auto-sufficiency and individual resilience in return for the benefits of an organized society, just like mentioned by Lahlou (2017). As the urban systems get more sophisticated, society's start denying the countryside, now seen as a naive, idyllic, distant and separated entity. Despite its dependence on rural areas, cities evolved through a strong anthropocentric and technist progress, leaving nature aside. At the same time as cooperation (technical but also social) increases, and urban systems get more and more linked, cities' best advantage starts also becoming their worse vulnerability. As soon as city's start not responding to all the hygiene conditions needed to human development, society turns back to nature and invites it into urban spaces under the condition of being in a controlled and manipulated form. No wild, no agriculture, only geometric, wide, designed natures that become symbols of modern times. With this new apparently stable relationship, cities, societies and environment sees the arrival of new technologies that would revolutionize these systems again. It's the adventure of automobiles, communication technologies, fuel, that will break the borders of the existing secular cities. Theoreticians and designers see here the opportunity of starting again. Is the explosion of many new concepts and models of the city that will try to define the best functioning of societies. Between some attempts and many utopias, industrial production and capitalism grows exponentially, triggering an antagonist movement, environmentally concerned, introducing powerful ideas such as the dreamed sustainability.

Moving towards an ecological urbanism, these ideals are today intrinsically related to systemism, multi-scalability, cross-disciplinarity, and all the other points suggested in the first part of this work. In practice, however, projects do not often materialize as desired. Constrained by legislation, budget, negotiations and politic-economic interests sometimes not in accordance to what the projects suggest, urbanism faces a big gap between theory and practice. Besides, a generalization of guidelines has shown to be inefficient considering that each urban project has its many particularities. It is what was observed during the short "city-parks" comparison analyses above that have proven that resilience "recipes" cannot really exist.

FINAL CONCLUSION

The creation of societies represents the organization of a cooperative system, which carries numerous individual benefits to the participating members, while considerably increasing their level of dependence to the system. Societies are, therefore, vulnerable institutions, and yet they still present themselves as the best structure for the prosperity of human beings. These structures are spatialized through cities, which end up constituting themselves a whole new part of the system, with their own needs and influences on the other components - man and nature. From the perspective of the search for urban resilience, we searched here to understand the role of urban projects, which model these cities, in the search for, or in the guarantee, of a societal system capable of overcoming and adapting to the constant social, political, economic, and especially environmental transformations of our time.

This research tried to be a sample of the multidisciplinary and systemism approach defended throughout the work. Covering different fields of study and different interpretations around the same issues was not an obvious exercise since dealing with several theoretical universes, each one with its different scales and definitions, makes it difficult to cross for practical analysis.

Through three different approaches, sociological, historical and comparative analysis, we've tried to understand the role of the urban projects in the construction of societal resilience, leaving technical aspects of cities aside and concentrating on human behaviour in urban society. More specifically we've questioned if, why and how urban projects could be capable of contributing to this expected society's transformation. Despite the distance between the fields and methodologies that have guided each one of the three phases, some evidence appeared as connecting points leading to the confirmation of the work's primary hypothesis: urban projects are indeed in increasing potential to change society's behavior towards a resilient system.

But first, in order to lead this multidisciplinary and sometimes very abstract discussion, an important contextualization and fundamental definitions were fixed in Chapter 1. They've allowed us to clarify some "overlapping" concepts but also to filter, in the vast field of collapse, resilience, urbanism and sustainability, which main ideas and parts of the studies were to be the focus of the research in order to answer the question. Understanding collapse as a continuous and present reality (SERVIGNE, STEVENS, 2015), urban project as a process (DEVILLERS, 1994), sustainability as a finality (TOUBIN et al., 2012) and global resilience as the long-term

way (VOISIN-BORMUTH, 2018) through which cities will rebound to today's crisis, was therefore the first important achievement of the research.

The points were first determined based on the sociological knowledge on how an individual behavior is built and controlled in society from micro activities to society's habits and functions. Through the theoretical framework of Saadi Lahlou (2017), it was possible to understand how, in micro and macro scales, the physical spaces contribute to the formation of habits and social conventions. Being itself a resilient system, *installations* served both as analytical structure but also as inspiring composition for the triple environment-city-society living system.

Established therefore still in the research's first part, those points became guidelines to analyse, in the second part, when and why urbanism have been contributing to the formation of resilient society throughout history and later, on how it is using these strategies in practice today. The points are: A) social conscious of urban vulnerabilities, B) systemis, C) participation, D) cross-disciplinarity, E) sobriety, honesty and empiricism, F) design to pro-environmental behavior "affordance", G) procedural, H) Reversibility, evolution and provisority, and finally I) Multi-scalability. The transversal review of the urban, environmental and social exchanges through city's evolution allowed us to identify how and why some of contemporary city's characteristics are considered as challenges or advantages to the performance of an urban project towards resilience. Limited by a legislative and marketing demand for "composition" (FROMNOT, 2011), contemporary urbanism still struggles to surpass the limiting design-only attribution, as well as the deviating "negotiation planning" (FROMNOT, 2011) which can sometimes use of economic pressure to avoid intervention "against" progressivism. However, each time closer to a "Landscape Urbanism", urban projects are evolving in time and scale questioning the limits of the site's territory and embracing nature's slow growth and transformations. (WALDHEIM, 2006)

Finally, Ecological Urbanism appears as the best urban theory in response to the proposed guidelines. Based on the idea of society not anymore sharing a system with nature but rather being a part of a global ecosystem, changes completely the way of approaching physical space interventions. With the valorization of adaptable processes, applicable in micro and macro scales throughout, based on multi disciplines and inviting for participation, this new urban projects would be capable of creating a sober, consistente, malleable, framework between cities, society and environment.

This work proposes a new way of looking at urban projects, perhaps with a more ambitious one, not to take it to “utopia”, but mainly as a warning sign. Despite the apparent "grandiosity" that the discussion brings to this urban tool, this research's goal is actually more of an appeal to urbanisms' small scale. Despite its important theoretical approach, it is actually a call for a return of the urban practice on a human scale, to the *installation* pixel, which builds the final urban-ecological image. The idea of the discussion was therefore to re-approach what has already been treated as "utopia" of urban projects, the real, everyday life and transformation of those who make the project a reality. Instead of denying one or the other, it is to find the balance and reunion of these two "entities": society's daily actions and urban projects.

The work however has some limitations. First of all regarding its none consideration of economical aspects in many social analysis. Economic poverty not only excludes people from market consumption and access to basic needs, but can also act as a barrier to involvement in social and communal activities outside the household. Other socio-economical differente such as color and secuality were also disconsidered treating societies as a general grouped objects when it is, in fact, an agglomeration of individualities. In this way, this research ignores the "material expression of power" which guarantees different possibilities of resilience for some. Social inequalities also interfere directly in the lever of trust between population and institutions that usually manages the crisis. Also, the difficulty to cross urban planning history keeping an analysis of the societal organization relation and the natural environment role on it, was harder because of the characteristics of its fonts. Based on theories and reports, researchers will never be as close to the micro scale of human behaviors in daily activities, creating a big distance between what is treated on the first and second parts. And finally, realizing that a comparative analysis between such complex projects like Capibaribe Park and Grandalpe requests a much more extensive work which supasses the limits of time and format of the proposed master thesis, the research ends up presenting a too simplified analysis.

In the end, an urban project is an evolving tool that can be more powerful then one could imagine if seen as a process with all the points cited during the work. Every urban project should, therefore, enhance the quality of the urban habitat for humans and other species, since, each one of us, part of this big ecosystem, has specific needs, and “the most effective way to enhance our survival or establish control is often through the design and management of their habitat” (ADAMS et al., 2005, MCDONNELL et al., 2009).

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