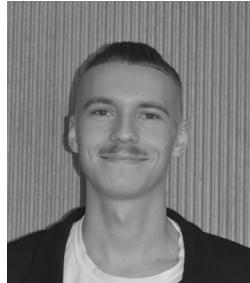


# Greenery and Public Space

The benefits of vegetation in our shared spaces – a study on the situation in Metro Manila, Philippines

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## 1 Abstract

This paper will discuss the importance of open green spaces and evaluate the access to them in Metro Manila. My interest in this topic comes from impressions and experiences gained during a field study trip for the Urban Shelter course held at Lund University, Sweden.

What I experienced in Metro Manila was a sprawling city, lacking in open public spaces. This inspired me to research this topic and further understand where the development is heading. Starting from the historical development, I examined what influenced and shaped the current situation. After that, a discussion follows surrounding characteristics of Metro Manila's parks and current policies on public green spaces. I will conclude with how increased access to green areas could tackle environmental challenges as well as change the everyday life of the urban poor citizens for the better.

## 2 Literature Review

### **Historic Development**

Starting from the 1600s, Manila has undergone a rapid and extensive urbanization. The rate of the urbanization has impacted the city we can see today, and the challenges it faces. This section will explain the development historically,

starting from the Spanish colonial settlements and onwards to the Metro Manila of today.

With the founding of Intramuros in the late 1500s, the Spanish colonial rule of the Philippines was much centred to the port of Manila. Trade and shipping of merchandise was extensive due to the successful Trans Pacific shipping route to and from Acapulco, Mexico. The Intramuros settlement was reserved only for colonial Spaniards and Europeans, making an expansion, outside of the city walls, necessary. This district, called Parian, had an essential role in the day-to-day workings of the colonial capital. Numerous shops, workshops and eateries as well as dwellings were situated there and by the 1620's the number of inhabitants of Parian had far exceeded those of Intramuros (Morley, 2017). This expansions marks the start of the urban sprawl of Manila. By that time, the city was the renowned trading emporium of Spanish empire and arguably the first global city of the world (Morley, 2017).

During the second half of the nineteenth century, a colonial urban management strategy that very much influenced and led to a more sprawling city was created due to the risk of fire and earthquakes. In an attempt to minimize the risk of damage, much of the commercial and housing development was restricted to low-rise stone buildings. Contributing to the implementation of the strategy was a series of earthquakes in July of 1880, as well as the increasingly denser housing built to accommodate the many migrating unskilled labourers. During this period, the sprawling suburbs, namely Binondo, Ermita, Malate, Paco and Tondo grew in population and in extension (Morley, 2017).

By the time of the shift in regime, from Spanish to American in 1898, the expansion continued and furthermore, a focus on the country's capital was symbolized in monumental buildings and grand avenues. Drawn by Daniel Burnham in 1905, the *City Beautiful* master plan, sought to 'uplift' and 'civilize' the Philippine society. Great developments on infrastructure was conducted and a for the first time, a structured vision for parks and greenery emerged. Burnham's intention was to establish public parks and extensively plant trees throughout the built environment (Morley, 2017). The intensions included the wish to provide a grand civic space, serve as a monument to the emerging global power and, notably for this paper, offer a breathing space for servicemen and ordinary people alike (Alliance for Safe, Sustainable, and Resilient Environments (ASSURE), 2019). The Rizal Park was transformed to a grand monument, and served as the

primary leisure space in the city. Additional great parks were planned, but did not materialize along with other features of Burnham's plan, as it was revised to meet the rapid urbanization of 1930's (ASSURE, 2019).

Closely after the Second World War, the Philippines gained their independence in 1946. Although a sovereign nation, the urban development continued to be heavily influenced by American and European ideals. Furthermore, Filipino architects and engineers were often trained in the US and Europe, that together with the American experts that were consulted lead to a similar sprawling development of the city during this time period (Mozo Lorenzo, et al., 2020).

A prominent driving force behind the sprawling development was to offer the increasingly affluent middle-class a higher standard living and accommodation outside of the densely built emerging Metro Manila (Connell, 1999). The suburban developments were driven by influential elite families who had accumulated landholdings of fringe land at the time when the United States was withdrawing their presence from the Philippines. From their position of power the elite families were able to influence urban management officials and take advantages of the market forces suiting their needs. The post-war growth of Manila was set in a context with insufficient land-use plans and much development was completely unregulated. Little coordination between municipalities, and that governments lacked control over private investments and land availability, lead to the elimination of productive agricultural land, a disruption of ecosystems through air and water pollution as well as disturbing areas of water catchment (Connell, 1999). The surge in property development and new forms of gating shaped an era of privatization and segregation, continuing through 1990's and early 2000s. This modern history development makes Metro Manila function as the world's most fragmented, privatized and un-public city (Morley, 2017).

## **Current situation**

On national level, Filipinos has access to 5 sqm of open space per person, being well below the recommendations of 9 sqm per person set by the World Health Organization (CNN Philippines 2019). To compare this number with another place, Amsterdam offers 26 sqm of open green space per person (Pafi, 2016).

In the context of Metro Manila, the situation is comparatively problematic as well. According to the Philippine Institute of Architects (PIA) the access to open space decreased rapidly and is now at only 0.2 hectares per 1000 inhabitant (ASSURE, 2019). The statistics are commented by PIA as follows:

“For reasons of safety, convenience and general well-being of the citizens of Metro Manila, the development of parks and open spaces has to be undertaken immediately.” (ASSURE, 2019)

When looking at what kind of open green spaces that are in Metro Manila today, the situation is also problematic in my opinion. The inhabitants of Metro Manila not only lack access to open green spaces, but those space are also inadequate at providing the benefits gained from greenery in urban areas. The majority of parks are often of impervious materials and un-natural vegetation, noticeable in the examples of the largest open green spaces in Metro Manila, namely, Rizal park, Rajah Sulayman Park, Manila Boardwalk and Liwasang Bonifacio (Galingan, 2020).

### 3 Argument, Critique and Discussion

#### **Critique on un-natural green open spaces**

This section will cover the performance of designed squares and parks, that can be seen in the open green spaces of Metro Manila. These spaces are often furnished with flowerbeds, grass lawns and extensive paved pathways. Rizal Park, the most famous and prominent example of an open green space in Metro Manila, follows the design ideals and concepts set during the American period. It served as an open and grand avenue, and due to the lack of other open green spaces, these features are left to represent the state of many if not all vegetated spaces in Metro Manila.

One of the most important benefits of vegetation in urban areas is to regulate the micro-climate and reduce the Urban Heat Island effect (UHI), that being the effect of a local rise in temperature during both day and night due to many impervious materials and traffic pollution. Vegetation and larger trees work to shade the ground area and the evaporating moisture from leaves help to regulate the air temperature. When a park or open space lack sufficient tree cover, these effects are lowered. With the case of a designed park, covered with large

exposed areas of flat grass, this mediating effect is lost (Pechardo Gonzales & Cartagena Magnaye, 2016).

When planted with species that do not originate of the Philippines, the trees and other vegetation become an invasive species that can easily spread within a park area. The invasive species compete and push out indigenous ones that are more advantageous for the biodiversity and resilience of a vegetated area. In this case, an indigenous species is adapted to the climate of the Philippines, being resilient and more equipped to withstand periods of draught and flooding (Pechardo Gonzales & Cartagena Magnaye, 2016). When an invasive species establishes in a vegetated area or when a park is designed with unsound and too few indigenous species, the risk of biotic homogenization increases (Pechardo Gonzales & Cartagena Magnaye, 2016). Biotic homogenization entails that the vegetation lacks diversity and symbiosis among the plants, lowering the resilience of the green space, as all the vegetation are weak against the same climatic change.

The abovementioned factors have implications on the whole urban environment. The green open spaces of Metro Manila do not fully contribute to the benefits gained from vegetation in urban areas. A well designed park with native plants and crown cover prevents UHI-effects and lowers the risk of flooding by reducing surface runoff and prevents siltation (Pechardo Gonzales & Cartagena Magnaye, 2016). Flooding in urban areas are often caused by lack of permeable surfaces and insufficient amount of vegetation to slow down runoff and to filter rainwater down in the ground. The paved pathways and large open grass lawns seen in Rizal Park do not contribute to the good water management properties of a park, they only transport the runoff without slowing or filtering it, transporting the problem towards and area were the damages could be greater.



Rizal Park, City of Manila (Galingan, 2020).

### **Policies and legislation in Metro Manila**

This section will cover existing policy and legislation surrounding open green spaces in Metro Manila. Furthermore, this section will examine the opinion of professionals within the field.

In 2019, the Alliance for Safe, Sustainable, and Resilient Environments created a guidebook to support the work of Local Government Units (LGUs). With contribution from the Philippine Association of Landscape Architects and the Philippine Institute of Environmental Planners, the guidebook conveys a strong opinion on the benefits gained from, and the urgent need for, improved open green spaces in Metro Manila. The benefits brought up are on the topic of ecology, economy, security, social and health. Surrounding threats and what immediate actions they advocate for, the decreasing biodiversity of open green spaces is identified as the main focus (ASSURE, 2019).

The combined effort of the authors condenses to a supporting document on planning considerations, scope, purpose and process on open green space projects. To improve on the open green spaces of Metro Manila it is suggested that LGUs add appendixes and formulate complementary policies to their Comprehensive Land Use Plans (CPLs) (ASSURE, 2019). Hence, the responsibility lands on individual LGUs to improve upon and address the problematic situation spanning over the whole Metro Manila bay area.

Technical advisor and consultant Leonora Pechardo Gonzales and assistant professor Dina Cartagena Magnaye identify the decreasing biodiversity in open green spaces as the main problem to focus on as well. Although agreeing on focus, they advocate for stronger measurements through comprehensive land use planning. They suggest a biodiversity focus as a mainstreamed framework and methodology for urban settlements and planning development (Pechardo Gonzales & Cartagena Magnaye, 2016). This methodology would entail a new zoning plan, implemented within larger open green spaces, that works for strict conservation and protection. The zoning law could function parallel to the National Integrated Protected Areas System (Pechardo Gonzales & Cartagena Magnaye, 2016).

Beyond a new methodology, the researchers suggest Urban biodiversity stations (UBS) as a softer and non-engineering intervention. The UBSs are small areas with significant vegetative covers and are characterized by high level of native and indigenous species. This to counter habitat fragmentation, which strengthens biodiversity. If constructed from impervious materials they would alleviate drainage problems as well (Pechardo Gonzales & Cartagena Magnaye, 2016).

As a final suggestion, to enhance human settlements resiliency, vertical parks could immediately respond and counter the problematic situation. Other interventions are roof gardens, pocket parks and small green patches (Pechardo Gonzales & Cartagena Magnaye, 2016). These interventions work towards the abovementioned goal while understanding the already densely built and compact urban fabric of Metro Manila, and the high land prices that often affects the possibility for larger public green spaces.

In conclusion, Metro Manila lacks an overall management, and leaves the responsibility to individual LGUs. This forms a fragmented and disconnected situation, although current consensus on what to focus on and what main problem to tackle is.

## 4 Urban Shelter Design

Being extensively prone to flooding, caused by heavy rainfall annually, and tropical storms, the World Bank released funds to support the Philippine government formulate the Metro Manila Flood Management Plan (World Bank, 2017). This plan works towards disaster risk management and one point is to

eliminate long-term flooding to protect population living along waterways. Other than reducing the risk of flooding, one action to protect exposed settlements is relocation, a method that the National Housing Authority (NHA) performs throughout the waterways of Metro Manila.

In the process of resettling informal settlement families (ISF), many benefits are gained on multiple levels. The areas, deemed to be dangerous for urban settlements, could be transformed to open green spaces, which would come to reduce the risks of future flooding. As 70% of the water pollution is domestic to Metro Manila (Pechardo Gonzales & Cartagena Magnaye, 2016), transforming the danger zones along the waterways to vegetated parks would filter and slow down the runoff water caused by heavy rainfall. There are 29 rivers that run through the City of Manila, and these are potential linear parks that can improve the vegetation connectivity, while also benefitting resilience towards flooding (Pechardo Gonzales & Cartagena Magnaye, 2016). While not only reducing flooding, a linear park planted with native species helps to improve the biodiversity as well as preventing landslides through the root systems of the vegetation. A further benefit from arranged linear parks is that the crown cover from planted trees reduces the impact of UHI-effects.

In conclusion, interventions like these do not only benefit the ecosystems of Metro Manila in the future, but have a direct effect on the lives of the inhabitants. Environmentally displaced persons would no longer be at such a great risk from natural disasters, and the risk of damages and injuries at other locations is also reduced. ISFs would be uplifted to a residency of permanent legal status, and the inhabitants would gain access to more open green spaces, improving on a problematic situation in dire need of action.



Pocket park space at National Government Centre West Side housing area. Photo by author.

## 5 The Role of Architects

The role of the architect is an important one due to the long time a building or an urban development is planned to last. By not highlighting the risks and improving the situation today, people are affected for generations. As an architect, one has the responsibility to research and expand on all areas tied to ones field, because it is connected to so many professions and competences. As highlighted in this paper, the connection to biology and botanics is very strong to urban design. Our built environments do not only impact on the users, but on many other levels of other expertises.

Being in a process to tackle densification, and providing sustainable communities, architects working in Metro Manila have the possibility to influence and divert development away from the problems, not enforcing them further. Architects have a possibility to influence policy makers and developers to not repeat the same mistakes that others have done. This entails that architects advocate for the importance of green open spaces due to their benefits on several levels. Especially in a city were land prices are rising, and development is centred around making as much money as possible.

The Philippines is ranked third of the countries most prone to experience natural disasters (World Bank, 2017). Architect is one of the professions in power

of reducing the risks and mitigating the damage caused by natural disasters. The role of the architects is therefore to improve and change it for the better.

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