University of Reading

Assessing cultural ecosystem services of urban parks: The case of Metro Manila

PhD in Architecture and Built Environment

School of Built Environment

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March 2022

Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

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Abstract

The cultural ecosystem services of urban parks contribute to the urban population's urban experience and well-being. Urban greenspaces such as urban parks are under extreme pressure from rapid urbanization and changing climate condition. During the pandemic understanding on the importance of cultural ecosystem services was lacking. Little evidence is known about how people use and value the urban parks during the COVID-19 pandemic. In this study, urban park users were interviewed and observed to address the aim of this research which is to understand what cultural ecosystem services people value in urban parks during the pandemic and what spatial features were important in their experience. Using semi-structured on-site interviews and activity-based observation of users and activities in two Metro Manila urban parks, several bundles of cultural ecosystem services emerge. Aesthetics, recreation and spiritual values were the most identified cultural ecosystem service by urban park users. The urban parks during the pandemic served as a place for refuge and connecting with nature. The green and grey dimensions of the park provided multiple values for people encompassing a range of cultural ecosystem services. The methods that were used in this research allowed for a simple and comprehensive assessment of the value of the urban parks. This provided an alternative way to help inform park administrators and planners in understanding and managing important urban green spaces and their cultural ecosystem service benefits.

Acknowledgements

I would like to thank my supervisors Dr. Eugene Mohareb, Prof. Libby Schweber and Dr. Leah dela Rosa for their co-supervision of this thesis. Their continuous guidance and supervision have been very invaluable in all stages of the thesis. Their input about the details of the research helped build on its strengths.

I am very much thankful for the support of the Commission on Higher Education (CHED) and the University of Santo Tomas (UST) for giving me the opportunity to be a part of this pilot programme.

I would like to also thank the University of Santo Tomas Graduate School for laying the foundation for this kind endeavor.

I am also grateful for the University of Santo Tomas College of Architecture for supporting and giving me time off to pursue this special opportunity.

I am also thankful for the administrators of Rizal Park especially the NPDC and the people from Ninoy Aquino Parks and Wildlife Center and BMB for allowing me to conduct my research in those parks. Particularly grateful for those staff and park guests who shared their time and experience during the interviews.

My final thanks to my family, especially to my wife for being so supportive and understanding especially during the most daunting moments. Her constant encouragement that it will all be over soon allowed me to stay the course. To my two kids Brayden Tyler and Treyton Caylen I love you. My family has been the source of my strength and inspiration, without them, this PhD would not be possible.

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1. Introduction

This chapter introduces the overall research topic which is about cultural ecosystem services in urban green spaces and its value to people. The rapid urbanization and the more recent pandemic affected people's use of urban green spaces. During the time of the pandemic, people were affected psychologically, physically, emotionally, and socially. Access to urban green spaces in areas where extreme lockdowns were implemented were severely limited. Children and older adults were deprived to use these places. Their access to important natural and nature-like setting, could be a source of mental and physical restoration which is important in a time of crisis (Hartig et al., 2011). However, in the Philippines that was not the case, same with other countries implementing strict social isolation protocols to address COVID-19. In the time where access is limited, it is important to understand how urban green spaces are valued by those who can access it. And to what extent these places deliver cultural ecosystem services and benefits to people. The overall aim of this research is to capture the cultural ecosystem services perceived by people in their use of the urban park and what spatial features are important in their experience of these benefits. The following sections will provide the background to the nature of this study and the importance of this research.

1.1. Background

In the Philippines there is a scarcity of urban green spaces especially in the National Capital Region (Assure, 2019). This urban green space shortage can be attributed to two important factors. First, the poor planning implementation of land use policies. The urban built up areas has eaten up a lot of open green spaces along the urban fringe and alters remaining open spaces within the urban areas. Second, the increasing population and density has contributed directly to this shortage (Jim and Chen, 2006). A lot of people are sharing the use of limited supply of urban greens. Recent trends in development were directed towards intensification of urban cores to address the growing housing needs due to the rapid increase in population. This problem is becoming worse because there has been a decline in the percentage of

urban greens spaces in general and an expansion of the metropolitan region in terms of its population and built-up areas.

Access to important urban ecosystem service resource is becoming more limited. Urbanization has been one of the causes of this. Interestingly, during the past two years, it was the pandemic, that limited people's access to urban ecosystems such as urban parks. The problem of access has been exacerbated by the social isolation that was imposed by individuals to themselves as well as by the government to the people they serve. In the Phillippines, the government's response to COVID-19 was too harsh for children and older adults. These age groups were deprived of access to this important urban ecosystem. Increasing population also placed constant pressure to the urban green spaces. More people in high density areas with limited green space such as Manila are using the limited urban ecosystems. This resulted to extreme pressures on the capacity of these urban ecosystems to deliver important services. Similarly, it put pressure on these urban ecosystems to handle the large number of people wanting to use these spaces, thus putting the urban green spaces at risk of getting abused and degraded.

In order to address these concerns, the Philippine Government introduced policies to protect important ecosystems to maintain and increase its supply. For example, the enactment of the Republic Act No. 11038 known as the Expanded National Integrated Protected Areas System (ENIPAS) Act of 2018, an amendment to the National Integrated Protected Areas System (NIPAS) RA 7586, recognizes the impact of human activities on all components of the natural environment especially those with unique features (Republic Act no. 11038 2018). This act recognizes the effect of increasing population, exploitation of resources and advancement of technology which mandates the expansion of a comprehensive system of integrated protected areas for the benefit of the present and future generations.

1.2. Statement of the problem

There is also growing interest in understanding the use of urban ecosystems such as urban parks to promote human well-being (Kabisch et al., 2015). Similarly, there is a need to understand the extent to which users conceptualize urban parks as a resource

of cultural services especially in areas were information and availability regarding these types of urban environmental settings are limited. More importantly, understanding the perception of cultural ecosystem services in environments with unique features is equally important especially in a time when the pandemic has affected a lot of people's lives. Its interesting to understand how people use and value the greenspaces at a time when extreme pressures were felt in the different aspects of life during the pandemic. Studies in Europe suggest that use of various greenspace increased during the pandemic such as urban peri-urban forests (Beckmann-Wubbelt et al., 2020) and was valued as resilience infrastructure (Venter et al, 2020). Furthermore, linking the spatial characteristics of urban parks and how it affects the delivery of cultural services has been one of the underexplored areas in the literature concerning cultural ecosystem services. Although there were attempts to explore this, studies were framed more on the motivations, perceptions of users in general for recreation and physical activity (Jim and Chen 2006; Stalhammar and Pedersen, 2017; Fischer et al., 2018; Veitch et al., 2020; Veitch et al., 2021). There are limited studies using an interpretive approach to capture the different understandings of the cultural services by different users of urban green spaces. These topics are the focus and contribution of this research.

The literature on ecosystem services was dominated by quantitative approaches. Most of these studies focus on the value of several ecosystem services categories. For example, Jim and Chen (2006) examined the perception of ecosystem services of urban green spaces using a survey and found that a range of services are identified as important benefits to urban park use in the context of Guangzhou. Their findings suggest that these benefits were linked to the innate desire to connect with nature and the cultural influence on the perception about UGS. Other studies used methodologies that produced and analysed spatially explicit data in the form of mapping and modeling (Brown and Fagerholm, 2015). It used geographic information systems modeling of various categories of ecosystem services to highlight important landscape characteristics associated with these services. Similarly, mapping research not only focused on landscape characteristics but also ecosystem services value using GIS data. Other studies deployed mixed methods in examining value of ecosystem services; some used qualitative methods to guide the quantitative survey (Riechers et

al, 2016; Riechers et al, 2019). Other than the methodological differences and complexity, the attempt to establish connection between cultural ecosystem service value and landscape characteristics remains a fertile area of research and exploration.

The examples above point to four important characterization of the ecosystem studies that needs more attention. First, investigating categories of ecosystem services may not cover the full range of benefits, values and services that are important to people (Chan et al, 2016). Second, these benefits, values and services are context specific and change over time (Diaz et al, 2018), suggesting the need for ongoing examination. Third, not all the services, benefits and values are amenable to quantitative monetary approaches, especially cultural ecosystem services (Chan et al, 2012). Fourth, studies of this type require complex methodological and analytical approaches. This thesis addressed these important points by providing an approach and a conceptual framework that links cultural services to the ecosystem service framework. The importance of focusing on a single category of ecosystem service such as the cultural ecosystem service will allow for a more in-depth analysis of the value of categories under this service. Additionally, the attempt to capture this value was done using qualitative methodology to understand the extent to which this particular approach addressed the limitations in the literature that associates the different types of values to the benefits services and goods that people perceive or experience in the urban parks.

In summary, applying a qualitative methodology and focusing on cultural ecosystem services, provided a deeper understanding of the range of values people perceive about urban parks as cultural ecosystem service resource. As mentioned earlier, there is a need to protect important ecosystems in the Philippines that has unique features and qualities, especially those that are found in urban areas. In addition, the cultural services valued by people in the context of Metro Manila urban parks is relatively unknown. The approach taken in this study was designed to contribute to the discussion of cultural ecosystem services being a complex underexplored field in the literature. This also provided an analytical approach focused on activity and environmental values of people using these spaces that were linked to the cultural ecosystem service framework adopted for this study. It is therefore

important to point out that the approach mentioned here addressed a methodological contribution in the cultural service in urban green space agenda, identified associations between important green and grey spaces essential in understanding cultural ecosystem value to people. Similarly, it provided the answers to the research question and objectives of this study. The next section will elaborate further the importance and contribution of this research.

1.3. The Contribution of this Research

The justification of this research can be summarized in four points. First, the cultural ecosystem services, one of the benefits of ecosystems to human welfare identified in the Millennium Ecosystem Assessment (MA), is an underexplored area of research. This is attributed to two important challenges: a) the MA struggled to provide a consistent theoretical and methodological framework to match specific areas of assessment particularly on the cultural services (UKNEA, 2011a, p. 639), b) information is lacking in some of the services and often in incompatible units. (MA, 2005). By providing a conceptual and analytical approach to the study of cultural ecosystem services this thesis attempted to operationalize the theoretical framework in the literature and to provide a methodological contribution for a less complicated assessment of important benefits that people value in urban parks especially in the time of the pandemic.

Second, studies into the benefits of urban green spaces such as urban parks usually focus on recreation and tourism potential with little attention given to other cultural ecosystem service such as heritage and other non-material values (Chan et al., 2012). The literature suggests that urban green spaces such as urban parks provide a range of important cultural ecosystem services (Bolund and Hunhammar, 1999, Jim and Chen, 2006; Gomez-Baggethun, 2013). Focusing on a few cultural services will not provide the range of cultural service value needed to comprehensively assess the importance of these spaces in terms of its cultural service potential. Cultural services are dynamic in nature, meaning, that they are constantly changing and that they are context and place specific (UKNEA, 2011a, p. 639). Therefore, investigating the various cultural services of urban parks in the context of Metro-Manila is needed to understand

what services, benefits or goods people perceive and experience in this everchanging and place specific context of cultural ecosystem services.

Third, the notion that cultural services are produced and co-produced by the interaction between humans and environment, multiple services can emerge and co-occur (Maes et al., 2018). This co-occurrence of various benefits and values important to people were not captured in the traditional approaches. Therefore, it is important to identify the different emerging values and benefits people place in their interactions in the environmental settings. With this notion, this study tries to connect these services and values to the spatial characteristics important in the delivery of these services and benefits. As mentioned earlier, it is still unclear in the literature, how to capture and characterize the values that different users attach to the delivery or production of specific types of cultural ecosystem services. In this regard, this thesis was an opportunity to advance the understanding in capturing and characterizing the values and benefits people derive in environmental settings such as urban parks.

Fourth as mentioned earlier, approaches previous studies were complex and resource intensive. This research aims to provide a simpler approach to the study of cultural services. Taking an interpretive methodology was a way to bridge the values gap those quantitative methodologies failed to address fully, by incorporating an analytical frame that revealed associations of multiple benefits to urban park experience. This research provided an opportunity to contribute to scientific knowledge in the cultural ecosystem service agenda, primarily by addressing the challenges that were identified in this area of ecosystem service research. Furthermore, this study can also help communicate knowledge regarding the importance of urban ecosystems with unique features and help in the conservation, preservation, and management of these important urban ecosystems.

1.4. Research aims and objectives

The aim of the thesis was to understand and examine the perception of cultural ecosystem services, benefits, and values of urban park users in Metro Manila. Part of the aim was to investigate what spatial features are important in their use of the environmental settings in urban parks that are related to cultural services. The study

was framed in the context of a cultural ecosystem service approach adopting the theoretical framework of Fish et al. (2016).

The following objectives were developed to achieve the aim and question of this research:

A. To investigate the cultural ecosystem service potential of two contrasting urban parks in Metro Manila through assessment of its structural diversity.

B. To assess people's interaction with the urban greenspace focusing on the use and activity patterns of people, values associated with these interactions and the spatial features important in their activity.

C. To understand what cultural ecosystem services are perceived and where they are experienced and recognized by people using an interpretive methodology.

D. To examine the potential of integrating interpretive methodology with activity-based assessment and visual manifestations approach in assessing cultural ecosystem service.

1.5. Research approach

Exploratory research provides an opportunity to examine further an emerging or under-researched area in the literature. It provides valuable contribution in generating insights by filling existing gaps in the literature and providing a fresh approach into a specific topic (Leavy 2017). In essence, this study takes an exploratory nature since there is no known study as of present that focuses on cultural services of urban parks using an ecosystem service approach. The conceptual framework that will be used in this study will guide the data gathering and analysis. Even though cultural services in the literature have been studied in various geographic locations and context, the context and place specific nature of cultural services provides a sound basis in doing this research and contribute to the knowledge gap in this research field.

Descriptive approach to research provides a way to describe individuals and their activities. It allows for generating snapshots of social phenomenon, providing meanings, context and details (Leavy 2017). In this regard, the descriptive approach takes form of interview outcomes and in the presentation of data. Describing the

observations of the interactions of people in urban parks and their responses to the interview provide a lens of understanding the important values, benefits and services provided by urban parks. Data from the observations and interviews will be used for the analysis to understand the associations of the responses to specific values and spatial locations important for people.

Researchers may turn to rigorous observation in order to document how things are experienced, (Leavy, 2017, p. 5). In order to complement the interview, use of observation technique that focuses on visual manifestations of cultural services was used. The importance of this approach was that it allowed for the identification of important activities and uses related to cultural services happening on site. This was essential for this research because it served as a validation tool complementary to the outcome of the process of the interview. Such a tool complemented qualitative approach such as interviews by providing a lens to which responses can be validated and analyzed. The approaches mentioned in this section will be further elaborated in the conceptual framework of this research. The next section will provide the organization of this thesis and a brief summary of each chapter.

1.6. Organization of the thesis

The thesis is structured into eight chapters. Summary of each chapter is presented below.

Chapter 1: Introduction

This chapter introduces the lead in information which includes the background and statement of the problem, contribution of the research, aims and objectives, methodological positioning and summary outline of the chapters. Discussion of the existing condition of the urban park use in the Philippines during the time of data collection is included in this chapter.

Chapter 2 Literature Review

This chapter reviews key discussions in the literature and its implication for the approaches and assumptions taken in this study. This section also highlights the methodological and knowledge gaps in the literature and how they influence the study.

The chapter starts with the various concepts important for this research, then narrows down to the focus of the research which is the cultural services. The methodological and knowledge gaps and the important findings related to cultural services, goods and values are then presented.

Chapter 3 Conceptual Framework

This chapter discusses the conceptual and analytical framework developed for this study. This chapter starts with the important framework established and the literature, followed by the development of the conceptual framework that guides the research. Then the analytical framework is presented on how the data is analyzed and used in this study.

Chapter 4 Research Methodology

The chapter discusses and justifies the methods used in this research. Starting with the philosophical positioning of the researcher. The study areas are presented next and followed by the unit of analysis for the research. The methods are discussed, and the phasing of data collection is presented. Lastly, the reasoning behind the data collection and analysis is explained

Chapter 5 Results and Findings part 1

This chapter presents the spatial characteristics (structural diversity), uses and activities assessment. The first part presents the structural diversity of the urban parks followed by the visual manifestations of activities and uses of urban parks. It is followed by the summary of important spatial categories in characterizing the identified cultural ecosystem services type. This was followed by reflecting on the important findings of this chapter.

Chapter 6 Results and Findings part 2

This chapter presents the data from interview and field survey. The chapter begins with an introduction followed by presentation of findings then the reflection of the important points in the findings. The demographic characteristics of participants was presented first. This is followed by the presentation of important cultural services identified by people for each park. This section includes the themes of park visitations,

activities and interactions. Then the presentation of participatory mapping of cultural ecosystem service related prompts of the two urban parks were highlighted separately. Then a comparative review of the findings between two parks concluded the chapter, which highlighted the aggregated value of the outcome of the coded responses.

Chapter 7 Discussion of key findings

This chapter discusses the important findings in this research. The reflection of findings based on the aims and objectives follow the outline of the research objectives. The first part discusses the cultural service potential of the two Metro-Manila urban parks. This is followed by the discussion of the perception of cultural service its meaning and value in terms of the potential of the urban parks to deliver these services based on its structural diversity (green and grey spatial dimensions). Then discussion of the activity-based and physical characteristics analysis related to spatial features follows, highlighting the co-occurrence of multiple important activities related to cultural ecosystem services. This is followed by a discussion of the methodological contribution of this study; contribution to the knowledge gaps identified previously; the implication of the conceptual framework developed in this research for the ecosystem service framework; and lastly, the implication of this research to practice, management, design and policy.

Chapter 8 Conclusion

This chapter provides the summary of important findings related to the objectives. The modification on the theoretical framework, policy and implication to future studies is discussed.

1.7. Summary and link to next chapter

This chapter has provided the research background and the focus of the study. The next section will highlight the relevant literatures and the positioning of this research.

2. Chapter 2 Literature Review

2.1. Introduction

This chapter discusses the important concepts and categories of cultural ecosystem services were important for this study. Second a discussion of the benefits that urban parks provide and how these benefits were presented in the literature. Third is the characterization of the approaches and significant findings in the literature. Then discussion of management and policy contribution to urban park conservation and sustainability agenda. Lastly, the discussion of the important contribution of this work guided by the overall research aims, objectives and positioning of this study in the academic discussions in the literature.

2.2. Urbanisation challenges and urban ecosystem services

There has been an ongoing discussion that highlighted the impact of urbanization both to urban ecosystems and human well-being. First, urbanization affects ecosystems in many ways. Seto et al. (Seto et al., 2013) argued that urbanization is a key driver of global ecological change. One common global change as an example commonly seen in rapidly urbanizing countries is that it intensifies not only uses of land but also expands population and human settlements. This led to dramatic loss not only of natural ecosystems, but also ecosystems in urban areas (Riechers et al., 2019) and peri urban communities (UKNEA, 2011a, p. 679). Dramatic changes in urban, peri-urban and rural areas from densification of population and expansion beyond urban areas, presented the intended and unintended environmental consequences, resulting to increasing loss of biodiversity, species and communities (Ehrlich, 2002). The loss or deterioration of natural and urban ecosystems and loss of biodiversity, species and communities were considered serious indicators of “ecosystem health” (Rapport D., 1995, p. 288) problem. Similarly, this was also considered a factor affecting human well-being.

Aside from altering cities and countryside, urbanization also presented other numerous challenges, such as the maintenance of urban ecosystems; urban green spaces, human health and well-being (Tzoulas et al., 2007, p. 168). Urbanization was

observed to be disturbing animals and humans in their lives, forcing them to respond and live with the stream of disturbances affecting their habitats and way of life (Adler and Tanner, 2013, p. 256). Moreover, this also underscored some of the environmental threats constantly affecting human experience such as increase of traffic, air and noise pollution and intensification of the urban heat island effect, (Kabisch et al., 2017, p. 362). There was also the effect that urbanization increases the demands on natural resources (Elmqvist et al., 2013, p. 1). Collectively, these presented substantial challenges to the functioning and processes of ecosystems that are directly affecting both human health and well-being. Meanwhile, urbanization have turned local environmental settings into areas people visit. Increased in mobility has allowed people to gain benefits even from distant places. For example, people travel nationally and internationally for tourism and recreation purposes, (UKNEA, 2011a, p. 635).

Furthermore, these challenges formed a big part of the general discussion not only in the ecological, but also in urban and built environment fields. It was considered that addressing this urbanization phenomenon important aspect was the recognition of urban ecosystems in urban areas as important components of long-term resilience (Elmqvist et al., 2013, p. 10) and sustainability (Schewenius et al., 2014) of cities.

Second, urbanization raised the need for conservation, sustainability and resilience agenda of various ecosystems. Scientific communities agree that the ecological situation worldwide calls for nature's conservation (Ehrlich, 2002). This resulted to identification of possible indicators and tools in order to gain support and guide policy and management agenda (UKNEA, 2011d). However, justification of the conservation, preservation and management initiatives of the important ecosystem services being investigated, often resulted to challenges in terms of acquiring support from stakeholders. Similarly, the challenge in capturing the range of values concerning the ecosystem service and its importance to people added to this complexity.

In summary, the urbanization process changed not only cities and its urban areas but also those beyond its borders. It also changed the way delivery of service is obtained. Because of urbanization, ecosystems and their capacity as a resource of important benefits are affected. Furthermore, now more than ever, the direct effects to human health and welfare is becoming more and more obvious because of the many

developments in research exploring these. This brings me to the discussion in the next section which covers the concept of ecosystem and the associated concepts of benefits, values, and services, its importance in laying the foundation of the conceptual framework of this research.

2.3. Ecosystem concept, the value of systems thinking and ecosystem health paradigm

This section discusses the importance of the ecosystem concept and the paradigms within which environmental services are bound. Highlighting important seminal works in the literature that focuses on the concept of ecosystem its evolution, services and values in urban green spaces relevant in this research.

The concept of ecosystem itself can be traced to the work of Tansley (1935) in which the concept has been taken as a scientific form. Ecosystem is described as a physical system of the environment to which the organic and the inorganic factors form overlapping relationships that can be examined individually or as a collective whole (Tansley, 1935, p. 300). The principle behind the concept is the thinking that there's complexity in terms of understanding the nature of ecosystems. On the one hand, the scientific definition implied that importance was given to all those components and relationships within the complex system. It is also important to point out that ecosystems should not be considered an organism but rather a more complex and dynamic system. This notion followed the thinking of ecological scientists regarding treatment to ecosystems in general. Scientists' tendency to resist and be critical of the use of metaphor in describing ecosystem presented some challenges as well. Furthermore, understanding it in its rigid scientific definition implies that, one avoids reducing the whole system thinking for ecosystems into one that considers it a mere complex organism. But one should not take away the inorganic factors that is an integral part of the ecosystems itself.

Various metaphors were used to represent ecosystem concept in the literature, something that exists in studies until the present time. The concept of ecosystem has been attached to metaphors that goes against the principle of the definition. That ecosystems were addressed in studies through use of metaphors that relate it to functioning organisms and to one that moves towards the poetic narrative, as in the

case of Aldo Leopold's (1949) work which captured this essence of overlapping relationship presented above in the following passage:

> The cowman who cleans his range of wolves does not realize he is taking over the wolf's job of trimming the herd to fit the range. He has not learned to think like a mountain. Hence we have dustbowls, and rivers washing the future into the sea" (Leopold, 1949, p. 132).

The use of metaphors in studies involving ecosystems can have both positive and negative effects. The negative may arise due to the tendency of oversimplifying the concept into something related to an organic object than a complex and dynamic system. This may mean that investigating interacting components in this system may be easy to define and isolate but harder to examine. But on the contrary, like the example of Leopold's narrative above, this simplification may also lead to an understanding that is relatable to ordinary people. This understanding can be an important way of eliciting values of what is important to people that are part of this ecosystem. Conceptually, it may provide ways in which ecosystem can be expressed that can be easily understood. Methodologically, this may be problematic in ways in which requires more scientific characterization.

This kind of value of metaphor in ecosystem studies was also so presented in the work of Rapport (1955). He has taken the perspective of ascribing ecosystem research to investigating conditions of organisms. He conceptualized the term ecosystem health to underscore the nature of scientific investigations into ecosystems condition. Although presenting the direct epidemiological connection to ecosystem condition in terms of how ecosystems should be assessed, the concept of ecosystem health does not draw away from the perspective of Tansley (1935), that the concept of ecosystem should adhere to the whole systems thinking hence, avoiding the connection of ecosystems to organisms in general. Moreover, Rapoport's thinking was also in line with Leopold's expression of metaphor that served an essential communication tool to understand ecosystem processes and conditions in general.

Rapport summarized the importance of the use of a metaphor in ecosystem studies. For example, in investigating ecosystems, he pointed out that ecosystem health concept is an important "positive and normative descriptor of the conditions of

ecosystems" (Rapport D., 1995, p. 288). This suggested that diagnosing ecosystem condition will serve as a necessary step in the ecosystem investigation. In a time of rapid urbanization placing ecosystems under extreme pressures resulting to changes that impacts human welfare, this provided an important narrative in dealing with negative effects of urbanization. The ecosystem health concept assumes more the negative connotation to changes rather than considering the positive condition or values that are important as well. The importance of this positioning, however, lies in the attempt to establish a pathway to processes necessary for communicating and identifying clearly condition of values that are part of ecosystem assessments.

Central to the principle of ecosystem health (condition) is that it also takes the assumption that one can explore signs of dysfunction in ecosystems which may be investigated using various methods. At the same time, it also puts into consideration values and desires of those affected by it and not solely relying on professionals for diagnosis. It is important to point out that even though this thinking may transform how research questions and objectives are developed where diagnosing and identifying important indicators or problems are key. In a way, this also presented issues in terms of identifying conditions which may not be needing diagnosis but rather more on an exploratory potential value of nature. In this sense, it would be possible that the condition being investigated may not be a dysfunction but rather an intrinsic characteristic represented in the form of value or benefit. That providing cure and prevention of observed ecosystem condition via this concept may not adequately consider other relationships occurring in the ecosystems not needing cure and prevention. In a way this concept was focused more on the biotic and abiotic characteristics and their negative conditions and away from the value placed on the ecosystem or its components by people or its users.

Daily provided a much simpler and direct definition of ecosystem. It was defined as " a set of organisms living in an area, their physical environment, and the interactions between them" (Daily, 1997; p. 2). While the Millennium Ecosystem Assessment (2005) defined ecosystem as an interacting functional unit of dynamic complex of communities of plants, animals, and microorganisms as well as the nonliving environment. Both this definition was not far from Tanley's characterization of ecosystems. The interaction of

communities of species, the living components, with the environmental settings, the nonliving components, was the core of these definitions. The definitions from these works about ecosystem has three important components, those that are living that interacts with the physical environment, the physical environment itself and the interactions happening between those components.

In summary, drawing from Raymond et al. (2017), the interacting components, between living organisms and the environmental settings co-produces or allows the co-occurrence of benefits, values and goods that affect human welfare and well-being. Therefore, this research has taken the view about ecosystem in which it is understood as a unit of living organisms, plants and animals interacting in an environmental setting, their physical environment and the relationship and interactions in it between its living and physical components. The next section discusses the ecosystem type that was relevant for this study.

2.3.1. Ecosystem types and the urban park

There were several ecosystems in different biomes that were examined in ecosystem services research (MA, 2005). These include marine, coastal, inland water, forest/woodlands, dryland, island, mountain, polar, cultivated and urban ecosystems. These ecosystems are spatially overlapping and may cover a large area. Table 2. a. provides an overview of the different biomes and ecosystems, the total area for each and their percentage of area coverage globally. These ecosystems provide not only a range of services important to human well-being but also a significant portion of the total contribution to human welfare globally. For example, Costanza et al. (1997) valued the global ecosystem services and estimated it to be around 16-54 trillion US dollars. They also asserted that the value of ecosystem will increase the more stressed and scarcer it becomes in the future (Costanza et al., 1997). Furthermore, they also suggested the need for better understanding of not only the complex dynamics of the processes and functions but also the value of these processes to human well-being.

Table 2. a. Major biomes and ecosystems with area estimates and percentage coverage as reported in the Millennium Ecosystem Assessment based on the year 2000 Global Land Cover (GLC) dataset (MA, 2005)

System and Subsystem	Area (million sq.km)	Share of Terrestrial Surface of Earth (percent)
Marine	**349.3**	**68.6**
Coastal	**17.2**	**4.1**
Terrestrial	6.0	4.1
Marine	11.2	2.2
Inland water	**10.3**	**7.0**
Forest/woodlands	**41.9**	**28.4**
Tropical/sub-tropical	23.3	15.8
Temperate	6.2	4.2
Boreal	12.4	8.4
Dryland	**59.9**	**40.6**
Hyperarid	9.6	6.5
Arid	15.3	10.4
Semiarid	22.3	15.3
Dry subhumid	12.7	8.6
Island	**7.1**	**4.8**
Island states	4.7	3.2
Mountain	**35.8**	**24.3**
300-1,000m	13.0	8.8
1,000 – 2,500m	11.3	7.7
2,500 – 4,500m	9.6	6.5
>4,500m	1.8	1.2
Polar	**23.0**	**15.6**
Cultivated	**35.3**	**23.9**
Pasture	.01	0.1
Cropland	8.3	5.7
Mixed (crop and other)	26.9	18.2
Urban	**3.6**	**2.4**
Global	**510**	-

The urban or a city scale ecosystem also exhibits the qualities and nature of larger ecosystems. Drawing on the above-mentioned definitions of ecosystems (Daily, 1997; MA, 2005; Tansley, 1935), regardless of size, the complex systems that form part of urban areas in a way share the similar characteristics of the major biomes and ecosystems. There are numerous interactions happening even in this scale that affects

human welfare and well-being. In this sense, a city can be considered a single ecosystem. But it can also be seen as a collection of several individual or smaller ecosystems that are still within the boundaries of the concept defining it. Rebele (Rebele, 1994) pointed out that in a city park scale, there are also smaller scale interactions of various components that make up that urban ecosystem such as steams, ponds lawns etc. Despite covering a small area compared to other ecosystems, urban areas contain a large percentage of the world's population. This makes urban ecosystems as an important area of investigation. In areas where rapid urbanization exists, understanding the benefits people get from urban ecosystems such as urban parks and the changes brought about by rapid urbanization is an essential component for the sustainability of important ecosystems close to people.

What these benefits were and what were the underlying concepts behind it will be presented in the next section. The next section now links to the discussion of ecosystem service concept and ecosystem type relevant in this study and after which, the services, values and benefits used in framing this research.

2.4. Ecosystem service and the cultural services

This section gives an overview of the definition of ES that will be used for this study. This will also provide a discussion on the concepts' meaning and significance and how this will be used for the study.

Over the last two decades, significant research focused on measuring ecosystem services (ES) that affect human welfare (see e.g. De Groot, 2002; Millennium Ecosystem Assessment, 2003; Fisher et al., 2009; Haines-Young and Potschin, 2013). Several studies reviewed various ES issues such as: challenges and opportunities on ES concept (Seppelt, et al., 2011; Christie et al., 2012). However, a common theme, is the recognition that the socio-cultural dimension is the least explored and least understood (Chan et al, 2012) but a growing area of innovation in the ES research

The MA defines ecosystem services as the benefits that people derive from ecosystems (MA, 2005). The idea of ecosystem services may have been in existence for as early as the time of Plato.

> While explicit recognition of ecosystem services is a relatively new phenomenon, the notion that natural ecosystems help to support society probably traces back to the time when our ancestors were first able to have notions. For example, Plato understood that the deforestation of Attica led to soil erosion and the drying of springs." (Daily, 1997, p. 11).

In essence, there was an understanding established even in the time of Plato, of the consequences that will happen if changes are made to ecosystems and how ecosystems are being used. Consequences of these changes to ecosystems can have positive and negative effects. The positive effects brought about using or changing ecosystems may come in the form of benefits such as goods and services. For example, visiting or even viewing nature might give the mind a rest, leading to improved mental health and reduced stress (Adler and Tanner, 2013, p. 256). While the negative effects can be manifested in terms of the changing condition of the ecosystem or the environmental health that both contributes to affecting human welfare and well-being. For example, the effect of poor maintenance of green spaces may negatively affect people psychologically by increasing anxiety due to fear of crime (Tzoulas et al., 2007, p. 171) Despite this long history of existence and recognition of its impact to human life, the concept of ecosystem services were words given little attention in public discussions. Thus presents a challenge not only in communicating expert knowledge (UKNEA, 2011a, p. 679), but also in communicating people's knowledge about what they value in ecosystems and the dependence of human life and human welfare to it (Ishihara, 2018; Kaltenborn et al, 2020).

Ecosystem service concept has gained so much attention from academicians, researchers and policy makers after the release of the MA report (Martín-López et al., 2012). There was general agreement among experts that ecosystems provide a variety of benefits to people (Chan et al, 2018). These services that the MA identified important in providing benefits to people can be classified into four, these are, provisioning, regulating, cultural and supporting services (MA, 2005). Table 2. b. shows the four ecosystem services their definitions and categories of ecosystem service.

In general, the ecosystem service approach aimed to establish a connection between ecosystem functions and the conservation, policy making and management of ecosystems (Maes et al., 2018). Resulting from the changes brought about by increased

consumption, growing population and changing needs of the people. Addressing the needs of people and their community greatly affects major ecosystems. This was also indirectly affecting the supply of important resources. Therefore, the need to address how ecosystems can be valued, so that it allows for equitable, and sustainable management of resources to protect and conserve important ecosystem services has been given priority in policy and management agenda (Coelho-junior et al., 2021).

The Millennium Ecosystem Assessment attempted to establish and highlight important connection between ecosystem benefits and impacts to well-being. One of the more significant effects of this was that it put into the mainstream discussion of various fields of research the concept of ecosystem services and the benefits that people derive from the ecological processes and functions (Combertia and Thorntona, 2015). The next section discusses the different classifications of ecosystem services in the literature. And the ecosystem service that will be the focus of this research.

2.4.1. Ecosystem service classifications

This section discusses the ecosystem services classification in the literature that will be deployed for this study.

The study by Costanza et al. (1997) on ecosystem services represented a turning point in addressing issues concerning benefits that human derive from ecosystems. It also provided a launching pad for further categorizing precious resources that provides services, goods or benefits. The MA organized these categories based on the type of benefit, which were used primarily to assess various ecosystems and its value. As mentioned earlier, ecosystem service is a concept that MA vaguely defined which refers to the benefits that people get from ecosystems. These ecosystem benefits were classified into four general categories, regulating, provisioning, supporting and cultural services. Regulating services are those that affect climate, water, air quality, waste, and hazard. Provisioning services are those about food, water, fiber, biochemicals provision. The supporting services is essential in the delivery of all other ecosystem services, this includes nutrient cycling, soil formation, water cycle and primary production. Cultural services are those that provide aesthetic values cultural heritage values, spiritual and religious values, educational values, inspiration, social relations, sense of place and

recreation and ecotourism. This categorization made valuation for the purposes of preservation and conservation but also for land management and decision-making support easier to identify and understand.

Table 2. b. Ecosystem service classification adapted from the MA (2005). The highlighted row in gray was the focus of investigation of this research.

Ecosystem Service Classification	Definition MA 2005	Categories of service
Regulating	Benefits people obtain from the regulation of ecosystem processes, including air quality, maintenance, climate regulation, erosion control, etc.	Air quality regulation Soil quality Water quality regulation Climate regulation Disease regulation Pollination Pest regulation Natural hazard regulation
Provisioning	Products people obtain from ecosystems such as food, fuel, fiber, fresh water and generic resources.	Food Fresh water Fiber Timber Genetic resources Biochemicals
Supporting	Those that are necessary for the production of all other ecosystem services, such as primary production, production of oxygen and soil formation.	Primary production Soil formation Photosynthesis Nutrient cycling Water cycling
Cultural	Non-material benefits that people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences.	Aesthetic values Cultural heritage values Spiritual values Educational values Social relations Sense of place Inspiration Recreation and ecotourism

There were varying degree of complexity and challenges connected to each type of ecosystem service research. Those services that can be valued based on monetary

and economic terms receive more attention in the literature. For example, studying the value of ecosystems in terms of their timber production capacity can easily be done using monetary approaches. While those that are not amenable to monetary terms were very challenging to study, hence, received little attention. For example, studying the spiritual values of an environmental setting can be difficult to value using economic and quantitative approaches (UKNEA, 2011c). Among these services, regulating and provisioning were the ones easier to assess and value, while the supporting services has been explored less due to its overlapping nature with other services and more difficult to identify. While the cultural services have been the most challenging to research due to several factors. First, the incompatibility of various cultural services categories with existing traditional market valuation techniques (Chan et al., 2012). Second, the existing assumptions about how ecosystem services deliver the benefits and goods were challenged in the literature and needs to be reconsidered (Klain et al., 2014). Third, there is still a need for the cultural services to be integrated fully to the ecosystem service framework (Daniel et al., 2012) even though there were general consensus regarding the value of cultural ecosystem services.

This study will focus on the cultural services that are derived from urban ecosystems such as urban parks. As mentioned earlier, cultural services in general have some conceptual and methodological issues that needs to be addressed. In addressing these issues important values can be captured, the range of benefits can be understood, and the process of inquiry can be integrated into the ecosystem service framework. The next section will discuss the key issues on the concept of cultural services and how these issues on various concepts will be addressed in this research.

2.4.2. The concept of culture and the key characteristics of cultural services

This section discusses the important conceptual issues surrounding cultural services and its importance for this study. This section also gives an overview of the cultural services and disservices identified in previous studies in the literature. Furthermore, this section highlights the important services and disservices affecting people's use and experience in an urban park.

Understanding the concept of cultural services would require delving deeper into the meaning of the word culture. Culture has been the domain of anthropologist but has now become an important variable in other disciplines (Satterfield et al., 2013). Williams in his book, Keywords: a vocabulary of culture and society, stated that "culture is one of the two or three most complicated words in the English language" (Williams, 2015, p. 49). His writing offers some insights on how this term has been used over time. He asserted that the use of this term is complicated by its opposing overlapping positions. This suggests that it is necessary to examine these overlapping positions in the context of this study.

Drawing from the concept of culture, the cultural services in the ecosystem service approach represents the opposing and confusing positions on the usage of this language. First, it can be interpreted that the use the term cultural in the ecosystem service research is aligned with the notion of material production. The way cultural service is defined, as the non-material benefits that can be gained through interaction and co-production in an environmental setting, assumes that there is a product as an outcome of the interaction. This reference to culture according to Williams is specific to the archeology and cultural anthropology disciplines (Williams, 2015). Second, the use of the concept of culture also puts it in the understanding that aligns with the history and cultural studies discipline. In this sense, culture is primarily a symbolic reference. Aside from recreation and ecotourism, the other categories of cultural services in a way relates to signifying something, one that is shaped by their values and beliefs. If there is a material and symbolic reference to cultural services that need to be identified, this makes it more complicated to evaluate and assess.

Given these two distinct references to the term cultural, it can be assumed that not all cultural services can be effectively captured by traditional approaches in ecosystem service research, especially when the foundation of these approaches is tied with ecological and economic disciplines. Furthermore, the use of the term cultural services itself presents an underlying complexity. Its application in the context of ecosystem service research that focuses on economic valuation may present further confusion and complexity. The subjective nature of the concept of cultural service, defined as the non-material benefits people obtain from ecosystems, is an important

characteristic of cultural service. This nature of cultural services makes it challenging to identify, and value (Nesbitt et al., 2017). The subjective nature of cultural services implies that there are different factors influencing how cultural services are perceived and valued. Therefore, understanding further the different types of cultural services and how these services are valued by people and how it affects human welfare and well-being is essential. The next section provides a discussion on the categories and types of cultural services relevant for this research.

2.4.3. Cultural ecosystem service delivery - production and co-production of benefits in environmental settings

This section discusses the process at which cultural ecosystem services is delivered or produced and flows from the ecological processes and human interactions in an ecosystem. This highlights the important processes on how cultural ecosystem services is delivered and experienced by users as well as the important characteristics of such ecosystems to deliver these benefits.

Urban parks are places within cities that offer a range of opportunities for people to experience various ecosystem services benefits and goods. The seminal work of Bolund and Hunhammer (1999) asserted that urban ecosystems such as urban parks provide important services that affect human well-being such as the benefits on regulating, recreation, aesthetics to name a few. Recent studies highlighted the multiple values and the production and co-production of benefits derived from nature (Peterson et al, 2018). It is recognized in recent ecosystem assessments, nature provides multiple values that can be experienced by people (Arias,-Arevalo et al., 2017). It is important to consider in the study that production involves interaction between human and environment which in turn enables the co-production of the benefits that contribute to human wellbeing.

Findings from recent studies suggest multiple values of ecosystem services are perceived by people in a single ecosystem. For example, Arias-Arevalo et al. (2017) highlighted that individual presented multiple values to the same ecosystem which determining plural values essential in environmental assessment. It is therefore important also to consider the different values and benefits associated with an

environmental setting to understand the dynamic interactions happening and the occurrence of benefits to people.

The conceptual framework by Fish et al. (2016) can be argued as a link between the evolution of cultural ecosystem service research and the value of nature's contribution to people which also highlights the intangible benefits and other values that are important in understanding benefits derived from nature. The importance of recognizing the relationship between human and environment and the production of benefits resulting from the interactions between them provided the lens to which nature's relationship with people can be understood. It suggests that nature's benefits are interwoven in people's values and beliefs as a product of the interaction between them (Diaz et al., 2018). A study by Brill et al. (2022) attempted to connect the cultural ecosystem services concept and relational values of freshwater ecosystems. In their study they explored the relationships between the park and people which revealed highest value were given by people to recreation, aesthetics and existence services. The understanding of human and nature relationship demonstrates the importance of production of value as an outcome of the interaction.

2.4.4. Theoretical framework of cultural ecosystem services

There were three important theoretical frameworks that shaped the understanding of the ecosystem services in the literature.

A general understanding in cultural ecosystem service research in cultural ecosystem services studies follows a multi-tiered framework for assessment. This is reflected in the cascade model developed by Potschin and Haines-Young (2010). This framework was useful in understanding the flow of goods. This illustrates how the transfer or flow of goods and services reach the beneficiaries, see Figure 2. a. This framework despite presented in a simple linear connection, recognizes the complexity of the relationship between people and environment. The human interaction in the environment is complex and is not as direct as the illustration suggest (Potschin and Haines-Young, 2011). The framework emphasises the delivery of services from the source to the beneficiaries which is represented in values in the last part of the chain. This framework is helpful in illustrating the ecosystem, service value chain, which is the

principal component of ES research. How value is captured effectively and what methods is the most appropriate however, is still an area fertile for innovation and debates as seen in the arguments of Fish et al. (2016) in his conceptual framework that explains the relationship of environmental settings, cultural practices and the cultural benefits.

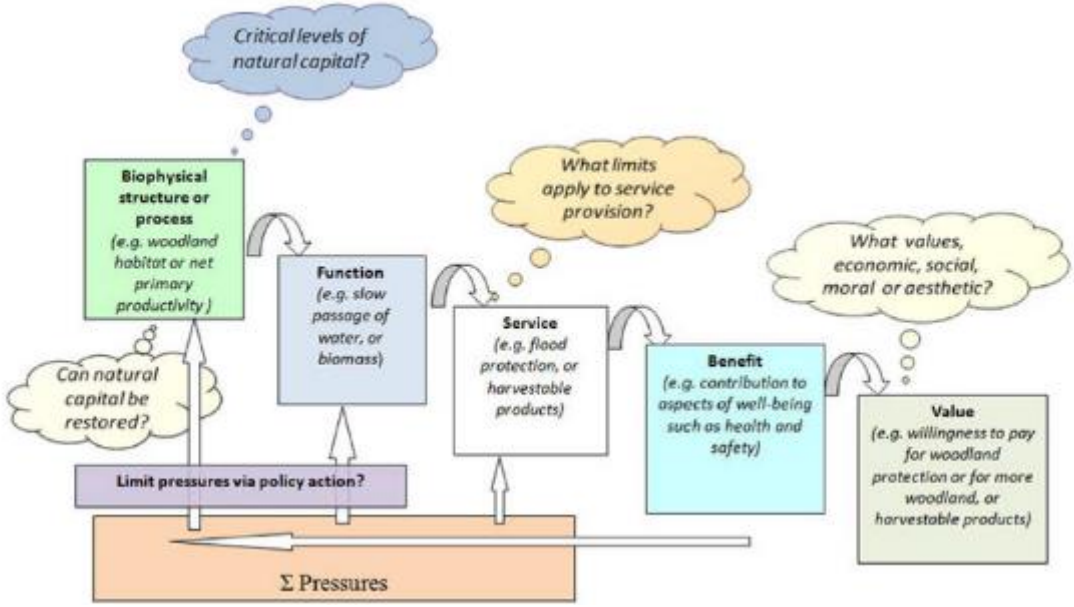


Figure 2. a Cascade framework Potschin and Haines-Young (2011)

Most traditional ecosystem service research implicitly follows the ecosystem valuation framework developed by Hein et al. (2006), which arguably draws on the works of Costanza et al., (1997), De Groot et al. (2002) and Millennium Ecosystem Assessment (2003), see Figure 2. b. This framework suggests a simple transition or steps taken on how assessment should flow. In this framework, three types of services (provisioning, regulating and cultural) and four types of value (direct use, indirect use, option and non-use) were included. Supporting services were excluded by Hein et al. (2006) since it represents the processes that supports the functioning of ecosystems (MA, 2003) and its effects are long term and is not easily manifested in urban ecosystems.

This framework also considers total value of ecosystem services. This means that all other categories and benefits taken from it would be valued. In the traditional

methods, economic based valuations were used to assess these values. However, not all benefits particularly those under cultural ecosystem services can be measured monetarily which makes this framework limited in that regard.

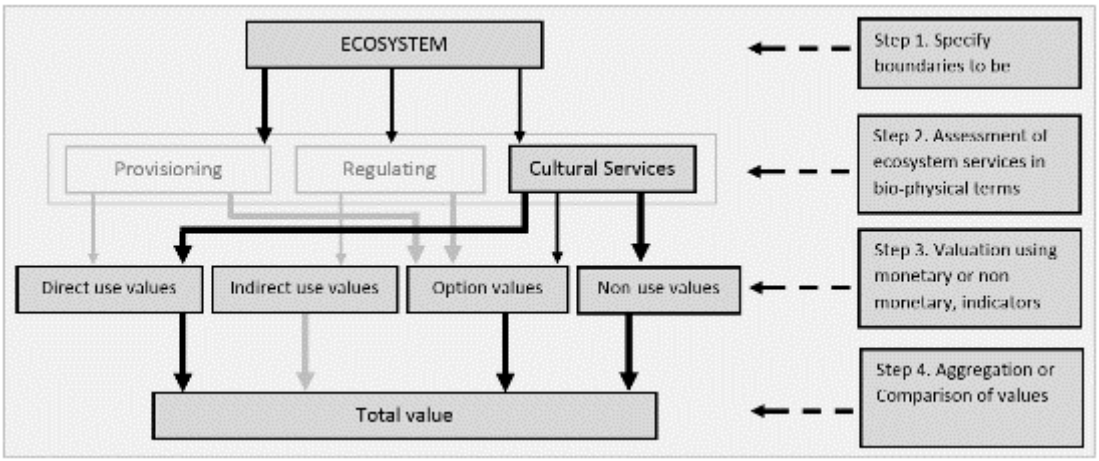


Figure 2. b **The ecosystem service valuation framework, adapted from Hein et al., 2006. Solid arrows represent the important links between elements of the framework. Dashed arrows indicate the principal steps in the assessment of cultural ecosystem services based on the ES approach.**

The framework established by Fish et al. (2016) can be argued to provide a progressive approach in cultural ecosystem service research (see Figure 2. c). This framework highlighted the interactions between the environmental settings and people. The enabling and shaping characteristics of each component in the framework suggests the relationship and capabilities of each component in the delivery and production of cultural ecosystem service benefits. The principles of this framework were useful for this research and was adopted for this study.

These three frameworks were useful in the understanding of the cultural ecosystem service flow in general. The transfer of benefits also helped in understanding how production of benefits occur. The Fish et al. (2016) cultural ecosystem service framework, provided a useful representation of how interactions in the space is shaped and enabled by its various components. Similarly, this provided a way to understand better the relationship between environmental spaces and human experiences and the benefits that can be derived from the interaction.

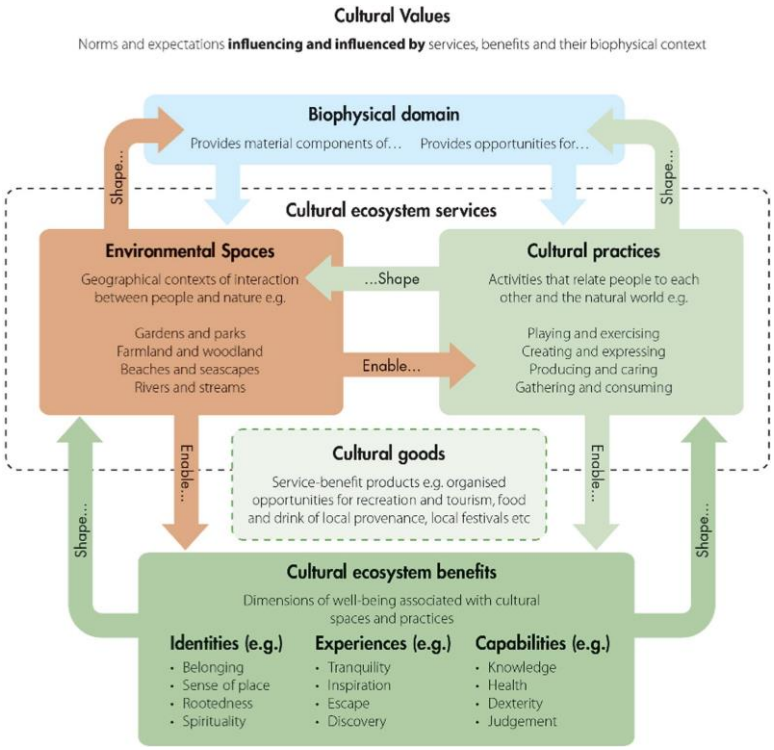


Figure 2. c Cultural ecosystem service framework (Fish et al., 2016)

2.5. Cultural value, assessment, and key issues in ecosystem service research

2.5.1. Criticisms of the cultural ecosystem service concept

Criticisms of the ecosystem services in general highlighted the challenges in the adoption of the concept of cultural ecosystem services in assessing various environmental settings and ecosystem types for policymaking and practice. One argument by Chan et al. (2012) is that very little attention was given on the non-material benefits of ecosystem services. Further, in a more recent study, Ishihara (2018) described cultural ecosystem services as controversial in addressing the non-material benefits derived from ecosystems. Methodologies were focused on the economic valuation used to inform policy and decision making which excludes unintentionally the non-material benefits not amenable to economic valuations. The criticisms led to the focus on the concept of nature's contribution to people and relational values (Ishihara, 2018). However, Chan et al. (2018) cautions that relational values and cultural ecosystem service concept are not one and the same.

The critics of the ecosystem service framework calls for the inclusion of social science perspectives into the study of the environment, necessary to understand better the contributions of nature to people (Diaz et al, 2018). This includes revealing the intangible or non-material benefits that people derive from nature by providing a language that explains these contributions (Chan et al., 2018). In addition, critique of the ecosystem service framework's heavy emphasis on ecological economics and the dominance of economic discipline in policymaking led to the coining of new concepts such as nature's contribution to people (NCP) and relational value (RV). Kadykalo et al. (2019) highlighted the limited input of perspectives and engagement from disciplines such as social sciences and humanities within the ES literature. Perspectives from social sciences may help illuminate understanding on the influence of culture in valuing particularly the non-material benefits derived from ecosystems.

2.5.2. Information gap

Information gap has been recognized in the literature as an underlying condition that characterizes ecosystem service valuation (UKNEA, 2011b). Indeed, this information gap has been a continuing issue. Information gap in a way is in the form of unavailability of information to some of the links included in the ecosystem assessment (MA, 2005). The basic assumption about this gap in the ecosystem service approach is that estimating values for all services is not yet possible especially for economic valuation. The reason for this is that there are certain services that cannot be valued using economic measures (UKNEA, 2011b). There were calls, to look at other mature disciplines such as cultural landscape research (Schaich et al., 2010), social sciences, h1umanities and geography for addressing knowledge gaps in investigating these ecosystem services not responsive to economic valuation. Therefore, attempts to bridge the approaches from other disciplines such as social sciences, humanities, cultural landscape research to study and value especially the cultural services or benefits and goods that are difficult to investigate became necessary.

2.5.3. Reliance on economic valuation for ecosystem service assessment

Ecosystem service research has been greatly influenced by the economic valuation of services for its management and conservation. Regulating, provisioning and

some cultural services has regularly been investigated using traditional monetary techniques to assess the flow of goods and benefits to people. Economic valuation has dominated the ecosystem service research. One reason for the continued reliance on traditional methods of investigating ecosystem services is argued to be discipline specific. Most of the studies fall under economics, ecological and political sciences disciplines. Another reason is that research was framed to be directed at economic value in order to support conservation and management agenda. The explanation for this is that economic valuation is more acceptable for policy, management, and decision-making process. Consequently, those services that belong to cultural services that cannot be assessed economically have been difficult to integrate in policy and decision-making support tool, despite their value already recognized as important in affecting human well-being and human welfare.

There was evidence in the literature that attempted to use landscape preferences focusing on identifying landscape indicators important in determining people's appreciation of cultural ecosystem services provided by urban spaces. Schaich et al. (2010) suggested integration of the concept of cultural ecosystem services with approaches from landscape research. They pointed out that this integration could bridge the gap presented in the literature about the lack of indicators presently available for cultural ecosystem services studies. The nature of cultural ecosystem services fits well with landscape definition. Landscape is about relationship between people and place, the interaction between natural and cultural components of the environment and the perception of people (Swanwick, 2002). Using approaches such as landscape character assessment in cultural ecosystem services studies is an attempt to bridge this interrelated concept from two different yet related disciplines. These can be used as bases for frameworks and tools for monitoring and assessment of various landscapes.

2.6. Cultural ecosystem services methodological approaches, limitations and implication to cultural ecosystem services inquiry

This section discusses various methodological discussion in the literature. Their importance in shaping the approach for this study. How these methodological approaches were applied in different studies and the emerging gaps, disadvantages, advantages and areas for improvement in the cultural ecosystem services inquiry.

The application of the concept of cultural services in studies in many cases were on large scale environmental spaces and landscapes. Operationalising the concept on patch level or small-scale landscapes have been limited and needs more empirical research. Large scale cultural ecosystem services studies leave the other details such as site elements or other landscape characteristics that may affect people's use and perception of the space. In terms of methods used in the application of the concept, it relies on combination of qualitative and quantitative methods. Quantitative survey methods dominate most large-scale landscape studies. It can be assumed that those using quantitative methods seek to find generalizations in the responses of people in their studies of what is important. Some of these include various combinations of cultural ecosystem services as focus of the investigation to support general policy and management decisions concerning urban parks. For example, Giedych and Maksymiuk (2017) evaluated urban parks and focused on regulating and cultural services, closely resembling the study conducted by Bolund and Hunhammar (1999) regarding urban ecosystem services. These two studies assessed the capacity of the parks to deliver regulating and cultural services and discussed how cities can benefit from quantifying capacity levels. This approach may be due to the positivist identity of the researchers in most ES related studies. Or in many cases as expressed in the literature, it is difficult to conduct qualitative studies such as interviews in an area that covers multiple administrative boundaries because of time and spatial constraints.

Consequently, varying perceptual qualities affect how user experience is manifested in landscapes. Perceptual qualities according to Qureshi et al. (2013) is attributed to factors such as values, attitudes, education, and income, to name a few. These factors are considered either personal or cultural that are commonly linked to

individual's preference for natural landscapes. A study by Campbell et al. (2016) identified activities and signs of uses as manifestation of user experience of space that are the influenced by factors mentioned above that can be observed. This qualitative approach may generate rich data sets that represent people's actual experiences and the spaces that they value most. It is also important to highlight that, these factors affecting people's preference for and perception of use suggest the place specific nature of cultural ecosystem services. It means that perceptions regarding use and importance of natural landscapes and its features may vary in different settings and location.

In general, cultural ecosystem services studies focused on identifying people's perception of environmental spaces or landscapes and the importance they place on it. Researchers asked how people perceive the benefits they get from the environment, how it has changed, and how important is the perceived value of cultural ecosystem services and uses in public spaces for their community or for the individual. These questions have been asked in different studies from different geographical locations. For example, the survey conducted by Stessens et al. (2020) in Brussels capital region found that not only use-related qualities, that includes cleanliness, maintenance safety and facilities are important in determining park visitor's perception, but also the inherent GS qualities such as quietness and spaciousness. In an earlier study, Bertram and Rehdanz (2015) used a web survey in four European cities to compare important park characteristics and park use patterns for park visitors. These two examples showed some similarities in terms of use-related characteristics important for park users for the different parks examined which includes neatness, naturalness, spaciousness, and sociability. Despite the placed based nature of cultural ecosystem services which assumes that there are differences in the perception and preference for urban green space (UGS) use in other places, the evidence presented here also suggests that there will be some similarities in the use patterns and park characteristics important for park users in different geographical regions.

Since the value of cultural ecosystem services is assumed to be affected by personal and cultural factors, application of cultural ecosystem services studies in different landscapes in various countries have been useful in providing findings that are

specific and relevant to people of particular ethnic group or cultural background. Different approaches of capturing cultural ecosystem services were tested in various landscapes, using different methods of collecting data from people of various nationalities; for example, Buchel and Frantzeskaki (2015) explored Rotterdam urban parks using Q methodology, Van Oort et al. (2014) explored Nepal's watershed, while Hayha et al. (2015) studied Italy's Alpine forests. These methods range from interviews and surveys either on-line and on-site or both. While others, incorporate qualitative methods with quantitative approaches such as integrating quantitative mapping techniques with interviews and observations. For example, Zhang and Zhou (2018) studied urban parks in Beijing using geotagged checked in social media data to investigate factors in park visitation. Schmidt et al. (2017) used a regional park in Edinburgh to investigate people's use, values and preferences of parks by combining survey and face to face interviews. While Lopez-Santiago et al. (2014) examined the social perceptions of cultural landscape in Spain using photos and survey to generate data.

In summary, various methods were used to elicit cultural ecosystem service benefits from people. Various research aims and questions were also used to guide the study. Common to the empirical research were the attempt to incorporate social science methodologies and provide ways in which intangible benefits can be captured. While conceptual research attempted to continue and enrich discussions in the literature (Ishihara, 2018) on ecosystem services focusing on linking with newer concepts such as nature's contribution to people and its associated concepts to better understand and address the limitations observed.

2.6.1. Ecological and economic traditions – monetary based limitation

This section provides a brief overview of key features and highlights of economic and monetary based approaches, and the reliance on assigning monetary value in capturing in certain cultural ecosystem services, and the limitations that makes it inadequate to capture other important cultural ecosystem services benefits.

Studies under this methodology assumes the value of benefit in terms of its monetary or economic value. Examples in the literature that were used following this

approach were varied, from general global assessment of ecological value (Costanza et al., 1997), hedonic pricing for various services (Sander and Haight, 2012), SolVES value mapping (Sherrouse et al., 2014) and willingness to pay with contingent valuation (Dou et la., 2017). These methods rely heavily on monetary valuation techniques in order to assess the importance of a particular ecosystem service. These methods are well established in the field of ecological economics with a lot of metrics, indicators that can be used to quantify the value. However, the limitation of these methods is that monetary value is difficult to attach to a non-monetary benefit and to an intangible experience. Therefore, methods under this category may not fully capture values that are difficult to quantify let alone, equate with monetary value.

2.6.2. Non – monetary based approaches

One of the key features of non-monetary based approaches is the qualitative nature to understand the cultural ecosystem service value. Several methods have been used to capture the range of cultural ecosystem services values in various spatial scales. The recent trend in the literature suggests the possible integration of traditional methodologies from mature disciplines such as the social sciences and humanities. The emerging integration of social science's methodology to guide approaches in capturing cultural ecosystem services value was integrated in the more recent ecosystem service research (Maes et al, 2018). Interview (Gould et al., 2014), expert-based interview (Riechers et al, 2018), interpretivist approach focus group (Stalhammar and Pedersen, 2017), retrospective analysis of cultural services (Szucs et al., 2015), these exemplars highlighted the nature of cultural service research which addresses the limitations in the literature and continued the evolution of this field. Interestingly, this approach was found to be underrepresented in the literature. However, these methods provide rich source of data that is time consuming and exhaustive.

2.6.3. Social media data

This method has the potential in identifying cultural ecosystem services important to people based on photographs and volunteered images in online database and social media platforms. This was found to be an in interesting way to capture value of landscape. Through photographs and images that were voluntarily submitted online

one can understand the value placed by people. This may not however reveal reasons why these images are important to those who took it.

Exemplars in the literature on this kind of an approach varies, from social media photographs to assess cultural services at fine spatial scale assessments (Richards and Friess, 2015) to content analysis of photos to assess landscape features and cultural ecosystem services (Oteros-Rozas et al., 2018). This were considered rapid assessment tool to understand the value of landscapes in terms of cultural ecosystem service assessment. The use of photograph and the association to a physical feature of the site, particularly one that was included in the photograph was the unit of assessment to explore its relationship to cultural ecosystem services.

2.6.4. Mapping approaches

The potential impact of mapping in identifying important areas to people that deliver cultural ecosystem services. Current focus of mapping research in terms of cultural ecosystem services provision and recommendations in future studies – sophisticated and difficult to implement.

The approach using survey and mapping techniques dominated the cultural ecosystem services literature associated with UGS. For example, Balram and Dragicevic (2005) used GIS mapping techniques and survey to determine use of and attitudes toward UGS. By incorporating mapping techniques, it provides spatially explicit data regarding locations where cultural ecosystem services benefits are found or what places are important for people. This was not previously possible, when relying only on data produced in interviews and surveys dominated cultural ecosystem services studies. The review of cultural ecosystem services studies has shown that applying an integrated method may provide rich data that represents important values placed by people in their use of environmental spaces such as urban parks. Values that can be translated into spatially explicit information, can guide various stakeholders involved in the planning and delivery of cultural ecosystem services. Integrated methods highlight the multidimensional nature of cultural ecosystem services studies; other aspects (e.g., spatial features, landscape characteristics) that has been given little attention in the literature but also influence people's perception in their use of spaces that deliver

cultural ecosystem services must be examined. In connection to this, innovative tools to represent these values spatially should also be considered.

2.7. Capturing the benefits of cultural ecosystem services challenges, barriers and opportunity for future studies

This section summarizes the challenges and barriers identified in the literature and how these provided an opportunity to explore this research area in a much simpler way. Discussion will also include how these challenges and opportunities influenced the research questions, methodology and direction of this research.

It is important to point out that valuing the contribution that ecosystem services make to human well-being for the purposes of raising conservation issues should not be reduced to individual preferences and motivations alone (UKNEA, 2011d, p. 1184). Two factors should be considered in this regard. First, the nature of values, interests and priority of various stakeholders can be identified as values collectively shared by people as citizens. This moved the focus to the value of social valuation in this agenda with a clear focus on understanding and capturing fully what is important. This eventually led discussions to tap into concepts that does not naturally belong to the ecological disciplines and traditional environmental sciences to understand the collective social values and attitude towards conservation and environmental changes.

Second, drawing from the UKNEA framework, people's perception of ecosystems and the benefits these ecosystems provide, influences the choices people make about ways in which environments are used and managed. (UKNEA, 2011c, p. 13) This notion further suggests the importance of approaches that examine the social values of people within the context of the ecosystem being investigated. This notion is tied to the objective of establishing the general understanding of both the shared and the individual values of people necessary in identifying what people value in their environment.

Evidence in the literature suggest that there seems to be an underrepresentation in terms of application of the concept not only in smaller spatial scales or patch scales but also in other ethnic groups and geographical settings. Spatial-

related constraints may include the type and amount of details being investigated in study areas of various sizes. For example, large-scale studies of cultural ecosystem services, investigate the characteristics that are related to the general landscape. While patches and small-scale areas that are frequented by people for cultural ecosystem services benefits they derive from it is getting little attention. A study by Milcu et al. (2013) highlighted that localized application of ES has shown the value of small-scale spaces in providing cultural ecosystem services. But these studies focused more on economic valuation in general. In taking this view, small scale environmental spaces capable of providing cultural ecosystem services such as urban parks should be investigated in terms of specific cultural ecosystem services or intangible benefits that are directly perceived by people using non-economic approaches. Some of these that can be considered viable alternative approaches include psycho-cultural perspectives (Kumar and Kumar 2008) or personal experiences and preferences (Martin-Lopez et al., 2013). An investigation on small scale environmental spaces that links cultural ecosystem services with elements of landscape may require indicators used in landscape research such as landscape characteristics, quality and satisfaction of visit that are previously given little attention in large scale landscape cultural ecosystem services research. This suggests that opportunities in advancing cultural ecosystem services knowledge are warranted in other regions that are not well represented in the literature using alternative methods focused on specific cultural ecosystem services that are experienced by people.

2.8. Summary of chapter and Restatement of aim and objectives of the research and link to the next chapter

The chapter highlighted important discussions in the literature about cultural ecosystem services. The methodological issues and conceptual challenges were two general discussions in the literature. Additionally, cultural ecosystem services, and its contribution to the non-material benefits that are important in the experience of people in urban green spaces is still an emerging field with a lot of potential that may contribute to making our lived experience better. Cultural ecosystem services topic has

been underrepresented in the literature, and this study was aimed at contributing to furthering knowledge and understanding about cultural ecosystem services value during the time of the pandemic. What is interesting is how these experiences of the non-material benefits were manifested in the urban parks and what spatial features important in people's experiences and what important values emerge.

The next section will discuss the framework that was adopted to guide this research

3. Chapter 3 Theoretical Framework

3.1. Introduction

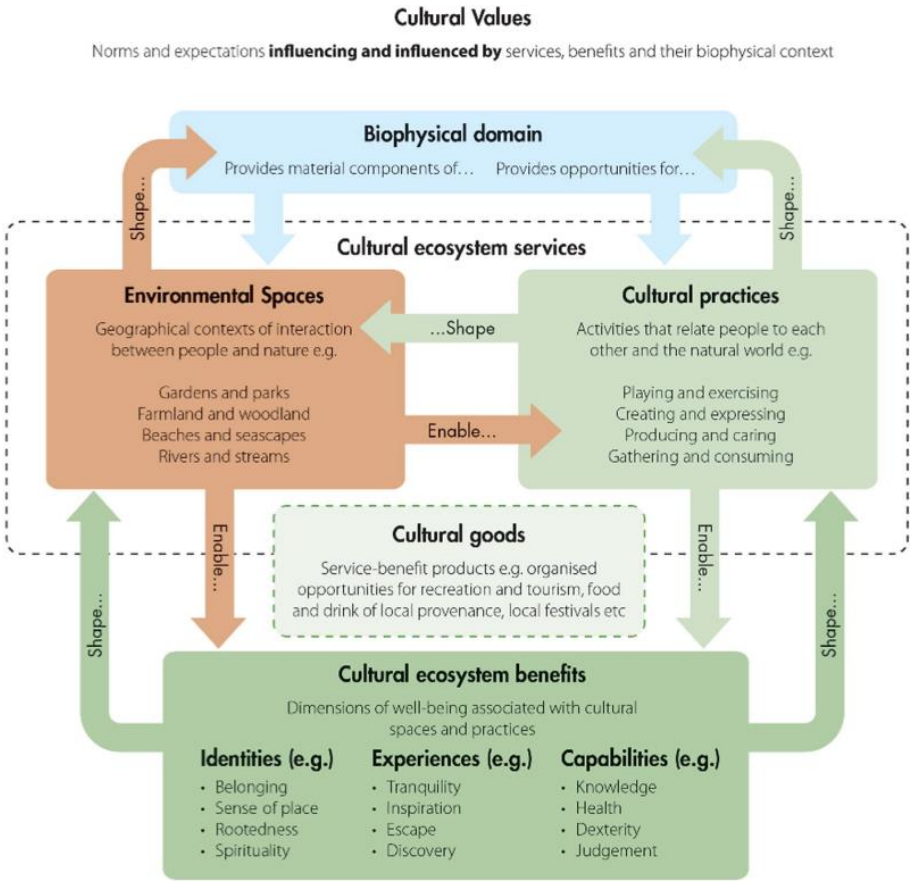
The previous chapter discussed the key findings in the literature, methodological issues, and knowledge gaps about exploring the non-material benefits that people get from ecosystems. The chapter aimed to contribute to continuing the discussion on some methodological issues identified in the literature review. This chapter discusses the theoretical basis and conceptual frameworks used in this study. The first section outlines and discusses the cultural ecosystems services framework that was adopted for this study. This is followed by a discussion of the conceptual framework that was developed, focusing on linking visual manifestations to the process of inquiry. It explains how this was useful in developing an approach for the rapid assessment of urban green spaces, capturing the perceptions of people about the benefits they get from it. In addition, this chapter highlights the pathway to well-being of cultural ecosystems service benefits. The conceptual framework developed assumed that visual manifestations of value and spatial characteristics and features were important indicators of cultural ecosystem services important to people. The insights presented here were used to develop the methodology for this study, that focused on ways on how cultural ecosystem services values were captured and used to answer the research questions and objectives.

3.2. Cultural Ecosystem Service Framework

The reasoning behind the selected theoretical framework adopted for this study was partly influenced by the logic of the Millennium Ecosystem Assessment about cultural ecosystem services. MA, (2005; p. 4). described cultural ecosystem services as the “nonmaterial benefits people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and aesthetic experiences” The principle behind the concept was to provide a way for cultural dimension of ecosystems that affect human well-being be integrated to decision making. However, the cultural concept encompasses a much wider framing than how it was defined previously. The framework presented in Figure 3. a. was an attempt to capture “distinctive aspects of culture to ecosystem service approach” (Fish et al., 2016; p. 211). This framework

marks a move away from purely economic and standardized thinking towards a different set of epistemological and ontological positioning (Satterfield et al., 2013). The framework emphasized the methodological plurality needed to address issues in ecosystem assessment (Fish et al., 2016). This framework was adopted for the purposes of this study.

Figure 3. a.. Cultural ecosystem service framework adopted from Fish et al. (2016)



3.2.1. Important principles of the cultural ecosystem service framework

Fisher et al. (2016) argued that there is a mutual relationship between the environmental spaces and cultural practices in this framework. They further explained that these two are essential components enabling cultural ecosystem services benefits that affect human well-being. The interaction between components such as environmental spaces, cultural practices, benefits, and values, provided a way to understand the cultural significance of ecosystems. The practices identified in this framework, are presented as the "mechanism binding together cultural benefits to

their biophysical/cultural contexts of production" (Fish et al., 2016; p.213). The interaction through cultural practice within an environmental setting enabled the production of cultural ecosystem service benefit, where the production of benefits also affected both the practice and the environmental space.

Cultural practice was defined in this framework as something both momentary (e.g. recreational activity) and part of a broader lived experience or a way of life (e.g. daily routine or tradition). These cultural practices were divided into four types: playing and exercising, creating and expressing, producing and caring, gathering and consuming (Fisher et al., 2016). In Figure 3. a. each of these "cultural practices were enabled to occur" by environmental settings or landscapes (p.13). It was assumed that the cultural practices were influenced by the condition of that environmental space, which allowed the cultural practices to happen. The quality, condition and structural dimensions of environmental space were viewed as important factors affecting its use and the interactions it supports. Similarly, this interaction highlighted the concept of co-production of the benefits through the environmental spaces, where the cultural ecosystem benefits were enabled by these practices, and the cultural ecosystem service benefits shaped these practices. This interrelationship among the three dimensions of this framework, communicated an approach that constructed a pathway to understand cultural practices and environmental spaces linkage to well-being.

The framework also described the benefits that made tangible the abstract concept of benefits. It recognized the contribution of emotions and feelings to the interactions or practices that affect human well-being. Through this representation several important concepts were adopted, including, identities, experiences, and capabilities. These three terms encapsulated the essence of cultural ecosystem service benefits and guided the understanding of its manifestation in people's experience. The position taken by this framework suggested the necessity to consider "historical and popular" discussions of what constitutes these benefits. The complexity of the term cultural presented debates on what it actually meant, how it was used and how it evolved over time (Williams, 2016).

3.3. Conceptual framework for visual manifestations of cultural ecosystem service assessment.

The previous section discussed the theoretical basis that guides this research. This section provides an overview of the conceptual framework developed for assessing the manifestations of cultural ecosystem services in urban parks.

Evidence from cultural ecosystem service research suggested that visual manifestations of non-material use may provide a pathway to explain the benefits or services that are important to people (Bieling and Plieninger 2013; Richards et al., 2015; Van berkel et al., 2018). Visual manifestations served as indicators of cultural ecosystem services at various spatial scales and can become part of the toolkit for rapid assessment of cultural ecosystem services. As Peña et al. (2015) argued, assessing the social aspect of ecosystem services in general is time very consuming that resulted to getting limited attention in the literature. The conceptual framework developed for this study highlighting visual manifestations provided a simple yet rapid and systematic way of investigating social values in cultural ecosystem services in urban parks.

This framework was developed to complement other methods of data collection. The data produced using the visual manifestation framework can be integrated with methods that focus on more conventional value approaches such as interviews, questionnaires or focus groups eliciting rich information about experiences of people within the environmental setting. This method would be particularly helpful in cases when there are limited participants willing to participate in the study or the situation does not permit interaction with users. Bieling and Plieninger (2013) demonstrated the potential of this kind of study by examining traces and signs of cultural ecosystems services in a systematic analysis of landscape. Based on their findings, they found relevant elements related to cultural ecosystem services and suggested that it complements other research methods such as literature reviews, interviews and focus groups for cultural ecosystem service assessments.

Studying visual cues of activities or elements in urban green space was not a new approach. It was previously used in other disciplines. It originated in archaeological research (Grant, 2015) and has been adopted in other fields such as landscape studies and physical activity research (Evenson et al., 2016). Central to this approach, is

capturing people's interaction with the environment. Several examples highlight the differences in application. McKenzie et al. (2006) provided a systematic approach to collecting physical activity data both in communities and natural environments using the System of Observing Play and Recreation in Communities (SOPARC) and System of Observing Play and Recreation in Natural Areas (SOPARNA). While Voigt et al. (2014) provided a method to characterize the structural diversity of urban parks by valuing the categories of elements present. Both approaches focused only on physical activities/characteristics. McKenzie's method captured aspects of physical activity and recreation, while Voigt's categories drew attention to physical characteristics of landscape and the presence of elements of landscapes. This thesis develops extends their approach to the study of tangible and non-tangible visual manifestation of cultural services.

3.3.1. Linking value manifestations and spatial features in cultural ecosystem service assessment

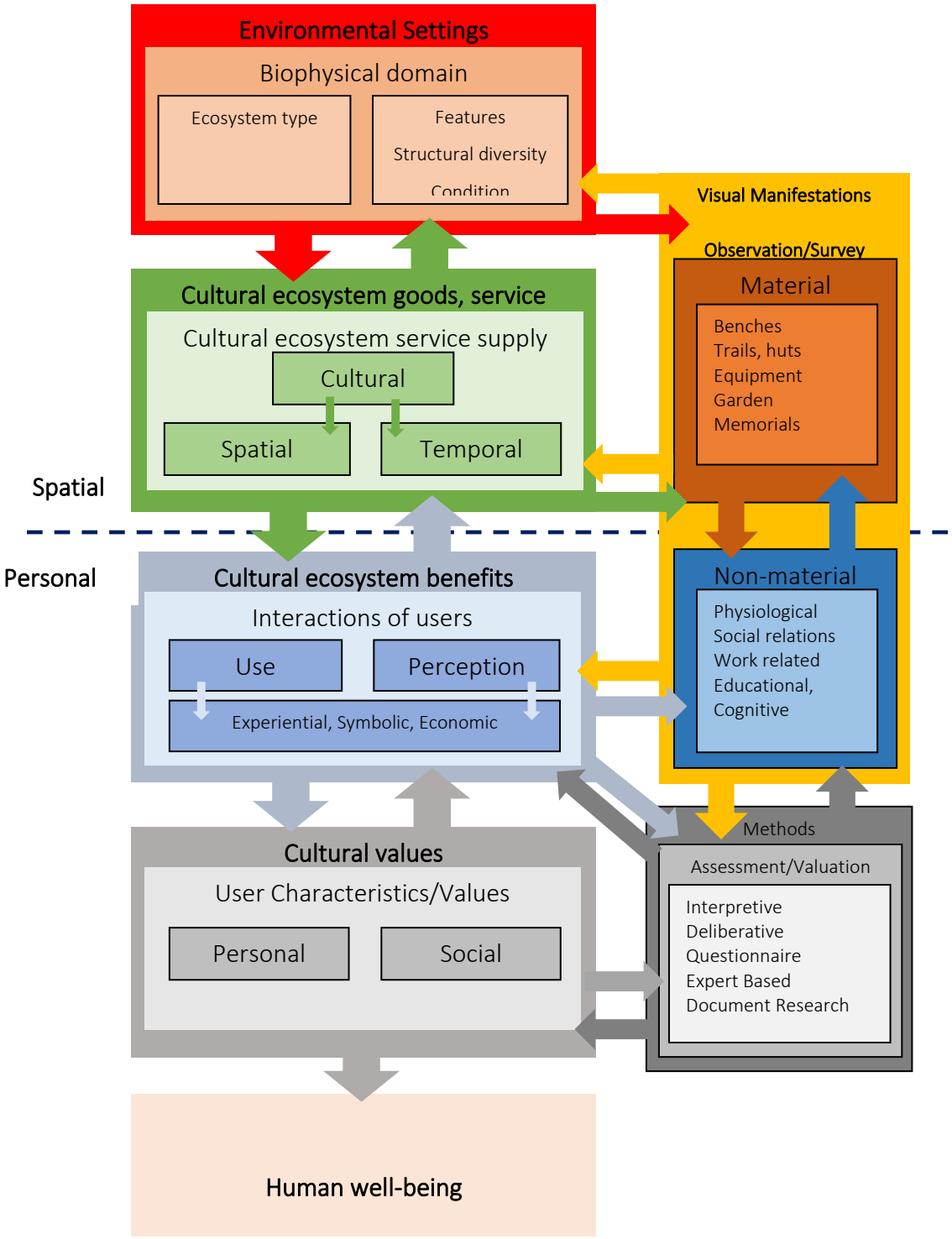
The contribution of the value manifestation conceptual framework lies in its linkage of material (tangible) and non-material (intangible) uses to specific categories of cultural ecosystem services. One aspect of the tangible manifestation was tied more closely to material objects or features present in the environmental settings or landscape. Bieling and Plieninger (2013) reported that certain site elements were easily linked with specific cultural ecosystem service use. In their study, they identified built structures and site elements such as benches, memorials, hiking signs, and huts as visual manifestations related to cultural and heritage, identity, aesthetics, and recreation. These elements on site are easier to identify and correlate with cultural services because simple interpretation can be made in identifying the function and purpose they support. A study by Campbell et al. (2016) a multi-method approach that included the human activities in the investigation of park use and its value to users. They reported the frequency these things were observed on site. Like Bieling and Plieninger, they identified and correlated observable human activities with specific cultural ecosystem services. Activities such as walking, sports, sitting, cycling, jogging to name a few were easily connected with recreation and leisure benefits. Both these

studies involved the production of spatially explicit data to present key hot spots of visitor interactions and activities in an environmental setting.

These examples established the connection between elements on site, their uses and activities to cultural ecosystem services value manifestations in the landscape. The connection for both the material or tangible objects on site and non-material or use, activity, or experiences to understand the cultural ecosystem service value placed by people allowed for a straightforward interpretation. This is especially true for activities and uses associated with recreation, leisure, cultural heritage, social relations and to a certain degree, spiritual and education. Figure 3. b. presented the conceptual framework for visual manifestations approach to cultural ecosystem service. This framework presented the pathways from which environmental attributes and cultural goods in urban parks were linked to human well-being. Similarly, the framework provided understanding on how these components can be assessed directly through visual manifestations of cultural ecosystem services. The framework also presented the relationship between the material objects and non-material uses or experiences and the environmental settings and social interaction.

Central to this framework is the flow that emphasised the interrelationship between the components in the production of benefits. The illustration presents a flow from the environmental setting to cultural ecosystem service supply, to the interaction of users and associated cultural ecosystem services, then to user values and characteristics and finally its link to human wellbeing. This linear connection, however, does not reflect the complex nature of cultural ecosystem service production and manifestation, but rather emphasised the importance of each component to enable and shape each other. For example, interactions of users with the environment, its components or with other individuals, enable the co-production of benefits within an environmental setting. The interaction was assumed to be influenced by the values, principles, and characteristics of users either personal or shared.

Figure 3. b. Conceptual framework visual manifestations assessment of cultural ecosystem service



3.3.2. The environmental settings, cultural goods, benefits and values

There are three important components for visual manifestation assessment framework. The first component is the environment, it is where the interactions are happening. It represented the environmental setting that supports activities and uses. The setting of interaction represents the supply side of cultural ecosystem service. The environment is also the landscape in which activities and interactions happen. Fischer et al. (2016) described it as spatially defined environment made up of habitats or ecosystems that has meaning for people using and living around it. McGinlay et al. (2018) suggested that environmental settings are part of the cultural ecosystem services itself, which is essential in the co-production and delivery of its benefits to the users.

The second component is the cultural goods, which are the by product and, at the same time supply of related to cultural ecosystem services benefits and or goods. Clark et al. (2014) referred to this as outputs that humans value. These could be classified further into use (e.g. observing wildlife or nature) and non-use (knowing something exist but may never be encountered such as biodiversity of certain species). The interaction of users associated with specific cultural ecosystem service represents the demand side. The interactions enable detection of cultural ecosystem service benefits. While the cultural goods inherent to the area represents opportunities for recreation, ecotourism, local festivals, heritage, and history.

The third component is the cultural values, these were considered to be those that are shared by a group or a community (Stephenson, 2008). Fish et al. (2016) referred to this as collective principles and life goals. The expectations and norms that influences values are assigned either individually or collectively. It includes not only of attributes that are part of one's culture or tradition but also those attribute that were considered to be part of nature and valued culturally (Stephenson, 2008). The following sections discusses the various phases of the framework and issues associated with each.

3.4. Issues and challenges

Fish et al. (2016) identified several challenges and limitations in the theoretical approach in investigating cultural benefits. These limitations included the following: the interpretative nature of cultural benefit, the lack of internal consistency of cultural benefits as compared to other ecosystem services and the lack of well-defined measurement boundaries. Recognizing these issues were important in the development of the research design that will be discussed in the next chapter.

3.5. Summary and link to next chapter

One of the aims of this research was to contribute to extending conversation on capturing values adopting a cultural ecosystem services framework. This was done by highlighting the importance of visual manifestations of cultural ecosystem services through socio-spatial analysis. Understanding how cultural ecosystem services value was manifested through people's lived experience was an essential component of this research. Consequently, this provided an alternative way to gain a better understanding of the value of cultural services to people in terms of what and where the benefits are produced and experienced as reflected through manifestations of activities and uses.

Guided by the framework presented in this chapter, the next chapter discusses the research design developed for the study.

4. Chapter 4 Research Design

4.1. Introduction

This chapter discusses the methodology, used in this study. The chapter is structured as follows:

The chapter provided the discussion of the research methodology and how this was used to capture the value of urban park use associated with cultural ecosystem services. The chapter begins with the summary of the research philosophy to underpin the philosophical position of this study which was viewed with the multiple reality that exist in urban park users. The qualitative methods were discussed following this highlighting the observations methods applied in the research and the semi-structured interview. The data analysis was designed to address the main research question. The chapter was divided into ten sections.

4.2. Research Design Philosophy

The study of cultural ecosystem services requires an approach that would consider the complexity of this concept and its application to a real-world context. Several studies have employed qualitative approaches to capture intangible qualities of cultural (ecosystem?) services (Gould et al., 2014; Klain et al., 2014;). This contrasts with well-established economic approaches that have traditionally been used in the broader ecosystem services concept (Costanza et al., 1997; TEEB, 2010). As mentioned in the early chapters, the position taken in this study uses an ontological assumption that several realities exist (Hesse-Biber and Johnson, 2015). However, it was also recognized that the methods used in this study were aligned with phenomenological studies. Phenomenology is “an exploration of the different ways in which objects are intended in consciousness” (Harrington, 2006; p.428). The adoption of the observation of visual manifestations of cultural ecosystem services approach from Bieling and Plieninger (2013) was influenced by archaeological methods of tracing activities in the landscape. The aim of this research is to capture the perceptions of people regarding cultural ecosystem services and what spatial features are important in the experience of cultural ecosystem services. Central to this idea is the notion that perceptions and

actions of people and their experiences are necessary components in the investigation of social phenomenon in urban parks.

This study adopted an interpretivist approach. Data collection combined an interactive and non-interactive posture. Furthermore, this alignment with the interpretivist position considered a combination of both interactive and non-interactive posture in data collection. This positioning was necessary for this research in two ways. First, it seeks to understand and explain the various cultural ecosystem services perceived by park users. In depth exploration of people's insights was thought to be the best way of understanding the intangible nature of cultural ecosystem services. It is assumed that learning from people's perspectives through their responses and experience results to interpretations that are context specific. Second, all park users are unique and possess different economic backgrounds, social and cultural values. There can be no standardized approach available to capture the perceptions of cultural ecosystem services.

4.2.1. Ontology

There were several important ontological beliefs that shaped my ontological position in this research. Leavy (2017) defined ontology as a philosophical belief system about the nature of the social world. Guba (Guba, 1990) defined it as the nature of what is known and what is real. The ontological assumption taken is that several versions of reality that exists (Hesse-Biber and Johnson, 2015, p. 95). Belief in the notion of multiple reality was important in the context of this study and to the concepts investigated in the research. In this research, the different realities concerning the benefits that people get from urban ecosystems were framed from the experiences of actual users present in the urban parks. This was supported by the belief that people's experiences and the benefit they get from those experiences, varies. The main data was collected from interviews and observation of people's activity and uses on site. Data collection on site was conducted removing all the preconceived notion about the benefits provided by urban parks. The collected data were then disaggregated by its prominent characteristics to determine the prevalence of different themes and identify types of cultural ecosystem services. The belief that each individual has their own version of their reality in these types of spaces, provided the important discourse in

analysing the data in answering the main research question and objectives as well as in synthesizing the contribution and implication of the research to planning, management and design of urban green spaces that deliver important cultural ecosystem services benefits

4.2.2. Epistemology

The epistemological positioning taken for this research was shaped by the recognition that the researcher has an influence and contribution on the data collection and analysis. Leavy (2017) defined epistemology as a philosophical belief system about how research proceeds and what counts as knowledge (p.12). Harding (1987) referred to it as "theory of knowledge". Simply put, it provides the fundamental basis of what knowledge is acceptable (Bryman, 2012). The types of knowledge that this study used were both tangible and intangible data. Tangible data represents the hard evidence taken such as photo documentation in the field work. The intangible data, those that are also considered soft data (Denzin, 2017) were taken from the observations and responses in the interview.

In terms of data collection, two approaches were taken. On the one hand, interactive posture was chosen in data gathering through interviews. This allows for gaining deeper insights in the responses of individuals and necessary adjustments in the line questioning. On the other hand, non-interactive posture was taken for the observation. The observation takes a non-interactive posture so that minimal intrusion of the researcher to the interactions of individuals were maintained throughout the process. The researcher during observation kept a distance in the observation area and took a less obtrusive inquiry of the research setting. The importance in taking the distant approach was to make sure that interference to normal interactions, even the slightest one, is avoided. Thus, letting the observation activities capture the fundamental nature of the area under investigation. The interviews were done in multiple formats for communication with participants. This was important so that questions were easily understood by the participants. The data were analysed using an interpretivist approach in understanding the meanings and themes attached to those multiple experiences of reality. The information produced was shared with the

participants and park administrators. The next section discusses the research approach relevant to this study.

4.3. Research Approach

In conducting research, approaches are usually determined by the research questions (Maxwell, 2013). Several approaches were considered including mixed-methods ethnography, field research, and case study. Each approach is briefly discussed below including the explanation for its adoption or non-inclusion.

Mixed methods approaches vary and may be used as a combination of qualitative and quantitative approaches or either purely qualitative or quantitative techniques. These are appealing for researchers because they provide a sophisticated approach that provides a rich dataset (Creswell, 2014). Not only does it provide different data types and data sets, but it also ensures comprehensiveness of the topic (Denzin, 2017). This approach is common in ecosystem services studies. However, it may not be able to fully capture the cultural services perceived by people directly and the associated values that are relevant in their perceptions because….

Ethnography is a specific type of qualitative approach which is "defined in part by the participant-observation researcher involvement" (Harrison, 2014; p.230). Neuman (2013) states it is a description of people and their culture; it is a "field research that provides detailed descriptions of a different culture from the viewpoint of an insider in the culture to facilitate understanding of it" (Neuman, 2013; p.435). Additionally, it acts as both a method and a product of social research (Bryman, 2012); it involves constant exposure, as an insider, with research participants to observe and understand the social phenomenon being considered. This method takes a lot of time and resource to deploy. This approach was not considered for two practical reasons. First, during the time of data collection, the pandemic situation made it impossible to use this approach because of the potential health risk and the strict quarantine restrictions implemented. Second, observing participants continually over a long period of time was not feasible for the temporal and financial aspect of this PhD study.

Field research is another approach that investigates attitudes and behaviours of people in their natural settings that is "well suited to the study of social processes" (Babbie, 2004; p. 315). The approach is closely associated with ethnography. It is one of the research approaches commonly used in qualitative studies (Leavy, 2014). The methods used in this approach are similar to other qualitative studies such as interview, ethnography, document analysis, content analysis, discourse analysis to name a few. In this approach, the immersion of the researcher in the natural settings can provide a deeper understanding of the attitudes and behaviours of people. This approach and the methods of this research genre is applicable to the goals and research questions of this study.

A case study approach often focusses on a social phenomenon of a specific area or groups of people (Babbie, 2004). The investigation of a specific real-life setting in this approach allows the researcher to offer detailed examinations to a social phenomenon (Bryman, 2005). Furthermore, it allows for the collection of extensive data often qualitative and context-specific in nature (Neuman, 2006). This approach is considered for this study because of the above-mentioned strengths. Additionally, it is appropriate for capturing cultural ecosystem services of urban parks as perceived by park users.

Case study research traditionally is defined as an "intensive study of a single unit" that aims to understand a much wider class (Leavy, 2014, p. 370). Leavy (2014) went on to explain that "the distinctive feature of case study research is its focus on a case in all of its complexity" (p. 370). Despite this feature, the approach comes with several criticisms that includes questioning the value of case knowledge, suitability to theory building, tendency to fall into researcher's biases, and the challenge in developing generalizations on specific cases (Denzin, 2017). One implication of the criticisms to the case study approach is that it is seen as more on the descriptive side of research. That case studies are more connected on the meaning making and its influences. Yanow and Schwarz-Shea (2006) refuted this inadequate distinction that suggested that case study is placed along the descriptive end of research practice. They explain that "interpretive analytic method has the capacity to move case study research towards descriptive-critical continuum" (p. xx). This suggests that the interpretive analytic method may be used to provide more criticality in the data.

4.4. Case study process used in this research

This process deployed several qualitative methods in data collection. Each method was used for a specific task in Phase 1. While each task was designed to answer a specific research objective, data was also used to inform the succeeding phases of the research (see Figure 4. a.). Tasks in the first phase of the research included:

4.4.1. Task 1 (objective 1)

The first task was to understand the potential of urban parks to provide cultural ecosystem services. Several steps were taken for this task. The first step was to get familiar with the site, by investigating its structural dimensions using Voigt and colleagues (2014) framework of structural diversity. The second step involved observations on site, using a systematic scanning approach for visual manifestations of cultural ecosystem services adopting and modifying Bieling and Plieninger's (2013) survey of landscape features (see 4.8.2). The third step involve recording on site elements that potentially provide cultural ecosystem service benefits. Fourth step was to create an inventory of important site locations with descriptions of associated cultural ecosystem services based on the review of the literature. Data from this task were collected through site visits at two urban parks to conduct observations in-situ, between December 2020 and July 2021.

4.4.2. Task 2 (objective 2)

The second task in the research design was to observe and record the types of activities happening in the park and where they are performed in the park. The observation protocol was adopted from McKenzie and colleagues (2006) "System of Observing Play and Recreation in Communities". The protocol was modified for the study in terms of the data being recorded. For example, types of activities such as walking, sitting standing, were used as indicators of cultural ecosystem related activities. Furthermore, recording visual manifestations of uses also included information on the frequency of occurrence of these activities at a particular point in time. Observational data for this task was collected on sites throughout the data collection period (December 2020 and July 2021).

4.4.3. Task 3 (objective 3)

The third task is to identify and examine the perception of the cultural ecosystem services of park users. Part of this task is to understand why they visit the park, what activities they planned on doing during their visit, and where they do them. The task followed a qualitative method so that a deeper understanding of people's perception could be achieved. Data were collected through semi-structured interviews. For example, the identification of aesthetics by users and its importance in their experience were highlighted in the work of Gobster and Westphal (2004), in which they made an argument for the importance of understanding the multidimensionality and interdependence of human interactions with the environment and use these to understand the value of environmental settings. This task contributes to the third objective and phase 3 of this research. The task was conducted throughout the data collection period (December 2020 and July 2021).

The observations and interview stages of the research contributed to the three objectives outlined in this research. Collectively these three tasks informed the fourth objective: to examine the potential for integrating approaches and more importantly, the phase 3 and 4 of the research process.

4.5. Study sites

The National Capital Region of the Philippines also known as Metropolitan Manila or Metro Manila is a densely populated urban conurbation that covers an area of approximately 619.57 square kilometers and a population of 13, 484.462 (PSA, 2020). It is composed of 16 cities and 1 municipality (See Figure 4. b.). Two cities in the capital region were selected: Manila and Quezon City. These cities were chosen based on the presence and availability of large urban parks that are well-known in the metropolis. Manila has around 50 parks plazas and monuments scattered all over the city (Gonzales and Magnaye, 2017), as well as one of the largest and most well-known urban parks in the country. Quezon City has several large urban parks that align with the selection parameters

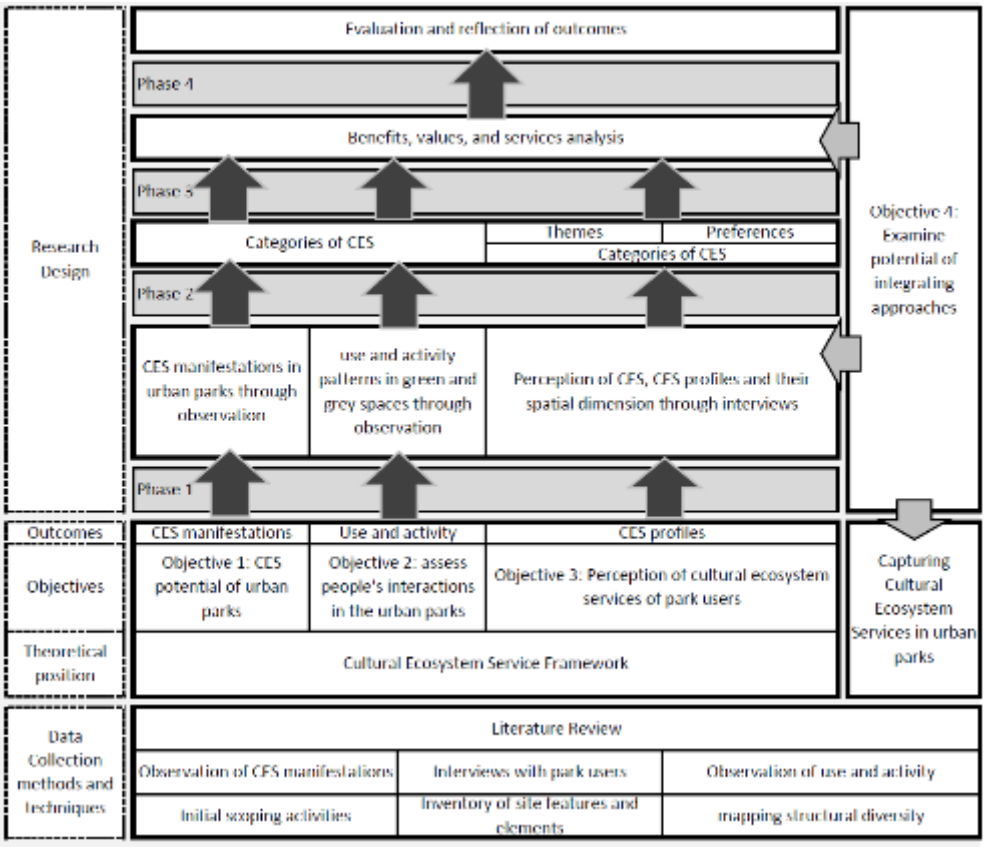


Figure 4. a. Process of data collection and analysis

Figure 4. b. Map of the National Capital Region and its administrative boundaries

The selection process of the study sites used a conceptual framework looking at the structural composition of parks, established by Voigt et al (2014). Two parks were selected based on differences in its structural composition such as presence of high levels of trees, dominant water feature, naturalness, nature-like qualities and amenities that support multiple types of activities. Selection criteria also included other characteristics, such as number and variety of potential users, accessibility to major transport networks, location and size. The following section presents the parks that were included in this study.

4.5.1. Metro-Manila Green Spaces

There is a general sense of lack of public green space in the Philippines, particularly in Metro Manila. The guide developed by the Alliance for Safe, Sustainable and Resilient Environment (ASSURE, 2019) reported that the Green City Index of Metro Manila is at 5 square meters per person. This figure is below the World Health Organization (WHO) minimum recommendation of 9 square meters per person (Maryanti et al., 2016). To be able to satisfy this requirement, Metro Manila would need to make available 52 square kilometers of green space. To put this in perspective, an additional 52 square kilometers would be as big as two Metro Manila cities combined. Furthermore, Metro Manila is one of the densest metropolises in the world with 21,765 person per square kilometer which complicates the process of providing adequate green space.

The green space allocation per person differs per country and per city within that country. For example, Table 4. a. provides a comparison of green space provision per city per 1000 residents. In the case of the UK, Edinburgh and Greater London each follow a different green space standard. This is also the same with Los Angeles and Washington in the USA. In contrast to Western countries such as the UK and the USA, Asian countries have smaller green space allocation per capita. The Philippines in general and Metro Manila in particular has no specific policy that focus on green space, which may reflect a very low provision of green space per person at 5 sqm.

Table 4. a. green space provision in various cities (Maryanti et al., 2016)

Cities	Area per person (sqm.)
Greater London	40
Edinburg	29
Los Angeles	48.5
Washington	38
Bristol	10
India	8
Pakistan	5.2

Two urban parks within Metropolitan Manila with distinct characteristics were chosen as the study areas for this research. First is the Rizal Park Luneta in the City of Manila (see Figure 4. c.1.). It is categorized as a historic multi-use park which is a popular area for locals and tourists. Second is the Ninoy Aquino Parks and Wildlife Center in Quezon City (see Figure 4. c.2). Considered as a nature park, it is also classified as a national protected area in the Philippines.

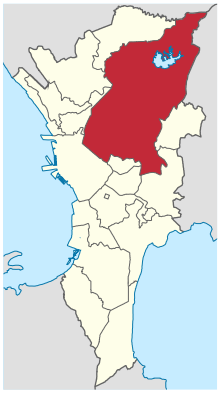
1)  2) 

Figure 4. c. National Capital Region and the study area location 1) Manila 2) Quezon City

The next sections include a brief history of the parks and the characteristics that determine their inclusion for the research.

4.5.2. Rizal Park Luneta

The first choice for the case study was Rizal Park Luneta. The park covers an area of 58 hectares, the largest urban park in the Philippines and one of the largest in southeast Asia. At present, the Rizal Park Luneta is recognized as a historic park that embodies the history and freedom of the Philippines from colonial Spain. During the

American occupation of the Philippines, the park was “envisage to be the central mall for the civic core” (ASSURE, 2019 p.8). Daniel Burnham, an architect and urban planner, envisioned the area where Rizal Park is situated as a Philippine version of the United States Capitol. Buildings with neo-classical features were built around the park. Rizal Park (hereafter RP) serves as a popular urban park destination not only for the 13 million residents of the Metropolitan Manila area, but also of the entire country. Before the pandemic, the park attracted thousands of visitors every weekend from different parts of the country and is one of the few remaining urban parks in the metropolitan area.

The Rizal Park Luneta is divided into three sections. The first is the Northeastern Section, which has a total area of 16 hectares, is designated as the National Museum Complex where the National Museum of Natural History and the National Museum of Anthropology are located. The second is the Central Section, a 22-hectare area where the Rizal monument and attractions such as the Independence flagpole, gardens, central promenade fountain are situated. The third is the Southwest section, a 10-hectare area along Manila Bay that includes the Quirino Grandstand, Burnham green, and the Manila Ocean Park.

Being the premiere leisure space in the city, the park has several recreational and leisure spaces such as the various gardens and lawns as well as the central man-made lagoon. Additionally, it has important historical and cultural points of interest such as several monuments, statues, and museums including the Rizal and Lapu-lapu monument to name a few. The park is also home to 3,424 individual trees that provide an estimated 81,694 square meters of vegetated area, considered the largest in the city (Gonzales and Magnaye, 2017). The combination of green and grey infrastructure in the park is one of the reasons for its inclusion, as it provides insights into…. Its historic nature is another reason, because (something related to cultural ecosystem services). Collectively these factors allow for investigation of a range of cultural ecosystem services in urban parks.

4.5.3. Ninoy Aquino Parks and Wildlife Center

The second choice for the case study area was Ninoy Aquino Parks and Wildlife Center (hereafter NP). It is a park in Quezon City that provides an area to experience local flora and fauna. It was initially part of the 197.8-hectare Quezon Memorial Park that was created under Presidential Proclamation No. 42 on July 5, 1954 (BMB, n.d.). The park was initially part of the new capital complex envisioned before the commonwealth period but was never fully implemented because of the war (ASSURE, 2019). At present, it covers an area of 23.85 hectares. This park was declared as a protected area by virtue of Proclamation No. 723 in 2004. In 2018, with the passage of the Expanded National Integrated Protected Areas System (ENIPAS) Act of 2018 also known as RA11038, it became a legislated protected area and classified as a National Park (BMB, n.d.). This act ensures the conservation and protection of natural heritage through cooperation among various stakeholders, both public and private, for its use and enjoyment consistent to the principles of sustainability and biological diversity (R.A. 11038, 2018).

The park was envisioned to be an ecotourism destination. It houses several Philippine endemic and rare flora and fauna, which also makes it a venue ideal for biodiversity education (BMB, n.d.). There are more than 3,000 individual trees found in the park with 13 species endemic to the Philippines, including Katmon, Kamatog, and Antipolo (BMB, n.d.). There are also several animal species found in the park housed inside enclosures. Further, the park is home to the Wildlife Rescue Center which provides temporary facility for shelter and rehabilitation for abandoned, confiscated, or donated indigenous exotic animals.

The park provides various types of activities to people including those that are recreational, civic, religious, and educational in nature. Some of the points of interest in the park that are important for these activities include the Tea House, Fishing Village, Amphitheater, Picnic Grove, and the artificial lagoon. The combination of features for ecotourism, recreation, and leisure, as well as the natural features are part of the reasons for its inclusion. It allows for a good comparison to RP because of its focus on maintaining the natural feel of the environment, rather than the more manicured approach in RP. Another reason is that the abundant trees species and wildlife provides

a contrast to the other park. The Ninoy Aquino Parks and Wildlife Center is referred to as NP for this research.

In summary, the two parks provided similarities and differences in the infrastructure, size, and physical features. In terms of size, RP is twice as big as the NP. In terms of infrastructure, the RP provides more amenities and greater variety of attractions. Meanwhile, NP seeks a more natural aesthetic and provides ecotourism activities. Additionally, the NP also provides wildlife species which is a contrast to RP. These differences were thought to provide enough contrast to explore variations in the perception and experience of cultural ecosystem services.

4.6. Units of analysis

The unit of analysis in this research is the urban park. The research focuses on the park users and the cultural ecosystem services identified through observation and interviews. The emphasis of the research was on capturing the cultural ecosystem services that people directly experienced. The people using the urban parks serve as the link in capturing and organizing these cultural ecosystem service types into categories of profiles; they are the primary source of data, taken from the face-to-face interview and observations in-situ.

4.7. COVID-19 pandemic impact to the research design

It is important to put into context how the research, particularly data collection, was conducted during the various levels of community quarantine in the Philippines and how this affected the research.

4.7.1. The community quarantine effect in park access and research

During the pandemic, access to the park and its amenities were greatly affected by the implementation of various community quarantine restrictions. The Philippine government, in response to the possible spread of the COVID-19 virus to the general population, implemented a national COVID-19 pandemic community quarantine to control people's movement and activities. The community quarantine has various levels depending on the situation of the COVID related cases in the country (see Table 4. b) The different community quarantine levels have different restrictions to the population,

activities, gathering, and movement (Table 4. c). The implementation of community quarantine restrictions was recommended by the Inter Agency Task Force on COVID-19 in coordination with local government units, to prevent the spread of the Covid-19 virus especially in public places. Several levels of community quarantine levels have been used throughout the duration of the data collection period depending on the cases being reported and its impact to the healthcare facilities.

Table 4. d. shows the timeline of various COVID-19 community quarantine levels implementation and how data collection was affected. Generally, these quarantine protocols and restrictions affected the access to and operations of the parks in this study. For example, during the months after lifting the Enhanced Community Quarantine that started from March to April 2020, access to the park was not allowed. During the Modified Enhanced Community Quarantine, access to RP was only for those between 18-65 years old. The park operation was limited to four hours, from 5:00 am to 9:00 am, and capacity was capped at 10% of (typical visitation?). During the General Community Quarantine, several sections of the parks remained closed. For example, the Eastern and Western sections of RP have been closed to the public since March 2020, while the Wildlife Rescue Center in NP was closed to visitors. These conditions affected the timing of observations and interviews as well as the approach used to invite respondents to take part in the study.

When people are inside the park, they are required to follow the minimum health and safety protocols set forth by the local government unit and the park administrators. These protocols have a varying impact on visitors entering the park. First, the protocols implemented affected the activities of people inside the park. For example, for RP, people are not allowed to bring food inside the park premises, therefore affecting picnic activities that used to be common? in the park. Similarly, the protocols complicated interactions with others while inside the park. This was evident during the early part of the data collection, particularly in RP where guards on duty were tasked with breaking up groups of people to enforce social distancing. Additionally, benches were marked so that only one user can sit on it at a given point in time.

Table 4. b Community quarantine classifications in the Philippines during COVID-19 pandemic

Community Quarantine Level	Code	Description
Enhanced Community Quarantine	ECQ	refers to the implementation of temporary measures imposing stringent limitations on movement and transportation of people, strict regulation of operating industries, provision of food and essential services and heightened presence of uniformed personnel to enforce community quarantine protocols.
Modified Enhanced Community Quarantine	MECQ	refers to the transition phase between ECQ and GCQ when the following temporary measures are relaxed and become less necessary: stringent limits on movement and transportation of people, strict regulation of operating industries, provision of food and essential services, and heightened presence of uniformed personnel to enforce community quarantine protocols.
General Community Quarantine	GCQ	refers to the implementation of temporary measures limiting movement and transportation regulation of operating industries and presence of uniformed personnel to enforce community quarantine protocols.

Table 4. c. Phased transition from ECQ to GCQ

	Phase 1: ECQ	Phase 2: Modified ECQ	Phase 3 : GCQ
Population	100% stay at home	100% stay at home	Vulnerable (e.g., elderly) Transmitters (e.g., youth)
Exercise	Not allowed	Limited outdoor exercise allowed (e.g., outdoor walk, jog/run, bike) with safety protocols (i.e., masks and 2m distancing)	Limited contact sports (e.g., golf, tennis)
Gathering (e.g., religious)	Not allowed	Highly restricted (5 maximum)	Restricted (e.g., max 10)
Travel	No public transport Flights: no domestic, limited international	No public transport Flights: no domestic, limited international Controlled inbound travel (OFWs/ returning filipinos) Biking and non-motorized transport encouraged No inter-island travel	Public transport with strict safe distancing Inter-island (GCQ to GCQ), with safety protocols

Second, people are required to register upon entering both parks. Prior to entering the park, one must provide a name and contact information for contact tracing purposes. This may have driven away potential park visitors who did not want to wait through the process or provide personal information.

Third, movement patterns inside the park were forcibly changed. Arrows were used to guide movement of visitors following a singular flow. As much as possible, two-way movement were discouraged in RP. Park administrators eventually changed this. Access was limited to two access points and all other entrance and exit points were closed. While in NP, visitors using cars are only allowed to enter using the northern gate, imposing a longer route to enter the park.

Fourth, all forms of commercial establishments inside the park premises were closed. This was the case for both parks where the food stalls and establishments inside the parks were closed throughout the data collection period.

Overall, it was expected that the enforcement of these protocols has had a measurable impact on the types of people and activities that were observed in the park and the way people were engaged during data collection.

Table 4. d. Timeline of community quarantine implementation during the pandemic

Dates of implementation of quarantine restrictions	Quarantine Level in study areas	Implication to RP	Implication to NP
12-Mar-22	Community quarantine (lockdown)	Park closure	Park closure
March 16,2020 - April 12, 2020	ECQ	Park closure	Park closure
May - June 2020	ECQ	Park closure	Park closure
June 2020 - August 2020	GCQ	Partial opening of Rizal Park, limited activities allowed (only exercise) from 5am-9am only for 18-65 years old	Park closure
August 1-18 2020	MECQ	Park closure	Park closure
August 19, 2020 - March 28, 2021	GCQ	Park operating hours of Rizal Park adjusted from 4 hours to 8 hours per day (5am-9am morning, 4pm-8pm afternoon/evening for 18-65 years old only)	Park reopened on December 2020. Operating hours from 8am-5pm (Wednesday to Sunday only for 18-65 years old, 200 person capacity at any given time) Monday's and Tuesdays dedicated for event photoshoots
March 29, - April 11, 2021	ECQ	Park closure	Park closure
April 12 - May 14, 2021	MECQ	Park closure	Park closure
May 15 - June 14, 2021	GCQ with heightened restrictions	Park reopened on May 17. The operating hours of Rizal Park adjusted from 4 hours to 8 hours per day (5am-9am morning, 4pm-8pm afternoon/evening for 18-65 years old only).	Park reopened with same operating hours, age and capacity restrictions
June 15 - July 30, 2021	GCQ with same restrictions	Park operating hours of Rizal Park adjusted from 8 hours to 16 hours daily (18 years old below allowed to enter but must be accompanied by an adult, 64 above allowed to enter the park)	Park reopened with same operating hours, age and capacity restrictions
August 6-20 2021	ECQ	Park closure	Park closure
August 21-31 2021	MECQ	Park closure	Park closure
September 16 - 2021	New alert level system	Park reopened with limited operating hours and access	Park reopened September 23, 2021 with same age and capacity restrictions
December 3 - 31 2021	ALS 2	Park is now open from 8am-10pm daily, 3000 person capacity at any given time, below 18 years must be accompanied by an adult	November 12, 2021 park is open daily for visitors, below 18 years allowed to enter when accompanied by an adult and above 65 years old also allowed entry to the park. Capacity per day is at 500. December 23, 2021 visitor cap raised to 1000 per day
January 3 - 16 2022	ALS 3	Park open to fully vaccinated visitors only with 1000 person capacity at any given time	Park closures - January 7-10; January 14- February 5 2022

4.8. Research Methods

The previous section discussed the COVID-19 pandemic impact on research. This section discusses each methods used in the four phases of research. Table 4. e. presents the techniques used and the phases they fall under.

The first phase of the research was organized in three tasks. The first task involved the landscape survey approach of Bieling and Plieninger (2013). It is an observation method used to explore the visual manifestations of cultural ecosystem services in urban parks. The second task involved a systematic scan of use and activity patterns that was based on the SOPARC methodology. In addition to the landscape survey approach, a user-activity based observation technique was employed in this task to identify use and activity patterns in the park and the spatial category where they were observed. The third task in this phase involved data collection through observation documenting the inventory of site features and elements. The fourth stage was data collection through semi-structured interviews involving park users and park staff.

The second and third phases involved several additional data collection tasks. The first task in phase 2 was the documentation of visual manifestations of cultural services, site features and elements. This involved, locating and documenting visual manifestations of cultural ecosystem services. The second task in phase two involved the documentation of observed activities uses. The third task was the mapping of structural diversity of the urban parks using the approach of Voigt et al. (2014). Data from observations were used to create a structural diversity analysis of the two urban parks.

These three tasks led to the analysis of observed manifestations, activities and uses, and structural diversity to cultural ecosystem services categories and concepts (phase three). The fourth task of the second and third phase involved the two-level analysis of the semi-structured interviews respectively. The fourth phase involved the analysis of data from the methods in the previous phases. A detailed discussion of the research methods are presented in the succeeding sections.

Table 4. e. Research phases included data collection, visualization and analysis

Phase 1	Phase 2	Phase 3	Phase 4
Observation of visual manifestations of cultural ecosystem services	Documentation of visual manifestations of cultural services, site features and elements	Mapping visual manifestations of cultural ecosystem services	Evaluation and analysis of important findings, reflecting on the outcomes
Observation of use and activity patterns	Documentation of observed activities and uses	Analysis of activities uses related to cultural ecosystem services	
Inventory of important points of interest on site	mapping structural diversity	analysis of structural features related to cultural ecosystem services	
Semi-structured interviews	Analysis: emerging themes and preference, frequency count of cultural ecosystem services concepts	Benefits and services analysis	

4.8.1. Literature Review and Synthesis

Literature review is a process of demonstrating your understanding of the research and establishing the positioning of your work in the conversation with other works in the field you are engaging with. Swales and Feak (2009) emphasized that it is a "defining feature of nearly all academic and research writing". They further went on to explain that the method is important in three ways. First, it is necessary as not to "re-invent the wheel" in doing the research. Second, it demonstrates your ability to position your research with respect to previous works. And third, this allows you to demonstrate your membership or engagement to a specific field of research. Similarly, the literature review is important in contextualizing the research (Paltridge and Starfield, 2007). The literature review was a key step in the development of the research approach, identification and implementation of the research methods and data analysis deployed in this study. Several steps were undertaken during the literature review stage of the research, and these were the following:

Finding relevant literature

Identifying problem areas and issues in the research field

Explaining potential areas for inclusion

Identifying knowledge gaps in the research topic

Understand conceptual traditions, theories, frameworks, and methodologies in the research topic

Establishing the position taken and contribution to the field

To summarize this process, looking back at the literature review chapter, several important research issues were identified about the topic of this study. The cultural ecosystem services concept in its broad sense and its application in urban parks have some interesting issues that were presented below:

First the complexity in the concept of cultural ecosystem services and how it was addressed in empirical studies (Morcillo et al, 2013). Second, the lack in research into cultural ecosystem services in general due to the nature of the concept (Chan et al., 2012), its application in urban areas (Riechers et al, 2018) and the variety of conceptions that may conflict with other concepts (Cooper et al., 2016). Third, the methodological gaps that exist in the literature in terms of conducting qualitative approaches into the study of cultural ecosystem services (Klain et al., 2014). Previous works did not attempt or failed to capture deeper understanding people's perception of cultural ecosystem services due to some practical issues such as time and resource as well as ontological and epistemological positioning in the research. For example, how interpretivist tradition used complementarily with natural science and quantitative social science to understand cultural ecosystem service value, has remained unclear to be used for informing decision making in real world settings (Stalhammar and Pedersen, 2017). But it is recognized that deeper understanding of the concept requires exploring socio-cultural settings and other less understood characteristics of cultural ecosystem services (Dickinson et al., 2017). Using interpretive methods was one of the strengths that qualitative approaches could bring to understand better the value of cultural ecosystem services to people (Kenter, 2016). Fourth, positivist methodologies dominate the field due to the need to quantify services but misses out on other benefits and services that. These methodologies relied on quantitative approaches that hinged on economic and ecological traditions. Fifth, knowledge gaps exist in the literature where majority of studies were mostly from Europe and the United States of America. This highlighted the misrepresentation of studies in other areas. The context and site-specific nature of cultural ecosystem services necessitates the study in other areas to

understand people's perception of these services and how it manifests in their experiences. Building upon these issues that were identified in the literature review, the adoption of the methods previously mentioned was needed to address the research question and contribute to the continuing discussion of the issues found in the literature review.

4.8.2. Visual manifestations of cultural ecosystem services

In general, three observation methods that were used for the qualitative research. These methods include: 1) structured observation, which is a method of recording behaviour of individuals in terms of previously identified categories (Bryman, 2012). One of the strengths of this approach is allowing a researcher to directly observe behavior (Bryman, 2012, 2) participant observation which is more often found in ethnographic studies; 3) covert or disguised observation, in which the researcher takes the position as a participant and not as a researcher immersed in the social settings (Bryman, 2012). The research has taken a straightforward approach in the observation protocol focusing on cultural ecosystem service concepts to guide the recording of visual manifestations in the landscape.

Similarly, observations can be classified into types (Bordens, 2017). The first one involves casual observation, which is considered a trigger or starting point for the research leading to other questions or inquiry. Second is the systematic observation, which is based on set parameters on how to observe, what is going to be observed, and how this will be recorded. The method selected for this stage is systematic observation. The observation approach here adopts a protocol based on that of Bieling and Plieninger (2013). The method follows several steps that made the observations systematic. Additionally, central to the application of this method was the ethical position taken by the researcher. For this study, the researcher's stance was not to break ethical principles of conducting research.

The steps taken in conducting this task were outlined below adopted from Bieling and Plieninger (2013):

Systematic fieldwalking was adopted. Fieldwalking is one of the main tools in archeological studies (Grant et al., 2015). This step involves walking over the entire

study area, attempting to record relevant manifestations of cultural ecosystem services.

The walking did not follow a specific grid for NP due to the complex layout of the paths around the park. Instead, the walking path followed a continuous counterclockwise flow around the park using the paths near the lagoon which provided a good visual of the different areas around it. For RP, since the movement around the site followed a one-way flow due to the implementation of COVID-19 protocol, the walking followed the directional path indicated on site.

This method was guided by the question: what activities and uses relating to non-material benefits or cultural ecosystem services can be seen? In this process, only those elements associated with non-material benefits or cultural ecosystem services are recorded. Similarly, only permanent signs are recorded in this process and not the activities of people present on site. For example, markers, signages, or structures were recorded.

The data produced from this approach were made spatially explicit, showing locations of the signs and manifestations of cultural ecosystem services identified on maps during site visits, using satellite imagery taken from Google Earth Pro (scale 1:500).

This method is important for this study in two ways. First, the rough quantification and spatial characterization provides an overview of the hot spots for cultural ecosystem services. Second, it gives insights into the important cultural ecosystem service types found in the study areas. In terms of deployment, this approach is less time consuming and provides a rapid assessment of the cultural ecosystem services in the area. Furthermore, this method was complementary to the semi-structured interviews (Bieling and Plieninger, 2013), and were useful as a validating tool for the data collected from the interviews and other the observation method discussed next.

4.8.3. Observation of activities and uses in urban parks

The method for the second task, observing activities and uses in urban parks, involved a structured and systematic approach to the observation process. This rationale was discussed in detail in section (4.8.2). However, a different protocol was adopted for this task. In contrast to the objective of the previous method, this task aimed at capturing the activities and use patterns that were found in the urban parks rather than physical park features. Similarly, focus was given to the spatial location of the activities and uses observed. The description of the observation process used for the second task was presented below.

The observation adopted and modified the System of Observing Play and Recreation in Communities (SOPARC) by McKenzie et al (2006). The method was designed to systematically observe physical activity in community settings (McKenzie et al., 2006; Evenson et al., 2017). This uses momentary time sampling to record observations as well as the use of forms to document recorded activities from different target areas within the park. Like in the previous section, the systematic observation allows for assessing environmental contexts of park use (Evenson et al., 2017). Taking this approach allowed the comparability of data between the two parks in terms of the recorded observations such as activities, type of users, age, and spatial characteristics.

The objective of this task was not about determining the physical activity level but rather about the recording of specific type of cultural ecosystem services activities and uses and where they are happening. Activities related to cultural ecosystem services were the primary focus in the use of this tool.

Second, general classification of green and grey derived from Voigt et al. (2014) structural dimension of urban green was introduced in the protocol. This was to allow for the identification of spatial categories important in organizing the spatial characteristics where the activities were observed. For example, tick boxes were added for green and grey spaces to characterize the spatial location of these activities. On the one hand, the green spaces of the park were grouped into two types; one refers to grassy areas, lawns or areas with trees (biotic features) and the other refers to landscape features such as, rocks, water elements (abiotic). Further, grey spaces (grey

infrastructure) were grouped into three types: one type for paths, edges, and trails, another for landscape fixtures and the last type for buildings, monuments, and statues. This distinction was important to account for the differences in factors attributed to elements of green and grey spaces (Palliwoda and Priess, 2021) into the observation.

Third, the manner to which the scans were made, and the duration of scans varied. For example, during times when there were no changes in the activities observed or when there were very few people in the observation area, duration of observation was shorter. This modification was important in four ways. First, this allowed the identification of the spatial features important for the performance of certain activities. For example, the level of activity around certain elements could be recorded. Second, this process allowed for an understanding of the types of activities happening in the urban park. Third, this method provided a way to systematically record activities and the category of locations of these activities. Similarly, it also allowed the recording of data that what was not included in the previous task. Fourth, this method acts as complementary to tasks one and three of this study to allow for comprehensive observation of cultural ecosystem services-related activities and use patterns. This task was conducted between December 2020 to February 2021 for NP, while for RP, the task was conducted between July 2020 to January 2021.

The process of observation was guided by the following steps adopted from the SOPARC (McKenzie, 2006) method:

Prior to the start of every observation procedure, the following fields in the observation form shall be completed: park name, date, time, weather condition, temperature, and start time and end time for each scan.

Target areas were determined during the initial scoping visits and the locations of observation areas.

Each target area was observed for 10 minutes, scanning from right to left.

Prelisted activities were placed on the side of the observation sheet for coding reference of the activities during observation.

Study areas were visited multiple times every week, covering both weekdays and weekends. The observations were broken down into morning and afternoon/evening sessions. Since the two parks have different operating hours due to the differences in the implementation of COVID-19 regulations, comparison between parks on specific days of the week and certain times of the day were not possible. For example, the NP was open to the public from Wednesdays to Sundays, 8:00 am to 5:00 pm, while RP was open to the public Mondays to Sundays, 5:00 am to 9:00 am and 4:00 pm to 8:00 pm (See Table 4. d).

Every recorded activity should have a corresponding record as to what structural dimension it was observed. For example, a recording of an activity should identify if it was observed along a path or landscape feature or within or near a building or structure. As mentioned earlier, check boxes that correspond to each structural dimension of the park were provided in the observation form. This was important to categorize the locations that where activities were found.

Gender and approximate age bracket of observed user must be marked in the observation form during scans.

This process was repeated during every visit dedicated to this particular task.

4.8.4. Structural diversity of urban parks mapping

There are calls in the cultural ecosystem service literature to look at other disciplines in ways that could contribute to the improvement of the methodological approaches in this field (Schaich et al., 2010). The first task looked at the structural diversity assessment of urban parks as an essential component in this research. This is necessary to understand and explain the structural diversity of urban parks. This approach was previously used to assess recreational services in urban parks focusing on systematically combining multiple methods linking activities to structural diversity and the importance of specific characteristics to user's wellbeing (Voigt et al., 2014).

This approach identified three essential dimensions defining structural diversity. The first dimension, the biotic features, were characterized as either trees or vegetative covers. Under the "trees" category, several elements were included such as tree

species diversity, solitary tree, group of trees, row of trees, hedges, shrubs, and natural-like, dense wooded area. The "vegetative cover" category included open green space, spontaneous vegetation, diverse water edge, meadows, lawns, and flowerbed. These vegetation elements may be either natural, ornamental, or both (Voigt et al., 2014).

The second dimension, the abiotic site conditions, included categories representing water elements and the surface characteristics of the site, related to topography and surface attributes. Water elements included natural or man-made water elements, access to water, and presence of nearby water feature. Topography includes elements such as attractive view, hill or knoll, slope, artificial surface elevations. The third dimension, the infrastructure, includes active recreation and amenities categories. Active recreation identified distinct bike paths, designated sport or athletic fields, street or basketball courts, table tennis tables, large diverse playground, and dog park. Meanwhile, the following elements were considered under amenities: sitting features, picnic table, shelter, pavilions; animal compound, petting zoo; drinking fountain; public sanitation; lighting. These three dimensions were assumed to affect park visitors' evaluation and activities in urban parks (Voigt et al., 2014).

In order to fit this method to the objective of this study, the Voigt et al (2014) approach was modified to accommodate infrastructure and abiotic dimensions. For the infrastructure, two categories were added, cultural & heritage and paths, trails, & edge. It was assumed that buildings, monuments, and other historical structures or sites in general with heritage or cultural significance were valued highly in providing cultural ecosystem services (Dou et al., 2017). Another important consideration is that paths, trails, and edges was assumed to provide recreational benefits especially for physical activity. Furthermore, from findings in the literature, paths may serve to provide benefits related to aesthetic appreciation of the landscape (cite). Under the cultural and heritage category, the following elements were included, buildings with historical and cultural significance, monuments and statues, artistic landmarks and important markers. Artistic landmark was originally included in the amenities. But for the purposes of this study, it is fitting to include the artistic landmarks to the new category cultural and heritage. Meanwhile, the addition of physical characteristics category was added to

the abiotic site condition. This addition focuses on site condition and quality in terms of safety, maintenance and cleanliness of the park and the condition of the water and land surface features as part of the included elements under that category. It is assumed that physical characteristics affect the value attributed to urban ecosystem services (Kremer et al., 2016). Similarly, positive physical environments were found to contribute to overall engagement to recreational activity (Van Hecke, 2016). The additional categories were necessary to suit the objective of this task.

The process of using this approach in the research was guided by the following steps adopted from Voigt and colleagues (2014):

1. During the site visits, the structural diversity form shall be used for the recording of element of green and grey spaces.
2. The recording was about the presence of a particular element, not the quantity of these elements
3. The recording shall be verified on site to ensure accuracy of the recording
4. The normalized value score will be computed using a nominal value scoring for each element per category.
5. For each element a score of 1 will be given if that element is present on site and 0 if there's none.
6. Percentage score per dimension will be computed, using the simple equation sum of the value of elements divided by the number of elements per category.
7. Normalized score per dimension will be computed by adding the total percentage scores for each category divided by the number of categories in that dimension. For example, in the dimension of abiotic site condition, to get the normalized value, the sum of the three categories will then be divided by the number of categories.
8. The normalized score for the overall structural diversity of the park is the sum of the normalized score for the three dimensions divided by the number of dimensions (3).

This method attempted to integrate structural diversity of the urban parks in the assessment of its cultural ecosystem services potential. This method was used as an

attempt to conduct a rapid yet practical approach linking the man-made features of the park to the abiotic and biotic features (Voigt et al., 2014). This method is necessary in the discussion of the importance of the spatial dimensions to the benefit people perceive about cultural ecosystem services in urban parks. Similarly, the method serves a complementary function to the interview and the other observation methods applied in this study. Additionally, this process added

4.8.5. Semi-Structured Interview (on-site)

The semi-structured interview is a method that uses a list of questions or topics to be covered to elicit a response about a certain topic (Bryman, 2012). It is also considered a dynamic exchange of ideas (Trainor, 2012). This method uses open-ended questions to explore ideas or areas of interest that are designed to elicit details and explanations. The interview process is flexible and would allow for questions to emerge during the process. It is expected that the phrasing of questions will vary between interviews. With this method, a small number of key informants are accepted to gain deeper insights about their priorities (DEFRA, 2011). Similarly, this is particularly useful for gaining insight into people's values knowledge and behavior.

Interview in its general sense is "not just an exchange of words, but also an exchange of physical gestures" (Yanow and Schwartz-Shea, 2006; p. 135). It is a conversation that has a structure and purpose and is used to get into the underlying structure of experience (Merriam, 2015). Interview has been a primary method of data collection in the social sciences field. But recently, the growing body of work under the cultural ecosystem services research, gave rise to several studies applying this method to elicit perception of people regarding the values and benefits related to cultural ecosystem services. (Klain et al., 2014; Gould et al, 2014).

Semi-structured interview has been a reliable tool for eliciting rich data sets. This method has been used in research that requires deeper understanding of people's beliefs, values, and conceptualisations. This was the most appropriate data collection method for this study for two reasons. First, this is because the nature of cultural ecosystem service concept requires a deeper anthropocentric inquiry due to the intangible nature of some of its concepts. Second, this method provides a way to

capture the different values people place in their urban park experience. This also provides a means to identify and disentangle the co-occurrence of multiple benefits and values associated with their use of the urban park. Using this method allows for deeper understanding of preferences and perceptions (Shams et al, 2019) and encourages respondents to express themselves in a way relevant to their experience (Gould et al., 2014).

In conducting an interview, it is important for the interviewer to understand the importance of following in order to obtain reliable and valid data (Cohen, 2018). These include mastery of the subject matter to enable informed conversation, designing a well-structured interview, having clear terminology and scope, maintaining a two-way conversation, being sensitive, actively listening, and observing non-verbal cues. Effectiveness of the interviewer and the process of interview also relies on the awareness of things he or she does not know.

The following describes the process of conducting the interview on site:

1. The interviewer did not interfere when people were performing activities on site. Similarly, individuals were never approached for interview when they are busy doing their activities in the park.
2. When individuals were invited to participate on site, proper introduction shall be made. Briefings shall be done prior to starting the interview to get their informed consent and to give them sufficient background information about the research. Part of this is explaining that they are free to withdraw at any time without cost or implication in any way. A rapport was also established with the interviewee at this point, in order to make them comfortable with the interview process.
3. Once an invited individual agreed to participate in the interview, he or she was given a copy of the consent form and the information sheet about the research.
4. Prior to commencing the interview, upon approval of the interviewee, the audio recording device was placed near the interviewee to enable clear audio recording of the interview.

5. Throughout the interview, strict adherence to the COVID-19 health and safety protocol being implemented was observed.
6. Throughout the stay at the park, the researcher made visible the school identification card and permit issued by the park administrators.
7. The interview duration was kept within 15-20 minutes to minimize the risk of prolonged exposure with individuals in a public environment during the pandemic.

4.8.5.1. Interview Design

The objective of this method was to elicit information regarding the perceptions of people regarding the cultural ecosystem services in urban parks. Part of the aim was to elicit rich data on the benefit they get from using the park through interview questions that did not use prompts directly connected with cultural ecosystem service concepts. Conducting the interview in this research moved away from the traditional interview process in the literature that used direct ecosystem service prompts (Gould et al. 2014; Klain et al., 2014). The interview questions were developed based on the review of the literature and relied on the natural responses to the questions regarding their reasons for visiting, the activities they planned on doing or have done during their visit. The assumption taken is that interpreting the more naturalistic response would also be equally reliable in capturing the value of cultural ecosystem service to people. Table 4. f. shows the semi-structured interview questions.

Table 4. f. Overview of interview questions, strategy, key indicators and potential cultural ecosystem services concepts

Question	Strategy	Key Indicators	Potential concepts of cultural ecosystem services linked to response
Why did you come to this park?	Searching for evidence on the reasons that bring people to the park	Preferences of for park use (May also include or relate to the use of time and performing activities in the park)	Cultural ecosystem services (Recreation, Tourism Heritage, Aesthetics Inspiration, Cultural diversity)
What activities do you plan on doing (or have done) in this visit? Why is this activity important? – a follow up question to elicit information on the importance of the activity that will be conducted in the park	Activities and use tracing that are part of the lived experience of people in the park	Specific activities and uses related to (Sports, Nature, Cycling, Walking, Educational, Working, Gardening, Stewardship, Other Activity)	Recreation, Tourism Heritage, Aesthetics Inspiration, Cultural diversity
Where do you plan to do the activity/ies in this visit? Respondents will be asked to identify exactly where activities will be done using a map.	Investigating the locations where activities of users are performed	Specific location in park which may include or relate to landscape characteristics and features, amenities, structures, built elements in parks	Recreation, Tourism Heritage, Aesthetics Inspiration, Cultural diversity
How often do you use this park for this activity? Are there any other activities that you do here other than what you plan on doing today? – a follow up question to know if there are still activities important not mentioned in question 2	Discover the frequency of their visit	Daily, Weekly, Monthly, Occasionally, Rarely	
How do you select which park to visit? – follow up question if not mentioned in question 3	Trace the causes of for park preference, look for decision making patterns for park use	Stated reasons for choosing park (convenience, accessibility, availability, design, quality, features, specific elements, no other options available etc.)	Recreation, Tourism Heritage, Aesthetics Inspiration, Cultural diversity
What park characteristics do you find important in your visit? – This may already be provided in question 5 but can be asked to emphasise on what is important about the site.	Top of head evidence that may express important park features characteristics related to park use.	Statements expressing value of park in terms of spatial characteristics but may also look at statements expressing appreciation of quality, diversity, culture, history, naturalness, safety visibility, openness etc.	Recreation, Tourism Heritage, Aesthetics Inspiration, Cultural diversity
What specific site elements you think are important for the activity you are doing? – This may be revealed in question no. 6 if not, this is asked to establish a clear link between use and spatial features important for delivery of cultural ecosystem services.	Identify specific landscape spatial features or site elements important in the co-production of cultural ecosystem services	Specific features on site, elements that directly contribute in producing the benefits that people directly experience in parks	Recreation, Tourism Heritage, Aesthetics Inspiration, Cultural diversity
What would you like to change about this park? – A possible follow up question to question 10 to determine also underlying reasons that can partially reflect the answer in the previous question. Provide possible concrete examples of what is not good about the park, or aspects that are important for people but are not experienced directly at present.	Determine if the park actually delivers the benefits for the user. May also be used to determine other uses, experiences or values for people that are not currently found in the park but are important to people	Other uses, activities, features, conditions not currently provided	Recreation, Tourism Heritage, Aesthetics Inspiration, Cultural diversity

For the staff, two different strategies were taken. For NP, a formal request to interview park staff to the administrators of park were submitted. The staff who took part in the interview were chosen by the park administrators based on the parameters set forth in the request that they should have been part of the staff prior to the pandemic. For RP, during after observation tasks, any park personnel not busy with work were approached and invited for an interview. The park staff invited were the ones who had set the time and date for the interview. The interviews for both staff and users were conducted within the premises of the park.

4.8.6. Participatory Mapping Activity

Fagerholm et al. (2019) argued that participatory mapping is a powerful tool for "grasping socio-cultural realities of… landscapes and ecosystems" (p. 135). This approach has been integrated usually with surveys and has successfully provided ways to understand and make spatially explicit ecosystem services. It is assumed that in participatory mapping, when a place is identified as valuable by a participant, it is already providing a benefit or service (Brown et al., 2016). Brown and colleagues went on further to explain that these participatory methods are desirable for identifying cultural ecosystem services. Its application can be either digital or non-digital. The output of this method is usually in the form of maps, identifying locations of people's preference for benefits and services.

For this research, a non-digital method of participatory mapping was deployed to complement the interview. This was done to identify difficult to express benefits related to cultural ecosystem services. During the interview, participants were given a map of the park. They were asked to familiarize themselves with the map for the purpose of orienting them to places they are familiar with. Six question prompts were asked to the participants. Each prompt corresponds to a specific cultural ecosystem service. Table 4. g. provides an overview of the cultural ecosystem service prompts and the ecosystem service they are linked with. Participants were given colored stickers, with each color assigned to a specific prompt and they can mark as may areas on the map they think they can identify with the prompt. For example, when the participants were asked, where in this park you find attractive, some respondents marked more than two locations on the map. While doing the marking, participants were asked why

they have marked the locations on the map. Their responses were recorded via the audio recording device.

This process provided an opportunity to cover cultural ecosystem services that did not emerge from the interviews and observations. The cultural ecosystem service categories used in this approach were taken from the Millennium Ecosystem Assessment (MA, 2005). This method was complementary in nature to the tasks and methods selected for this study.

Table 4. g. Overview of participatory mapping activity prompts

Question eliciting cultural ecosystem services concepts	Targeted cultural ecosystem service category
Where in this park do you find attractive?	Aesthetics
Where in this park do you feel inspired?	Inspiration and Motivation or Cultural and heritage
Where in this park do you feel enjoyment?	Sense of Place
Where in this park do you do recreational or leisure activity?	Recreation, leisure, ecotourism
Are there any places in the park where you do spiritual or religious activities?	Spiritual
Are there any place in the park where you learn about the environment, the history of the place?	Education or Learning

4.9. Data analysis

4.9.1. Visual manifestations of cultural ecosystem services

The data analysis approach for participatory mapping was adopted from Bieling and Plieninger (2013). The data gathered on site for this method was integrated into an Adobe Photoshop software instead of the more sophisticated Geographic Information System software. The features were characterized as points, squares, diamonds, and triangles on the map. Organizing the data included grouping categories according to similarity of use. The use categories were correlated with the Millennium Ecosystem

Assessment (2005) categories of cultural ecosystem service or the non-material benefits. Assigning of manifestations of use to a specific benefit or cultural ecosystem service was carried out based on existing knowledge of the area and the meanings and values attributed to it in general (Bieling and Plieninger, 2013).

4.9.2. Observation of activities and uses in urban parks

The data analysis for this approach follows a straightforward tally of the frequency count of all activities observed. Data from both parks were contrasted and compared. This process involves identifying which activities are most frequently observed in the park. At the same time the process also determines which dimension of structural diversity or elements are associate to those activities. The data from this method will be used to inform the outcome of the content analysis from the interviews.

4.9.3. Structural diversity analysis of urban parks

The data analysis for this approach was adopted from Voigt et al. (2014). For this method, a simple additive procedure was done in filling up the form of all assessed urban park elements. Equal weight was given to all the elements. If an element is present in the park, a number 1 is placed on the box that corresponds to that element. Values were normalized by the total number of possible elements in order to allow comparisons between results. The mean value of the two sub-categories for the biotic features and three sub-categories for the abiotic and infrastructures as the value for total structural diversity in each element.

To compute for the normalized value for each dimension, all scores for one dimension should be added. For example, for biotic features, add all the values for each element per category. Then for each category divide the sum by the number of elements per category. Repeat that process for the next category within that dimension. After which add the two values for each category, then divide it by the number of categories. For example, ((3/8) + (1/5))/2 = .275. This method quantitatively characterizes the urban park based on its structural diversity.

4.9.4. Qualitative data analysis strategy

This phase of the research involved several stages. First, the coding of responses into themes and categories. The process shall be guided by the principles of the summative content analysis (Hsieh and Shannon 2005). However, the strategy for the first part involved free coding of responses. In this approach, a single code may be coded into multiple categories. The advantage of this approach is that it allows for coding of multiple benefits or values that can be interpreted in the responses of the individual (see Gould et al., 2014). The outcome of this approach provided the themes and concepts in categorizing the responses that will be used for explaining the theoretical framework. Another outcome of this is linking the cultural ecosystem service concept as a priori categories where responses were coded. The next phase was to code adapting the protocol of Klain et al. (2014) to understand the type of value associated with people's response regarding their experience of the urban parks.

4.9.5. Categories of CES and coding strategy

The cultural ecosystem services categories were taken from the Millennium Ecosystem Assessment (2003) (see table 4h). The interview responses were coded using the criteria classification adopted to represent various cultural ecosystem service categories. For example, if an interviewee mentions something about the beauty and scenic qualities of the park, the response will be coded under the aesthetic category because of the word beauty. It was also anticipated that the possibility of coding multiple cultural ecosystem service benefits may be taken in an interviewee's response to one question. For example, if one respondent mentions that the reason for going to the park is to see the beautiful places and spend time with family and perform creative activities and physical activities, four categories were covered. First reference to the beauty of the place will be under aesthetic, time with family will be under social relations, creative activity will be under inspiration/motivation and lastly, physical activity will be under the recreation and ecotourism category. All the interview responses were coded and analysed using this coding strategy to identify the various perceived and experienced cultural ecosystem services in two Metro Manila urban parks.

Classification criteria for activities and responses by cultural ecosystem service category		
CES category	Description	Example of coded response
Aesthetic	Refers to the mentions about scenic qualities, visual quality (MA, 2003)	Beautiful, see nice places
Recreation and ecotourism	Mentions about recreational and leisure activities or physical activity experiences (MA, 2003)	to jog, exercise
Cultural and Heritage	Mentions about cultural and historic sites, history and tradition of the area (MA, 2003)	To see the monument
Social relations	Refers to the meeting with other people, interaction with friends, family and strangers (MA, 2003)	Be with family, bring out kids
Inspiration/Motivation	Mentions of creative activities, feelings invoked by the space, interaction within the space (MA, 2003)	Feel strongly about the place, restore mind
Education/Information/Learning	Refers to knowledge transfer, acquisition, learning observation	Learn about nature, history
Spiritual/Religious	Refers to the resources, activities related to spiritual or religious activities, feeling with nature (MA, 2003)	Be alone, think, reflect
Sense of place	Refers to the symbolisms, meanings and perceptions about a place (MA, 2003)	Feeling of pride, historical nature, historic, animal sanctuary

Table 4. h Classification criteria for activities and responses by cultural ecosystem service category

4.10. Limitations of qualitative research

There were several limitations recognized about qualitative research. For the semi structured interview, Hesse-Biber and Johnson (2015) noted that too structured interviews have resulted to missed opportunities in eliciting knowledge. They further explained that a too rigid structure of interview might influence people in exploring ideas beyond the topic. The manner that data were recorded, and the transcription process could also influence the quality of the material for analysis. For example, if the recording devices did not capture clearly what was said important data might be lost.

Similarly, if the transcription was done by a different individual, the immersion of the researcher on the details of the interview might be lost in the transcription (Hesse-Biber and Johnson, 2015). The more common limitations of qualitative research are the following, knowledge may not be generalizable to different context, time consuming data collection and analysis and researcher's biases easily influence the results.

4.11. Ethical issues

4.11.1. Informed consent

The study did commence without the explicit verbal consent from the participants in their participation in the study. They were given proper briefing to be informed about the nature of the research. They were informed of their right to withdraw anytime without detriment to them in any form. Participants in the interview were allowed to leave if no longer feel they want to proceed It was the responsibility of the researcher to properly inform those invited to take part in the study of what they need to know and what will be asked of them.

4.11.2. Protection of participants, psychological and health risk

The nature of the engagement in the public was already a health risk for both the researcher and the interviewee during the pandemic. The researcher did not put the participants in any form or danger, mental and physical harm during the investigation. Participants were not put into risk that they feel that would be too much for their normal encounters. And if ever such feeling may arise, the researcher would reaffirm if they would still want to proceed.

4.11.3. Confidentiality

Participants in the interview will be anonymised. Individual and organization's name will be changed in the manuscript and in presentations. Participants and information about them will be treated with confidentiality. Photos taken on site will not contain identifiable images of people and children. The aim of the photograph is not to capture actual people performing activities but spatial features and elements on site. If people were present in photos taken during site observation and field work, their faces were made unrecognizable. The original files of the recorded and transcribed interviews

and photos were kept in a safe and password protected storage. Token to participants such as, a simple token of appreciation will be provided to participants involved in interviews for their time and effort.

4.12. Summary and link to next chapter

This chapter explained in detail the methods that were deployed in this research, the way the data were analysed and how the research was developed. The relationship between each task were also explained and why these tasks and methods were selected. The guiding principle in conducting the different techniques and methods were also provided in this section. The two case study parks provided a setting to test these methods in order to answer the main research question. The observation methods used for this study serves a complementary function to the semi-structured interviews, which serves as the primary data collection method for this study. The individual objectives were answered by specific methods and tasks. Collectively all the methods contributed to addressing the main research question. The following chapter provides an overview and summary of the important findings of this research.

5. Chapter 5 Results and Findings 1

5.1. Introduction

This chapter reports the research findings using a multi-method qualitative approach. A summary is provided at the beginning of each section followed by a reflection of the findings. This section qualitatively assessed the biotic features, abiotic conditions, and infrastructure of the urban parks. Presentation of the normalized values of green and grey spaces and the overall structural diversity of parks are presented in the last part of this section.

5.2. The structural diversity of the urban parks

The first objective of the research was to understand the potential of the urban parks to provide cultural ecosystem services; this was done by analysing the physical characteristics of the park. The characteristics of the parks were assessed at a structural level. This was an important initial step in answering the research question and addressing the first objective "to understand the potential of the urban parks to provide cultural ecosystem services". The approach was drawn from the Voigt et al.'s (2014) framework of structural diversity that investigates three important park dimensions: the biotic features, the abiotic conditions, and the infrastructure. This provided an opportunity to compare different parks based on their structural components in a fast and simple approach. This analysis was done during the initial scoping visits to the parks in December 2020 for Ninoy Aquino Parks and Wildlife Center and in January 2021 for Rizal Park.

During the visits, the structural dimensions of urban parks were identified. The descriptions of the elements observed served as a guide for the investigation of the structural diversity of the park. The first task in this process was to assess the green and grey spaces of the park. The term green space was used to represent the abiotic and biotic features of the park, including natural features (e.g., water elements, trees, and vegetation). Meanwhile, the term grey space was used to represent the infrastructures within the park, describing the built features (e.g., paths, trails, and amenities). The observations capture the presence of a property or element within the site and not

outside of it. Furthermore, they did not include the quantity of these elements. Therefore, multiple instances of elements found in the park were given the same treatment as that of those having only a single count of that element. For example, a park with multiple water features will not differ from a park with only one water feature. This is essential for creating normalized feature scores for the parks.

Table 5. a and Table 5. b present the overview of the abiotic and biotic features of the urban parks, respectively. These two tables highlight the results of structural diversity in terms of the green spaces of the urban parks.

Table 5. a. Overview of the dimensions, categories, and results of the abiotic site conditions mapping in the urban parks.

Dimension	Category	Element	Description of the observation	RP	NP
abiotic site condition (green space)	Physical characteristics	Urban Park size	Total area of the park, including land and water	58ha	23.9ha
		Boundaries (fenced)	park is secured with fence and or walls	1	1
		Accessibility	park is free to access for the public	1	0
		Park condition	park is well maintained, no visible signs of deterioration	0	0
		Cleanliness	no signs of garbage and other waste in various park locations	0	0
		Presence of graffiti	no signs of vandalism and graffiti are found in the park	1	1
		Condition of water elements	water elements in park are in good condition	1	1
		Condition of land surface elements	land surface elements in park are in good condition	1	0
				.71	.43
	Water elements	Natural or near natural lake/pond	park has a natural water feature or near it	1	1
		Good / direct access to water edge	park has direct access to water edge	1	0
		Dominant water element nearby	presence of major water element in the vicinity of the park	1	0
		Fountain	park has artificial water features	1	1
				1	.5
	Topography	Attractive view	park has good sight lines and vistas	1	1
		Hill/knoll	park is on a hill or higher elevation	0	0
		Slope	park has a sloping feature	0	1
		Artificial surface lowering or elevation	park has artificial surface elevation	1	0
				0.5	0.5
normalized value for abiotic site condition				**.74**	**.56**

Results from this approach showed a higher normalized value for abiotic site conditions in RP at .74, compared to the .56 that were observed for the NP. This is predominantly due to higher scores for physical attributes and water elements. There were several elements under the physical attributes that showed zero scores for NP such as no visible signs of deterioration, no visible signs of garbage and good the condition of landscape. It was observed during the visit that there were presence of garbage and deteriorating structures in NP. Also, NP requires an entrance fee to park

visitors which was another factor to this lower score. However, for biotic features, both parks showed similar results as both parks got .69 normalized value rating. In terms of the tree/forest aspect of the parks, both got the same value at .86. In terms of diversity of trees within these parks, both had a similar reported number of trees. NP was reported having around 3,000 trees within its premises. This is similar to the reported number of trees in Rizal Park by Gonzalez and Magnaye (2017), which was found to have 3,424 individual trees. Examining the diversity of biotic features for both parks, they provide a mix of green space elements such as trees and ground vegetation as well as water features and pleasant topographic features for urban recreational activities.

Table 5. b. Overview of the dimensions, categories and results biotic features mapping in urban parks

Dimension	Category	Element	Description of the observation	RP	NP
biotic features (green space)	Trees/forest aspect	Tree species diversity	has >5 species/.5ha	1	1
		Solitary tree	big/old	1	1
		Solitary tree	small/young	1	1
		Group of trees		1	1
		Row of trees/tree lined path		1	0
		Hedge		1	1
		Shrub		1	1
		Natural-like, Dense-wooded area		0	1
				.86	.86
	Ground vegetation	Open green space/large open ground	park has a large flat open space	1	0
		Spontaneous vegetation	presence of herbs, tree seedlings	0	1
		Grassed areas		1	1
		Flowerbed		0	0
				0.5	0.5
normalized value for biotic site condition				**.69**	**.69**

Table 5. c. provides an overview of the dimensions concerning the infrastructure or grey spaces. In this adaptation, "Cultural and heritage" features were given in a separate category to account for the recognition in the literature that there are infrastructures that provide cultural services to people. Results showed Rizal Park (.73) has a higher normalized value for infrastructure over NP (.66). Both parks provided cultural and heritage infrastructures. It is important to point out that the inclusion of buildings, monuments, statues, and artistic landmarks/markers as elements of "cultural and heritage" category of the infrastructure was based on the notion that buildings that are historical in nature, that contribute to the sense of place/identity or to the historical richness of the landscape can be considered a cultural ecosystem service (Church et al.,

2014). Both parks are considered to be culturally significant in different ways. The Rizal Park was considered historically significant due to the contribution of this location to the history of the country and its association to Rizal as a key nationalist figure. Rizal was instrumental in the fight for freedom of the country during the Spanish colonization period. He was executed in this area for being charged with rebellion. Furthermore, the use of this park historically for social, political, and religious activities (ASSURE, 2019) highlights its cultural and heritage value. Meanwhile Ninoy Aquino Park…

Table 5. c. Overview of the dimensions, category of infrastructure (grey space) mapping in urban parks

Dimension	Category	Element	Description of the observation	RP	NP
infrastructure (grey space)	Cultural and heritage	Buildings	presence of historic/cultural buildings	1	1
		Monuments/statues	presence of historic monuments and statures	1	1
		Artistic landmarks	presence of creative landmarks	1	0
		Markers	presence of historic markers and signs	1	1
				1	**.75**
	Paths, trails and access	Recreational paths or trails	distinct paths used for recreational activity	1	1
		Scenic paths or trails	distinct paths with attractive vista and views	1	1
		Paths and trails	adequate paths and trails for general use	1	1
		Access to park amenities features	all park features/amenities are open to the public	0	0
				.75	**.75**
	Active recreation	Designated sport or athletic fields	presence of track and field oval or football field with goal	0	0
		Distinct bicycle paths	paths dedicated for cycling	1	1
		Street or basketball court		0	1
		Dog park		0	0
		Playground and children's facilities	children recreation (playground, play areas, activity spaces)	1	0
				0.4	**0.4**
	Amenities	Sitting features	benches, seats	1	1
		Picnic table, shelter, pavilions		1	1
		Public sanitation		1	1
		Animal compound/petting zoo		0	1
		Gardens		1	0
		Gastronomy		0	0
		Safety and warning signs	park has adequate provision for safety and warning signs	1	1
		Lighting	main paths well lit	1	1
				.75	**.75**
normalized value for infrastructure				**0.73**	**0.66**

Several differences were highlighted in the infrastructure dimension of the two parks. First was observed on the recreation activities and amenities. For example, presence of a basketball court and animal cages were recorded in NP which were not found in Rizal Park, while gardens and playground facility were present in the former but not on the latter.

Figure 5. a. provides a breakdown of green and grey space normalized values for the two urban parks. RP showed a higher normalized value to both green (.71) and grey space (.73) than NP (green .62, grey .66). Even though biotic dimensions provided similar normalized values, there were still differences in the characteristics of both parks in other categories under that dimension. For example, the more natural looking NP was reflected in the type of biotic elements that were observed such as natural-like features such as no large lawns or grassy open space, and presence of spontaneous vegetation. In the case of Rizal Park, which has more cultural-related elements, this was reflected in the higher normalized value for cultural and heritage category. Figure 5. b shows the overall normalized value of structural diversity for both parks. In terms of the aggregated total value of both green and grey space (weighted equally), Rizal Park (.72) has a higher value combined than NP (.64) (see Figure 5. b).

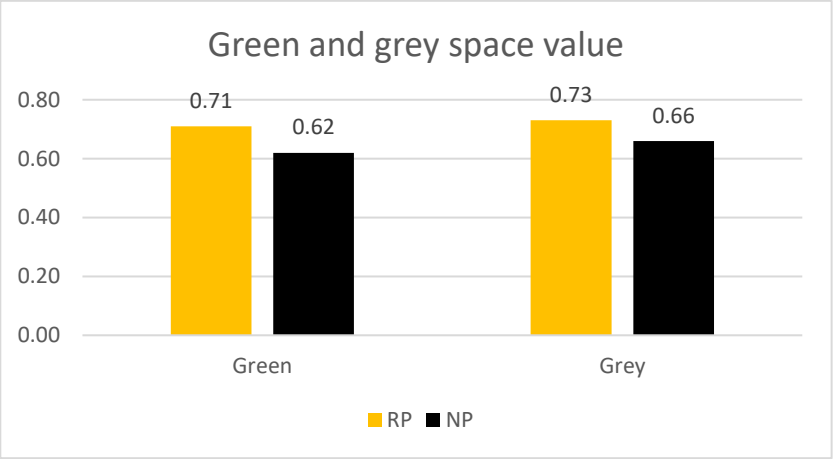


Figure 5. a. Normalized green and grey space value of Rizal and Ninoy Aquino Parks

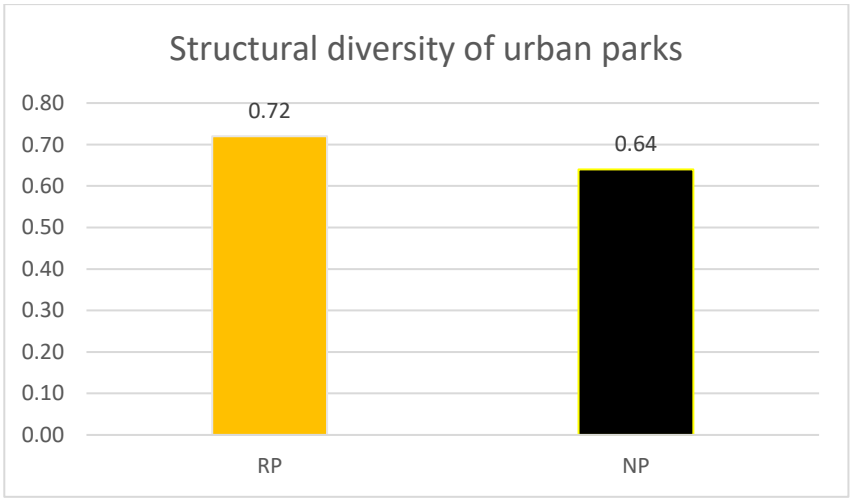


Figure 5. b. Normalized value of structural dimension of urban parks

5.3. Summary

Based on the approach of Voigt et al. (2014), Rizal Park has a higher structural diversity than NP. This can be seen in the overall normalized green and grey space value. Furthermore, there are different categories under each dimension that makes the differences identifiable. This helps in the categorization of the urban parks and in identifying the characteristics of the park.

This section demonstrated the systematic approach in characterizing the structural diversity of the selected urban parks. This enabled an assessment for comparison of the type of biotic and abiotic features that are present in the park (green spaces) as well as the type of infrastructure (grey spaces) found therein. The approach provides a simple basis for comparison regarding the potential of urban parks to deliver important ecosystem services to people.

The next section presents the finding on the uses and activities in urban parks related to cultural ecosystem services derived from a systematic observation of visual manifestations.

5.4. Activity Observation

This section provides an overview of the findings for the second task which aims to record activities of people on site. This is also an important part of the first phase of this research because it provides an understanding of the types of activities people perform in the park and the frequency of its occurrence. It includes findings from the onsite observation of the visual manifestations of cultural ecosystem services related uses and activities of two parks. The section highlights the differences in use and activity patterns of the two parks during the pandemic. This section also highlights the green and grey spaces where the activities took place.

5.5. Visual manifestations of cultural ecosystem services uses and activities

This section provided an overview of the results of task 2, to investigate the use and activities of people in the urban parks. The observation conducted on site was done to identify the uses and activities that people were doing while inside the park and where

these have taken place. The counts of directly observed activities and uses in urban parks provide a snapshot of the interactions that happen within the urban parks.

5.5.1. Ninoy Aquino Parks and Wildlife Center uses and activities

For the NP, the data included in the observations were taken between the last half of December 2020 and first week of March 2021. A total of 772 users were observed in the park during the 12-day visit dedicated for this task. The demographic information of the park that were collected included the gender and the estimated age bracket or group that the users belonged to. It was observed that, 59.50% of the users were male and 40.50% were female. In terms of user age, it was observed that due to the pandemic protocol and restrictions, those aged below 18 and above 65 were not observed using the park. 100% of users belonged to 18-65 years age bracket.

A total of 1422 activities were observed in the park. The most common activities observed for this park include – interacting with another person or group (40.1%) followed by walking (17.0%) then by photography-related activities (12.7%) (see Table 5. d.). Social activities were recorded as performing activity with a group or another individual. For example, people were observed doing a specific activity as a pair or as part of a group. In this park, there were 358 user groups that were observed (e.g., as individual, in pair, or as a group >2). The park was predominantly utilized as a venue for social relations during the pandemic despite the restrictions that were implemented, with 44.4% of observed users seen in pairs and 19.0% seen as part of a group. However, the degree to which the park also served as an area for individuals seeking solitude is also considerable, with 36.6% of users observed in the park have done the activity alone or without company.

There was a total of 920 observations made regarding the locations of activities within the park (see

Table 5. e.). These observations were classified as either belonging to the green or grey spaces of the park. This was done to highlight where activities took place in the park and to categorise these locations into green and grey spaces. It should be noted that park users can engage in more than one activity over the course of observation. Interestingly, a total of 728 (79.1%) activities were observed were seen in grey spaces.

The grey spaces seem to be important in people's activity in the park. It was observed that, 359 counts (39.0%) of the observed activities were done in paths, edges, or trails, while the rest of the observed activities on grey spaces were either found to be done using site fixtures such as benches or picnic tables with 247 (26.9%) or interacting with buildings, monuments, and statues with 122 (13.3%). Meanwhile a total of 192 (20.9%) activities were identified in green spaces. These activities associated with green spaces were found within or within close proximity of a prominent natural feature of the site (14.9%) or in open areas of the park (6.0%).

Table 5. d. Frequency count of observed uses and activities in Ninoy Aquino Parks and Wildlife Center

Activity	NP	%
socializing	570	40.1
walking	242	17.0
photography	181	12.7
sitting	171	12.0
standing, watching/observing, waiting	93	6.5
working	92	6.5
Reading	26	1.8
bicycling	18	1.3
sports	11	0.8
picnic/eating	5	0.4
exercising	4	0.3
dog walking	3	0.2
playing games	3	0.2
dancing	2	0.1
drawing	1	0.1
jogging/running	0	0.0
hoola-hoop	0	0.0
lying down/sleeping	0	0.0
playing musical instrument	0	0.0
Total	1422	100

Table 5. e. Distribution of activities per spatial category in NP

Grey space	Count	%
paths edges trails	359	39.02
site fixtures	247	26.85
buildings, monuments, statues	122	13.26
Total	728	79.13

GREEN SPACE	Count	%
open space, ground	55	5.98
natural features	137	14.89
Total	192	20.87

5.5.2. Rizal Park uses and activities

Rizal Park data collection took place between January 2021 and July 2021. A total of 2,885 users were observed in the park during the 14-day visit dedicated for this task. In this study, more than two-thirds of the observed users were found in Rizal Park (78.89%) (see Figure 5. c). For this park, there were more male (58.2%) than female (41.8%) visitors observed. In contrast to the previous park, users belonging to the <18 years old N = 102 (3.5%) and >65 years old bracket N = 19 (0.7%) were present. The remaining 2,764 (95.8%) users observed in this park belonged to the 18-65 age group.

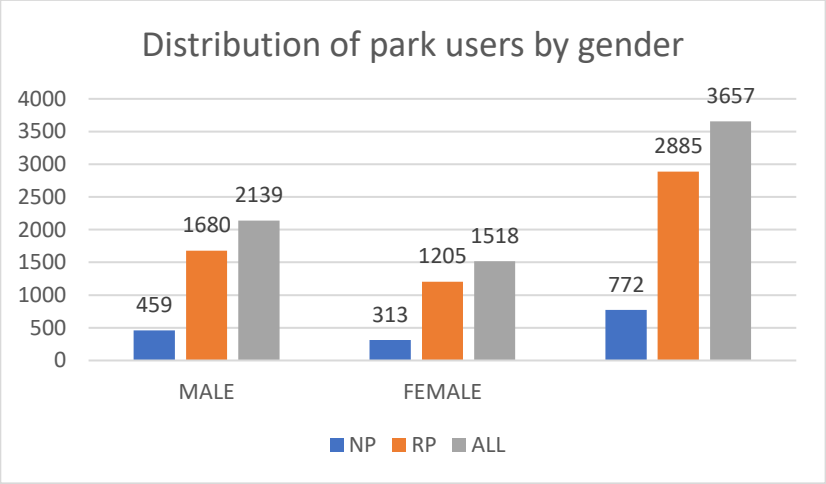


Figure 5. c. Distribution of park users by gender in two parks

Table 5. f. provides an overview of the observations of activities in the park. The activities ranged from interacting with another individual or group (33.6%); walking (17.2%); sitting (13.4%); standing, watching, observing, waiting (11.7%). The total number of activities observed in this park was 5,167. Additionally, a total of 1,625 user groups observed in the park. Those seen alone in the park accounted for 53.7% of the users observed, which was more than the recorded observation in the previous park. The park as a social venue was also evident in this park, with 30.9% were seen as pairs and 15.5% were in groups.

The overwhelming share of the spatial classification to which activities were observed in Rizal Park were in grey spaces (97.4%) (see Table 5. g.). In contrast, there were only 88 (2.6%) observed activities done in the green spaces of the park. Among

the types of grey spaces, users were seen mostly doing activities along paths, edges, and trails which accounted for 70.3% of observed uses and activities. There were 500 (14.8%) observed direct interactions or usage of site fixtures such as benches and picnic tables within the park while a total of 419 (12.4%) were seen interacting within building, monuments, and statues on site. In terms of green space activities, a low amount of usage and activities were seen in the parks open spaces or open ground areas, with only 34 (1%) counts were observed. Similarly, only 54 (1.6%) counts of uses and activities were seen within the natural features of the park such as trees and other landscape elements.

Table 5. f. Frequency count of observed uses and activities in Rizal Park

Activity	RP	%
social	1737	33.62
walking	890	17.22
sitting	692	13.39
standing, watching/observing, waiting	602	11.65
photography	317	6.14
bicycling	270	5.23
exercising	257	4.97
working	169	3.27
jogging/running	142	2.75
hoola-hoop	45	0.87
dog walking	23	0.45
dancing	16	0.31
sports	3	0.06
playing games	2	0.04
lying down/sleeping	1	0.02
Reading	1	0.02
playing instrument	0	0.00
picnic/eating	0	0.00
drawing	0	0.00
Total	5167	100

Table 5. g. Distribution of activities per spatial category in Rizal Park

Grey space	Count	%
paths edges trails	2382	70.29
site fixtures	500	14.75
buildings, monuments, statues	419	12.36
Total	3301	97.40

GREEN SPACE	Count	%
open space, ground	34	1.00
natural features	54	1.59
Total	88	2.60

5.6. Comparison of cultural ecosystem services uses and activities between two parks

This section contrasts the uses and activities observed in NP and Rizal Park.

Collectively, there were a total of 6,589 activities observed in the two parks. Social activity was most frequently observed (35.0%), followed by walking (17.2%), sitting (13.2%) and standing, watching/observing, waiting (10.6%). The second research task revealed that the categories of activities in these two Metro-Manila urban parks can be directly and easily linked to cultural ecosystem services. The first was, related to social relations, a cultural ecosystem service that was described as “bringing citizen together” or “interaction between individuals”. For example, users walking with someone or with a group within the park was considered a form of social interaction that could be recorded as one of the activities that users have done in their visit. In this case, the assumption taken was, people that do activities with other individuals is a manifestation of social activities in urban parks which contribute to human well-being therefore a form of benefit derived from the park. It is important to point out that the observation of social activities as a cultural ecosystem service occurred simultaneously with other forms of activities such as playing, walking, running etc. The simultaneous occurrence of social activities with other activities were commonly observed in both parks.

The second cultural ecosystem service that was observed in this task fell within “recreation and leisure”. Three general categories of activities were used to differentiate the activity types in this study: active, passive and others. In terms of recreation, active activities represent the greatest share of this type of cultural ecosystem service. For example, for active activities a total of 890 walking activities were observed in Rizal Park and 242 in NP which represented 17.18% of all activities observed. There were also other active activities that were also considered related to recreation and leisure service, which can be a form of physical activity. For example, in Rizal Park these activities included bicycling (280), jogging/running (142), exercising (257), and sports (3). In contrast, there were no observed jogging and running activities in NP, while a small count of activities related to exercising (4) and sports (2) were observed. Similarly, some active activities were considered as a type of recreational activity that could be placed between physical activity and entertainment-related recreation type. For example, in Rizal Park hoola-hooping (45), dancing (16) and playing

games (2) were observed related to this activity type, while in NP, only dancing (5) was recorded during the visits.

The third cultural ecosystem service that was observed was related to "aesthetics". This was somewhat more complex to identify with the first two category such as active and passive activities, but easier to identify in a particular element of the third category. In this case, photography provided the link in identifying this type of cultural ecosystem service. For example, there were a total of 317 recorded photography activities in Rizal Park and 181 for NP. Collectively photography was 7.6% of the total activities observed where taking pictures of the prominent features of the park were done by users. In the case of Rizal Park, some of the photography activities were focused on the landscape features of the gardens within the park as backdrop such as the man-made pond in the Chinese and Japanese gardens as well as the man-made water feature at the central promenade. For the NP, the landscape features were the subjects of the photography activities, these were seen in the use of the man-made lagoon and view of the natural surroundings as backdrops of the photos.

The fourth cultural ecosystem service observed was "cultural and heritage". Similar to "aesthetics", identifying locations of photography provided a way to identify this benefit in the parks included in this study. In the case of Rizal Park, users were observed taking photos of the historical sites within the park. For example, users were seen posing for pictures in front of the Rizal Monument and other historical markers and statues within the park. In addition to this, the historic nature of the park itself and the ecological importance of the setting in terms of diversity of trees present in the park, provided the cultural and heritage importance of that park as well as the benefits associated with it. Meanwhile, in the case of NP, the designation of the area being a national park and legally protected nature reserve highlighted its cultural and heritage importance. The number and type of trees that were present, as well as the flora and fauna observed in the area that were distinctly found in the country, provided this type of cultural ecosystem service value to this park.

The fifth cultural ecosystem service observed was "spiritual and religious". This category was related to the use of the park as an individual. Those that visited the park alone or have done activities in the park in isolation or individually were assumed as

engaging in a form of spiritual connection with the park. In the case of Rizal Park, there were 872 individuals observed in the park who were without company. For NP, there were 131 individuals observed. In terms of “spiritual and religious” activities, there were no explicitly religious activities, since these types of gatherings were prohibited during the data collection period. It was observed, however, in Rizal Park that there were activities related to spiritual activity, these were seen in individual? meditative exercises such as Tai chi and yoga performed by older adults in two different instances.

During the visit, education-related cultural ecosystem service was not observed in either park. But looking at the activities of people in the park and where they performed these activities provided a way to speculate on a connection to this cultural ecosystem service. For example, people in Rizal Park were observed reading the markers and signages about the historical importance of the statues and monuments; these provide education or knowledge transfer of the historic/cultural value of elements of the park to users, hence, providing awareness and knowledge about these park elements. However, this cultural value is not necessarily linked to the ecological importance of the park but more on its historical or cultural and heritage significance. In the case of NP, people observed viewing the animals that were housed in the park allowed them to learn about these animals and wildlife or nature in general. The historic nature of the Rizal Park provided a different learning or educational value as compared to the nature-like setting of the NP; where the former provides a glimpse of history embedded in a green space, the latter provides a showcase of natural scene and wildlife.

5.7. Summary and link to next chapter

In summary, this process provided a way to identify, observe, and interpret systematically the range of cultural ecosystem services provided in urban parks. By looking at the uses and activities that were performed by people and the manner by which these activities were conducted it allowed for categories of cultural ecosystem services to emerge. However, not all cultural services were easily distinguishable using this approach such as spiritual, education, aesthetics and inspiration. Additionally, several activities may be interpreted to serve as a way to experience other cultural ecosystem services and benefits such as walking where in walking may serve as an

active recreational activity or as a means to experience nature or scenery (aesthetics). Same with sitting, can be a form of passive activity for resting at the same time can be a way of exploring the surroundings and its aesthetic features. For example, a sitting area or bench situated in front of a scenic view or a heritage site, may serve as a link to experience cultural services related to the scenic view or heritage site.

The next section presents the findings on the interviews with urban park users about their perception on the cultural ecosystem service provided by urban parks.

6. Chapter 6 Results and Findings 2

6.1. Introduction

This chapter presents the findings of the semi-structured interviews of park users. The first section provides an overview of the different questions and the interpretive analysis to the responses. Results for each question per park were presented separately. Several questions returned various themes for analysis. The second section provided an overview of the free coding of user responses related to the concept of cultural ecosystem services in urban parks. Like the previous section, findings are presented separately for each park. The third section provides the results of the participatory mapping that was integrated in the interview, focusing on locations where users can identify on the map their responses on the cultural ecosystem service prompts. The final section of this chapter provides the interpretive analysis of responses related to cultural ecosystem services where the coding was based on benefit, services and associated value of the response. This chapter will conclude with a summary of the important findings and link to the next chapter.

6.2. User profile of Ninoy Aquino Parks and Wildlife Center interviewees

A total of 19 park users were interviewed in NP. Ten were park visitors while the remaining nine were park staff. The gender distribution of the interviewees was seven female and twelve males. Half of the participants belonged to the 18-30 years old age group while the remaining half belongs to the 31-65 age bracket.

6.3. Ninoy Aquino Parks and Wildlife Center coding of responses from on-site interviews.

This section presented the findings from the interviews in NP. Six questions were asked to the respondents that covered a range of issues regarding park use. Questions included why they came to the park, what activities were planned and done during the visit, what places were visited, how parks were selected for visitation, important characteristics of the park and changes to park if there was any.

6.3.1. Motivation for visiting the Ninoy Aquino Park's and Wildlife Center

There were four dimensions of cultural ecosystem service that emerged in the interviews in NP: (1) recreation and leisure, (2) spiritual, (3) aesthetics and (4) social relations (see Table 6. a.). Two dimensions, spatial qualities and economic, were not considered to fall within a cultural ecosystem service category.

Table 6. a. Participant's responses for motivations in visiting the Ninoy Aquino Parks and Wildlife Center. Park users were asked "Why did you come to the park today?"

Dimension	Count	Theme	Count	Code	Count
Aesthetics	13	Change of scenery	7	See God's creation	1
				Scenery	1
				Different experience than mall	1
				Attractions - zoo and plants	1
				Beautiful place	1
				Nature	1
				See the monkeys	1
		Connection with nature	5	Have fresh air	2
				Grounding	1
				Nature	1
				Scenery	1
Spiritual connection	9	Physical restoration	9	To relax	3
				To relieve stress	3
				De-briefing	1
				To feel peace and tranquility	1
				Grounding	1
Recreation and leisure	8	Concern for one's health	3	To clear the mind	2
				Refresh	1
		Mental pursuit	1	Picture taking	1
		Breaking one's routine	5	Quiet	3
				Locked in the house for too long	1
				Different from home	1
Social relations	5	Social engagement	3	Celebration	1
				Bonding	1
				Accompany a friend	1
		Creative opportunity	2	Photoshoot	1
				Accompany a friend	1
Spatial qualities	3	Chance encounter	3	Grounding	1
				De-briefing	1
				To check on something	1
Economic	9	Stewardship	9	Working in the park	9

Motivations related to aesthetics were the most mentioned reasons for visiting the park. This was followed by spiritual connection and recreation and leisure. For

aesthetics, two themes emerged – change of scenery and connection with nature. Seeing "God's creation", "beautiful place" and "scenery" were some of the mentioned responses coded in this theme. For recreation and leisure, three themes emerged: concern for one's health, mental pursuit, breaking one's routine. One of the park users mentioned that they have been "locked in" for too long during the pandemic and this was a necessary reprieve to leave their house.

Two dimensions emerged that are indirectly related to cultural ecosystem service benefits: spatial qualities and economic. For the spatial qualities, it was interpreted as providing the means to experience something related to these cultural ecosystem services and benefits. The spatial quality or characteristics provided a way to experience the urban park in a way that led to interactions that enabled a particular connection with nature. For example, one respondent mentioned.

> I was just going to check something, but at the same time we were locked down previously, so I did some grounding, where in you step on the grass, to destress and do debriefing, something like that.

The economic dimension was interpreted as a motivation related to working in the park. Stewardship (9) was the theme associated with park staff's motivation for coming to the park. This was completely related to activities of park staff.

6.3.2. Participant's activities during the park visit

The dimensions that emerged from the interview data regarding activities done in the park were recreation (15), inspiration (15), spiritual (11), social relations (10), and cognitive (11) (see Table 6. b.). Four were identified with cultural ecosystem services (recreation, inspiration, spiritual, and social relations). Cognitive is not included in the MA's categories of cultural ecosystem services; however, responses to this highlighted an important observation regarding how one's visit to the park contribute to one's well-being.

Under recreation, two important themes emerged, physical restoration (11) and park attribute (4). For physical restoration, one individual mentioned engagement with physical activity with a friend, while several individuals mentioned walking. Meanwhile,

park attribute was used for codes relating to use and activities related to things found or offered in the park.

Table 6. b. Participant's responses for activities done in Ninoy Aquino Parks and Wildlife Center. Participants were asked "What activities have you done in your visit to the park?"

Dimension	Count	Theme	Count	Code	Count
Recreation	15	**Physical restoration**	11	Walk	3
				Eat	2
				Play badminton	1
				Arnis	1
				Running	1
				Sit	1
				Explore	1
				Exercise	*1*
		Park attribute	4	Use amenities	1
				Picnic	*1*
				Visit	*1*
				Get fresh air	*1*
Inspiration	15	**Stewardship**	14	*Park maintenance activities*	*10*
				Propagation of ornamental plants	*4*
		Creative expression	1	Photoshoot	1
Spiritual	11	**Connection with nature**	11	Stay in one place	3
				Sit	2
				Observe the surroundings	2
				Bird watching	1
				Explore the park	1
				Listen to the birds	1
				Grounding/earthing	1
Cognitive	11	**Attention restoration**	5	De-stress	2
				Reminisce	2
				Unwind	1
		Mental pursuit	6	Relax	3
				Picture taking	2
				Think clear	1
Social relations	10	**Social engagement**	10	Talking	3
				Strolling	3
				Bonding	2
				Accompany friend	1
				Help co-workers	*1*

Inspiration was the dimension best suited to represent the responses of individuals in this section. The theme that emerged here was stewardship. Most of the activities coded in this theme were about maintenance and taking care of the park. Park users interviewed showed enthusiasm and sincerity in their work in contributing to the

improving condition of the park. Most importantly, they showed a deeper understanding of the importance of the park for others and for the community. This can be seen in the following quotation. “I go around the park, but I still check on things that can be done to further enhance the beauty of the park”.

Spiritual was tied with cognitive with the same number of coded responses (11). One theme emerged under this, which was about the connection with nature. People in the park stayed in one place in the park or interacted with nature. For example, one user stated

> “uhm, now, earlier, of course we walked around. Then we had lunch here, and until now, we stayed here just talking to each other. We just sat here because we observe the health protocol as much as possible, we don’t really want to walk around because of it”.

The fifth dimension, cognitive, was also an important activity for users in the park. The urban park served as a place where one can restore and improve their minds. Two themes were identified: attention restoration and mental pursuit. Coded activities under this were about addressing stress, relaxing, and creative expression. In the words of one user, “Now, since its pandemic, there’s few people here, it’s more relaxing, quiet, not too much noise. You really don’t hear the noise in the city”.

The final dimension that emerged from the park users was social relations. Even though it has the least number of mentions, the activities were an important part of their experience. For example, one park user response captured this:

> Explore. Of course, by exploring the park, you definitely have to take pictures so that you can post something, then the two of us get to bond as well. That’s what we have done, we explored the park.

6.3.3. Spatial categories of visited areas in the park

The places that people visited in the park were assessed and grouped based on association with particular spatial dimension. The responses were categorized based on the two broad spatial dimensions in the urban park: the green space and grey space. The grey spaces (27) were mentioned more than green spaces (22). From this general

classification, five themes were used to characterize the responses (see Table 6. c.). For the NP, the most frequently mentioned response to the question "what places have you visited or used in the park?" was generally connected to exploring the different areas of the park and the pathways linking the different areas of the park.

Table 6. c. Participant's responses for places visited in Ninoy Aquino Parks and Wildlife Center. Park users, on site, were asked "What places have you visited in the park?" The spatial dimension, theme, code, and frequency count of responses were provided.

Dimension	Count	Theme	Count	Code	Count
Grey spaces	27	Paths	13	Walk paths around the park	8
				Bridge/boardwalk near gazebo	3
				Roadways	*2*
		Buildings and structures	13	*Gazebo*	*5*
				Fishing village	*1*
				Teahouse	*1*
				Motor pool	*1*
				Amphitheater	*1*
				Building where wife is assigned	*1*
				Information center	*1*
				Near the Wi-Fi area	*1*
				Museum	1
		Site fixtures/elements	1	Near the lagoon-bench	1
Green spaces	22	Green amenity	11	*Picnic grove*	*1*
				Picnic areas	*1*
				Peaceful quiet area near lagoon	1
				Nursery	*1*
				Garden area	*1*
				Arboretum	*1*
				Animal / bird cages	5
		Landscape feature	11	Lagoon	7
				Open spaces or open spaces	3
				Area with plenty of trees	1

The grey space dimension included three themes: paths, buildings & structures, and site fixtures/elements. Both the paths (13) and buildings & structures (13) received equal mentions. Responses highlighted the type of engagement of people in the park and how they perform this engagement and where. For example, when asked about places visited in the park, one user did not specifically mention any location but what was done "Uhm, just here, I just explored the park, looked at the birds and there (pointing towards the lagoon area) I just went around the park". Interpretation in this statement provided several codes: "explored the park and went around" was coded as

paths, “looked at the birds” was coded as going to the animal/bird cages then reference to the lagoon, coded as lagoon. Some users did not directly go to the amenities of the park but kept a distance instead because of not wanting to be close to people due COVID-19 transmission. This interesting point was captured in this quotation “We just observed people here, because we don’t know about those people coming in and what they have been doing…We just went along the path walk, we did not go to the zoo area, because we are avoiding crowded places.”

The green space dimension included two themes: the green amenity and landscape feature. These two themes of green space received equal mentions. Of the seven green amenities that were identified, the animal/bird cages received the greatest number of mentions. Among the three landscape features that were mentioned by participants, the lagoon (7) was the most mentioned landscape feature that people visited while in the park. It is important to point out that the lagoon, gazebo, and the animal/bird cages were the most visited feature of the park. This affinity to the lagoon and gazebo was expressed by one user.

> Just there (pointing towards the lagoon), going around that… much of the time spent is in the gazebo and beside the lake… that’s what people like… down there (pointing towards the shoreline), there’s always a lot of people there.

6.3.4. Selecting parks for visitation - insights from Ninoy Aquino Parks and Wildlife Center users

Park users were asked how they select which park to visit. Six dimensions emerged in the responses of park users with seven themes representing various coded response (see Table 6. d.). These dimensions included spatial qualities, spiritual connection, biodiversity, aesthetics, recreation and cognitive. The spatial qualities (15) got the greatest number of coded responses. Under this dimension, there was one theme that emerged. Park attribute is a theme that was about the codes pertaining to the park’s physical attributes. It was found that the importance of this dimension resonated with five individuals whose preference was to visit a big park and five others whose visits were influenced by the park’s proximity to their homes. One respondent somehow provided multiple responses that focused specifically on this theme: “Of

course it has to be near, has available transportation so that it won't be a hassle to visit, and then the fee (inexpensive)."

Table 6. d. Participant's responses for selecting parks to visit, insights from NP users. Park users on site were asked "How do you select which park to visit?"

Dimension	Count	Theme	Count	Code	Count
Spatial qualities	15	**Park attribute**	15	Spacious	5
				Near	5
				Availability of public transport	1
				Inexpensive	2
				Easily accessible	2
Spiritual connection	15	**Seclusion**	8	Not crowded	6
				Privacy	1
				Grotto	*1*
		Tranquility	7	Quiet	4
				Fresh air	*2*
				Relaxing	1
Biodiversity	11	**Green elements**	11	Plenty of trees	6
				Fauna	2
				Grassy area	1
				Plants	1
				Variety	*1*
Aesthetics	7	**Green amenity**	7	Refreshing environment	2
				Beautiful views	2
				Pleasant environment	1
				Forest-like	1
				Water features	1
Recreation	2	**Physical pursuits**	2	*Place for children to run*	*1*
				Safe for children	*1*
Cognitive	2	**Attention restoration**	2	Think clearly	1
				Escape problems	1

The second most frequently mentioned dimension was about the spiritual connection (15) to the park. This dimension was considered part of the cultural ecosystem service. Two themes emerged from this coding: seclusion and tranquility. Seclusion (8) was the theme that received the most number of coded responses, with six individuals feeling the same thing about choosing a park that does not have too many people inside. This was expressed in the following quotation: "First of all, I prefer the quietness of the place, refreshing environment and I want a breezy park and should not be crowded." For another park user "It's more okay for me if there's few people

and plenty of trees and grass… I really think it would be better if there are few people there". While for one staff member said

> "I am really choosy sir (in selecting parks). For me I just want peace of mind sir. I don't like an overcrowded park. There are a lot of people here (referring to pre pandemic experience) but, I just find a place here that is quiet. That is my main objective."

Biodiversity (11) is not a cultural ecosystem service but considered as another category of ecosystem service. Under this, one theme emerged, and it was about the green infrastructure elements. This theme included the following codes which ranged from quantity of trees to landscape elements such as fauna, flora, and water features.

Aesthetics (7) were another cultural ecosystem service benefit that was identified in the responses of park users. For this dimension the theme that emerged was green amenity and was used to represent codes that included "refreshing environments", "beautiful views", "pleasant environment", and "fresh air".

The final two dimensions that were found in the coding of responses were a mix of a cultural ecosystem service and a non-cultural ecosystem service. Recreation (2) was a cultural ecosystem service benefit mentioned by a few park users. The coded response illustrated the value of these places for the physical pursuits of children. As this park user expressed through the recollection of pre-pandemic experience:

> "Thinking about the time before the pandemic, I used to bring my child here, I bring my child here and my child can just run around. And you won't be feeling nervous that your child might get into an accident or something."

Cognitive, the last dimension that was identified here was not a cultural ecosystem service. This was a considered a benefit related to psychological well-being. This type of benefit is important to the discussion of non-tangible benefit people get in urban parks.

6.3.5. Important characteristics of the park

There were eight cultural ecosystem services? dimensions of park characteristics important for park users. These dimensions included: aesthetics, spatial

qualities, recreation, sense of place, spiritual connection, social education disservices (see Table 6. e.).

Table 6. e. Participant's responses on important park characteristics for their activity in the park; Park users on site were asked "What park characteristics are important in the activities that you have done in the park?"

Dimension	Count	Theme	Count	Code	Count
Aesthetics (nature)	31	**Landscape characteristics**	31	Plenty of trees	10
				Scenery	6
				Naturalness	5
				Plenty of animals to see	4
				Water feature	4
				Shaded areas	*2*
Spatial qualities	18	**Spatial condition**	14	Fresh air / clean air	6
				Clean	5
				Well maintained	3
		Park attribute	4	Inexpensive	2
				Spacious	1
				accessible	1
Recreation	13	**Grey Infrastructure**	13	Benches	3
				Picnic area	*2*
				Cottages	2
				Attractions	*2*
				Pathways	1
				Signages	1
				Events area	*1*
				Toilet	*1*
Sense of place	5	**Place attachment**	5	Sounds of nature	2
				Experience nature	*2*
				Feeling in the province	1
Spiritual connection	4	**Tranquility**	4	*Quiet*	*3*
				Refreshing to the mind	*1*
Social	2	**User behaviour**	2	too much crowd affects quality of park	1
				Disciplined visitors	*1*
Education	1	**Education**	1	*Educational*	*1*
Disservices	2	**Incomplete experience**	2	*No children's playground*	*1*
				Too few animals	1

The aesthetic (31) dimension had one theme: landscape characteristics. Plenty of trees (10) was the most frequent important park characteristic mentioned by park users. The second highest was scenery (6) followed by naturalness. Less mentioned was shaded areas (2). The codes here emphasized that these features were important for people's activity in the park.

The spatial qualities dimension got the second most mentions. It consisted of two themes: spatial condition and park attribute. The codes under these themes included fresh air, cleanliness, and the maintenance of park. Four users commented about park attribute. Interestingly, two mentioned about the importance of having an affordable entrance fee to the park.

The third most mentioned dimension was recreation. Only one theme emerged from comments – grey infrastructures. Coded responses under this includes benches, amenities, signages, and paths. One individual expressed multiple coded responses under this theme.

> "I think the part they improved like the benches that are now scattered all over the park, because they did not have these before. We just stayed in one place without benches or pathways… We're just glad that there are plenty of trees… Also, we felt like compared to other parks divided into different areas or something, this park literally feels like wildlife… The area where the animals are, the signages were present in some while for the others there were none. It would be better if they provided the names of the species and details about it."

6.3.6. Changes needed for the park

The responses to the questions for this section were characterized into four categories (see Table 6. f.). The categories used were addition (30), enhancement (12), no change (8) and removal (1). The distinction between categories presented comments in a way that could identify what's lacking, what needs improvement, and what should be removed in the park. For each category, themes specific to grey and green features were identified. Several themes also emerged that encapsulates the management of the park in general and the activity that should be considered.

Table 6. f. Participant's responses for changes in the park, insights from Ninoy Aquino Parks and Wildlife Center users. Participants were asked "What would you like to change in the park if there's any?

Category	Count	Theme	Count	Code	Count
Addition	30	**Grey features**	15	*Add playground*	*6*
				Add more sights (amenities)	*2*
				Add garbage bins	2
				Eating facility	*1*
				Small shops	*1*
				Add more tables and seating	*1*
				Add more comfort rooms	1
				Add more maps	1
		Recreation activity	2	*Boating*	*2*
		Green feature	1	*Water feature*	*1*
Enhancement	12	**Green feature**	5	*Improve landscaping*	*1*
				Better arboretum	*1*
				Improve design of empty areas	*1*
				Clean the lagoon	1
				Add more animals	1
		Park operation	4	*Return to normal*	*1*
				Extend open hours	1
				Increase security staff presence	1
				Add biking activities	1
		Grey features	3	*Improve park display*	*1*
				Improve animal shelter	1
				Fix broken comfort rooms	*1*
No change	8	**Status quo**	8	No change	8
Removal	1	**Grey feature**	1	*Less infrastructure more trees*	*1*

Adding something to the park received the highest number of comments. Under this category, three themes emerged: grey features, (15) recreation activity (2) and green features (1). Grey features that were identified as lacking were provision for children's playground and park amenities in general. One comment was about signages as something that should be added. Adding boating activity and additional water feature were also mentioned by park users. One user expressed the need to think about the kids and other activities to the park.

> "For me I think there's none (change) but if I have to add something, I think environmentally friendly playground for the kids. Because if you think about it, it seems activities for kids are lacking here. Since this is a public place, we know that kids love to play, and they have to be given an area for that. Also, if they can clean the lagoon, maybe they can put boats, I believe they had boating here before."

Improvement to the park was also mentioned as important for the park users. Two general distinctions for the themes were identified here, the green (5) and grey (3) features and the operation of the park (4). The comments for the green features did not have any negative connotation, as most users were building on the good qualities of the park, thinking about enhancing features to make it slightly better. The quotation that follows illustrated this. “Arboretum sir, it must always be maintained sir. There’s no problem with the maintenance, it’s okay really, but, I think we can still do better.”

Eight individuals commented that no change is necessary for the park while one suggested that there should be less infrastructure and more trees in the park.

6.4. User profile of Rizal Park interviewees

A total of twelve park users were interviewed in RP. Nine were park visitors while the remaining three were park staff. The gender distribution of the interviewees was two female and ten male. Five of the participants belong to the 18-30 years old age group while the remaining seven belongs to the 31-65 age bracket.

6.5. Rizal Park coding of responses from on-site interview

This section presented the findings from the interviews in NP. The same six questions were asked to the respondents that cover a range of issues regarding park use.

6.5.1. Motivation for visiting the Rizal Park

There were three dimensions linked to cultural ecosystem services that emerged from the interviews in RP: recreation and leisure, aesthetics, and social relations (see Table 6. g.). There was one dimension, economic, which was not directly linked to a specific cultural ecosystem service.

Motivations related to recreation and leisure were the most mentioned by respondents for visiting the park. This was followed by social relations (5) and aesthetics (3). For recreation and leisure, 11 comments were observed. These observations were spread into three themes: physical activity, opportunity to escape, and chance encounter. Some of the motivations under this were to go on biking,

jogging, exercise for physical activity. Meanwhile "opportunity to escape" was to provide activities for children outside of the house and take them somewhere to explore. The need to go out was highlighted due to the effects of the pandemic on people, especially children.

For social relations, engaging with friends and family were some of the motivations for visiting the park. For aesthetics, only one theme emerged – connection with nature, was primarily interpreted as engaging in the outdoors to perform activity and to get something from nature.

Table 6. g. Participant's responses for motivations in visiting the Rizal Park. Park users were asked "Why did you come to the park today?"

Dimension	Count	Theme	Count	Code	Count
Recreation and leisure	11	**Physical activity**	4	To jog	2
				To go biking	1
				Exercise	1
		Opportunity to escape	4	Bring kids out of the house	1
				Take kids out of the house	1
				Free day no classes	1
				To go out of the house	1
		Chance encounter	3	Passed by	1
				To kill time	1
				Free day no classes	1
Social relations	5	**Social engagement**	5	To go biking	1
				Family bonding	1
				Take kids out of the house	1
				Free day no classes	1
				Bring kids out of the house	1
Aesthetics	3	**Connection with nature**	3	To get fresh air	1
				To go biking	1
				To go out of the house	1
Economic	3	**Stewardship**	3	Working in the park	3

Again, the economic dimension was interpreted as the motivations related to working. Stewardship (3) was the theme associated with park staff's motivation for coming to the park, mostly related to activities of taking care of the surroundings.

6.5.2. Participant's activities done for the park visit

Five dimensions emerged from the interview data when park users were asked what activities they have done in the park (see Table 6. h.). All the activities in the park

mentioned in the interview were interpreted to themes linked with a specific cultural ecosystem service. For example, exercise and walking was interpreted to suit the theme of physical restoration which is under recreation dimension.

Table 6. h. Participant's responses for activities done in Rizal Park. Participants were asked "What activities have you done in your visit to the park?"

Dimension	Count	Theme	Count	Code	Count
Recreation	12	**Physical restoration**	11	Walk	5
				Running	2
				Rest	1
				Exercise	*1*
				Get sunlight	1
				Sleep	*1*
		Park attribute	1	Get fresh air	1
Spiritual	5	**Connection with nature**	5	Explore the park	2
				Observe the surroundings	2
				Stay in one place	1
Cognitive/Aesthetics	4	**Mental pursuit**	4	Picture taking	3
				Reflect	1
Economic	3	**Stewardship**	3	*Park maintenance activities*	*3*
Social relations	1	**Social engagement**	1	Talking	1

The recreation (12) dimension has the most common theme, dominated by physical restoration (11). In this theme, walking (5) was the most mentioned activity done in the park. Walking was often? observed to be coupled with another activity and was usually not part of their initial motivation in their visit. For example, one user mentioned that the reason for their visit was for family bonding on a Sunday and for a good time to go out of the house, but when asked what activities were done during the visit, the following quote illustrates the difference in the motivation for visiting and the actual experience.

> "To walk, to get a bit of vitamin D… yes, we were able to walk around but so far, we're still not yet done, we still need to go to the baywalk, so that at least we can visit a different place. Usually, we just go here in Rizal Park and we haven't tried going to the baywalk yet."

For another user, whose motivation for going was to get fresh air, the activities done revealed through the interview was limited to just walking, “Walking only”. When a follow up question was asked if there were other activities done aside from walking, the response showed a series of walking activities instead. “Nothing more, only walking, walking, rest, walking.”

The spiritual has the second highest comments and consisted of one theme: connection with nature. This theme was closely identified to activities about experiencing nature. For example, this includes comments about exploring the park, observing the surrounding, and staying in one place. This was illustrated in the response of a group of younger individuals that were interviewed in the park. “We just hang out here, after that, we went for a jog, we just stayed in this place (referring to their favorite hangout spot where the interview was conducted).” This group of teenagers were in the park for hours and when asked what other activities were done, multiple codes were highlighted in the response under various themes as expressed in the following statement: “We just talked to each other, then we walked around and stayed here in our favorite spot.”

The final two dimensions, inspiration (3) and social relations (1), received minimal comments. For the inspiration, this included a theme about stewardship, where all activities were about taking care of the park as mentioned by park staff. For example, when asked what activities they have done in the park. The following quotation illustrates this. “Watering the plants, removing the grass, and keeping the park clean.” The social relations, despite of having only one coded response, was manifested in the interaction with the group of teenage boys. This was expected to be least observed during the data collection for individual park users, since the parks were implementing strict COVID-19 protocols which may have partly influenced some social activities like meeting other people or individuals outside their circle.

6.5.3. Spatial categories of areas visited in the park

Users were asked about the places they visited in the park to elicit important locations and experiences of people in the park. The responses were categorized based

on the two general spatial dimensions (green space and grey space). From this general classification, five themes were used to characterize the responses (see Table 6. i.). For RP, the most frequently mentioned response to the question "What places have you visited or used in the park?" was generally connected to experience of green spaces, particularly the green amenities such as the various gardens inside the park.

There were slightly more associations with green spaces (13) from the responses compared to grey spaces (11). Under green spaces, several coded responses showed activities done in the landscape features of the park. For example, three individuals mentioned the fountain area at the central promenade as one of the locations they visited. In terms of grey spaces, paths that were mostly mentioned were related to the promenade area and the walk paths around the park in general. The following quotation highlighted an interesting response of one park user reflecting on where he started his exploration of the park.

> "Upon entering we went directly to the fountain area. We hang out there a bit. We sat on the benches to relax, then we continued walking towards the front of the Rizal Monument. Then we walked around again, at least so we could get a bit of sweat."

Table 6. i. Participant's responses for places visited in Rizal Park. Park users, on site, were asked "What places have you visited in the park?" The spatial dimension, theme, code, and frequency count of responses were provided.

Dimension	Count	Theme	Count	Code	Count
Green spaces	13	Green amenity	8	Flower clock	1
				Chinese garden	4
				Noli garden	1
				Central promenade	1
				Japanese garden	1
		Landscape feature	5	Bench with trees	1
				Fountain	3
				Open area	1
Grey spaces	11	Paths	10	Promenade area	5
				Walk paths around the park	5
		Grey infrastructure	1	Monument	1

6.5.4. Selecting parks for visitation - insights from Rizal Park users

Five dimensions emerged from the responses of individuals when asked how they select which park to visit (see Table 6. j.). The dimension identified includes aesthetics (8), recreation (6), spiritual connection (4), cognitive (6) and spatial qualities (2). Three dimensions were linked to cultural ecosystem services. Two themes were contained in the aesthetics dimension, green amenity, and elements of nature. The activities here were identified as engaging with features of the environment that affects the mind and experience. For example, mentions such as beautiful, refreshing, pleasant environment refers to the green as amenity enjoyed by the senses.

The second dimension contained the two themes linked to physical interaction with the environment. Physical activity and passive engagement were analogous to the level of recreation activity in terms of passive and active recreation. For example, for physical activity comments mentioned includes exercise, bike rentals, and place for kids to play. While for the passive engagement coded responses were eating and get kids outside.

The third dimension was linked to spiritual services. This contained themes related to secluded and tranquil experiences with nature. Within these themes, relevant comments regarding how some park users select which park to visit, one example was illustrated in the following quotation.

> "Number one is safety; although we are still in the pandemic, you feel safe here. Unlike in other parks that are not as clean and as organized as this. It must be safe for the family."

The final two dimensions, cognitive and spatial qualities, were not linked to a cultural ecosystem service typology. Cognitive dimension contained two themes, mental pursuit, and attention restoration. The park played a role in the improvement of the mental well-being of visitors. One park user expressed: "When we talk about parks, it should not be crowded, not too many people because the main purpose why you want to go to a park is for you to unwind."

Table 6. j. Participant's responses for selecting parks to visit, insights of Rizal Park users. Park users on site were asked "How do you select which park to visit?"

Dimension	Count	Theme	Count	Code	Count
Aesthetics	8	Green amenity	7	Beautiful	2
				Refreshing environment	2
				Bright	1
				Pleasant environment	1
				New experience	*1*
		Elements of nature	1	Plenty of trees	1
Recreation	6	Passive engagement	2	Get kids outside	1
				Eating	*1*
		Physical activity	4	Exercise	1
				Biking	*2*
				Place for kids to play	*1*
Spiritual connection	4	Seclusion	2	Not crowded	1
				Safety	1
		Tranquility	2	Quiet	1
				Peaceful	1
Cognitive	6	Mental pursuit	4	Clean	2
				Worth it	1
				Organized	1
		Attention restoration	2	Unwind	1
				Refreshing	1
Spatial qualities	2	Park attribute	2	*Near*	*1*
				Walking distance	*1*

While the theme of park attribute, mentioned by two individuals, reflects the preference to select a park that is close to one's home. For example, one member of park staff stated:

> "The park that I select is the one that is close to my house, just a walking distance. Because it's my bonding time for my child so that he can get sunlight and can get out of the house and be with other kids and play."

6.5.5. Important characteristics of the park

There were six dimensions of park characteristics that were important for park users. The dimensions included: aesthetics, recreation, spatial qualities, spiritual connection, social relations, and disservices (see Table 6. k.).

Aesthetics (16) included two themes, one pertaining to park attributes (14) while the other pertaining to biodiversity (2). Plenty of trees (3) came out as the most mentioned, followed by the view and spaciousness of the park. The coded comments were linked to the value of the aesthetic dimension of urban park. This dimension was manifested in people commenting on the aspects of beauty in environmental settings. One example of the response that illustrated this was shown in the following quotation which also touched on the dimension of social relations and the value for others.

> "Yes, [I] like that, so colorful (referring to the lighting display of the central lagoon). Even if just for a moment, you forget about your worries because you see something different. Then you see the kids who seem to be happy here today. It takes away your stress. You see, this place is so colorful."

Recreation and sense of place was the second most mentioned that people find important in their visit to the park. A large percentage of the coded responses were about the infrastructure present in the park. For example, some users find that the Rizal Monument, the fountain, the playgrounds, and exercise equipment are important for their activities. While one user provided an insightful comment about important park characteristics that represents expectations about what should be found in a park and partly touches on a particular disservice. This was illustrated in the following quotation.

> "When we say park, environmentally speaking, it should be like this, clean, green and with plenty of trees. And then, it's supposed to be holistic in appearance. I used to go to the mountains just to experience peace. The Rizal Park is really okay, but it gets too congested."

But a comment that touched on the importance of the Rizal monument, highlighted the plural nature of the value of a historic structure for people. In this case, one sees two kinds of value in historically significant structures such as monuments or sites. This is usually in terms of their historical and its educational value. This was illustrated in the following quotation from the same user:

Table 6. k. Participant's responses on important park characteristics for their activity in the park. "What park characteristics are important in the activities that you have done in the park?"

Dimension	Count	Theme	Count	Code	Count
Aesthetics	16	Park attribute	14	Plenty of trees	*3*
				View	*2*
				Spacious	*2*
				Shade	*1*
				Colorful	1
				Beautiful	1
				Open area	1
				Green	1
		Biodiversity	2	*Presence of animals*	*1*
				Plants	*1*
Recreation	7	Grey Infrastructures	6	Monument	2
Sense of Place				Fountain	1
				Restroom	1
				Exercise equipment	1
				Playground	1
		Feeling of safety	1	*Safe for children*	*1*
Spatial qualities	6	Spatial condition	6	Clean	4
				Fresh air	*1*
				Well maintained	*1*
Spiritual connection	2	Tranquility	2	Refreshing	1
				Quiet	1
Social relations	1	Value for others	1	See children happy	1
Disservices	2	Quality of experience	2	Not too congested	1
				Playground lacking	*1*

> "I think the important features of the park is the fountain and the monument of Rizal. It is one of the things we have learned in school. The monument of Rizal teaches us something about history."

The third dimension, spatial qualities, consisted of spatial condition as a theme that emerged from the coding of the response. The cleanliness and maintenance of the place was given importance by four park users. The above quotations also touched on this theme. But one user connected cleanliness to the beautiful views in the park as a response to a follow up question that was asked to elaborate further about beautiful views. "It has to be clean and very well maintained."

The next two dimensions were the least mentioned, which includes spiritual connection (2) and social relations (1). One user touched on this highlighting the need for a quiet place in the park, while another provided a very brief response but encapsulated multiple themes that mentioned cleanliness and openness of the park as something that provides a "refreshing" feeling. "This open area, and the clean environment, this is what I prefer, it feels much more refreshing."

The last dimension, disservices, consisted of things that showed things that contributed to the negative aspects of the park. One example was already mentioned in one of the quotations above. Meanwhile the other one was about the unavailability of children's playground. However, it was noted that Rizal Park's playground was closed during the time of data collection due to the COVID-19 restrictions being implemented.

6.5.6. Changes needed for the park

Responses to the questions for this section were characterized into four main categories (see Table 6. l.). The categories used were addition (7), enhancement (7), no change (4) and removal (1). The distinction was important in providing a better overview of the characteristics of the park and the potential disservices that people experience during their visit.

Table 6. l. Participant's responses for changes in the park, insights from Rizal Park users. Participants were asked "What would you like to change in the park if there's any?

Category	Count	Theme	Count	Code	Count
Addition	7	**Grey features**	7	*Add more seating and tables*	*3*
				Exercise facility	2
				Add cultural stuff	1
				Food cart	1
		Green feature	1	*Add more plants*	*1*
Enhancement	7	**Grey features**	2	Improve park	1
				Improve walk paths	1
		Green features	2	Make flowers and plants more beautiful	1
				Make park more beautiful	*1*
		Park operation	3	Open the other parts of the park	1
				No more time limit	1
				Sprinkle systems	*1*
No change	4	**Status quo**	4	No change	4
Removal	1	**Grey feature**	1	Remove the buildings	1

The addition and enhancement of several park features had same number of coded responses. The addition was not about park design or other attractions but more on-site elements such as tables, seating exercise and food facilities. COVID-related restrictions may be linked to these suggestions; during the data collection period, eating was not allowed inside the park and seating facilities were not utilized to full capacity due to the COVID-19 protocols being implemented (see Figure 6. a.). As well, other parts of the park were temporarily closed, and the cultural events and the usual cultural activities people are familiar with were also suspended.

Figure 6. a. Photos of the implementation of various COVID-19 protocols in the park

(1)

1. Signage used for COVID-19 reminders
2. Rizal Park Map showing closed sections
3. Floor markers indicating direction of movement
4. Closed shops and stalls
5. Marked seating and perimeter of lawn with rope

(2)

(3)

(4)

(5)

6.6. Ninoy Aquino Parks and Wildlife Center participatory mapping results of cultural ecosystem services statement prompts.

This section presented the results of the participatory mapping that was integrated in the interview of users in NP. The interviewees were asked about what they associate in the park, using cultural ecosystem service statement prompts. They were given a small dot sticker paper, to mark on the map where they can identify those statements in the park. The following were asked for the users to mark on the map: where in this park you think is beautiful or attractive, where in the park do you feel inspired or motivated, where in this park you feel happiness or enjoyment, where in the park you do recreation and leisure, where in this park you can learn about nature and the environment, and where in this park do you do spiritual or religious activity?

6.6.1. Ninoy Aquino Parks and Wildlife Center participatory mapping of cultural ecosystem services

There were a total of 107 points identified by the respondents regarding the cultural ecosystem services related statement prompts (see Error! Reference source not found.). The statement prompt about happiness and enjoyment (27), interpreted as sense of place based on the responses of individuals, received the most markings on the map. A total of 21 points were identified that resulted from the attractive or beautiful prompt, which is related to aesthetics (see Error! Reference source not found.). Of these 22 points almost all except two were placed around the edges and within the vicinity of the lagoon.

Education (8) prompt received the fewest number of identified locations and mostly related to the animal display and the rescue center. Recreation (21) got the second highest next to aesthetics. These points however were mostly placed on the amenities of the park such as the fishing village (3), auditorium (5), wildlife rescue center (3). Inspiration (20) like aesthetics, points identified were seen within close proximity to the lagoon.

The last two prompts, that were identified the least were, spiritual (10) and education (8). The points for spiritual were identified to be connected to buildings within the park known for hosting religious events such as the open-air auditorium (3) and the grotto (3). While the points for education were identified with buildings that provided information about the park.

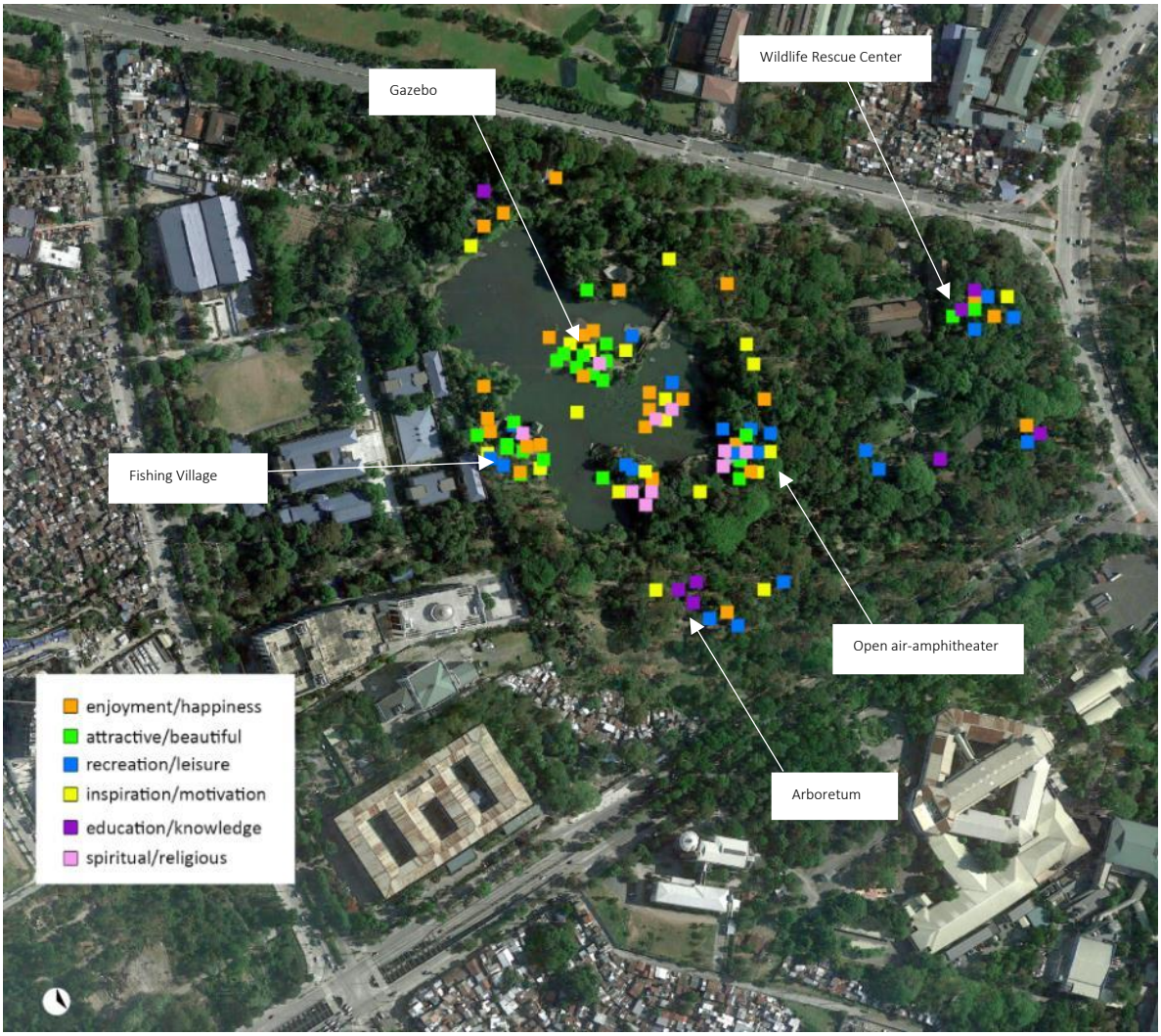


Figure 6. b Ninoy Aquino Parks and Wildlife Center cultural ecosystem service participatory mapping

Figure 6. c Ninoy Aquino Parks and Wildlife Center cultural ecosystem service participatory mapping -

6.6.2. Ninoy Aquino Parks and Wildlife Center associated manifestations of cultural ecosystem services prompts.

Table 6. m. provided a breakdown of the manifestations of cultural ecosystem services taken from the participatory mapping output. Included in this finding were the identified associated manifestations of the mapped locations in the park. The six prompts connected to cultural ecosystem services in this task were categorized based on two spatial categories to which the associated manifestations, the tangible representation on site of the mapped locations, belong to.

There were a total of thirteen locations within the park associated with the mapping points (see Table 6. n.). The 53% of the identified locations were on grey spaces, while 47% were on green spaces. Sense of place (27) prompt were identified on the map the most number of times and was generally associated with the green features of the site. Aesthetics (22) and recreation (21) had the second highest number of mapping points. For both of these prompts more markings were placed on grey spaces than green spaces. Inspiration (20) got the third most number of mapping points, while spiritual and education had 10 and 8 respsectively.

Photographs of the most frequently identified features are presented in Figure 6. m., where the interplay of green and grey infrastructure are also demonstrated. For associated manifestations, the gazebo area received the most number of markings on the map with 17 and was identified with multiple cultural ecosystem service prompts. This location included associations with aesthetic value, sense of place, inspiration, recreation, and spiritual value. Similarly, the amphitheater was second in the the most marked location on the map and share the same type of cultural ecosystem service value that gazebo had in terms of associations with cultural ecosystem services prompts. The third most identified location in the mapping activity was the fishing village (13), followed by the grotto (10) and the lagoon (10). These manifestations that were identified are located around the area of the lagoon. The use of these areas place gave the park users a good view of the lagoon.

Table 6. m. Cultural ecosystem service type and associated manifestations from participatory mapping in Ninoy Aquino Parks and Wildlife Center

Cultural ecosystem service type	Count	Spatial category		Associated manifestation of identified service	Count
Sense of place	27	**Grey spaces**	14	Tea house	3
				Offices	3
				Fishing village	2
				Amphitheater	2
				Wildlife rescue center	2
				Grotto	1
				Office area	1
		Green space	13	Gazebo	4
				Lagoon	4
				Green space	2
				Picnic grove	1
				Animal cages	1
				Arboretum	1
Aesthetics	22	**Grey spaces**	13	Fishing village	6
				Amphitheater	3
				Wildlife rescue center	2
				Grotto	1
				Office area	1
		Green space	9	Gazebo	8
				picnic grove	1
Recreation	21	**Grey spaces**	13	Amphitheater	5
				Wildlife rescue center	3
				Fishing village	3
				Grotto	2
		Green space	8	Arboretum	3
				Animal cages	3
				Lagoon	1
				Gazebo	1
Inspiration	20	**Green space**	11	Gazebo	3
				Lagoon	3
				Green area	3
				Arboretum	1
				Animal cages	1
		Grey spaces	9	Grotto	3
				Amphitheater	2
				Wildlife rescue center	1
				Tea house	1
				Fishing village	1
				Office area	1
Spiritual	10	**Green space**	7	Amphitheater	3
				Grotto	3
				Fishing village	1
		Grey spaces	3	Lagoon	2
				Gazebo	1
Education	8	**Green space**	4	Arboretum	3
				Animal cages	1
		Grey spaces	4	Wildlife rescue center	2
				Information center	1
				Office area	1

Table 6. n. Associated manifestations of cultural ecosystem services prompts from participatory mapping in Ninoy Aquino Parks and Wildlife Center

Associated manifestations	Number of markings	Aesthetics	Sense of place	Inspiration	Recreation	Education	Spiritual	Green	Grey
Gazebo	17	x	X	X	X		X	X	
Amphitheater	15	x	X	X	X		X		X
Fishing village	13	x	X	X	X		X		X
Grotto	10	x	X	X	X		X		X
Lagoon	10		X	X	X		X	X	
Wildlife rescue center	10	x	X	X	X	X			X
Arboretum	8		X	X	X	X	X	X	
Animal cages	6		X			X		X	
Green area	5		X	X				X	
Tea house	4		X	X					X
Picnic grove	2	x	X					X	
Information center	1					X			X
Office area	1					X			X

Figure 6. d. Photos of associated manifestations of cultural ecosystem services from participatory mapping in Ninoy Aquino Parks and Wildlife Center

1. Photo of gazebo, view from the boardwalk taken during one of the site visits by the researcher

2. Photo of open-air amphitheater, view from the southwest, taken during one of the site visits by the researcher

3. Photo of the fishing village, view from the south, taken during one of the site visits by the researcher

4. Photo of the grotto, view from the northeast, taken during one of the site visits by the researcher

5. Photo of the lagoon, view from the western side, taken during one of the site visits by the researcher

6.7. Rizal Park participatory mapping of cultural ecosystem services

This section presented the results of the participatory mapping that was included in the interview of RP users. The interviewees this time were asked about where they associate in the park specific cultural ecosystem service statement prompts.

6.7.1. Rizal Park participatory mapping of cultural ecosystem services

There was a total of 114 points that were identified by the respondents regarding the six cultural ecosystem service prompts. Only one section of the park was opened (central section) during the course of data collection. However, users were still able to identify important locations in the other two sections of the park that were closed to the public (western and eastern sections). Collectively, the statement prompt on aesthetics received the most number of markings on the map (41). While sense of place and inspiration had almost similar number of points with (23) and (22) respectively. Recreation was identified 17 times while education (7) and spiritual (4) had the least number of marked locations. The central section (97) of the park received the most number of markings on the map associated with cultural ecosystem service prompt. This was followed by the eastern section (see Figure 6. f.) with (10) and the western section (see Figure 6. g.) with (7).

Figure 6.e. provided an overview of each statement prompts for the central section. The greatest number of prompts belonged to the aesthetic value (34) followed by sense of place (20) then inspiration (17). Recreation got (15) identified points, while the lowest number of markings were on education (7) and spiritual (4). Figure 6. f. provided the distribution of each statement prompts for the eastern section. Only three prompts were identified here namely aesthetics (6), inspiration (3) and sense of place (1).

The central lagoon got the highest number of markings on the map with 25 and was associated with all the prompts except spiritual. This was followed by the Rizal Monument (25). Similarly, the central lagoon was associated with all prompts except for spiritual. The Chinese Garden (10) got the third most number of markings on the map, was found to be the only feature that was associated with all cultural ecosystem services prompts. All gardens in the park were associated with spiritual benefit. Three

locations had only one marking: the promenade, the pigeon house and the National Library.

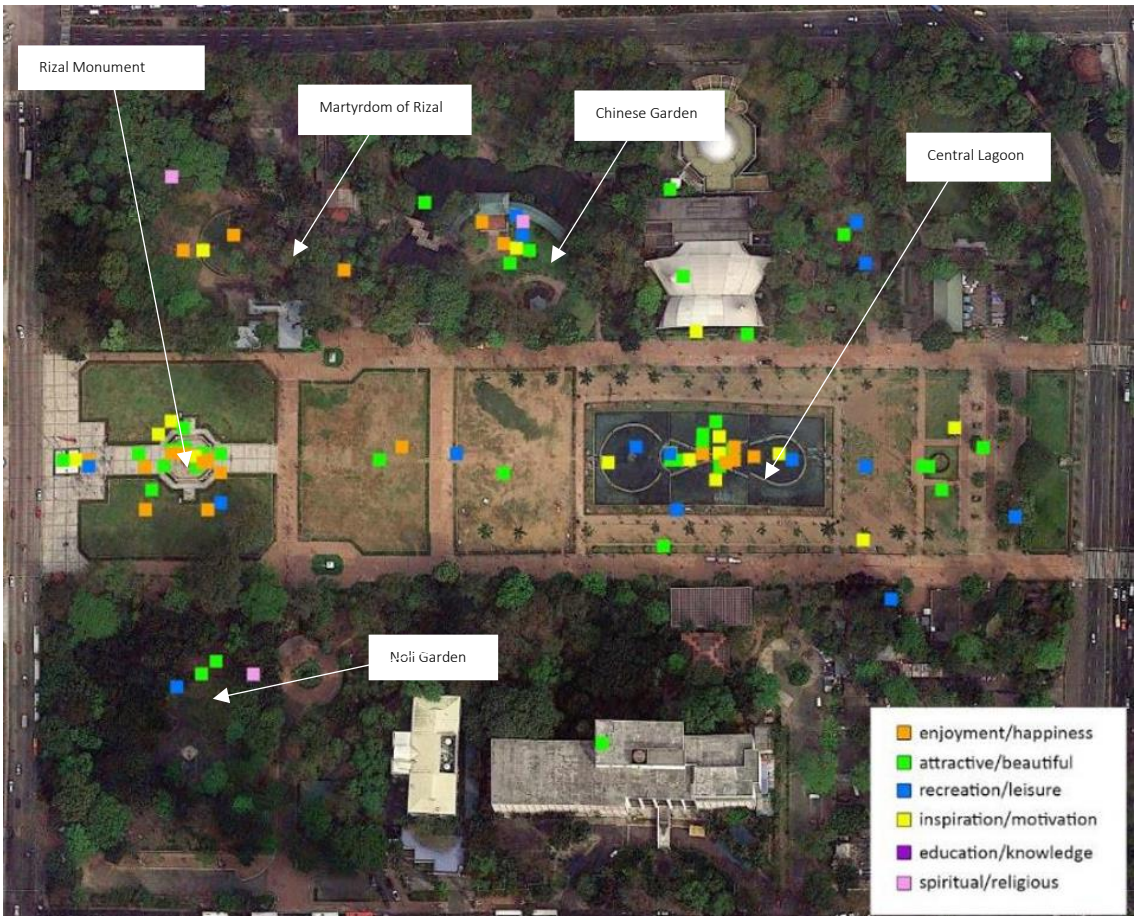
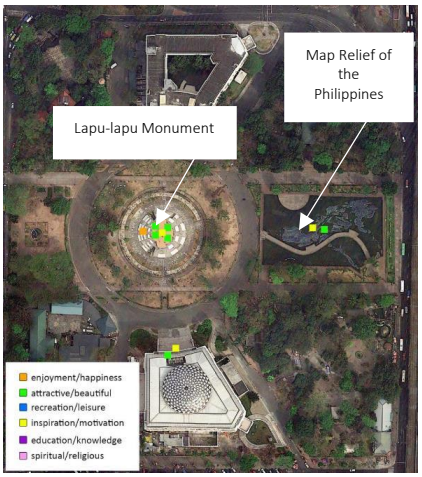


Figure 6. e . Rizal Park central section cultural ecosystem service participatory mapping



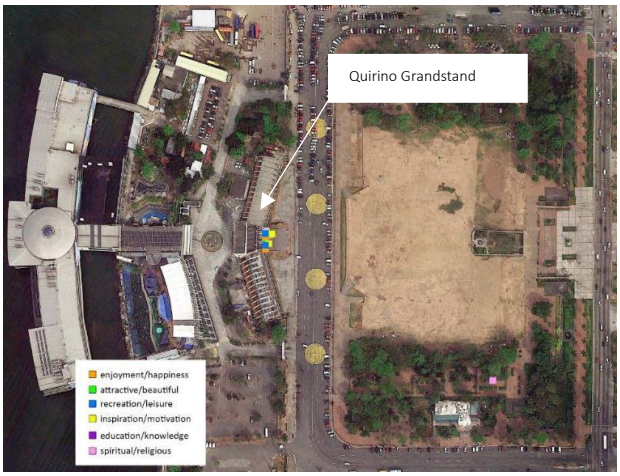


Figure 6. f. Rizal Park eastern section cultural ecosystem service participatory mapping (left) Figure 6. g. Rizal Park western section cultural ecosystm services participatory mapping (right)

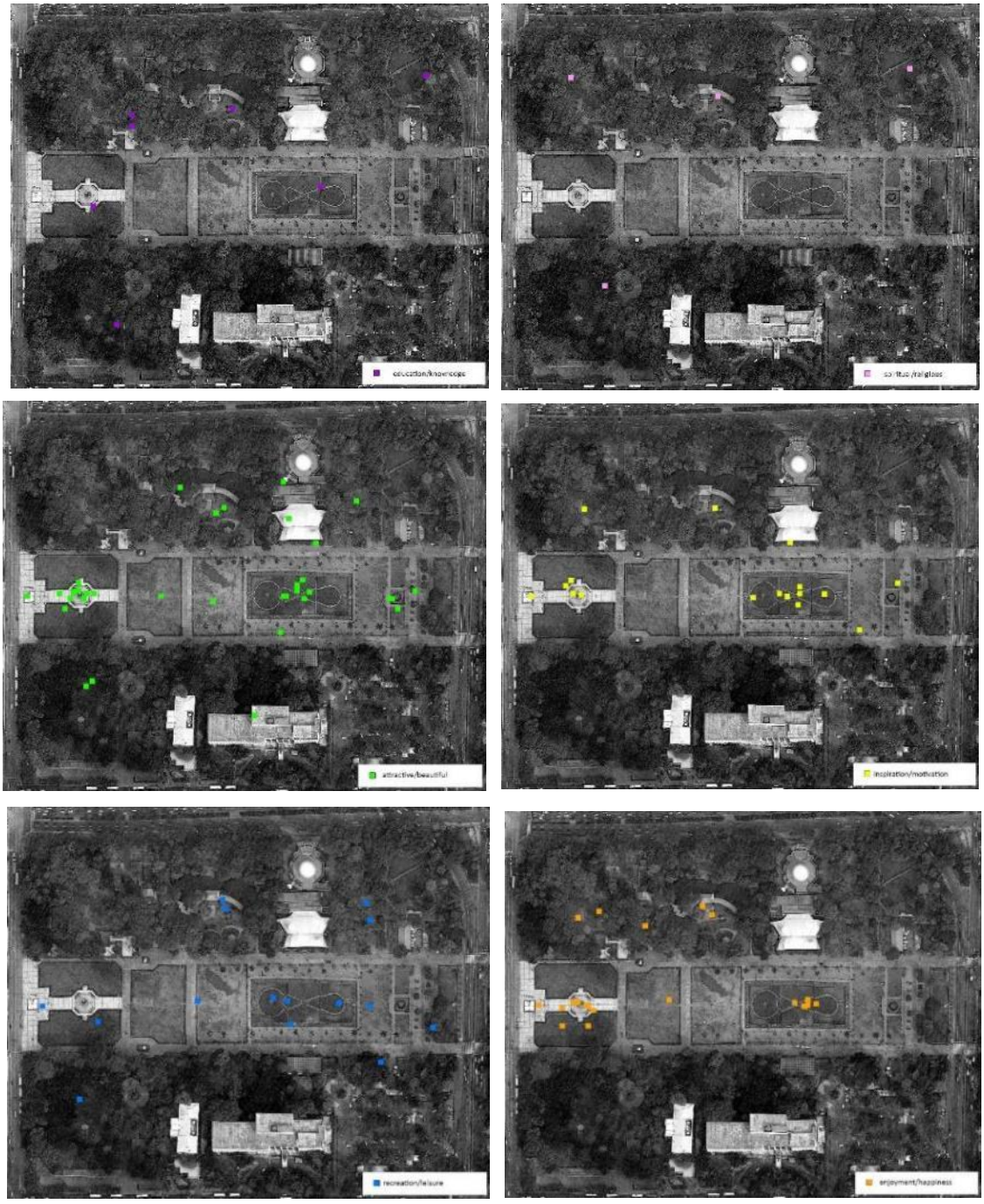
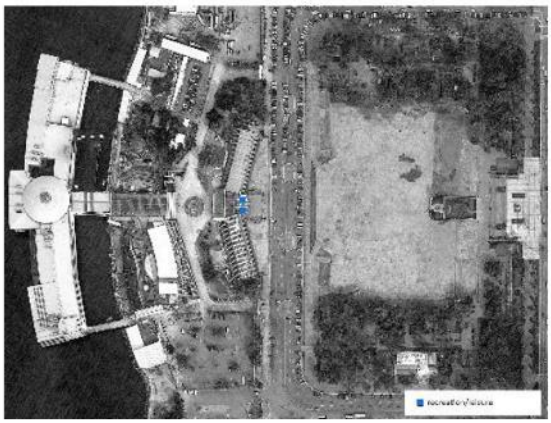


Figure 6. h. Rizal Park central section participatory mapping



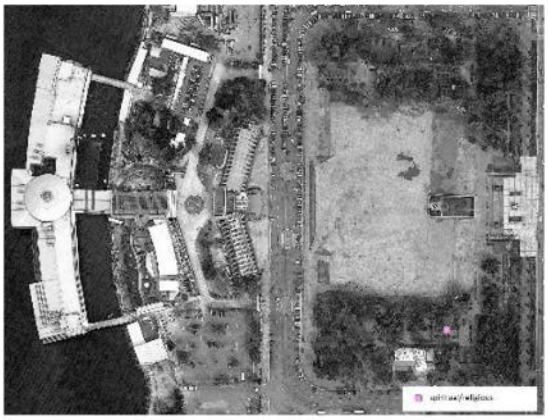
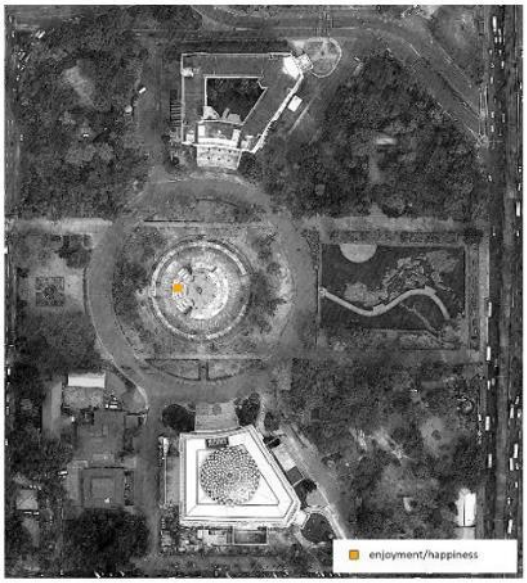
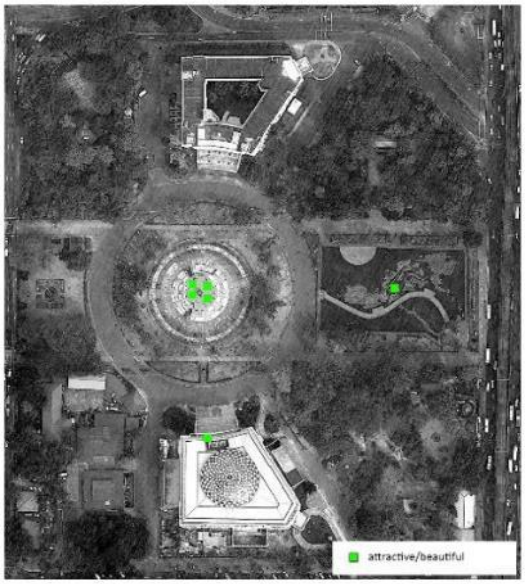


Figure 6. j. Rizal Park western section participatory mapping





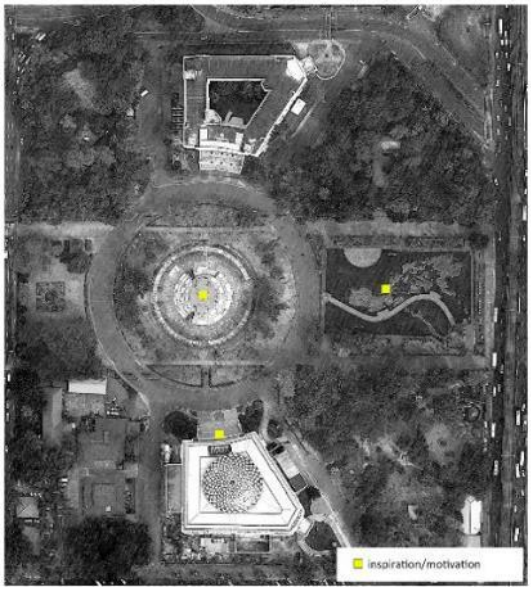


Figure 6. i Rizal Park eastern section participatory mapping

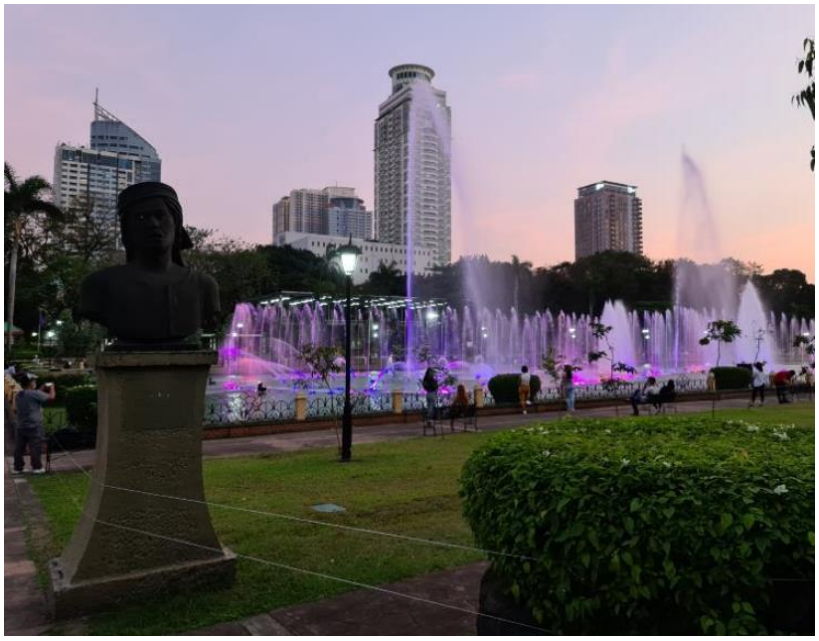
Table 6. o. Cultural ecosystem service type and associated manifestations in Rizal Park

Cultural ecosystem service type	Count	Spatial category		Associated manifestation of identified service	Count
Aesthetics	41	**Green space**	21	Central Lagoon	8
				Flower clock	4
				Chinese garden	3
				Grounds	2
				Noli garden	2
				Japanese garden	1
				Promenade	1
		Grey spaces	20	Rizal Monument	9
				Lapu-lapu monument	4
				Open air auditorium	3
				Independence flagpole	1
				Map relief	1
				National Library	1
				National Museum of Natural History	1
Sense of Place	23	**Grey spaces**	13	Rizal Monument	8
				Martyrdom of Rizal	3
				Quirino Grandstand	2
				Lapu-lapu monument	1
				Independence flagpole	1
		Green space	8	Central Lagoon	5
				Chinese garden	2
				Grounds	1
Inspiration	22	**Grey spaces**	12	Rizal Monument	4
				Quirino Grandstand	2
				Independence flagpole	1
				Lapu-lapu monument	1
				Map relief	1
				Martyrdom of Rizal	1
				Open air auditorium	1
				National Museum of Natural History	1
		Green space	10	Central Lagoon	7
				Chinese garden	1
				Flower clock	1
				Green space	1
Recreation	17	**Green space**	15	Central Lagoon	4
				Chinese garden	2
				Grounds	2
				Japanese garden	2
				Noli garden	1
				Pigeon House	1
				Green space	1
		Grey spaces	4	Quirino Grandstand	2
				Independence flagpole	1
				Rizal Monument	1
Education	7	**Green space**	4	Central Lagoon	1
				Chinese garden	1
				Japanese garden	1
				Noli garden	1
		Grey spaces	3	Martyrdom of Rizal	2
				Rizal Monument	1
Spiritual	4	**Green space**	4	Chinese garden	1
				Japanese garden	1
				Martyrdom of Rizal	1
				Noli garden	1

Table 6. p. Associated manifestations of cultural ecosystem services prompts from participatory mapping in Rizal Park

Associated manifestations	Count	Aesthetics	Sense of place	Inspiration	Recreation	Education	Spiritual	Green	Grey
Central Lagoon	25	x	x	x	x	x		x	
Rizal Monument	23	x	x	x	x	x			x
Chinese garden	10	x	x	x	x	x	x	x	
Martyrdom of Rizal	7		x	x		x	x		x
Lapu-lapu monument	6	x	x	x					x
Quirino Grandstand	6		x	x	x				x
Flower clock	5	x		x				x	
Grounds	5	x	x		x			x	
Japanese garden	5	x			x	x	x	x	
Noli garden	5	x			x	x	x	x	
Independence flagpole	4	x	x	x	x				x
Open air auditorium	4	x		x					x
Green space	2			x	x			x	
Map relief	2	x		x					x
National Museum of Natural History	2	x		x					x
National Library	1	x							x
Pigeon House	1				x			x	
Promenade	1	x						x	

Figure 6. k. Photos of associated manifestations of cultural ecosystem services from participatory mapping in Rizal Park (photos taken by the author)



1. Photo of the central lagoon, view from the northeast side. Photo taken by the researcher during one of the visits.

2. Photo of the Rizal Monument, view from the southwest side. Photo taken by the researcher during one of the visits.

3. Photo of the Chinese garden, view from the southern side. Photo taken by the researcher during one of the visits.

4. Photo of the Martyrdom of Rizal, view from the northern side. Photo taken by the researcher during one of the visits.

5. Photo of the Lapu-lapu monument, view from the southern side. Photo taken by the researcher during one of the visits.

6.8. Summary of findings - comparison between the two urban parks

The findings from the various interview questions that elicit information about activities and uses regarding cultural ecosystem services were aggregated. Based on

this finding, there were twelve dimensions in NP that were identified important in understanding its cultural ecosystem service value. Figure 6. l provides an overview of the proportions of cultural ecosystem services in NP. There were a total of 237 codes identified with cultural ecosystem services from the interviews in this park. Aesthetics (51) received the greatest number of codes followed by spiritual (39) and recreation (38). Spatial qualities were included because based on the coded responses, this dimension was important for people's activity that deliver specific cultural ecosystem service. Similarly, economic (9) was included here as well as, biodiversity (11) and cognitive (13) because they contributed in delivering important values to the park users. The codes pertaining to sense of place and education got the lowest mention among all the cultural ecosystem service perceived benefits.

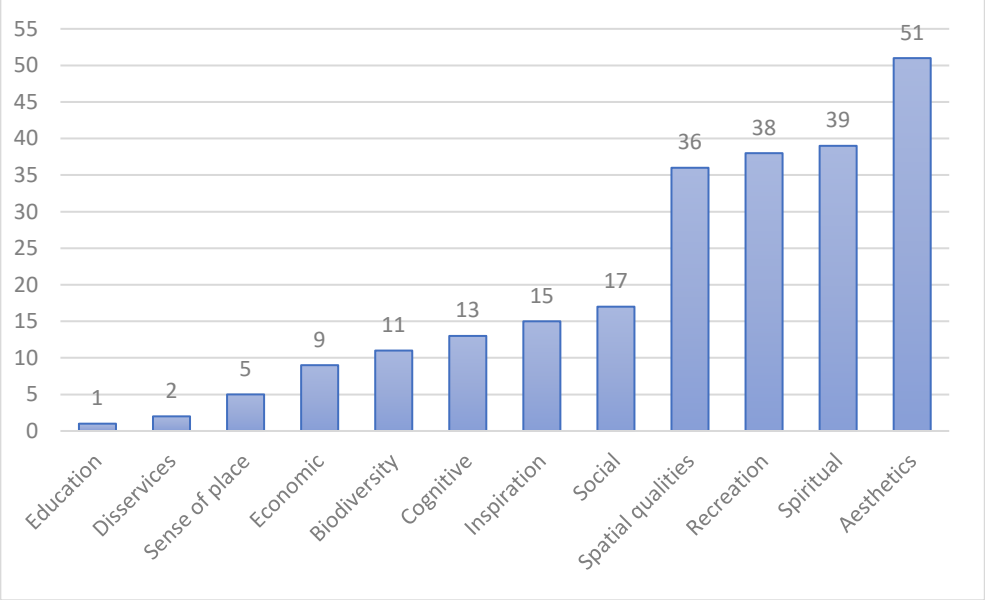


Figure 6. l. Frequency of perceived cultural ecosystem service benefits in NP

Meanwhile, RP's aggregated value was slightly less than the other park. Based on the aggregated coding, there were a total of 107 codes identified with cultural ecosystem services from the interviews in the park. Recreation (36) received the highest number of coded responses. This is followed by Aesthetics (53) and spiritual (23). Like in NP, the coded response that pertained to disservices, economic, cognitive, and spatial qualities were included in the overall value.

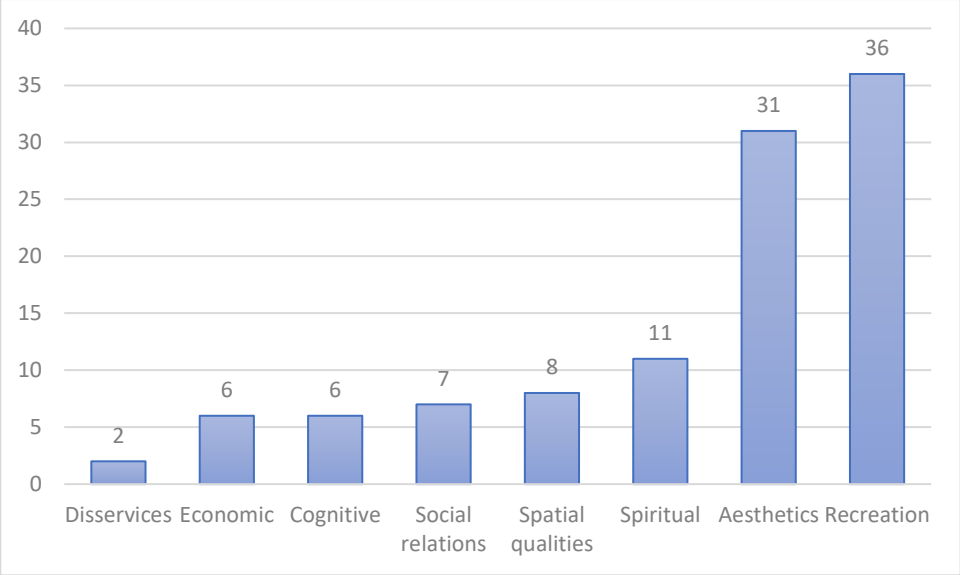


Figure 6. m. Frequency of perceived cultural ecosystem service perceived benefits in Rizal Park

The aggregated coded interview response was combined with the frequency count of the spatial mapping. The combined score between interview and spatial mapping data provided the overall aggregated value for the parks. For the NP (see Figure 6. n.), the total aggregated frequency of perceived benefits was (399), while for the RP (see Figure 6. o.), the value was at (221). For both parks, the aesthetic value was the most frequently mentioned followed by recreation.

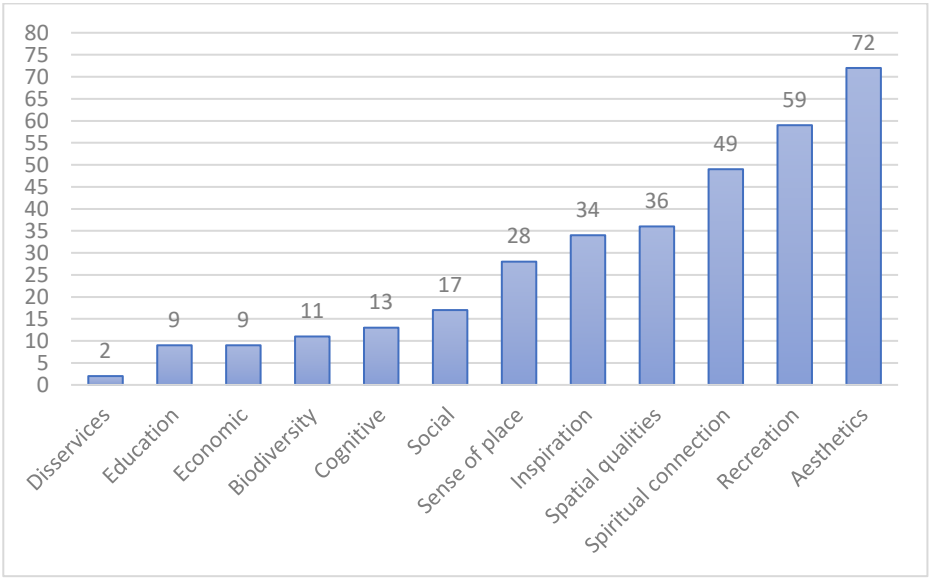


Figure 6. n. Frequency of combined interview and mapping data of perceived cultural ecosystem service benefits in Aquino Parks and Wildlife Center

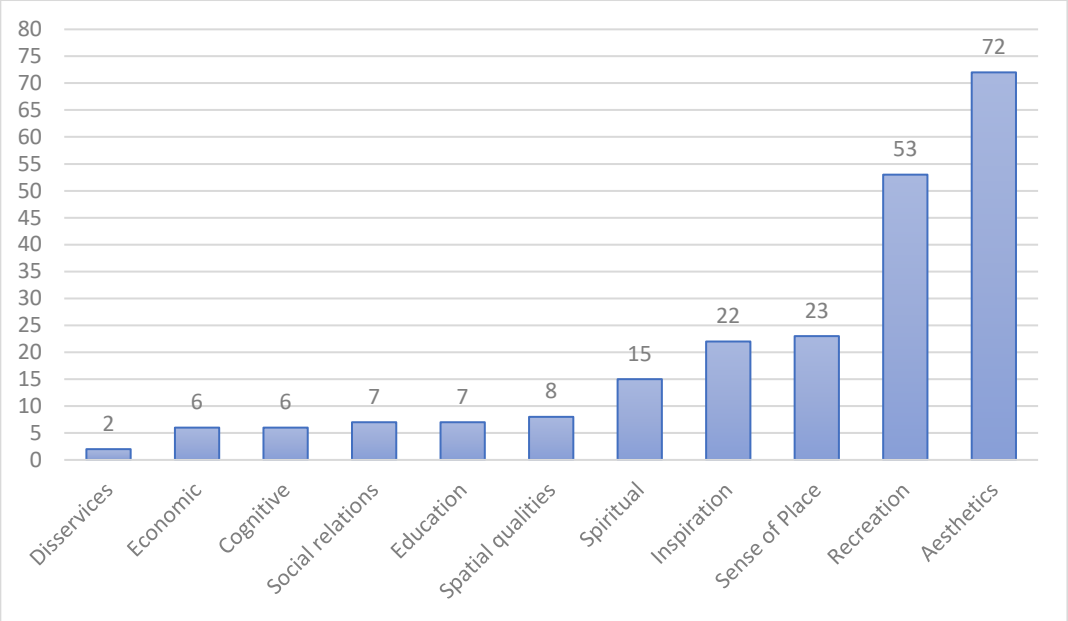


Figure 6. o. Frequency of combined interview and mapping data of perceived cultural ecosystem service benefits in Rizal Park

6.9. Summary and link to next chapter

This chapter presented the findings of the interviews and participatory mapping. The findings suggest that multiple cultural ecosystem services co-occur in the minds of the park users, and these may pertain to specific locations on site, activities and uses that people perform or to characteristics of the environmental settings necessary to experience a cultural ecosystem service-related benefit. The next section will discuss these findings.

7. Chapter 7 – Discussion

7.1. Introduction

The previous chapter presented the key findings through the lens of cultural ecosystem service framework. The data collection was conducted using two methods – observations and interviews with participatory mapping. The findings from the data collection will be discussed jointly in this chapter to determine how cultural ecosystem services were manifested through the interviews and lived experiences of people in urban parks. The use of two urban parks as case study was necessary to highlight a rapid yet systematic approach that captures the cultural ecosystem services people get from urban parks. This chapter begins with a section dedicated for the discussion of the findings in relation to the aims and objectives of the research. This chapter also includes a section that provides a comparative review to understand the similarities and differences on how the cultural ecosystem services were manifested in the use and activities of people and how this concept of cultural ecosystem services was understood and perceived by people. This will be followed by the discussion of the importance of the activity-based assessment and visual manifestation approach in capturing important cultural ecosystem services in urban parks. The data suggested that using these various methods complement each other and provided a way to capture a range of cultural ecosystem services that are provided by urban parks. Finally, a discussion of the limitations, challenges and future directions of this study.

7.2. Reflection of key findings to the research aims and objectives

The aim of this research was to understand and capture the cultural ecosystem service benefits that people perceive in urban parks and understand what spatial features are important in the delivery of these services. The idea was to focus on the activities and uses in urban parks to understand how cultural ecosystem services were manifested in a way that is simple, less time consuming yet robust. The research aim was achieved by addressing the three objectives of this study using observation methods with interview. The following sections provides a discussion on the findings and its implication to the overall aim and objectives.

7.2.1. Site condition and park use to aesthetic and cognitive value

In examining the green space (abiotic) condition, the Rizal Park rated higher over the normalized value for the physical characteristics category. This was due to two elements under this category. The first was about accessibility which refers to free access for the public. Second was about the condition of land surface element which was generally about land condition. The Ninoy Aquino Parks and Wildlife Center has an entrance fee to be paid prior to entering. In terms of land surface elements, it was observed in that park, that changes were being done regarding the composition of the tree species. The park administrators had started the process removing exotic trees to be replaced by endemic tree species. There were also patches of land that seem unkempt and some areas that need further maintenance such as areas north of the picnic grove and the area located within the animal housing (see Figure 7. a. and Figure 7. b). Rizal Park rated higher due to its well-maintained lawns, gardens and other land surface elements accessible to the public. Additionally, access to the park is free for the public. The importance of the condition of physical characteristics in urban parks was highlighted in the response of one park user:

> "When we say park, environmentally speaking, uhm, it's supposed to be like this, clean, green, and with plenty of trees. And then, it should be holistic in its appearance. I used to go to the mountains just to get a peaceful environment. Luneta (Rizal Park) is okay really, except when it's too congested".

Figure 7. a. View of the cottage area northwest edge of the park (Ninoy Aquino Parks and Wildlife Center)

Figure 7. b. View of the aquatic house in the animal display area of Ninoy Aquino Parks and Wildlife Center

People's motivation in using the park as well as their mental well-being were affected by the park's physical condition. A response that captures this touched on the site's physical condition and its effect to the mind of the user. In the words of one park user: "First of all, it's (Rizal Park) very clean. It feels like your mind is also getting cleaned".

In terms of the water elements category, Rizal Park rated higher in the normalized value. This was primarily because of two important elements, the access to water's edge and the presence of dominant water element nearby. Based on the site visits and maps of the Rizal Park and its surrounding area, the western section terminates along the shores of Manila Bay. Additionally, it has good and direct access to water other than the three man-made water features inside it. Meanwhile, the eastern side of Rizal Park based on the survey of maps and familiarity on the site, it is close to the historic Pasig River. The park has a natural water element near it, therefore this gave it the edge over the other park in terms of this particular structural dimension. In the context of the concept of cultural ecosystem services framework, the water element outside of the

park or near it, in the case of Rizal Park, was not useful in identifying its cultural ecosystem service potential. However, an important finding in this study is that the water element within the park based on the observations and interviews provided a link to cultural ecosystem service benefits. It was assumed that water elements within the park provided a direct connection to people's experience of aesthetic value, and positive emotions. This was captured in the statement of one park user.

> "When I walk along the lagoon, behind it you will find a park (picnic grove). There are few people there and you have a good view of the lagoon. Being there feels so relaxing, and I feel happy about it".

The topography was a factor in shaping the experiences of people in the park that were linked to cultural ecosystem services. Based on the assessment of the topographic condition of both parks, each provided distinct features making them unique in their own way. The topographic features of the park allowed certain activities to occur related to cultural ecosystem services. For example, the observations of activities and uses in the park showed that there were more physical activities such as jogging or running, bicycling, walking, and exercising done in Rizal Park than in Ninoy Aquino Parks and Wildlife Center (see table 5.d. and table 5.f.). It was assumed that the flat surfaces allowed people to perform physical activities in the park.

Important to point out that, Rizal Park was a designed park characterized with flat topography and formality in its layout and appearance. This formality was manifested in the general configuration of the park, the design of its gardens and the symmetrical nature of its three main sections (see Figure 7. c.). Additionally, the formal design and symmetrical layout provided good sight lines and vistas to areas that were important to park users. These sightlines and vistas provided clear visual access to the scenic spots within the park. On the contrary, the Ninoy Aquino Parks and Wildlife Center was kept natural-in its appearance, having a sloping terrain along the northeastern side of the lagoon. It had narrow, uneven and winding paths. Furthermore, the open spaces and grassy areas were also observed to be in smaller patches with uneven and asymmetrical layout that made it challenging for people to perform moderate to vigorous level of physical activity and to have a clear unobstructed view of the lagoon (see Figure 7. d.).

Figure 7. c. View of Rizal Monument (Rizal Park) taken during one of the site visits. The prominence of this monument being situated along the western edge of the central section, along Roxas Boulevard, makes it visible not only to the passers-by but also to park users on the central section of the park.

The services of aesthetic, recreational and leisure, and inspiration and motivation identified in the Millennium Ecosystem Assessment were found in this study to be linked to the abiotic site condition. Triangulating the data from this task with the other methods applied in this research (interview and observations of uses and activities), aesthetic values were identified by people to a specific element of the site. For example, the man-made natural looking lagoon in Ninoy Aquino Parks and Wildlife Center provided aesthetic value because of the scenery it allowed people to experience at the same time, it provided mental restoration and positive emotions to park users, as the following quotation illustrates:

> "My favorite place here sir is the lagoon, because for me it is relaxing… when you have a problem, I will just look at the waves on the water, it seems your mind would get relaxed somehow, especially now we are in a pandemic."

For Rizal Park, this feeling was also shared by another user: "here in the dancing water, in this part, I do not know what they call this, central lagoon? It is refreshing here."

Figure 7. d. View of the path leading to the man-made lagoon (Ninoy Aquino Parks and Wildlife Center). The photo highlighted the asymmetrical layout of the green areas in the park separated by narrow and walk paths within and around the park.

This section highlighted the abiotic site condition of two parks to understand its potential to deliver cultural ecosystem services. Our findings indicated that abiotic site condition assessment taken in isolation may not fully capture the full range of cultural ecosystem service potential in general. What was clear in this process was it provided an understanding on how certain ecosystem services were manifested through the condition of site features that was part of the environmental setting. For example, the water elements of the park whether natural or man-made had a connection to people through its scenic value at the same time elicited positive emotions. Dabezies et al. (2017) noted, the processes that contribute to the shapes and temporalities of a space was dictated by the movement, connections and activities of people. In this case, the green space conditions represented the life or experiences in those places. These experiences require various efforts and perspectives. For example, mentions about a parks natural looking provided feelings of connection to one's hometown. Meanwhile, the paths become an important physical shape that supports these movements and activities. Linking these important findings on the framework on cultural ecosystem services, the biophysical domain not only provided the material components for environmental settings which allowed opportunities for cultural practices to occur in a more general sense (Fish et al., 2016), but at the same time contained the important

elements that enabled specific practices and activities to occur. For the park users, the prominent water elements in the park provided an area with aesthetic value, which also allowed them to experience positive emotions affecting their well-being, without these elements, a lot of what has been found important connected to it may not necessarily become available.

7.2.2. The value of the biotic elements in enabling environmental settings and cultural practices to deliver cultural ecosystem services

The structural diversity assessment normalized value of both parks were identical despite the differences in the elements making up the biotic features of urban green. The comparison between the tree aspect of the park, showed a lot of similarities in terms of elements of the tree aspect category. It was mentioned in the previous chapter that in terms of quantity of trees inside the park, both were found to be abundant with trees. Another similarity seen with the biotic composition was that both parks have contained solitary trees of various sizes and age. Similarly, presence of hedges and shrubs were also detected in both parks. With Rizal Park being more than twice the size of Ninoy Aquino Parks and Wildlife Center, it did not have the same natural-like appearance of the other park (see Figure 7. e.). This distinction highlighted the stark contrast between these two parks. Rizal Park was a designed park that allowed it to have a formal appeal (see Figure 7. f.). Similarly, it was designed to include large green open space in the middle. This open space stretched the entire length of the park. The purpose for this was to emphasize the collection of important buildings situated around it. This configuration made its appearance different from the Ninoy Aquino Parks and Wildlife Center. These observations taken independently, did not provide a direct link to the cultural ecosystem services.

However, based on the findings from the coding analysis of the interviews, these biotic features such as trees or the tree aspects of the urban parks, suggest the value of these elements in enabling the experience and production of benefits. Affinity with trees were highlighted in the responses of park users. The reference for trees in the interviews reinforced the assumption that biotic features contribute in the production as well as consumption of cultural ecosystem service. For example, in selecting which

park to visit, evidence showed that the biotic features of the park were a factor for some park users. A brief response encapsulated this assumption:

> "I want to go to a park that has plenty of trees, quiet, and refreshing".

This also suggest that the condition to enable specific experiences was indicated by the presence of elements important for the user. This did not only emerge in selecting which park to visit, but it also emerged in responses regarding the characteristics of the park important for the visit. For example, one park staff observation highlighted the importance of having plenty of trees in the park and what it provided to park goers:

> "We have a lot of visitors here in the park, and they want a quiet place here. And they also like to stay in the shaded areas near the lagoon because of the pleasant breeze".

In relation to activities done in the park, the elements park user find important were captured in the broad content of the responses. For example, one park user mentioned "Trees, especially. I just like trees".

While another response highlighted trees however, it also provided auditory reference to the benefits of having these elements and its capability to buffer the sounds of the city. "Plenty of trees, plenty of it, also the sound of the birds, the chirping sound. It's pleasant to listen to, unlike the sound of the horn form the vehicles."

Figure 7. e. Ninoy Aquino Parks and Wildlife Center's nature-like appearance. Photo taken along the eastern bank of the lagoon.

The tree was not only valued due to its regulating features but also for its contribution in creating a pleasant scenery as well as providing the needed privacy in urban parks. The following quotation highlighted this:

> "Usually, we want a park that is not crowded, with plenty of trees, scenic, just like this. Look at this place, we are in perfect spot. A lot of trees, overlooking (the lagoon), as long as there are trees and water, it's very relaxing already. And of course, you must still have privacy".

Figure 7. f. Rizal Park's formal design and symmetrical features. Photo taken along the south of the Chinese garden entrance showing the central promenade its water feature and the open lawn.

While there was no direct mention observed about the value of trees and the biotic features in general to a particular cultural ecosystem service. References to trees were interpreted to be associated with the beauty of the place (aesthetics) and its potential to provide thermal comfort to people (regulating service). It was also seen as something that enabled experience and production of cultural ecosystem services. It could not be ignored that the quote above perhaps, suggested the contribution of trees in creating aesthetically pleasing and comfortable environments that people value. The study by Fuller et al. (2007) associated tree cover and plant species richness to the

psychological wellbeing of people. The findings perhaps highlighted the value of diverse biotic features as an enabling condition for the production of aesthetic, cognitive and thermal comfort benefits that people derive from urban parks.

7.2.3. The cultural ecosystem services, use and spatial patterns in urban parks

The first objective of this research was to identify the potential of urban parks to provide cultural ecosystem services. In order to address this objective, the concept of structural diversity was adopted, to systematically analyse the parks in terms of the following dimensions: abiotic, biotic and infrastructure. In terms of these dimensions, it was found that the structural diversity of green and grey elements on site can be an important first step in identifying the patterns of urban park benefits associated with a range of cultural ecosystem services. Taken independently, it may not provide exactly the specific values associated with it. However, assumptions can be made regarding the potential activities that might occur and what green and grey features can support these patterns of activities and uses based on the elements present in the urban park. The results showed that this method may not only work in recreational uses, but also may work for contrasting other cultural ecosystem services by integrating specific tangible manifestations related to cultural ecosystem services. For example, expanding the list of possible elements under each category, provided a means to add depth in assessing the potential of urban parks as sources for various cultural ecosystem services benefits (see Table 5. a. and Table 5. cc.).

Using the data produced from this task provided the indication of what the parks can offer in terms of the presence of various elements and features. More importantly, it also provided a normative value of each dimension which became an analytical tool in comparing the two parks. The normative values were used to determine the potential of the park for values related to cultural ecosystem services. Similarly, it provided a way to evaluate the overall value of the park that can be used to inform decisions regarding management and to a certain degree, inform the design process and output. It is still debatable whether the presence of certain green and grey element can somehow predict the possible degree of interactions that may happen in these dimensions of the environmental setting such as an urban park. This may require the use of another method. However, it was assumed that a more comprehensive approach could be

developed to disentangle the connection between the results of the methods used in this study. For example, incorporating a positivist analysis may involve the application of inferential statistics to enable generalizations about various elements and components. In this sense, the potential of developing further the structural diversity assessment one may look at a more complex modeling. Yet, it is still possible to keep a simple and comprehensive approach by integrating more tangible indicators in the structural diversity assessment. This enables a more comprehensive valuation that may be used to understand the overall value of the park in terms of the diversity of its green and grey dimension.

On the contrary, the responses of individuals from interviews, provided the means to directly analyse cultural ecosystem service benefits and values. The interpretive analysis enabled the understanding of the possible connection between the perception of users about cultural ecosystem services and its manifestation in their experience. Possible connection between the structural diversity assessment framework was seen in the straightforward integration of structural diversity components in the data analysis. This was manifested in the coding strategy used to classify the uses and activities in terms of green and grey spaces. Where in the higher rate of the biotic features were associated with the responses of individuals motivated by these biotic elements in visiting the park that also affects their park experience. Looking at the green and grey space association of cultural ecosystem services, as manifested in people's experiences and the responses of participants, provided a link to the importance of the elements associated with cultural ecosystem services, benefits and values.

Meanwhile, the collective analysis provided a means to understand how each structural dimension affected people's use and experience of the urban parks. Comparing the two data sets from the structural diversity assessment and the interview, the structural diversity of urban park was found to be an essential component in understanding people's motivation to visit the park and in their experience of cultural ecosystem service benefits. Similarly, the structural dimension of parks provided an analytical lens to which spatial characteristics of activities and benefits can be organized and assessed. The structural diversity assessment worked as

an initial step to characterizing and comparing the structural composition of the study areas. The structural diversity components such as the green and grey spaces used for analysing the spatial dimensions in this study, also provided a link to establish the relative importance of the benefits, its tangible spatial manifestations in terms of its green and grey dimensions. In this sense, identifying important spaces of the park may be broadly classified into two, those associated with the landscape or green elements or those associated with the grey elements or infrastructures. Results of the interpretive coding strategy allowed this method to cover the first and second objectives of the research.

7.2.4. Linking people's interactions in the park and spatial experiences to cultural ecosystem services

The second objective of the research is "To assess people's interaction with the UGS focusing on the use and activity patterns of people, values associated with these interactions and the spatial features important in their activity."

The analysis of spatial categories important to the occurrence of cultural ecosystem services, highlighted the duality in the manifestations of cultural ecosystem services. This resulted to the assumption that for every category of cultural ecosystem service identified through its manifestations as perceived by users, there are two basic spatial categories to which manifestations emerge. This was either association with green dimension, or grey dimensions of the urban park. In the case of Ninoy Aquino Parks and Wildlife Center, the tangible manifestations of green space were associated with the lagoon, or its features (gazebo, name given to the area in the small island in the middle of the lagoon), arboretum (areas were trees are exhibited within the park), the animals on display in the park, and the picnic grove (a flat open area east of the lagoon with bamboo trees bordering its edges). The tangible manifestations of grey spaces were associated with the amphitheater, fishing village, grotto.

7.2.5. The park as a source of multiple benefits to people during the pandemic

The third objective of the research is "To understand what cultural ecosystem services are perceived and where they are experienced and recognized by people using an interpretive methodology."

Results reveal similarities between the perception of cultural ecosystem services in two urban parks. The aggregated value for both parks in this study, provided an overview of the important cultural ecosystem services and activities that were found for the two urban parks. The three most important cultural ecosystem service benefits for park users were aesthetics, recreation, and spiritual. The importance of aesthetics and recreation were found in another study by Rall et al., (2017). However, the order of importance here were different. In this research the primary importance was observed to be in the aesthetics dimension, followed by recreation and spiritual. Their study revealed that recreation was the most important followed by aesthetics and social value. It was noticeable that social value or social relations were among the bottom half of the list of important cultural ecosystem services perceived by people in the two urban parks. This was an outcome that was greatly influenced by the pandemic restrictions that were implemented and is in contrast to other findings in the literature. For example, a study by Beckmann-Wubbelt and colleagues (2021) showed a different park visitation pattern seen compared to what was observed in this research during the pandemic. Their findings suggest that there were increase in visits to urban and peri-urban forests during the COVID-19 pandemic. In the case of the two urban parks in this study, a drastic decline was observed in visits to urban parks. This was also seen in the capacity limit set by park administrators which was at 10% of actual capacity and the actual visitors recorded during visits that did not reach 100% of the limit except during the Valentine's Day visit and another one sometime in June.

People's motivation in visiting the parks during the pandemic was associated with the change in behaviours brought about by the pandemic. In terms of social relations activities such as meeting other people and being out with the family became an unnecessary activity for some (Ugolini et al, 2020). The high-risk nature of getting outside of the house for non-essential activity partly explains why people were hesitant to visit urban parks. This feeling of hesitation to be exposed with others and the behaviour of avoidance were observed not only in the responses but also in the activities of people in the park. The social isolation that was imposed during the pandemic (Ugolini et al., 2020), also extended in the use of urban green spaces. The protocols implemented in the park such as, limiting bench use to one only individual,

preventing clustering in large groups, and keeping people always on the move contributed to the extension of social isolation

The aesthetic dimension has been considered an important aspect of human experience (Gobster and Westphal, 2004) and a basis for affecting pleasurable landscape changes that are ecologically beneficial (Gobster et al., 2007). In this study, the aesthetic value emerged most important in terms of the frequency of its occurrence and mention in the interviews and mapping activity. This was shown as a combination of reference towards the green elements of nature or ecological aesthetics and reference towards man-made features. In other cases, it was about experiences of grey elements juxtaposed in a nature like setting or natural environments. The assumption is that one may have a more pronounced feeling of attraction to either green or grey dimensions or perhaps a combination of both in their experience in urban parks depending on the diversity of its structural component.

In terms of visual manifestations of activities and uses, the most observed activity was socializing, this was interpreted as being with someone while performing activities in the park such as sitting, waking, standing etc. Being with someone in the park was interpreted as activity associated with social relations. The activity-based observation provided corroborating evidence that highlights the social relations importance in the motivation for the visit, despite being mentioned minimally in the interviews for both parks. Walking activities were the second most observed in NP followed by photography and sitting. However, these activities were difficult to associate with specific cultural ecosystem service because these activities may either be the process or the interaction that produces the benefit. The activity is the consumption as well as the production mechanism of the benefit and service. For example, walking can be a means to explore the park, this provides an individual a perspective of the spatial elements which in turn allows for the consumption of the aesthetic qualities of the site. Therefore, walking can provide physical related activity, resulting to physical restoration at the same time the walking activity, allows the experience of the aesthetic beauty of nature. This duality presents the complexity to which activities can be associated to a particular cultural ecosystem service. The assumptions made about one's activity may not full capture other values attached to that activity which may be important in

understanding the overall value of the urban park. More importantly, this realization, does diminish the straightforward interpretations that were done for this research. In doing the straightforward approach, the subjectivity in the interpretation can be minimized and the potential researcher bias.

7.2.6. The value of using activity-based assessment and visual manifestation approach with interpretive methods in capturing important cultural ecosystem services in urban parks.

From this research, several important observations were made regarding the value of using the methods in this study. The first is, the structural diversity assessment provided a way to characterize and assess the urban parks. This characterization and assessment were beneficial in understanding the presence of various elements important in the experience of people in the park. Similarly, this provided some important comparative discussion points to analyse the differences and similarities of parks.

Second, the activity-based observation of uses related to cultural ecosystem services enabled the understanding of the important uses and activities in the urban parks during the pandemic. It highlighted several activities that were seen in the parks. In this case, recreation and social activities, were the observed the most. Those that were not captured in the previous method were identified in this method. For example, the value of social visits to the park, were highlighted by the different user groups observed such as those visiting as a pair or as a group. The proportion of activities related to this use provide the relative value of what is important in the urban parks. In addition, the spatial type and the location were also captured in the method. This method was important in identifying frequency of occurrence of activities and uses and making spatially explicit the locations of these activities.

The interpretive approach in the open-ended interviews provided a way to capture the meanings that people place in valuing the urban parks. The themes captured the essence of various responses and categorized based on its association with a particular dimension related to cultural ecosystem service. This allowed for a deeper understanding and connection to the importance people placed in the urban park. For example, the follow up to the responses enabled a much clearer response and it

connected to important values of people that may not be captured in using the traditional methods.

Overall, these methods integrated in the study allowed for the collection and triangulation of rich data sets. The data was used to build on the information that was needed to explain the phenomenon observed. In this case, the cultural ecosystem service, the experiences of users in the park and the diversity of structural components. The complementary nature of each method in addressing the purpose of the study enabled the collection of data that in a way addressed the limitations of the other.

7.3. Limitations, challenges and areas for further research

The limitations in the research were broken down into various sections which includes access to study areas (pandemic related), methods, findings. An overview is presented below.

7.3.1. Access to and restrictions in the study areas

Access to the study area were classified into three, users and age restrictions, park capacity restrictions, and park use and amenity closures. Each of these limitations affected the type of activity observed, the type of users presents, and user groups represented in this study, the activities that were done and how people perform their activities in the park. All of these affected the findings of the study. Similarly, these limitations made it difficult to compare the results with previous studies. Additionally, due to the extreme COVID-19 guidelines implemented during data collection, several assumptions that were made in the findings and observations were impossible to be generalized and may be distinct for this particular point in time.

The pandemic has made the research data collection very challenging at first. Before data collection, there were already limitations in terms of the access to the site brought about by the pandemic restrictions. On the one hand, there were age restrictions implemented in both parks that prevented access for younger and older age groups. For example, in Ninoy Aquino Parks and Wildlife Center and Rizal Park, the access was limited to visitors between eighteen and sixty-five years of age. This affected the types of people that were included in the observation. Meanwhile, in Rizal Park,

access for below eighteen years of age was permitted, but only during the middle part of June 2021. The special access for the below eighteen years old visitors only started during the Father's Day celebration. Eventually the park administrators changed their access restriction following that day and allowed the younger visitors to go inside the park.

The age restriction and park access were monitored through the registration areas that were set up in the two entrances of the park. This registration process also may have affected the types of users entering. Those who did not want to undergo this process of giving out information might have discouraged these people from entering. For example, an individual concerned about his time being eaten up by filling up forms may have to choose a different park to visit. In another case, when park entrances were showing long lines of park goers because of the bottleneck in the registration areas, other park goers may have been turned away by seeing the long lines outside the park. Those people who may not have the ability to read or write may have been also affected by this and therefore may not be represented in the users of the park.

On the other hand, the capacity of people in the park at one time, limited the number of people that can use the park. The capacity restriction was based on the protocol implemented to address COVID-19. For Ninoy Aquino Parks and Wildlife Center, they have placed a two hundred capacity limit per day during the time of data collection from December 2020 to March 2021. In Rizal Park, the capacity limit was initially set at five hundred at any one point throughout the day, during February 2021, then was increased to six hundred in June and eight hundred in July 2021. When limit was reached, people were no longer allowed access to the park, and they have to wait in line outside just to get in. However, in most visits, the daily limit that was set were not reached and the number of people inside the park remained well below the limit except during weekend holidays.

Even though the park remained opened, there were several important locations in the park were closed during the pandemic for both study areas. Not only that these two parks were closed during instances when the community quarantine level were at the second highest (MECQ) and highest levels (ECQ), when these parks were reopened, several areas within the parks, remained closed to visitors. In the case of Ninoy Aquino

Parks and Wildlife Center, the access to the public were limited to Wednesdays to Sundays. While on Mondays and Tuesdays, those allowed to use the park were those having reservations for an event or photoshoot. During Mondays and Tuesdays, walk in visitors to the park were not allowed. They made these two days exclusive for paid reservation of the park for events photoshoots or commercial filming. Additionally, the food stalls and shops were closed and eventually removed. The Wildlife Rescue Center one of the places people go to in the park were closed for the public.

In the case of Rizal Park, the western and eastern sections were closed. These two sections contained some of the interesting places of the park. For example, the Burnham Green, the wide-open space fronting the Quirino Grandstand was converted into a temporary COVID-19 hospital. The playground and orchidarium in the eastern section were closed. The Central section, the only part that was open for the public, had two visiting schedules implemented. People were only allowed to access the park from five in the morning up to nine in the morning. Then the next schedule was from four in the afternoon up to eight in the evening. Slight changes were made in the morning and afternoon schedules in February and June, increasing the time the park was opened. It was then reverted back after closures due to increasing cases of COVID-19 and the implementation of tighter community quarantine restrictions. Only two access points were opened to control people's access to the Central section. Additionally, access to several park amenities and attractions in this part of the park were also affected. For example, the open-air auditorium, a place where people can watch cultural events and shows inside the park, was shutdown throughout the duration of the data collection. The Chinese and Japanese garden were opened partially. People can only access that part during the morning open hours of the park, during the afternoon and evening open hours, these two parks were closed to the public. These affected the patterns of visitation of people in general as well as the observed activities and users.

7.3.2. On site interview process

The process of interviewing park users was a bit complicated and challenging to conduct. First, it was observed that people in parks during the visit were not comfortable to be engaged in the public, especially for an interview. Several reasons

may explain this, which were pandemic related. People were not comfortable in social encounters beyond their circle due to personal health and safety reasons. This was evident throughout the course of data collection. Taking into consideration the health risk that interviews may pose on the minds of the park users have become a priority. The park's guidelines regarding social distancing and not engaging with people outside your circle reinforced the feeling of avoidance. Subconsciously this was practiced by the visitors in the park. For example, one experience during one of the visits to the park, a user was approached for an interview. The user, upon seeing the researcher heading towards them, suddenly changed their direction to avoid crossing paths.

Second, in conducting the interviews, it was assumed that people were in a way concerned about spending time with someone outside their circle during the pandemic. Additionally, for those invited and agreeing to the interview, the proximity to someone during the process may pose health risk to both the interviewee and researcher. This assumption also led to designing a shorter interview process, avoiding the possible health risk that others may feel and the potential of being exposed with another individual that might be a health risk. The distance between interviewee and researcher also provided some challenges as well as the face coverings that were used (face mask and face shield). These made the interaction difficult to capture. For example, the need to put the recording device at a distance that could capture what was being said by both was a challenge especially in an outdoor setting. The face coverings made it difficult to hear what was being said. The face mask made it difficult to gauge the responses and expressions of interviewees. Similarly, the tendency of the interviewee to be brief with their response as a possible effect of health risk concerns may have prevented a more in-depth discussion of their insights.

Responses of the interviewees may have been affected by their direct interactions in the park or the areas they have visited. Their reference may have been limited to what was allowed for them to visit at that time. For example, in Rizal Park where certain areas were not accessible at certain times of the day, these areas may have not been included in the responses of individuals particularly in the participatory mapping activity.

7.3.3. Methodological limitations

It is important to acknowledge the methodological limitations of the study. Observation method used to capture cultural ecosystem service provides only a snapshot of the occurrence of activities and visual manifestations of the tangible object related to it. In addition, this snapshot is only limited to a particular point in time since the nature of cultural ecosystem services is ever changing. Similarly, the results derived from this method, were able to provide context specific data that were associated with the local features and elements on site. The generalizations of these findings to other geographical locations and settings, may not be possible. Interpretations of activities provided some limitations in associating some activities to a particular ecosystem service. There were some cultural ecosystem services that cannot be easily identified through observation. Similarly, observations require estimating the demographic characteristics of park user. Estimating was also involved in identifying the range of cultural ecosystem services the activities are associated with it. Therefore, the co-occurring benefits that may happen in an urban park is not fully captured in this method. These limitations were countered using larger number of observations in a study area, covering different times and days. Another way that was done to address this limitation was to use interviews to capture values difficult to observe.

Assessing manifestations did not include the visual signs but only the activity patterns of people as they happen. This was because of the long closure of the parks during various tightening of restrictions of community quarantine. Additionally, the closure of some areas in the park will not provide a substantial amount of information regarding past use because some areas remain inaccessible to the public. Further, the areas that were accessible have been used differently due to the implementation of the COVID-19 protocols.

The purposive sampling strategy focused on park users and staff was done to ensure different age brackets and user types and behaviour towards the park were included in the study. However, the representation of the participants did not reflect a wide range of user groups and user types. The age restrictions implemented in the access to parks prevented possible representation of users belonging to these age groups. Additionally, the sampling strategy of choosing people who is no longer doing

an activity presents a potential for sampling bias. But in order to avoid this, sampling was done by approaching individuals at a specific time interval in different locations of the park. This was done with the aim of getting a more random purposive sample and minimize potential bias in selecting participants.

7.3.4. Limitations of findings

It is also important to acknowledge the limitations of the findings of the research. One of the limitations recognized was the generalizability of the findings to other locations and to the general population. Interpretation of the cultural ecosystem service-related activities may also be an area of limitation. The decision to identify one activity to a specific service may be influenced by researcher's subjective interpretation of the activities and codes identified. Similarly, the normalized value in the application of structural diversity analysis represented only the presence of categories identified under the green and grey dimensions and does not represent value of structural diversity in terms of its quantity and quality.

7.4. Contribution of the study

This section discusses the contribution of the study in three categories. First was about the contribution to the literature, specifically the in continuing the discussion in the operationalization of the conceptual framework of Fish et al (2016) for capturing the cultural ecosystem services in urban parks. Kabische et al. (2015) noted that research about the aspect of human and environmental settings particularly in Asian countries were limited. Therefore, part of the contribution of this research was to fill in knowledge towards some of the observed underrepresentation of studies about urban greens space interactions. Second was about the contribution regarding a methodology to capture cultural ecosystem services in urban green spaces. And lastly, discussion on the contribution to policy and park management.

7.4.1. Contribution to the literature

The study is about adopting an ecosystem service framework in understanding the important spatial features of the park and the cultural ecosystem services that people perceived linked to it., To my knowledge, this is the first study that operationalizes the cultural service conceptual framework by Fish et al. (2016). This

research, incorporated contribution from applying methods in social sciences and through the enrichment of understanding of cultural ecosystem service literature in the context of Metro Manila. However, it can be noted that it might be possible that other studies may have close similarities with the principles of the framework but never labeled it as such.

This study attempted to operationalize the adopted cultural ecosystem service framework, using qualitative methods to elicit the value of urban park experience. The value of environmental settings as enabler of cultural practices and benefits were observed in the findings. Th lived experience helped identify the cultural ecosystem service potential of urban parks through activity-based assessment. The cultural ecosystem services potential of environmental settings was also enabled by its own elements that shape the experiences of people. Not only the environmental settings enabled practices and benefits to occur, but these environmental settings were also the recipient of value assigned by people through its structural make up. An environmental space not only serves an enabler for cultural ecosystem services and cultural practice to occur, but a recipient of assigned value by people.

The findings suggest a culture-specific value in the preferences of people in their use of the urban parks. The interpretivist structure with positivist influence in the analysis provided valuable insights on the value of green and grey spaces in terms of the various associated cultural ecosystem services. It also allowed for an unconventional analytical lens to which the interpretivist nature allowed for important themes to emerge that were underpinned with cultural ecosystem services. The study highlighted the multiple values of cultural ecosystem services associated with specific areas in the park important to people. This was found to be similar to other studies (Martin-Lopez et al., 2012; Rall et al, 2017) where in bundles of cultural ecosystem services exist.

Empirical findings from this research contributed to the development of a straightforward cultural ecosystem service assessment framework that could be integrated to the adopted cultural ecosystem service framework. Similarly, another contribution of this study to the literature is extending the knowledge on park use and

perception of cultural ecosystem services in a rapidly developing metropolitan area such as Metro Manila.

The context specific perspective derived from the study is also another contribution to knowledge generation. Drawing from the perspective taken from the concept of nature's contribution to people (Diaz et al., 2018), context-specific perspective of the study may be considered an acceptable knowledge generation (Kadykalo et al., 2019). There were several practices and beliefs that were observed to be place and culture specific. For example, the management and implementation of park regulations regarding Covid-19 and people's responses to the implementation of policy. It was observed that the strict enforcement of policies was never mentioned as detrimental to the experience of people of the urban parks. Rather, some see it as a welcome change that displaced some distracting elements and people from the area.

7.4.2. Contribution to Methodology

Assessing the green and grey space component in urban parks by linking it with visual manifestations of cultural ecosystem services to characterize and understand cultural ecosystem value, provided a novel approach in capturing the value placed by people in urban parks. This study highlighted the concept of plurality in terms of capturing how cultural ecosystem services are delivered, co-produced and perceived (see Kumar and Kumar, 2008; Chan et al., 2012; Kremer et al., 2016; Stalhammar and Pedersen, 2017). The findings of this study suggest that benefits about a specific cultural ecosystem service may be manifested either as a component of green and grey spaces or as interactions of people to the dimensions of the environment or with others.

Another important contribution of this work is by providing an alternative on how to assess the importance of various cultural ecosystem services in a rapid and comprehensive way, focusing on qualitative research methods highlighting methodological plurality to capture different kinds of values (Kumar and Kumar, 2008). As mentioned in the literature review chapter, the ecosystem service framework heavily relied on ecological economics and monetary valuation. The process that was

taken in this research moved away from those valuations and explored the potential of methods taken from the social sciences and humanities discipline.

7.4.3. Contribution to Policy and Park Management

The method implemented here can be used by park managers and administrators in assessing the green and grey components of the urban parks in various geographic locations. For example, the structural diversity assessment, can be useful in the design, management of parks that allows a simple valuation of the various features and characteristics of the park to inform decisions about changes or identifying the strengths and weaknesses of the park in terms of its structural composition.

The overall methodology provided a way to understand the values placed by people and the important experiences in the park. The methods allowed for comprehensive assessment of the value of the park in terms of the perception of cultural ecosystem services. More importantly, the straightforward and simple application of this method can be used in the process of continuous monitoring and updating of important cultural ecosystem services in the park to inform policy and management of the parks of various spatial scales and geographic locations.

7.5. Summary and link to the next chapter

The next chapter discusses the conclusions and recommendations of the study and the summary review of the key findings.

8. Conclusion and Recommendations

8.1. Introduction

The research examined the potential of urban parks to provide cultural ecosystem services using a qualitative methodology in capturing the values placed by people in their user of the urban parks. In particular, how user experience were manifested in their activities and in the narration of their experiences. The importance of this study came about after understanding some of the issues about capturing the value related to cultural ecosystem service. There was little understanding as to how this could be done in a simple yet comprehensive way. Much of what has been said in the literature was that studying the non-material benefits was time consuming. Therefore, the study made use of simple yet proven ways of assessing landscapes. Calls for integration of various methods and approaches from mature disciplines were made almost a decade ago. The thesis adopted the theoretical framework on cultural ecosystem services to guide the research and provide a lens of understanding the interactions of people in urban parks.

8.2. Key findings in the research

The potential of the urban parks to deliver cultural ecosystem services was captured using the combination of observation techniques and semi-structured interviews. The results suggest that despite the restrictions brought about by the pandemic, people were still experiencing the benefits that urban green spaces provide. Particularly the value of aesthetics and recreation. Similarly, the combination of these three approaches also allowed for the investigation of the social value importance of urban park through the observed user groups and user interactions and activities even though limitation in movement was implemented throughout the pandemic. The motivations based on interview, however, did not specifically provide a higher frequency of mention in the social relations/ value of the urban park. Which was somehow expected since people are really discouraged to meet people outside their bubble. The social activities observed were being with another individual or a group and performing activity with

another person. These were considered as indicators of social relations, part of the cultural ecosystem services provided by urban green space.

The activities and uses related to cultural ecosystem services were identified using the activity-based observation of park users. The frequency count of the aggregated recreational activities indicated that people performed this type of an activity more. This was seen in activities such as walking, jogging, exercising and biking. Physical activity was observed to be one of the recreational activities that people do in the park. This was also recorded in the responses, where in keeping oneself fit and healthy was their motivation to visit. Other cultural services such as aesthetics, spiritual, education, sense of place and inspiration were not observed in the activities. This was because it was difficult to assume what people are thinking while they are in the park.

In terms of what place in the park is important for people's experience, classifying into two the locations made it easier to identify which locations are frequented more by visitors thus indicates its relative importance. In the case of the Metro Manila parks, the using the two data sets, interview and activity observation, for the interviews, there were variations in terms of frequency in identified locations where activities were done and what places people go to. While on the observation data, frequency of observed users was done in grey spaces. It is not logical to conclude however that grey spaces are better than green spaces. There is still much to learn about why this preference emerged. One explanation that can be used however is that the nature of urban park's green and grey spaces was valued based on may things that was not covered in this study. Particularly the mechanisms that would explain their preference and selection. Future studies might be to explore on these mechanisms to understand the degree to which on was influenced by what factors in their choice and motivation. And what particular influence does the grey space have in their decision and what particular qualities of green and grey matters to them.

The methods were effective in capturing aspects of urban park experience. The combination of these three methods proved effective in covering diverse types of cultural ecosystem services. Even using simple open-ended questions in the interview that elicits people's preference or perception can be a source of rich data in understanding the important values that people place in their visits to the park and

what the parks provide them. These methods are simple to implement and will not require large number of resources. The structural diversity assessment can be modified based on the objectives of the valuation. In this case, the attempt to include historic and quality related elements allowed for a more diverse range of value. This would be helpful in assessing urban parks based on the presence of elements inside.

The theoretical framework adopted for this study was effective in the development of a research design that allowed to assess each component separately, the structural diversity on the environmental settings, activity-based observation for the cultural practices while the interviews were specifically focused on the cultural ecosystem benefits to which the concept of identity, experience and capability were connected. The experience of people is better captured by the interpretivist method used in this study. Even though the number of respondents were not too big, and the questions remained focused on experiences and activities and location. Identifying and associating specific cultural ecosystem services was possible. The range of themes and concepts were also encompassing covering a wide range of benefits connected to cultural ecosystem service. The area for modification for the framework can be on the inclusion of green and grey in the environment and the diversity of elements as important component or quality of the environmental space to deliver cultural ecosystem services highlighted in chapter five of this work (see Figure 8. a).

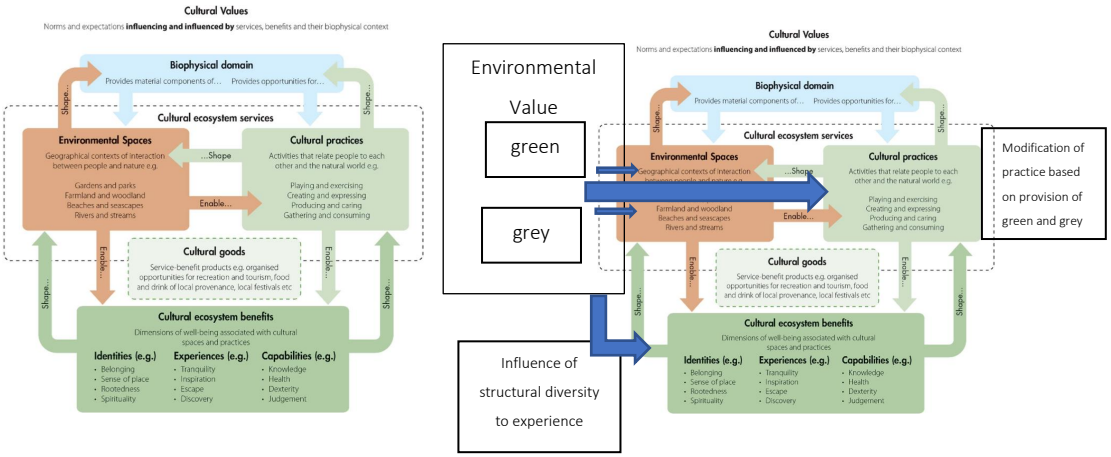


Figure 8. a. old vs. new model of adapted cultural ecosystem service framework

8.3. Policy implications

It remains a challenge to achieve a comprehensive assessment of cultural ecosystem services to inform land use decision making. The decision-making process

that relies on limited data set may not be based on a more complete assessment of important benefits and values. An inherent characteristic of the cultural ecosystem service benefits is that they are interconnected in a dynamic and complicated way that makes assessment that may be used for decision making complex and time consuming. Consequently, the alternatives are not as easy to determine (Ishihara, 2018). Therefore, methods that can be used to help simplify the process of understanding completely these benefits such as the ones that were used in this study, should be integrated in park management and policy making and help inform in decision making and park administration.

Park management should think about ways of integrating the non-material benefits and values in the park management strategies. Kaltenborn et al. (2020) suggested in localizing the ecosystem service framework by applying and linking it to the local context. This study showed that important benefits emanate from the interactions between the users and environment its elements. The study echoed the results from more recent work regarding co production of benefits through interactions happening in the environment. The interactions and relationships therefore according to Katenborn et al. (2020) is where benefits and specific values evolve. One of the suggested methods in understanding better the individuals and their interactions with the environment and the cultural ecosystem services important to them is the use of creative ways of eliciting knowledge from individuals such as mapping exercises (Ishihara, 2018). It is therefore important that these benefits must have a space in policymaking and management.

An important implication of this study to policy is the need to continuously monitor and identify perceived importance of cultural ecosystem service benefits and values. There are drivers of change that affect people's use of urban parks and their experience. In this case, the pandemic has affected the urban park experience in the country. Therefore, in planning and policy process, monitoring these changing benefits and or values can be an effective approach to identify the changes that happened in specific time frames and help chart cultural ecosystem service benefits over time.

8..4. Impact of research in future practice and CES research in public parks

It is important to highlight that the research showed the many ways that the park matters to people especially during the time of the pandemic. There were multiple benefits that were identified and revealed in the observation and interview of park users. Similarly, different cultural ecosystem service benefits were linked to various park elements. Further, it is equally important to highlight the engagement with various stakeholders and actual park users to understand their perspectives regarding their use of the urban park and of what is important for them. In doing so, one must think about power relations that emanates from the engagement and its effect on the potential responses of individuals. The use of face-to-face interviews integrated with mapping activity exercise to reveal meaningful park features addressed this concern successfully. It avoided one potential area of conflict that Ishihara (2018) observed in group settings, that is, there would be power differences even among participants in voicing out their opinions.

The influence of social science method in data gathering helped reveal important values from people. This approach addressed one criticism that was raised in the literature about the ecosystem service framework. The study moved away from utilizing economic valuation methods and payments for ecosystem services. The integration of methods adopted from the social sciences were beneficial in understanding the non-material benefits that people derive from the interactions that they have done in the urban park. The use of the cultural ecosystem service concept in this work continued the discussion on evolving the ecosystem service framework integrating methods from the social sciences to understand better the non-material benefits that people get from the environment. It could be argued that this work may be related to the concept of nature's contribution to people, primarily because of the engagement with the local knowledge and local worldviews that may be different from worldviews in other countries or regions. Kadykalo et al. (2019) pointed out that unique or cultural worldviews are distinct and may not be transferred universally. This makes the work important due to the differences in the cultural worldviews and the local context to which the study was applied.

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Appendices

Appendix 1: Letter of Endorsement from School of Built Environment to conduct research

University of Reading

Professor
Libby Schweber PhD
+44 (0)118 378 8567
l.schweber@reading.ac.uk

School of the Built Environment
Chancellors Building
Whiteknights Campus, PO Box 225
Reading RG6 6AY

phone +44 (0)118 378 8200
email sbeexce@reading.ac.uk

Melody Ann Malano
Ninoy Aquino Parks and Wildlife Center

Margaux Vanessa T. Decripito
Rizal Park,
Creative Arts Specialist II / Head, Park Permit
Cultural and Public Affairs Division
National Parks Development Committee
Department of Tourism

24 November 2020

Dear Park Directors,

I am writing to express my support for Mr. Brian James Chiu's research into the cultural ecosystems of the Ninoy Aquino Park and Rizal Park.

Mr. Chiu is currently a joint PhD student at the School of the Built Environment at the University of Reading and at the University of Santo Tomas. His research promises to produce valuable knowledge for both researchers and policy makers. As such, I would be very grateful if you could provide him the access to your facilities which he has requested.

For your information, his research design has been approved by the SBE Ethics Committee and should not pose any harm to the park, park users or to your departments.

Respectfully,

Prof. Libby Schweber
School Director of Post Graduate Research Students
School of the Built Environment
University of Reading

Appendix 2: Letter of approval from Biodiversity Management Bureau

Re: Brian Chiu - Official endorsement from University of Reading UK

BN

BMB Napwc <napwc@bmb.gov.ph>
To Brian James Chiu

12/04/2020

You replied to this message on 12/11/2020 2:26 PM.
If there are problems with how this message is displayed, click here to view it in a web browser.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

Dear Mr. Chiu:

In line with your request, we are delighted to inform you that the management has approved the conduct of your study. The approval letter is currently being drafted. While waiting for the signed copy, you may begin conducting the activities cited on your letter. Further, we would like to request for the tentative dates of your visit to the Park for us to inform the staff at the gates.

To view the guidelines being adopted and implemented at NAPWC, you may click this link: https://www.facebook.com/bmbnapwc/photos/a.1680954275472892/2934535770114730/?type=3&comment_id=2936842293217411&force_theater=true&notif_id=1607049519446110&notif_t=photo_comment&ref=notif

For any concerns or queries, you may contact Ms. Fides Sandoval, the NAPWC Information Officer, thru this email or at this number: 8924 6031 local 236.

Thank you very much.

Sincerely,
--

Right-click or tap and hold here to download pictures. To help protect your privacy, Outlook prevented automatic download of this picture from the Internet

Ninoy Aquino Parks and Wildlife Center
Quezon Avenue, Diliman Quezon City
Tel. No.: 8924 6031 local 236/243
Email Addresses: napwc@bmb.gov.ph/napwc@yahoo.com
FB Page: https://www.facebook.com/bmbnapwc/

Appendix 3: Permit from National Parks Development Committee to conduct research

National Parks Development Committee
T.M. Kalaw St., Ermita, Manila

PARK PERMIT **PERMIT # 2021-021**

GRANTED TO	**BRIAN JAMES CHIU**		
HOME ADDRESS	Manila City		
Contact #	N/A		
ID PRESENTED	N/A	**EXPIRY/ISSUE DATE**	N/A
FOR THE USE OF AREA	**RIZAL PARK**		
ACTIVITY	**DATA COLLECTION FOR RESEARCH / INTERVIEW**		
NO. OF DAY/S	72	**CATERERS**	N/A
EXPECTED NO. OF VEHICLES TO BE BROUGHT TO SITE	2	**EXPECTED NO. OF PARTICIPANTS/GUESTS**	3
DATE AND TIME STARTED	January 25, 2021 (Monday) 06:00 AM	**DATE AND TIME FINISHED**	June 30, 2021 (Wednesday) 07:00 PM
EQUIPMENT TO BE BROUGHT INTO THE AREA	CAMERAS		
SETUP	○ **Whole day** ○ **More than a day** ☑ **None**		

TERMS AND CONDITIONS

The grantee hereby agrees to abide with the Company Policies, Rules And Regulations to wit:

1. Grantee shall use the place/area solely for the purpose being applied for.
2. Grantee shall maintain the designated place/area clean & orderly at all times of usage.
3. Grantee shall free the place/area of neither any forms of obstructions nor installation of permanent fixtures.
4. Grantee shall be held liable for any damage or incident during the activity in the said area.
5. Smoking and alcoholic beverages are not allowed in Rizal Park.
6. All the vehicles shall park only at designated parking area at Rizal Park.
7. Grantee is not allowed to tap electricity.
8. Grantee shall be responsible for the clean-up of the area after their event.
9. In case of damage, grantee shall restore the damaged facility in its original condition.
10. Grantee must strictly observe the health and safety protocols set by the IATF and the guidelines.

In cases where the area covered by this permit is to be used for an event of national importance/significance, NPDC reserves the right to suspend and/or cancel the permit after giving due notice, and re-issuance of the same shall be mutually agreed upon.

NPDC shall, at anytime revoke the permit in cases of violation with any of the above terms and conditions.

This permit is non-transferable, non-negotiable and valid for the period specified.
Issued this **22nd** day of **January 2021**.

CECILLE L. ROMERO
Executive Director

References: **FREE OF CHARGE (FOC)**
Application No.: **21**
Assessment No.:
O.R. No. Amount Payment Date

Total Amount : **0.00**

CONFORME: _____
SIGNATURE OVER PRINTED NAME

Appendix 4: Letter of request to extend data collection activities in Rizal Park

July 17, 2021

MS. CECILLE L. ROMERO
Executive Director
National Parks Development Committee

Subject: **Request for extension of research permit in Rizal Park**

Dear Ms. Romero,

I hope you are safe and well.

I am Brian James Chiu, a joint PhD student at the University of Reading, UK and University of Santo Tomas, Philippines. I am writing to request for an extension of my research permit to conduct research at Rizal Park which ended on 30th June 2021. The two months that the ECQ and MECQ were in place last March to May, affected greatly my research timeline and most importantly my data gathering activities in urban parks such as the Rizal Park. The extension is important so I can continue with my data gathering inside the park without issues with security, staff, and visitors.

Part of the research activities that I will continue to conduct in the park are interviews and observation of users, uses and activities. In terms of my proposed visitation to the site for data gathering, I am planning to visit again the park the soonest possible time. My target would be at least four times a week either in the morning and afternoon park operating hours (tentatively, July 19 – September 20, with two weekday visits and two weekend visits during good weather, this may extend further depending on the richness of data gathered from interviews and observations as well as the weather conditions).

The observations will include assessing the physical features of parks in terms of the park's spatial quality, general park characteristics and existing amenities that may relate to the non-material benefits that people get from using the park. Part of the methods to be used in observation will be photo documentation of the features, amenities, and activities.

The interview will be done with park users, which includes visitors and park staff (maintenance, security, administrators). For staff interviews, I am thinking of interviewing at least 10 staff distributed evenly to cover all genders, and if possible, those that were employed prior to the pandemic. I am proposing an August 2-4, 2021 staff interview if possible. The duration of each interview will be around 15 minutes. The respondents both staff and visitors will be presented with an information sheet and participant consent form, approved by the University of Reading Ethics Committee, regarding my research prior to the start of the interview. Questions that will be asked to participants will revolve around why they come to visit the park, duration of their visit, what benefits they get from their visit to the park, what features are important for them in using the park, what they like about the park and how this pandemic changed the way they use the park.

The outcome of this research will be shared with the research and academic community, administrators of the park and all other park stakeholders, and those who took part in the study. This research is timely and very important especially during this time where urban green spaces such as public park can play an important role in the safety, health and well-being of the people and the community. Similarly, this work can be valuable to researchers, policy makers, park administrators and managers as well as park planners for the conservation, management, redevelopment, and design of urban parks.

Hoping for your positive response regarding this request.

Thank you and with kind regards,

Brian James Chiu
PhD student
University of Reading School of Built Environment/University of Santo Tomas Graduate School

Appendix 5: Permit from National Parks Development Committee to conduct research

National Parks Development Committee
T.M. Kalaw St., Ermita, Manila

PARK PERMIT **PERMIT # 2021-021**

GRANTED TO	**BRIAN JAMES CHIU**		
HOME ADDRESS	Manila City		
Contact #	N/A		
ID PRESENTED	N/A	**EXPIRY/ISSUE DATE**	N/A
FOR THE USE OF AREA	**RIZAL PARK**		
ACTIVITY	**DATA COLLECTION FOR RESEARCH / INTERVIEW**		
NO. OF DAY/S	72	**CATERERS**	N/A
EXPECTED NO. OF VEHICLES TO BE BROUGHT TO SITE	2	**EXPECTED NO. OF PARTICIPANTS/GUESTS**	3
DATE AND TIME STARTED	July 19, 2021 (Monday) 06:00 AM	**DATE AND TIME FINISHED**	September 20, 2021 (Monday) 07:00 PM
EQUIPMENT TO BE BROUGHT INTO THE AREA	CAMERAS		
SETUP	☐ **Whole day** ☐ **More than a day** ☑ **None**		

TERMS AND CONDITIONS

The grantee hereby agrees to abide with the Company Policies, Rules And Regulations to wit:

1. Grantee shall use the place/area solely for the purpose being applied for.
2. Grantee shall maintain the designated place/area clean & orderly at all times of usage.
3. Grantee shall free the place/area of neither any forms of obstructions nor installation of permanent fixtures.
4. Grantee shall be held liable for any damage or incident during the activity in the said area.
5. Smoking and alcoholic beverages are not allowed in Rizal Park.
6. All the vehicles shall park only at designated parking area at Rizal Park.
7. Grantee is not allowed to tap electricity.
8. Grantee shall be responsible for the clean-up of the area after their event.
9. In case of damage, grantee shall restore the damaged facility in its original condition.
10. Grantee must strictly observe the health and safety protocols set by the IATF and the guidelines.

In cases where the area covered by this permit is to be used for an event of national importance/significance, NPDC reserves the right to suspend and/or cancel the permit after giving due notice, and re-issuance of the same shall be mutually agreed upon.

NPDC shall, at anytime revoke the permit in cases of violation with any of the above terms and conditions.

This permit is non-transferable, non-negotiable and valid for the period specified.
Issued this 20th day of **July 2021**

CECILLE LORENZANA GOMERO
Executive Director

References: **FREE OF CHARGE (FOC)**
Application No.: **21**
Assessment No.:
O.R. No. Amount Payment Date

Total Amount : **0.00**

CONFORME: _____
SIGNATURE OVER PRINTED NAME

NPDC-OED-PP-F005.01 07/19/2021

Appendix 6: COVID-19 protocol in Ninoy Aquino Parks and Wildlife Center

Appendix 7: Sample of interview guide

PARK USER INTERVIEW SHEET

INS-S-28

PARK NAME ☐ USER NO. ☐ Name / *Pangalan* _____
Email / Mobile _____

VISIT NO. ☐ DATE _____ Gender assigned at birth/*Kasariang itinalaga sa kapanganakan* ☐ M ☐ F
Location _____ Approximate age/*Tinatayang edad* ☐ 19-30 ☐ 31-59 ☐ 60-ABOVE

1 **Why did you come to this park today?** ***Bakit ka nagpunta sa parke na ito ngayong araw?***

2 **What activities do you plan on doing (or have done) in this visit?**
Ano ang mga aktibidad ang pinaplano mong gawin o nagawa na sa pag bisita mo dito?

2a **Why is this activity important?** ***Bakit mahalaga ang aktibidad na ito?***

3 **Where do you plan to do the activity/ies in this visit?**
Saan mo plano/balak na gawin ang aktibidad na iyong nabanggit?
What places have you visited in the park?
Ano ang mga lugar na napuntahan mo dito ngayon?

4 **How often do you use this park for this activity?**
Gaano kadalas mo gawin sa parkeng ito ang (mga) aktibidad na iyong nabanggit?

2b **Are there any other activities that you do here other than what you plan on doing today?**
May mga iba pa ba na mga aktibidad ang iyong ginaagawa dito maliban sa iyong pakay na gawin ngayong araw?

5 **How do you select which park to visit?** ***Paano mo pinipili kung ano ang parke ang iyong pupuntahan?***

6 **What park characteristics do you find important in your visit?**
Ano ang mga katangian ng parke ang sa tingin mo importante para sa iyong pagtungo rito?

7 **Who do you plan to do your intended activity with?** ***May kasama ka ba na iba sa naturang aktibidad na iyong gagawin?***

8 **How far did you travel to come to this park?** ***Gaano kalayo ang ibiniyahe mo upang makarating sa parke na ito?***

9 **What specific site elements you think are important for the activity you are doing?**
Anong mga elemento ng parke ang sa tingin mo ay importante para sa aktibidad na iyong ginagawa/gagawin dito?

What part of the park is attractive/beautiful?	*Anong lugar dito sa parke ang nakakaakit para sa iyo?*
Where in the park do you feel inspired and motivated?	*Saan dito sa parke ang nakakapag bigay inspirasyon sa iyo?*
Where in this park do you feel happniness/enjoyment?	*Saan dito sa parke ang nagbibigay sayo ng kasiyahan?*
Where in this park you can do recreation/leisure?	*Saan dito sa parke ang nagbibigay libangan sa iyo?*

10 **How satisfied are you in using this park** ***Gaano ka nasisiyahan sa iyong pag gamit sa parke na ito?***

☐ *very satisfied* / *lubos na nasiyahan* ☐ *satisfied* / *nasiyahan* ☐ *neutral* / *walang kinikilingan* ☐ *not satisfied* / *hindi nasiyahan*

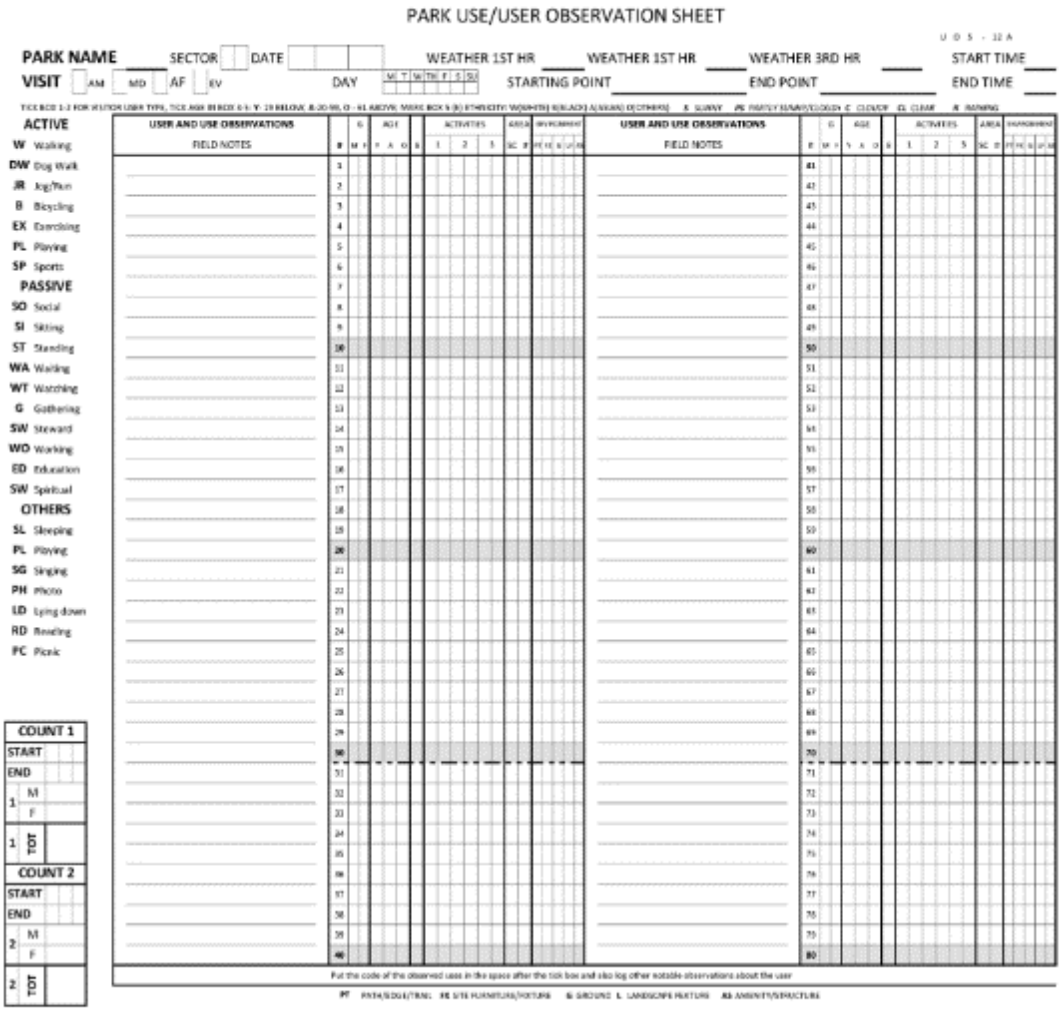
11 **What would you like to change about this park?** ***Kung meron, ano ang nais mong baguhin sa parke na ito?***

12 **Are you a member of any group that takes care of the environment?**
Ikaw ba ay miyembro ng isang organisasyong nangangalaga sa kapaligiran? ☐ YES / OO ☐ NO / HINDI

Appendix 8: Sample observation tally

#	G		GRP	STF		AGE			E	ACTIVITIES			AREA		ENVIRONMENT				
	M	F		M	F	Y	A	O		1	2	3	SC	#	PT	FX	G	LF	BS
1		1					1			W	SO		S2		1				
2		1					1			W	SO				1				
3		1					1			W	SO				1				
4		1					1			W					1				
5	1						1			W	WA				1				
6		1					1			W	SO	WA			1				
7		1					1			W	SO	WA			1				
8	1						1			W	SO	WA			1				
9	1						1			W					1				
10	1						1			W					1				
11	1						1			SI	WA					1			
12		1					1			SI	WA					1			
13	1						1			B					1				
14		1					1			W					1				
15	1						1			W					1				
16		1					1			W	WA				1				
17		1					1			W	WA				1				
18		1					1			SI						1			
19	1						1			J	EX				1				
20	1						1			J	EX				1				
21		1					1			W	EX				1				
22		1					1			W	WA	SO			1				
23		1					1			W	WA				1				
24	1						1			W	WA				1				
25	1						1			J	EX				1				
26	1						1			J	EX				1				
27		1					1			W					1				
28	1						1			W					1				
29	1						1			W					1				
30	1						1			W	SO				1				
31		1					1			W	SO				1				
32		1					1			W	EX				1				
33	1						1			W	EX				1				
34	1						1			W	EX				1				
35		1					1			W	EX				1				
36		1					1			W	EX				1				

Sample of use and activity observation form



PARK USE/USER OBSERVATION SHEET

PARK NAME ____ SECTOR ☐ DATE ☐☐☐ WEATHER 1ST HR ____ WEATHER 1ST HR ____ WEATHER 3RD HR ____ START TIME ____

VISIT ☐ AM ☐ MD ☐ AF ☐ EV DAY M T W TH F S SU STARTING POINT ____ END POINT ____ END TIME ____

ACTIVE
W Walking
DW Dog Walk
JR Jog/Run
B Bicycling
EX Exercising
PL Playing
SP Sports

PASSIVE
SO Social
SI Sitting
ST Standing
WA Waiting
WT Watching
G Gathering
SW Steward
WO Working
ED Education
SW Spiritual

OTHERS
SL Sleeping
PL Playing
SG Singing
PH Photo
LD Lying down
RD Reading
PC Picnic

COUNT 1	
START	
END	
1 M	
1 F	
1 TOT	

COUNT 2	
START	
END	
2 M	
2 F	
2 TOT	

USER AND USE OBSERVATIONS | G | AGE | ACTIVITIES | AREA | ENVIRONMENT | FIELD NOTES

Put the code of the observed uses in the space after the tick box and also log other notable observations about the user

Appendix 9: Sample consent form

School of the Built Environment
University of Reading
Whiteknights
Reading
RG6 6AW

Assessing cultural ecosystem services of urban green spaces: The case of Metro Manila

Participant Consent Form

1. I have read and had explained to me by Brian James Chiu the Information Sheet relating to this project and any questions have been answered to my satisfaction.
2. I understand that my participation is entirely voluntary and that I have the right to withdraw from the project any time, and that this will be without detriment.
3. I understand that my personal information will remain confidential to the researcher and his supervisor at the University of Reading, unless my explicit consent is given.
4. I understand that my appearance in photos for documentation purposes will remain confidential to the researcher and his supervisor at the University of Reading, unless my explicit consent is given.
5. I understand that any identifiable image of me will remain confidential to the researcher and his supervisor at the University of Reading, unless my explicit consent is given.
6. I understand that my organisation will not be identified either directly or indirectly without my consent.
7. I agree to the arrangements described in the Information Sheet in so far as they relate to my participation.

Signed:

Appendix 10: Ninoy Aquino Parks and Wildlife Center tally of activities and uses

NP ALL													
NO	1	2	3	4	5	6	7	8	9	10	11	12	
DAY	W	TH	SA	W	F	SA	SU	SA	TH	SU	W	W	
NAP	23-Dec	24-Dec	26-Dec	06-Jan	08-Jan	16-Jan	31-Jan	06-Feb	11-Feb	14-Feb	24-Feb	03-Mar	
TIME	10AM	10AM	11AM	12PM	12PM	4PM	1PM	4PM	3PM	12PM	2PM	4PM	
ALL USERS TOTAL	**65**	**31**	**53**	**72**	**59**	**40**	**89**	**61**	**56**	**129**	**63**	**54**	**772**
MALE	45	18	24	48	32	25	54	44	28	74	39	28	**459**
FEMALE	20	13	29	24	27	15	35	17	28	55	24	26	**313**
STAFF TOTAL	**17**	**4**	**11**	**32**	**18**	**3**	**11**	**9**	**5**	**23**	**3**	**3**	**139**
STAFF MALE	12	3	0	20	14	3	8	6	1	23	2	3	**95**
STAFF FEMALE	5	1	11	12	4	0	3	3	4	0	1	0	**44**
INDIVIDUALS	12	3	8	24	13	8	24	6	7	11	5	10	**131**
PAIRS	13	5	10	14	5	8	14	9	10	45	9	17	**159**
GROUP	5	4	6	4	8	3	8	5	6	7	10	2	**68**
ACTIVITIES	**116**	**68**	**80**	**110**	**109**	**83**	**161**	**117**	**114**	**235**	**122**	**107**	**1422**
walking	37	5	9	32	14	24	38	8	6	34	21	14	**242**
dog walking	0	2	0	0	0	0	1	0	0	0	0	0	**3**
bicycling	5	0	3	0	3	1	4	0	0	2	0	0	**18**
exercising	0	0	0	0	0	2	2	0	0	0	0	0	**4**
dancing	0	0	0	0	0	2	0	0	0	3	0	0	**5**
sports	0	0	0	0	0	2	0	0	0	0	0	0	**2**
ACTIVE	**42**	**7**	**12**	**32**	**17**	**31**	**45**	**8**	**6**	**39**	**21**	**14**	**274**
social	40	28	33	39	45	28	54	49	47	105	59	43	**570**
sitting	4	7	19	7	8	4	26	10	17	23	21	25	**171**
standing	0	0	0	0	0	0	8	0	7	5	0	1	**21**
waiting	2	0	2	2	0	0	0	14	0	0	0	1	**21**
watching	0	0	4	8	11	0	0	7	2	13	4	2	**51**
working	12	8	0	16	12	3	2	2	5	25	3	4	**92**
PASSIVE	**58**	**43**	**58**	**72**	**76**	**35**	**90**	**82**	**78**	**171**	**87**	**76**	**926**
playing instrument	0	0	0	0	0	3	0	0	0	0	0	0	**3**
photography	15	16	9	6	12	14	19	27	28	10	14	11	**181**
lying	1	0	1	0	0	0	3	0	2	2	0	2	**11**
picnic/eating	0	2	0	0	4	0	4	0	0	12	0	4	**26**
drawing	0	0	0	0	0	0	0	0	0	1	0	0	**1**
OTHERS	**16**	**18**	**10**	**6**	**16**	**17**	**26**	**27**	**30**	**25**	**14**	**17**	**222**
GREY SPACE	**53**	**14**	**48**	**65**	**53**	**49**	**77**	**66**	**54**	**93**	**53**	**53**	**678**
paths edges trails	43	7	17	51	24	31	48	30	19	48	21	20	**359**
site fixtures	4	7	28	55	17	10	16	14	22	35	15	24	**247**
buildings, monuments, statues	6	0	3	9	12	8	13	22	13	10	17	9	**122**
GREEN SPACE	**13**	**18**	**8**	**13**	**17**	**18**	**13**	**13**	**21**	**36**	**14**	**8**	**192**
open space, ground	6	2	0	1	0	4	9	10	3	18	0	2	**55**
natural features	7	16	8	12	17	14	4	3	18	18	14	6	**137**

WEEKDAY VS WEEKEND	WEEKDAY									WEEKEND				
	1	2	4	5	9	11	12			3	10	6	7	8
DAY	W	TH	W	F	TH	W	W			SA	SU	SA	SU	SA
NAP	23-Dec	24-Dec	06-Jan	08-Jan	11-Feb	24-Feb	03-Mar			26-Dec	14-Feb	16-Jan	31-Jan	06-Feb
TIME	10AM	10AM	12PM	12PM	3PM	2PM	4PM	TOT	TOT	11AM	12PM	4PM	1PM	4PM
USERS	**65**	**31**	**72**	**59**	**56**	**63**	**54**	**400**	**372**	**53**	**129**	**40**	**89**	**61**
MALE	45	18	48	32	28	39	28	**238**	**221**	24	74	25	54	44
FEMALE	20	13	24	27	28	24	26	**162**	**151**	29	55	15	35	17
INDIVIDUALS	12	3	24	13	7	5	10	**74**	**57**	8	11	8	24	6
PAIRS	13	5	14	5	10	9	17	**73**	**86**	10	45	8	14	9
GROUP	5	4	4	8	6	10	2	**39**	**29**	6	7	3	8	5
ACTIVITIES	**110**	**68**	**110**	**109**	**114**	**122**	**107**	**746**	**676**	**80**	**235**	**83**	**161**	**117**
walking	37	5	32	14	6	21	14	**129**	**113**	9	34	24	38	8
dog walking	0	2	0	0	0	0	0	**2**	**1**	0	0	0	1	0
bicycling	5	0	0	3	0	0	0	**8**	**10**	3	2	1	4	0
exercising	0	0	0	0	0	0	0	**0**	**4**	0	0	2	2	0
dancing	0	0	0	0	0	0	0	**0**	**5**	0	3	2	0	0
sports	0	0	0	0	0	0	0	**0**	**2**	0	0	2	0	0
ACTIVE	**42**	**7**	**32**	**17**	**6**	**21**	**14**	**139**	**135**	**12**	**39**	**31**	**45**	**8**
social	40	28	39	45	47	59	43	**301**	**269**	33	105	28	54	49
sitting	4	7	7	8	17	21	25	**89**	**82**	19	23	4	26	10
standing	0	0	0	0	7	0	1	**8**	**13**	0	5	0	8	0
waiting	2	0	2	0	0	0	1	**5**	**16**	2	0	0	0	14
watching	0	0	8	11	2	4	2	**27**	**24**	4	13	0	0	7
working	12	8	16	12	5	3	4	**60**	**32**	0	25	3	2	2
PASSIVE	**58**	**43**	**72**	**76**	**78**	**87**	**76**	**490**	**436**	**58**	**171**	**35**	**90**	**82**
playing instrument	0	0	0	0	0	0	0	**0**	**3**	0	0	3	0	0
photography	15	16	6	12	28	14	11	**102**	**79**	9	10	14	19	27
lying	1	0	0	0	2	0	2	**5**	**6**	1	2	0	3	0
picnic/eating	0	2	0	4	0	0	4	**10**	**16**	0	12	0	4	0
drawing	0	0	0	0	0	0	0	**0**	**1**	0	1	0	0	0
OTHERS	**16**	**18**	**6**	**16**	**30**	**14**	**17**	**117**	**105**	**10**	**25**	**17**	**26**	**27**
GREY SPACE	**53**	**14**	**65**	**53**	**54**	**53**	**53**	**345**	**333**	**48**	**93**	**49**	**77**	**66**
paths edges trails	43	7	51	24	19	21	20	**185**	**174**	17	48	31	48	30
site fixtures	4	7	55	17	22	15	24	**144**	**103**	28	35	10	16	14
buildings, monuments, statues	6	0	9	12	13	17	9	**66**	**56**	3	10	8	13	22
GREEN SPACE	**13**	**18**	**13**	**17**	**21**	**14**	**8**	**104**	**88**	**8**	**36**	**18**	**13**	**13**
open space, ground	6	2	1	0	3	0	2	**14**	**41**	0	18	4	9	10
natural features	7	16	12	17	18	14	6	**90**	**47**	8	18	14	4	3

Appendix 11: Rizal Park tally of activities and uses

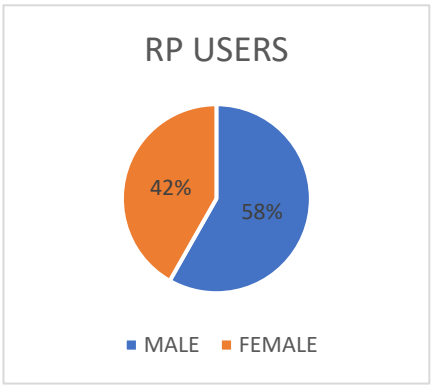
NO	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
DAY	M	T	SA	T	F	SU	TH	SA	TH	W	F	SU	M	W	
RP	25-Jan	02-Feb	06-Feb	09-Feb	12-Feb	14-Feb	25-Feb	27-Feb	04-Mar	10-Mar	18-Jun	27-Jun	28-Jun	07-Jul	
TIME	6PM	6PM	6PM	7AM	7AM	5PM	8AM	7AM	2PM	5PM	6PM	5PM	8AM	8AM	
USER GROUPS	77	40	75	52	194	248	122	155	85	169	90	191	59	68	1625
ALL USERS TOTAL	140	76	127	98	279	492	213	256	119	310	158	437	80	100	2885
MALE	70	34	72	57	197	287	152	156	78	161	83	216	51	66	1680
FEMALE	70	42	55	41	82	205	61	100	41	149	75	221	29	34	1205
STAFF TOTAL	7	0	2	3	5	4	25	7	34	8	1	18	21	17	152
STAFF MALE	6	0	1	3	5	4	25	6	32	8	1	17	18	15	141
STAFF FEMALE	1	0	1	0	0	0	0	1	2	0	0	1	3	2	11
INDIVIDUALS	29	13	39	28	147	94	77	90	60	85	45	71	46	48	872
PAIRS	35	22	27	15	31	113	28	47	20	50	31	61	9	13	502
GROUP	13	5	9	9	16	41	17	18	5	34	14	59	4	7	251
ACTIVITIES	286	129	175	157	388	896	353	645	180	651	306	815	130	156	5167
walking	80	23	25	8	19	109	77	80	47	163	25	164	37	33	890
dog walking	0	0	4	0	7	0	0	7	0	0	2	2	0	1	23
bicycling	13	4	8	6	55	3	62	50	6	8	7	28	6	14	270
jogging/running	10	1	0	0	86	1	3	3	0	33	2	2	0	1	142
exercising	31	5	6	6	6	0	4	92	0	63	17	10	13	4	257
hoola-hoop	8	0	3	0	3	1	0	7	0	9	3	3	4	4	45
dancing	0	0	4	0	0	8	0	0	0	0	2	0	2	0	16
playing games	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
sports	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3
ACTIVE	145	33	50	20	176	122	146	239	54	277	58	209	62	57	1648
social	62	20	55	52	96	396	101	151	47	225	114	349	25	44	1737
sitting	27	32	49	25	35	173	34	57	37	44	69	84	14	12	692
standing	0	12	15	21	30	138	21	34	1	30	35	134	4	17	402
waiting	45	6	4	2	2	0	0	0	0	0	0	0	0	0	59
watching	0	10	0	5	6	4	0	13	0	1	4	5	0	3	51
working	7	1	2	3	11	3	25	9	33	13	6	18	19	19	169
PASSIVE	141	81	125	108	180	714	181	264	118	313	228	590	62	95	3200
playing instrument	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
photography	0	15	0	29	32	59	26	41	8	61	20	16	6	4	317
lying	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
picnic/eating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reading	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
OTHERS	0	15	0	29	32	60	26	42	8	61	20	16	6	4	319
GREY SPACE	145	75	127	141	309	646	242	311	134	371	183	444	80	93	3301
paths edges trails	118	57	78	80	235	405	189	210	73	270	124	383	66	82	2382
site fixtures	27	18	34	20	36	129	20	45	28	42	33	48	10	10	500
buildings, monuments, statues	0	0	15	35	38	112	33	56	33	59	26	13	4	1	419
GREEN SPACE	8	8	0	0	0	31	4	8	10	3	1	5	3	7	88
open space, ground	0	8	0	0	0	0	3	8	9	1	0	0	0	5	34
natural features	8	0	0	0	0	31	1	0	1	2	1	5	3	2	54

	WEEKDAY										WEEKEND					
	6	5	1	7	10	12	3	11	2	13			4	8	9	14
DAY	M	M	T	T	W	W	TH	TH	F	F			SA	SA	SU	SU
NAP	25-Jan	28-Jun	09-Feb	02-Feb	07-Jul	10-Mar	25-Feb	04-Mar	12-Feb	18-Jun			27-Feb	06-Feb	14-Feb	27-Jun
TIME	6PM	8AM	7AM	6PM	8AM	5PM	8AM	2PM	7AM	6PM	TOT	TOT	7AM	6PM	5PM	5PM
USERS	140	80	98	76	100	310	213	119	279	158	1573	1591	256	127	492	437
MALE	70	51	57	34	66	161	152	78	197	83	949	928	156	72	287	216
FEMALE	70	29	41	42	34	149	61	41	82	75	624	663	100	55	205	221
INDIVIDUALS											0	0				
PAIRS											0	0				
GROUP											0	0				
ACTIVITIES	286	130	157	129	156	651	353	180	388	306	2736	2431	545	175	806	815
walking	80	37	8	23	33	163	77	42	19	25	512	378	80	25	109	164
dog walking	0	0	0	0	1	0	0	0	7	2	10	13	7	4	0	2
bicycling	13	6	0	4	14	8	62	0	55	7	181	89	50	8	3	28
jogging/running	10	0	0	1	1	33	3	0	86	2	136	6	3	0	1	2
exercising	31	13	6	5	4	63	4	0	6	17	149	108	92	6	0	10
hoola-hoop	8	4	0	0	4	9	0	0	3	3	31	14	7	3	1	3
dancing	0	2	0	0	0	0	0	0	0	2	4	12	0	4	8	0
playing games	0	0	0	0	0	1	0	1	0	0	2	0	0	0	0	0
sports	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
ACTIVE	145	62	20	33	57	277	196	54	176	56	1078	620	230	50	122	209
social	62	25	52	20	44	225	101	47	96	114	786	951	151	55	396	349
sitting	27	14	25	32	12	46	34	32	35	69	329	363	57	49	133	84
standing	0	4	21	12	17	30	21	1	30	35	171	321	34	15	138	134
waiting	45	0	2	6	0	0	0	0	2	0	55	4	0	4	0	0
watching	0	0	5	10	3	1	0	0	6	4	29	22	13	0	4	5
working	7	19	3	1	19	13	25	33	11	6	137	32	9	2	3	18
PASSIVE	141	62	108	81	95	313	181	118	180	228	1507	1603	264	125	714	590
playing instrument	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
photography	0	6	29	15	4	61	26	8	32	20	201	116	41	0	59	16
lying	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0
picnic/eating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reading	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
OTHERS	0	6	29	15	4	61	26	8	32	20	201	116	42	0	60	16
GREY SPACE	145	80	141	75	93	371	242	134	309	183	1773	1528	311	127	646	444
paths edges trails	118	66	86	57	82	276	189	73	235	124	1306	1076	210	78	405	383
site fixtures	27	10	20	18	10	42	20	28	36	33	244	256	45	34	129	48
buildings, monuments, statues	0	4	35	0	1	53	33	33	38	26	223	196	56	15	112	13
GREEN SPACE	8	5	0	8	7	3	4	10	0	1	44	44	8	0	31	5
open space, ground	0	0	0	8	5	1	3	9	0	0	26	8	8	0	0	0
natural features	8	3	0	0	2	2	1	1	0	1	18	36	0	0	31	5

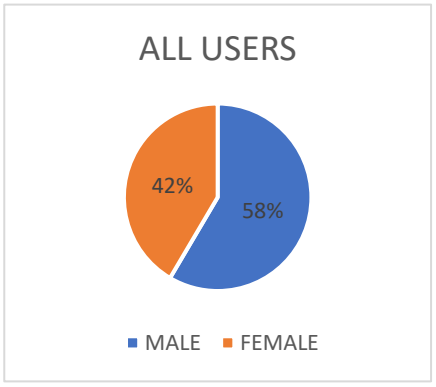
Appendix 12: Data from uses activities observation

	NP	RP	ALL
MALE	459	1680	2139
FEMALE	313	1205	1518
	772	2885	3657

ACTIVE	RP	NP	ALL
walking	890	242	1132
dog walking	23	3	26
bicycling	270	18	288
jogging/running	142	0	142
exercising	257	4	261
hoola-hoop	45	0	45
dancing	16	5	21
playing games	2	0	2
sports	3	2	5
Total	1648	274	1922

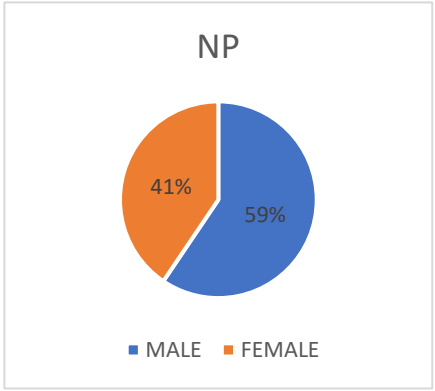


PASSIVE	RP	NP	ALL
social	1737	570	2307
Po[itting	692	171	863
standing, watching/observing, waiting	602	93	695
working	169	92	261
Total	3200	926	4126



OTHERS	RP	NP	ALL
playing instrument	0	3	3
photography	317	181	498
lying	1	11	12
picnic/eating	0	26	26
Reading	1	0	1
drawing	0	1	1
Total	319	222	541

Grey space	RP	NP	ALL
paths edges trails	2382	359	2741
site fixtures	500	247	747
buildings, monuments, statues	419	122	541
Total	3301	678	3979

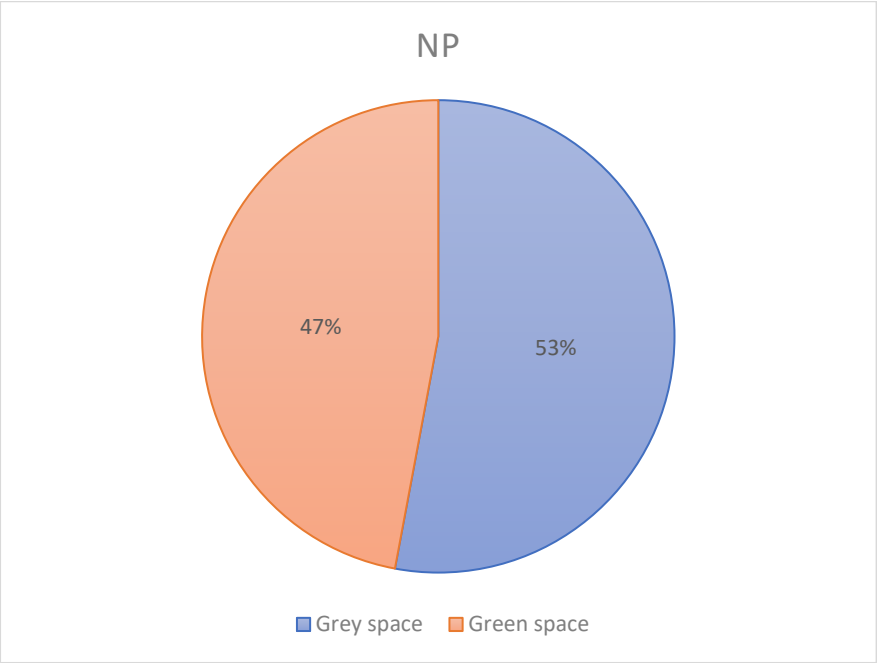


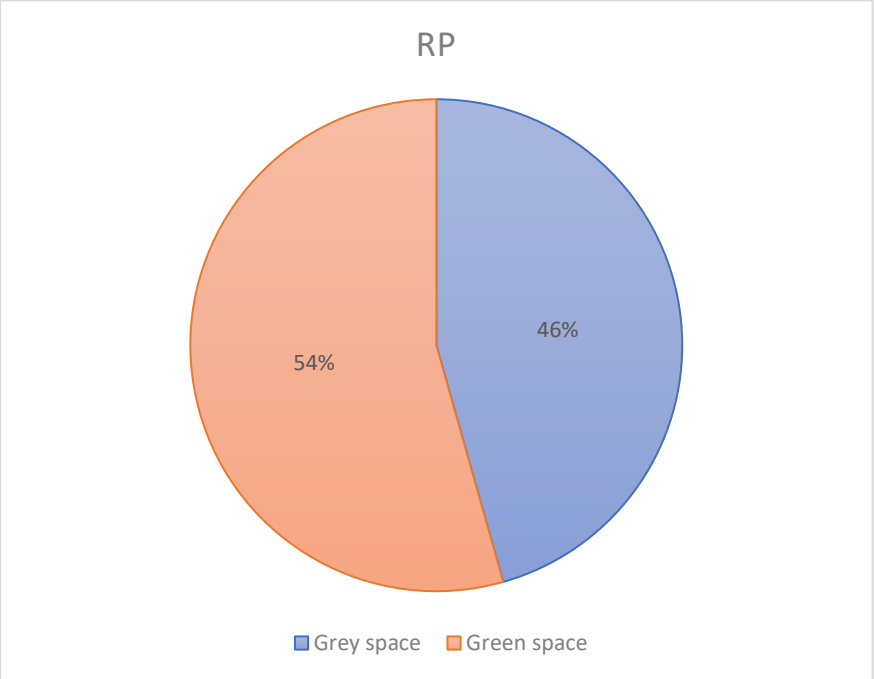
GREEN SPACE	RP	NP	ALL
open space, ground	34	55	89
natural features	54	137	191
Total	88	192	280

Appendix 13: Data on activities uses for analysis

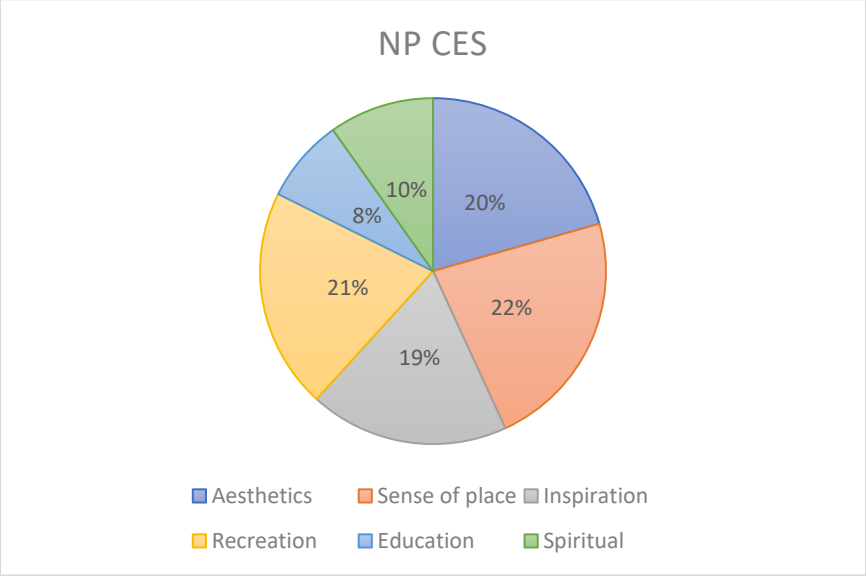
Activity	RP	%	NP	%	ALL	%
social	1737	33.6	570	40.1	2307	35.0
walking	890	17.2	242	17.0	1132	17.2
sitting	692	13.4	171	12.0	863	13.1
standing, watching/observing, waiting	602	11.7	93	6.5	695	10.5
photography	317	6.1	181	12.7	498	7.6
bicycling	270	5.2	18	1.3	288	4.4
exercising	257	5.0	4	0.3	261	4.0
working	169	3.3	92	6.5	261	4.0
jogging/running	142	2.7	0	0.0	142	2.2
hoola-hoop	45	0.9	0	0.0	45	0.7
dog walking	23	0.4	3	0.2	26	0.4
dancing	16	0.3	5	0.4	21	0.3
sports	3	0.1	2	0.1	5	0.1
playing games	2	0.0	0	0.0	2	0.0
lying down/sleeping	1	0.0	11	0.8	12	0.2
Reading	1	0.0	0	0.0	1	0.0
playing instrument	0	0.0	3	0.2	3	0.0
picnic/eating	0	0.0	26	1.8	26	0.4
drawing	0	0.0	1	0.1	1	0.0
Total	5167	100	1422	100	6589	100

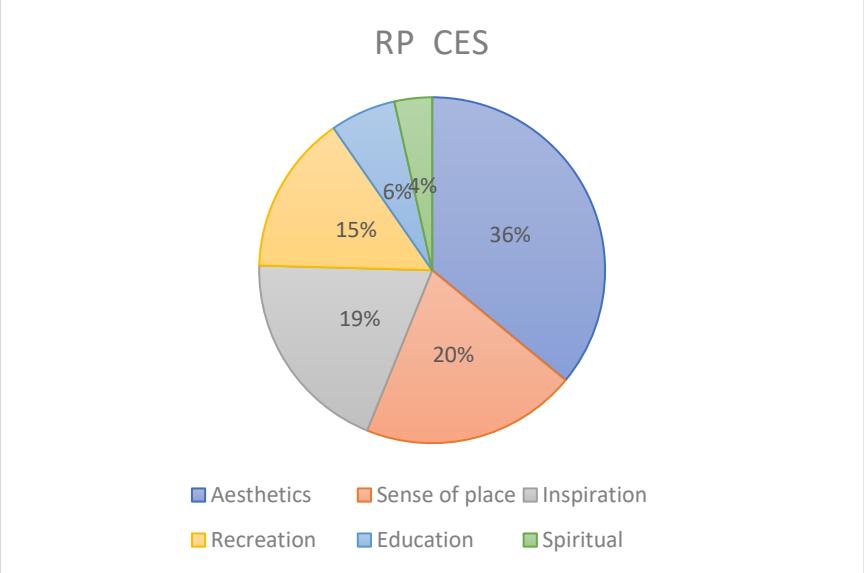
Appendix 14: Green and grey space percentage breakdown





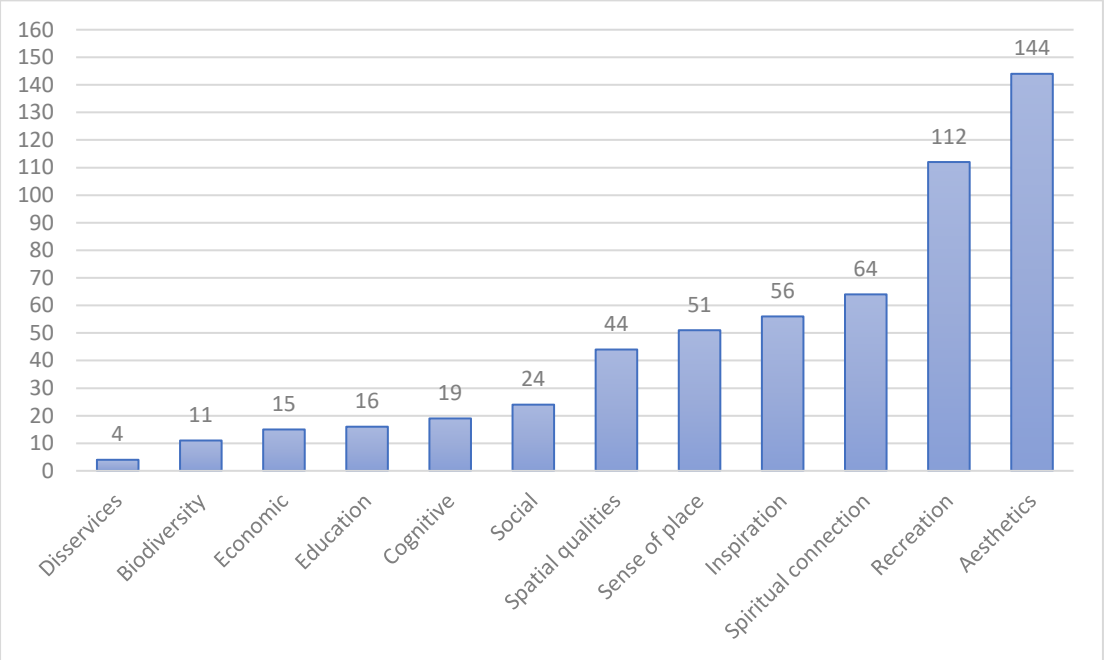
Appendix 15: Cultural ecosystem service percentage breakdown mapping activity





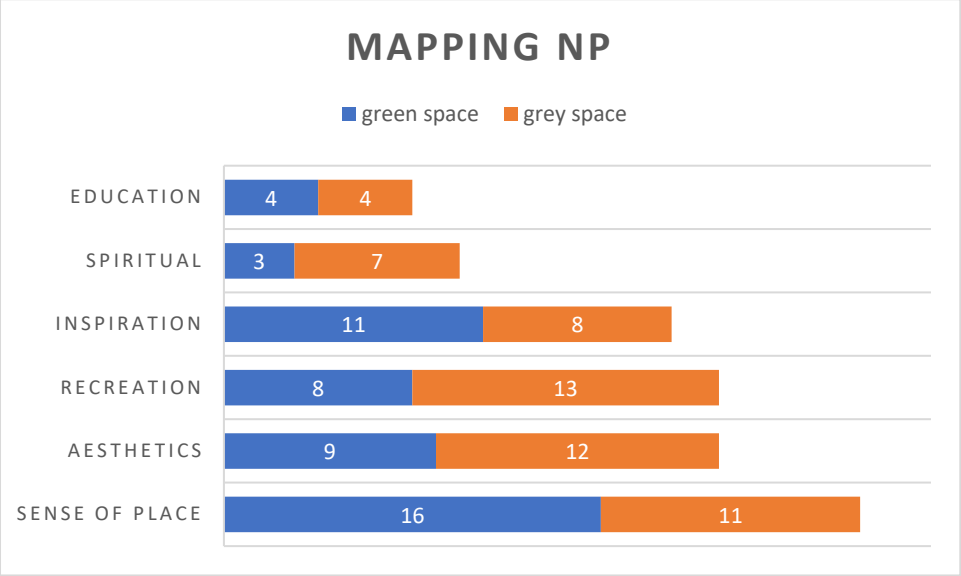
NP	
Aesthetics	41
Sense of place	23
Inspiration	22
Recreation	17
Education	7
Spiritual	4
	114
RP	
Sense of place	23
Aesthetics	21
Recreation	21
Inspiration	19
Spiritual	10
Education	8
	102

Appendix 16: Aggregated value of services and disservices in two urban parks (combined)



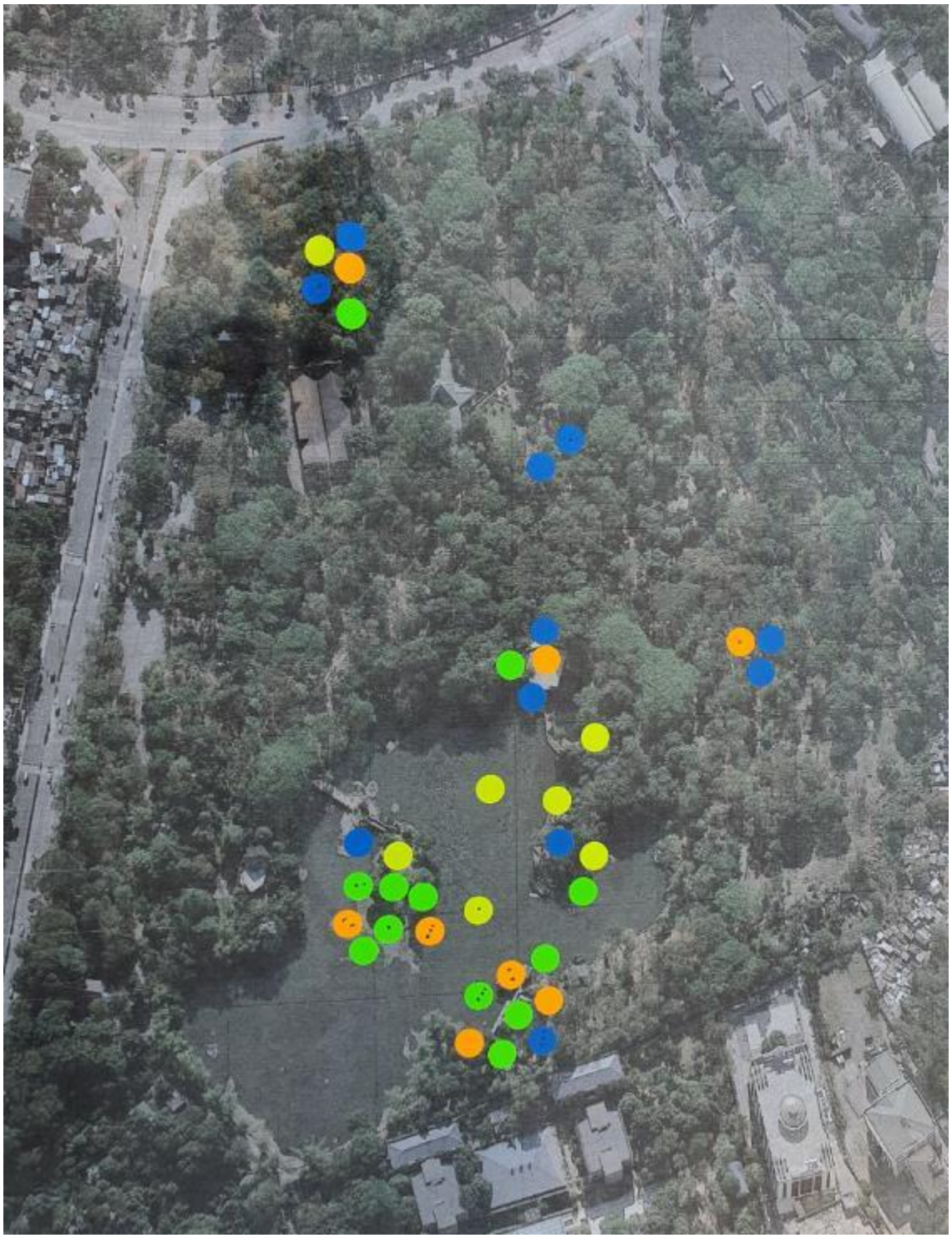
ALL	
Disservices	4
Biodiversity	11
Economic	15
Education	16
Cognitive	19
Social	24
Spatial qualities	44
Sense of place	51
Inspiration	56
Spiritual connection	64
Recreation	112
Aesthetics	144
	560

Appendix 17: Ninoy Aquino Parks and Wildlife Center mapping locations

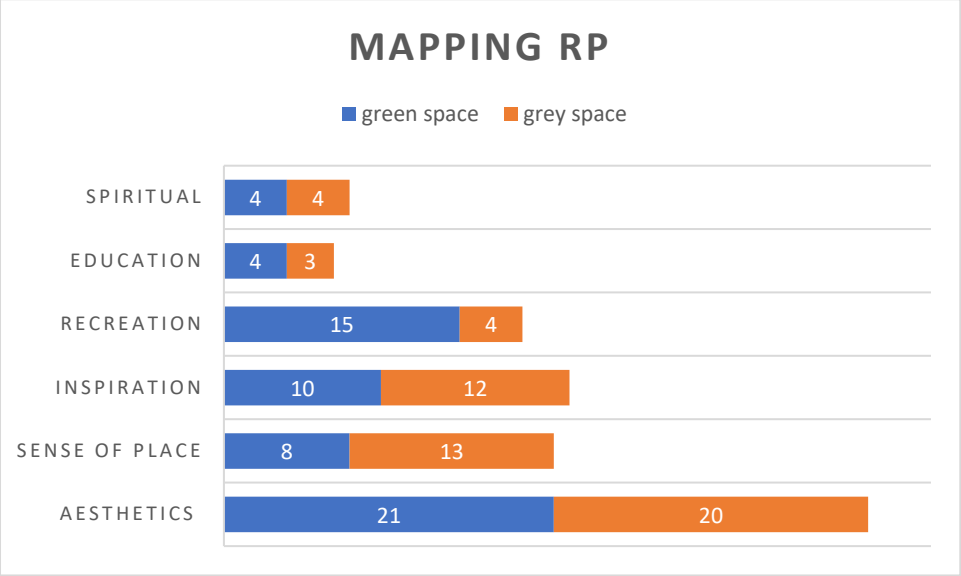


	green space	grey space
sense of place	16	11
aesthetics	9	12
recreation	8	13
inspiration	11	8
spiritual	3	7
education	4	4

Appendix 18: Sample mapping activity Ninoy Aquino Parks and Wildlife Center

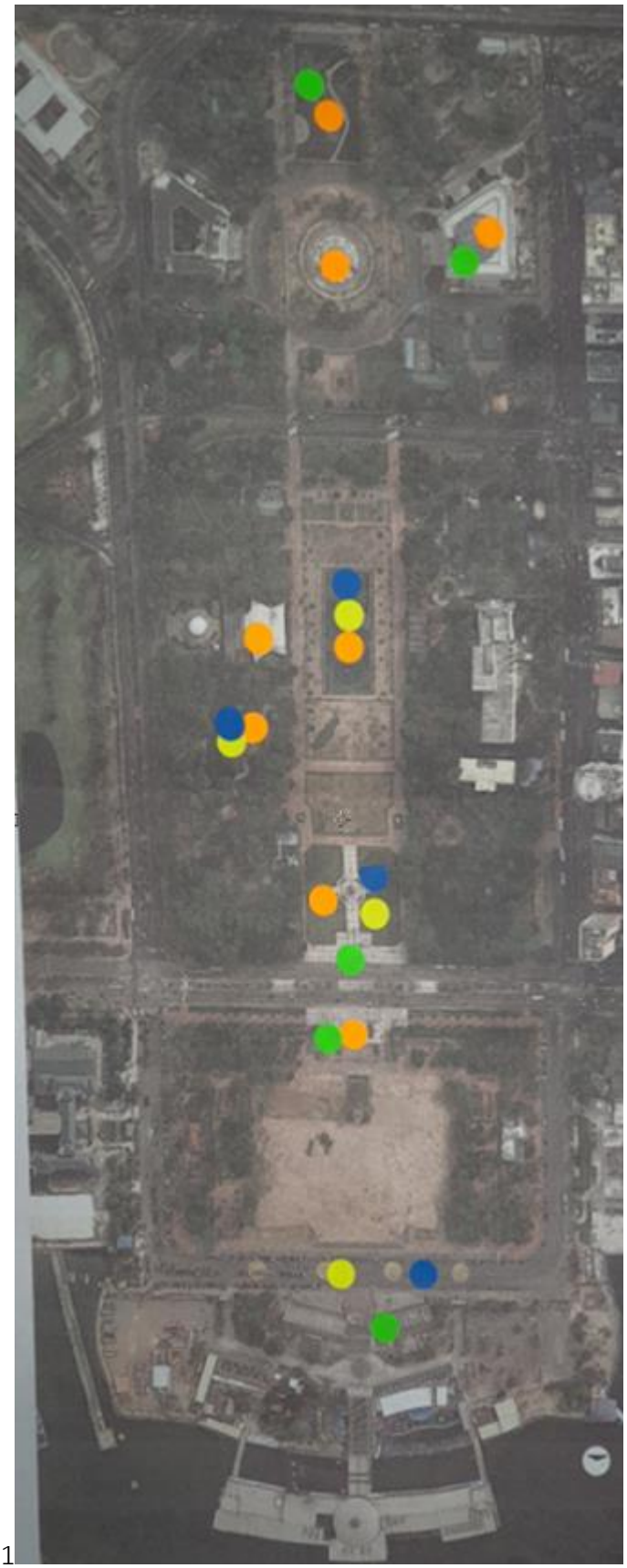


Appendix 19: Rizal Park mapping locations



	green space	grey space
aesthetics	21	20
sense of place	8	13
inspiration	10	12
recreation	15	4
education	4	3
spiritual	4	4

Appendix 20: Sample mapping activity Rizal Park

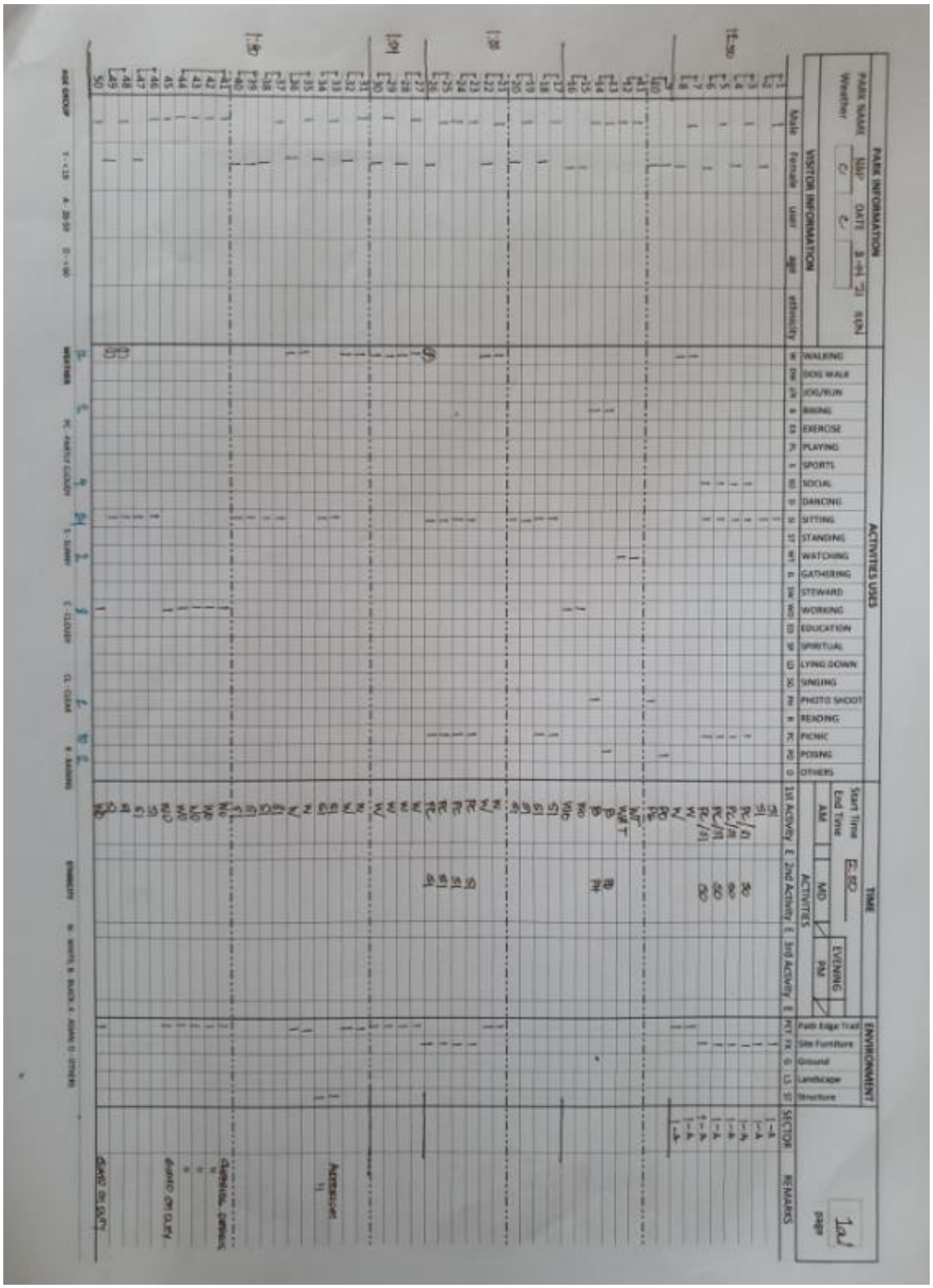


0=1

Appendix 19: Sample of initial coding strategy and mapping tally

	RP				NP
W	E	C	TOT		TOT
1	6	34	41		22
2	3	17	22		20
2	1	20	23		27
2		15	17		21
		7	7		8
		4	4		10
7	10	97			108
		114	113		
			227		108

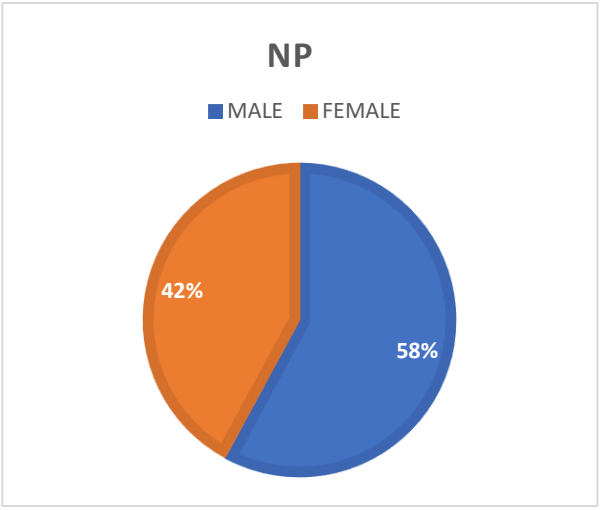
Appendix 21: Sample tally sheet for user activities observation

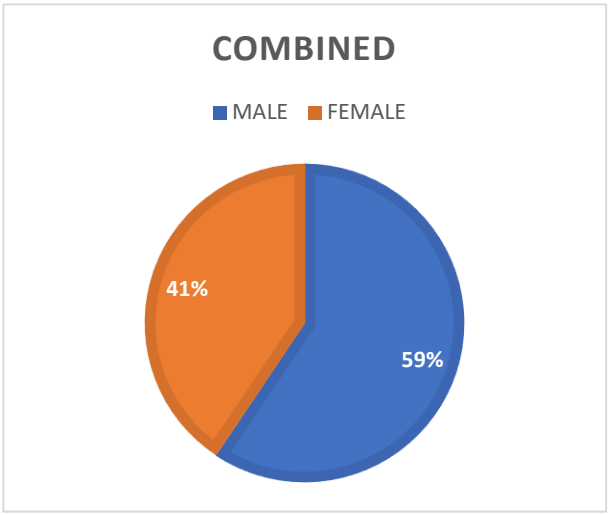


Appendix 22: List of interviewees

Ninoy Aquino Parks and Wildlife Center

#	USER CODE	REFERENCE
1	NP 0319	SM1
2	NP 0319	SM3
3	NP 0318	SF
4	NP 0318	SM1
5	NP 0318	SM2
6	NP 0319	SM2
7	NP 0318	SM3
8	NP 0318	SM4
9	NP 0211	SF
10	NP 0214	C-F
11	NP 0307	C-M
12	NP 0131	F1
13	NP 0131	F2
14	NP 0106	GF
15	NP 0214	F
16	NP 1226	GF
17	NP 1224	M1
18	NP 1224	M2
19	NP 1226	M

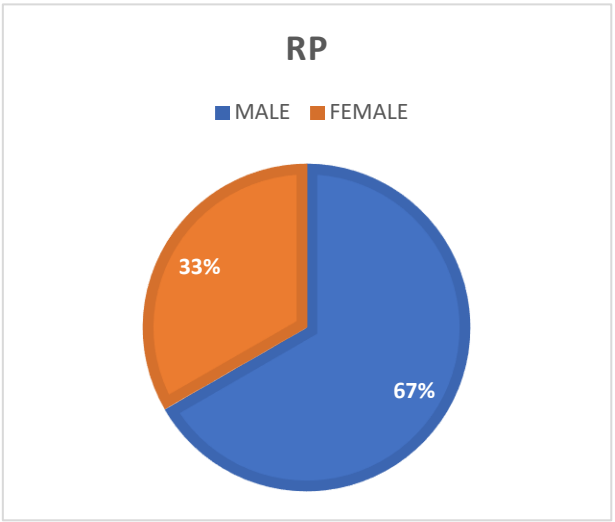




	MALE	FEMALE
RP	**8**	**4**
NP	**11**	**8**
ALL	19	13

Rizal Park

#	USER CODE	REFERENCE
1	RP 0623	SM1
2	RP 0623	SM2
3	RP 0630	SM
4	RP 0622	C-MF
5	RP 0625	C-MF
6	RP 0304	C-MF
7	RP 0619	F
8	RP 0626	F
9	RP 0621	M
10	RP 0711	M1
11	RP 0711	M2
12	RP 0710	GM



Appendix 23: Sample photos of Ninoy Aquino Parks and Wildlife Center during site visits

Description	Photo
Bench 1	
Bench 2	
Picnic table 1	
Bench 3	

Photos of Ninoy Aquino Parks and Wildlife Center (continued)

Description	Photo
Bench 4	
Picnic table 2 by the lagoon	
Path and signage 1	
Abandoned food stall 1	

Photos of Ninoy Aquino Parks and Wildlife Center (continued)

Description	Photo
Path 2	
Park map 1	
Park signage 2	
Bench and greenspace	

Photos of Ninoy Aquino Parks and Wildlife Center (continued)

Description	Photo
Park map	
Improvised bench	
View of lagoon 1	
View of lagoon 2	

Photos of Ninoy Aquino Parks and Wildlife Center (continued)

Description	Photo
Green area 1	
Green area 2	
Wildlife 1	
Wildlife 2	

Appendix 24: Sample photos of Rizal Park during site visits

Description	Photo
Marker 1 Kilometer Zero	
Abandoned stalls 1	
Water element 1 Central lagoon	
Path 1	

Photos Rizal Park (continued)

Description	Photo
Green space 1	
Green space 2	
Green space 3	
Path 2	

Photos Rizal Park (continued)

Description	Photo
Garden 1 Japanese garden	
Alcohol dispenser 1	
Path and statues 1	
Statue 2 Rizal diorama	

Photos Rizal Park (continued)

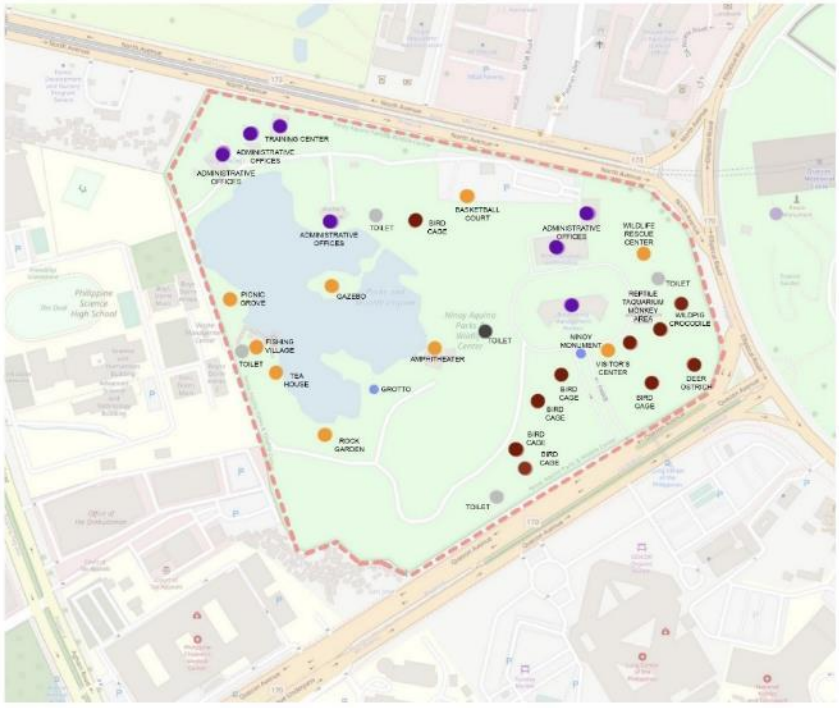
Description	Photo
Path 3	
Path and bench 4	
Path and bench 5	
Path 6	

Photos Rizal Park (continued)

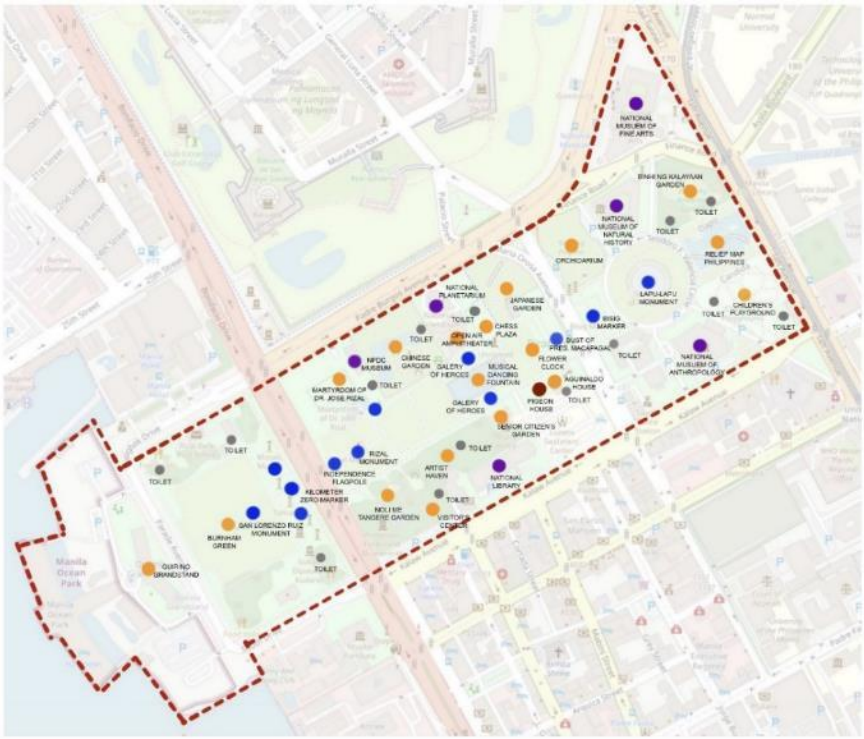
Description	Photo
Path 7	
Water element 2	
Water element 3	
Fountain Rizal fountain	

Appendix 25 Points of interest in the parks

Points of interest in the NP



Points of interest in RP



Appendix 26 RP inventory points of interest

	Inventory of Park Points of Interest	Location	Potential CES Category	Type
1	Manila Ocean Park	SW	Recreation and Leisure	Building
2	Quirino Grandstand	SW	Spiritual and Religious Social relations Cultural and Heritage	Building
3	Burnham Green	SW	Spiritual and Religious Social relations Cultural and Heritage Inspiration and Motivation	Physical feature
4	San Lorenzo Ruiz Monument and Garden	SW	Spiritual and Religious	Statue
5	Kilometer Zero Marker	SW	Cultural and Heritage Education, Information and Knowledge	Marker
6-7	Carabao Statue	SW		
8-10	Toilet	SW	Park Design	Building
11	Independence Flagpole	C	Cultural and Heritage	Marker
12	Rizal Monument	C	Cultural and Heritage Education, Information and Knowledge	Marker
13	Noli Me Tangere Garden	C	Aesthetics Inspiration and Motivation	Amenity
14	Martyrdom of Dr. Jose Rizal	C	Aesthetics Inspiration and Motivation Education, Information and Knowledge	Statue
15	Gomburza Marker	C	Cultural and Heritage Inspiration and Motivation	Marker
16	Artist's Haven	C	Cultural and Heritage Inspiration and Motivation Aesthetics	Amenity
17	Visitor's Center	C	Cultural and Heritage Education, Information and Knowledge	Building
18	Chinese Garden	C	Cultural and Heritage Aesthetics Inspiration and Motivation Spiritual and Religious	Amenity
19	NPDC Museum	C	Education, Information and Knowledge	Building

			Cultural and Heritage	
20	Open-air Amphitheater	C	Cultural and Heritage	Building
21	National Planetarium	C	Cultural and Heritage Education, Information and Knowledge Cultural and Heritage	Building
22	Chess Plaza	C	Recreation, leisure and ecotourism	Amenity
23	Dancing Fountain	C	Recreation, leisure and ecotourism Aesthetics Inspiration and motivation	Amenity
24	Gallery of Heroes	C	Cultural and Heritage Inspiration and motivation Education, information and knowledge	Statue
25	Senior Citizen's Garden	C	Recreation and leisure	Building
26	National Library	C	Cultural and Heritage Education, information and knowledge	Building
27	Japanese Garden	C	Cultural and Heritage Aesthetics Inspiration and Motivation Spiritual and Religious	Amenity
28	Flower clock	C	Recreation and leisure	Marker
29	Aguinaldo House	C	Cultural and Heritage	Building
30	Pigeon House	C	Recreation and leisure	Amenity
31	Bust of President Macapagal	C	Cultural and Heritage	Statue
32-37	Toilet	C	Park Design	Building
38	Bisig Marker	NE	Cultural and Heritage	Marker
39	Orchidarium	NE	Aesthetics Inspiration and Motivation	Amenity
40	National Museum of Natural History	NE	Cultural and Heritage Inspiration and Motivation Education, information and knowledge	Building
41	Lapu-Lapu Monument	NE	Cultural and Heritage Inspiration and Motivation Education, information and knowledge	Statue
42	National Museum of Anthropology	NE	Cultural and Heritage Inspiration and Motivation Education, information and knowledge	Building

43	National Museum of Fine Arts	NE	Cultural and Heritage Inspiration and Motivation Education, information and knowledge	Building
44	Binhi ng Kalayaan Garden	NE	Cultural and Heritage Aesthetics Inspiration and Motivation Spiritual and Religious	Amenity
45	Relief Map of the Philippines	NE	Cultural and Heritage Inspiration and Motivation	Amenity
46	Children's Playground	NE	Recreation and leisure	Amenity
47-50	Toilet	NE	Park Design	Building

Classification criteria for activities and responses by category of CES	
Aesthetic	refers to the mentions about scenic qualities, visual quality
Recreation and ecotourism	mentions about recreational and leisure activities or actual experiences
Cultural and Heritage	mentions about cultural and historical sites, history and tradition
Social relations	refers to the meeting with others, friends, relatives
Inspiration Motivation	mentions of creative actrivities, feelings invoked by the space or interaction
Education Information	refers to knowledge transfer, learning, osbservation,
Spiritual, Religious	Refers to the resources, activities related to spiritual or religious activities, feeling with nature
Sense of place	symbolisms meanings and perceptions of place,

Appendix 27 NP inventory of points of interest

	Inventory of Park Points of Interest	Location	Potential CES Category	Type
1	Lagoon	C	Aesthetics, spiritual, recreation	Water element
2	Gazebo	C	Aesthetics, spiritual, recreation	Landscape element
3	Picnic Grove	W	Aesthetics, spiritual, recreation	Landscape element
4	Fishing village	W	Aesthetics, spiritual, recreation	Amenity
5	Tea house	W	Aesthetics, spiritual, recreation	Amenity
6	Rock Garden	SW	-	Landscape element
7	Grotto	SW	Spiritual	Landscape element
8	Arboretum	S	Aesthetics	Landscape element
9	Open air Amphitheater	C	-	Structure
10	Bird cage 1	S	-	Amenity
11	Bird cage 2	S	-	Amenity
12	Bird cage 3	S	-	Amenity
13	Bird cage 4	S	-	Amenity
14	Bird cage 5	SE	-	Amenity
15	Deer housing	E	-	Amenity
16	Ostrich cage	E	-	Amenity
17	Wild pig	E	-	Amenity
18	Crocodile	E	-	Amenity
19	Monkey area	E	-	Amenity
20	Reptile aquarium	E	-	Amenity
21	Serpentarium	E	-	Amenity
22	Wildlife and Rescue Center	E	-	Structure
23	Senior Garden	S	-	Structure