

ADMINISTRATIVE ROLE OF PHA IN PUNJAB THROUGH THE LENS OF LEGISLATION: AN INSIGHT

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ABSTRACT

Parks and Horticulture Authorities (PHAs) play a vital role in Punjab, Pakistan, by governing public parks, green spaces, urban forests, and plant genetic resources. It was established under the Parks and Horticulture Act of 2012. PHA works toward developing these areas, their maintenance, and their protection. The Punjab Urban and Peri-Urban Forest Policy of 2019 emphasize green space preservation. The botanical gardens in Pakistan, in cities like Lahore, Islamabad, and Peshawar are important for the conservation of plant genetics. PHAs also play an important role in sustainable development, which is done through waste management. It also contributes to Pakistan's Nationally Determined Contributions. This study examines Pakistan's and Singapore's legislative approaches, focusing on the role of PHAs in urban forestry, the preservation of genetic resources, and sustainable waste management practices. PHA is also making efforts towards smog mitigation, climate improvement minimizing carbon emission and promoting circular economy lowering environmental effects which is important for sustainability. To reach more conclusive insights, the paper will conduct a comparative analysis between Pakistan and Singapore's legislative and administrative approaches to parks and horticulture. To conclude, the core values of both systems will be observed, by keeping inform the effort and end results achieved by both economies.

Keywords: Green Spaces, Governance, Sustainability, Legislation, Horticulture, circular economy.

1. INTRODUCTION

Parks and horticulture are crucial for any country; they define the way of living of people and their well-being. Not only do they help people, they are also responsible for the aesthetics that play a huge role in the way a city looks and is perceived. Parks and Horticulture in Pakistan (PHA) plays a huge role in this. They are the ones who are in charge of all such tasks. They manage activities like maintaining the green spaces, providing protection to cultural and historical buildings and landmarks, and regulating the advertising (Urban Unit, 2019). These are the things that make a city more 'livable'. The quality of life is greatly impacted through all of this. Urban horticulture has been recognized globally due to this since it improves the overall environment and the quality of life of people

(Rana, 2022). Urban horticulture can promote food security, protect biodiversity, improve climate and microclimate, create recreational spaces, and use vacant spaces, rooftops, and other areas, all of which contribute to the overall sustainability of cities. The necessity to address Pakistan's environmental degradation—which has been made worse by the country's fast industrialization and urbanization underlines the significance of environmental sustainability there. Parks and green spaces are like a backbone for a sustainable environment. They can help reduce pollution free of cost. They can also regulate the climate of an area and promote the biodiversity. Pakistan has faced criticism for only meeting the needs of the upper class not giving much importance to the

general public (Kausar Bashir Ahmed, 1987). By understanding the importance of parks and green areas, planners and architects can make much more sustainable environments which will cater to the well-being of the whole country. Here is a diagram of a typical PHA administrative organogram:

The Park and Horticulture Authority primarily exist in 10 divisions of Punjab, working effectively. Their work domain for PHA, has primarily has following areas:

- Green belts.
- Zones
- Projects
- Deposit work.
- Festivals
- Marketing

Here in this paper we will discuss the PHA system of Lahore jurisdiction, which is the largest in Pakistan, in the parks management set-up. There are 864 parks, with employees more than 7000, which come under the jurisdiction of PHA Lahore, also the old parks like Lawrence garden come under special status, under special status act because of historic importance. (Hamid Ullah Khan, 1996)

- o Green belts: PHA maintains green belts of over 3000 km, in which canal road green belts are close to 120 km, whereas mall road as length of close to 9 km, and combining all sides, is covers 27km. It is the job of the PHA engineering wing to upgrade, reconstruct or maintain issue related to the green areas or berms associated with them.

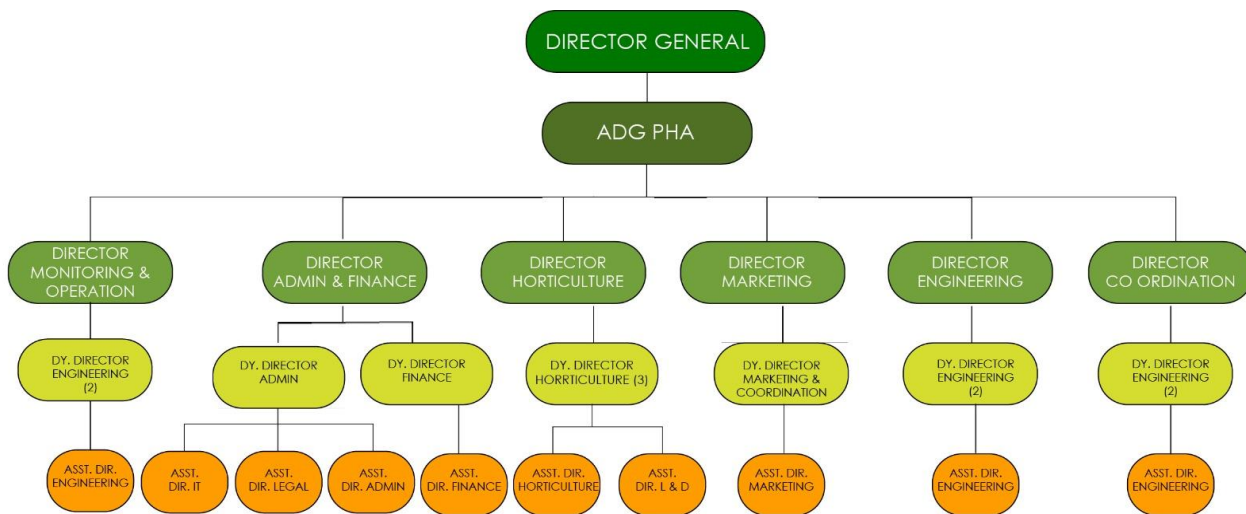


Figure 1 Typical Organogram of PHA Directorate (Author's own work)

- o Projects: PHA also maintains parks having a huge area capable to serve a large urban areas, in form of an independent project, with a Project Director (PD) associated with it, following is the list of parks, namely:

- a) Bagh -e- Jinnah (156 Acres)
- b) Greater Iqbal Parks (127 Acres)
- c) Gulshan-e- Iqbal (64 Acres)
- d) Jillani Park (88 Acres)
- e) Jallo Park (461 acres)

Town wise Union Council Boundaries of Lahore

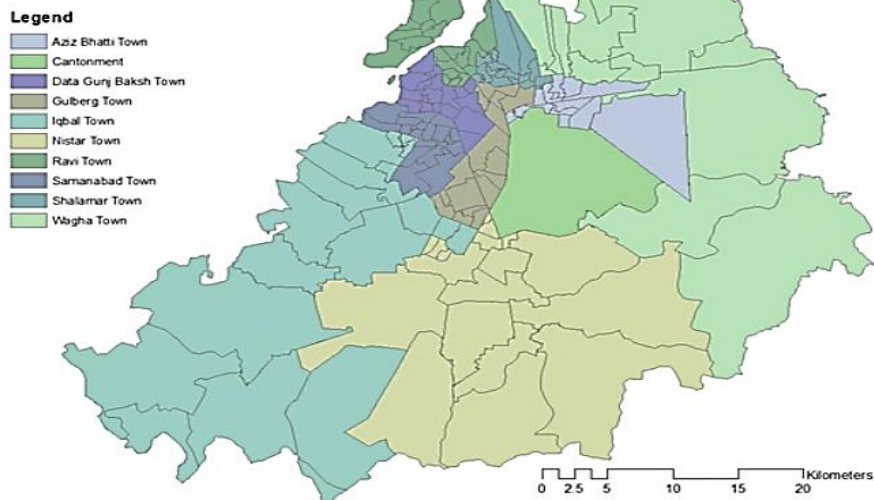


Figure 2 Area Demarcation of Zones in Lahore : Pakgis website Pakistan GIS. (2020). Town wise Unios council boundaries. <https://pakistangis.org/town-wise-union-council-boundaries-of-lahore-2/>

- Zones: The PHA Lahore is divided into 8 zones, park wise administration wise, which are based on residential schemes combined with open spaces and parks associated with them, but as of now, PHA has not formulated a their Master plan and displayed publically.
- Deposit work: In a deposit work agreement PHA provides its maintenance services with an MOU signed with different clients such as the Ring road authority and FWO. The work primarily related to maintenance of the green areas associated with the properties of the clients.
- Festivals: PHA organizes festivals all year around with certified vendors on rental basis
- and generates funds to self-sustain. Spring festival (Jashan e Baharan), is one of them; a most renowned festival.
- Marketing: For maintaining a status of a semi-autonomous body, PHA is responsible for generating funds for their expenditure this includes salaries of employees and funds for the projects. Marketing wing in the PHA administration has allocated sites for commercial advertisement, available through fair bidding procedures. In that case, PHA is able to generate enough funding run their expenditure and programs. (PHA, 2024)

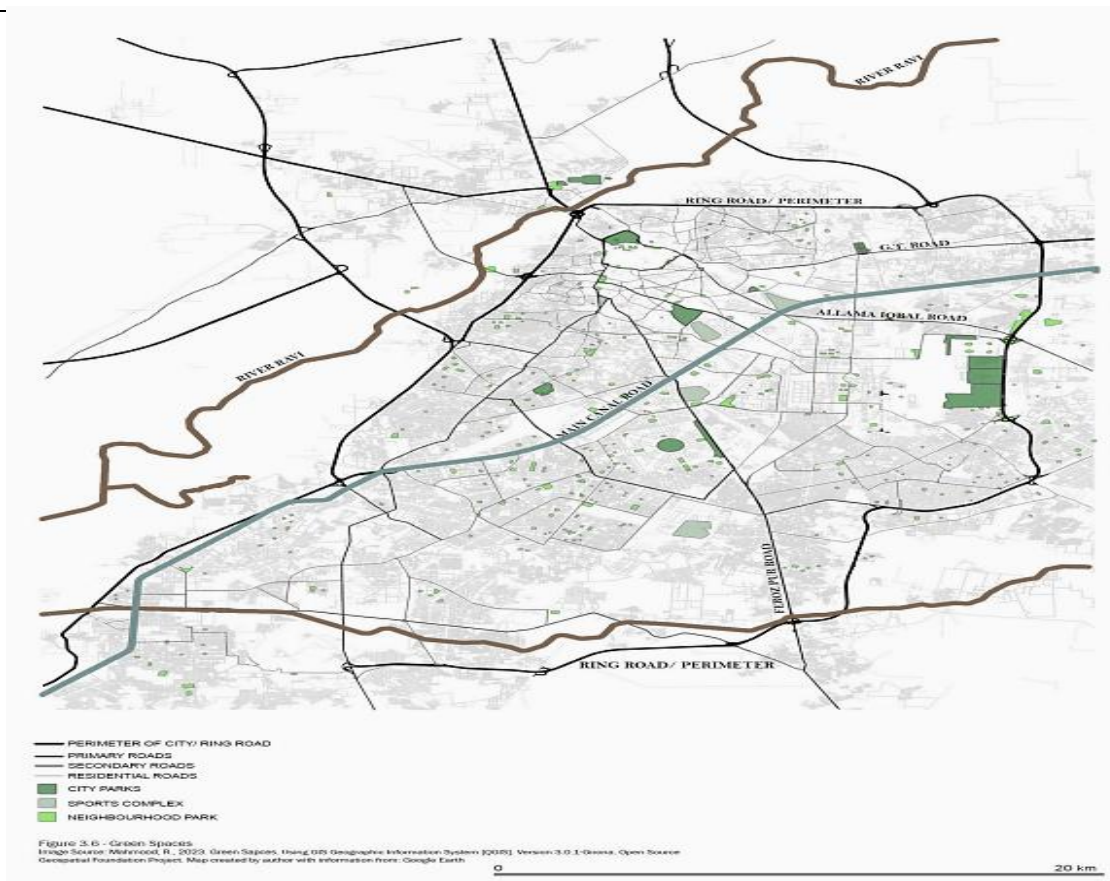


Figure 3: Mahmoud, R. F. (2024). Green Urban Spaces of Lahore. 112.

1.1 Key features of National Parks board of Singapore:

The National Parks Board also known and abbreviated as NParks is an organization that was formed in the year 1990 to oversee the development and management of green areas and the conservation of the biological diversity in Singapore. Originally, NParks was tasked with the supervision the Singapore Botanic Gardens and managing parks and nature reserves across the city. It was in line with the overall plan of Singapore to be a ‘Garden City’, an idea envisaged by the Prime Minister of Singapore, Lee Kuan Yew in the 1960s.

Key Milestones in NParks' History:

1. Formation and Early Development (1990s): While it was in its formative years,
- 3.

NParks tasked itself with the development of new parks and gardens and the enhancement of existing ones: for instance, the Singapore Botanic Gardens was upgraded and more new people’s parks were developed.

2. City in a Garden Initiative (2000s): Over the 2000s, NParks remained instrumental in transforming the country into a City in a Garden through opening of new parks as well as centre on Singapore’s biological richness. Examples of its policies are for instance the Park Connector Network, which entails making ways that connect parks with an aim of ensuring that people are nearer to nature. (N Parks, Sustainability Report, 2022)

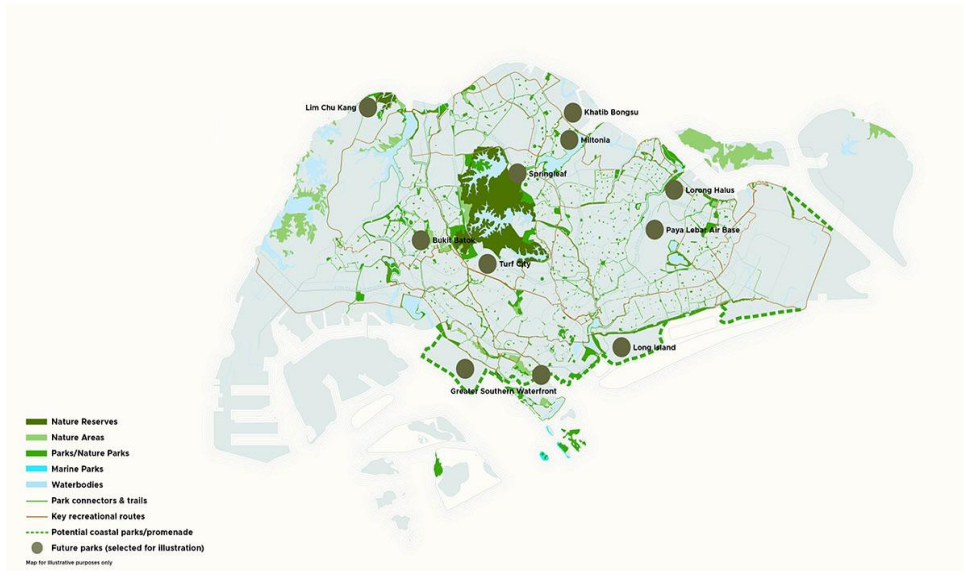


Figure 4: Blue and Green Spaces of Singapore Urban Development Authority. (2024).

3. One Million Trees Movement (2020): NParks had come up with a tree planting project known as the One Million Trees, which is Singapore’s sustainable development goal to plant one million trees for the city by the year 2030 as a way of fighting heat island effect and increase biodiversity.

4. Hierarchy of Functions (2022): NParks has been gradually extending functions like maintaining line vegetation and regulating areas of coast. This larger role aligns itself with Singapore’s ‘City in Nature’ master plan in which greenery, nature, and city living are interlinked and interdependent.

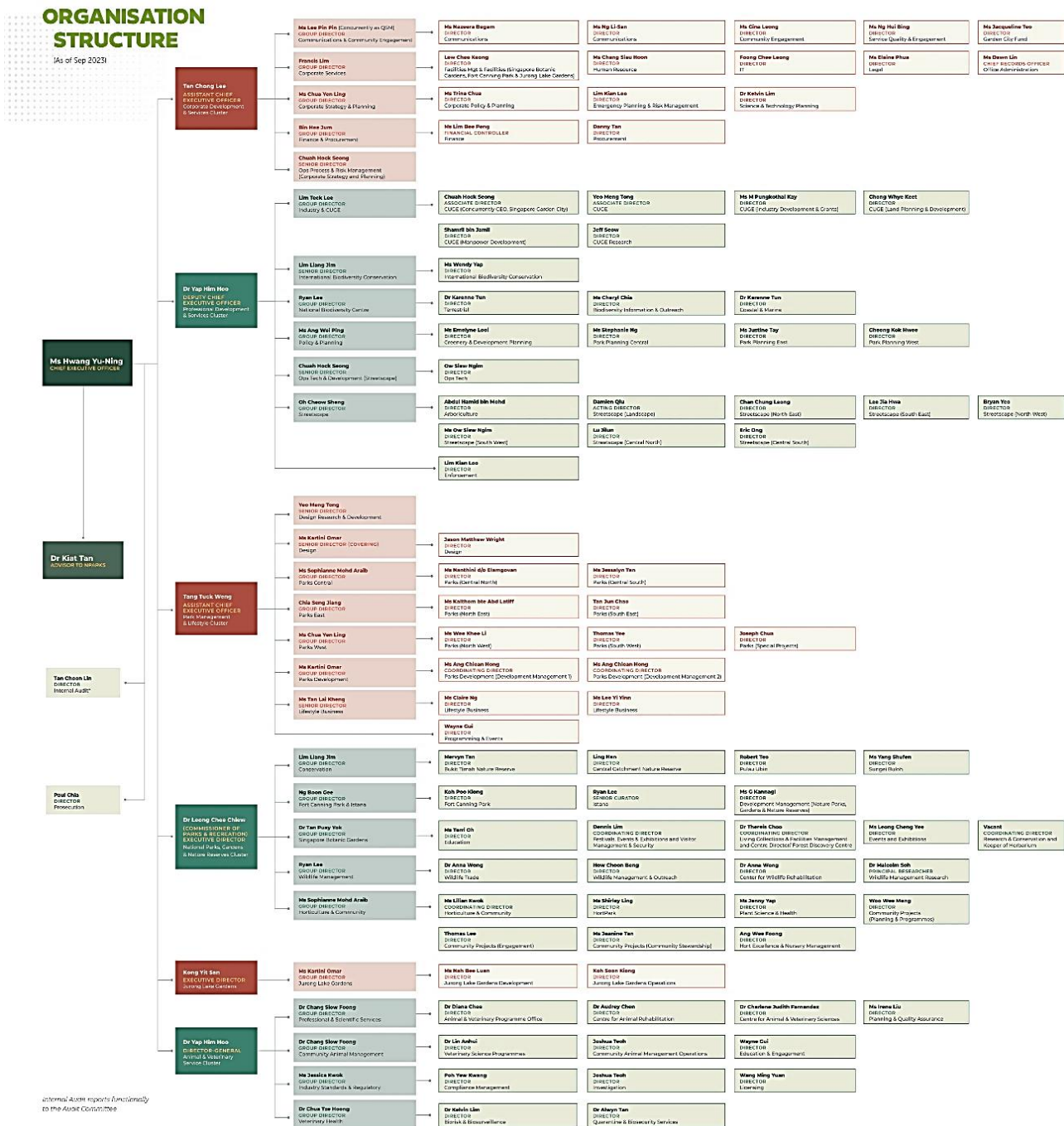


Figure 5: Singapore, G. of. (2024). National Park Board Singapore, website

This makes the agency instrumental in the management of diversities and the green areas, especially in urban environments as in Singapore, while also understanding the developmental needs of the country. NParks is no longer only responsible for parks and gardens but is also in

charge of the nature reserves, as well as Singapore’s Botanical Garden, which has just recently earned its status as a UNESCO world heritage site. NParks is still the leader in ecological conservation, community activities, and sustainability with an aim of having a viable and

biodiversity-rich city. NParks is still the leader in ecological conservation, community activities, and sustainability, with the aim of having a viable and biodiversity-rich city.

Looking at Singapore's NParks legislative framework, it can be noted that it has a more comprehensive nature. Besides its role in the management of public parks, the National Parks Board Act and the Parks and Trees Act are expected to address environmental concerns, protect species and their natural habitats all over the territory of the Republic of Singapore. It is peaceful with this absorption of a comprehensive approach to greenery management in consideration with Singapore's overall environmental frameworks that tackle climate change and sustainability. Public park management in Singapore is linked with the country's green initiatives that are aimed at beautifying the urban environment as well as simultaneously preserving the natural resources. (Singapore Urban Development Authority, 2024)

2. Literature Review:

This research paper reviews through the lens of legislation and talks about the importance of parks and horticulture in Pakistan and how they are integrated with their wellbeing while keeping the laws of the regions under consideration. All the green spaces, which include parks, green belts etc. fall under the control of PHA and are managed by them. Parks were primarily managed under the horticulture wing of LDA, later separated as PHA, in 1998. This act, the Parks and Horticulture Act 2012 (Acr XL VII 2012), serves to help create a better environment through the powers of PHA. The act emphasizes the importance of building density and how it affects user experience in a city. Things like billboards and advertisement boards are a part of this. The Punjab Urban and Peri Urban Forest Policy is a legislative measure that aims to make more green spaces within an area. This coheres with the motives of PHA, who are striving toward more green and sustainable environments. By understanding the importance of Urban Forestry, we get to know how it is beneficial for our environment and its aesthetics. The implementation of this can be seen in the recent project from 2019, "The implementation of Punjab Urban and Peri-Urban Forest Policy." It shows how this project has been carried out, with demarcation

of development authorities clearly marked out through GIS, for greening the entire Punjab province. (Ahson, 2015)

The assessment report shows the achievements and challenges faced by the policy. While it does impact the environment in a positive way, still it's not that easy for it to work out and that there are several difficulties while implementing it. Through the report, we get to understand how the policy has taken its course and whether it has achieved what it has wanted to achieve or not. PHA is in charge of the environment and its development. It aims at making the environment much more sustainable through understanding the general public's needs and catering to them. This is done by making green areas in much more density and making the environment sustainable. This also makes the environment more beautiful, and its aesthetics are enhanced through this. And by doing this, not only does it make the city overall better but it also uplifts the wellbeing of those living within it. (Ilyas et al., 2014)

In contrast, Singapore's National Parks Board Act of 1996 establishes the legal guidelines for the administration of the country's national parks and natural reserves. The reorganization of the National Parks Board and the division of duties from the Parks and Recreation Department are the main objectives of this Act (Law et al., 2015). While Pakistan's Parks and Horticulture covers a wider range of green areas and afforestation in urban areas, the National Parks Board is a bit different and is aimed at the regulation and management of the parks and nature. The management of the sustainable environment, where it is possible to make a lot more green areas, but at the same time it is important for us to consider the balance of green areas to urban living. This review will examine a thorough overview of the legislative frameworks of green areas in both countries by comparing both the Parks and Horticulture Act and the National Parks Board Act.

3. Research Methodology:

The research methodology for the paper "Administrative role of Parks and Horticulture Authority in Pakistan through the lens of legislation" can be as follows:

To comprehend the legislative framework governing PHA, a comprehensive literature analysis has been carried out by compiling primary

data with the authorities. In order to determine the main clauses, authorities, and duties of PHA, an analysis of the Parks and Horticulture Authority Act 2012 (Act XLVII of 2012) has been conducted. In addition, the Punjab Urban and Peri-Urban Forest Policy of 2019 has been examined to evaluate the policy context and its implications for PHA's role in urban forestry and environmental sustainability. A comparative analysis with the National Parks Board Act 1996 of Singapore is done by reviewing secondary data in order to extract valuable lessons from global best practices (Rose-Ackerman et al., 2015).

2.1 Document Analysis:

PHA's accomplishments and difficulties will be evaluated through an analysis of important documents and reports. Policy briefs and position papers from PHA and other stakeholders, budget allocation and expenditure reports, and annual reports and performance evaluations of PHA will all be included in this. These documents will offer insightful information about the job, difficulties, and viewpoints of PHA. (Punjab, 2019)

2.2 Stakeholder Interviews:

Stakeholders, such as PHA officials at different levels, representatives from other government agencies, and representatives of civil society organizations, have been interviewed in a semi-structured manner. By conducting these interviews, PHA will be able to identify important topics and viewpoints as well as get input on the impact and efficacy of its activities.(Ahmad & Haq, 2021)

2.2 Data Analysis:

To evaluate the effect of PHA's actions on environmental sustainability and quality of life, pertinent data has been studied. This comprises geographic information on park accessibility, distribution, and green cover as well as environmental information on temperature, biodiversity, and air quality, as well as socioeconomic information on recreation, health, and property values. The research study offers a thorough and fact-based evaluation of the Parks and Horticulture Authority's function in Pakistan via the lens of legislation by utilizing this multifaceted technique (Hassan, 2018). Using a combination of case studies, literature reviews, document analyses, stakeholder interviews, and data analysis, the research paper offers a thorough and fact-based evaluation of the Parks and Horticulture Authority's function in Pakistan via the legislative lens. (Rana, 2022)

4. Comparative analysis of PHA and NPark policies and working

Comparing the Parks and Horticulture Authority (PHA) in Pakistan with the National Parks Board (NParks) in Singapore reveals both commonalities and distinctions in their roles, powers, and functions regarding the management and conservation of urban green spaces. Both organizations have significantly contributed to promoting and protecting these areas, yet they encounter unique challenges and have diverse future prospects:

4.1- Comparative analysis of Administrative structures:

Category	PHA Lahore	National Parks Board (Singapore)
Jurisdiction	Entire Punjab	Entire Singapore.
Management	Chairman, Director General	CEO
Structure	Board of Directors	CEOs, and ACEOs, reporting to the board.
Divisions	Operations, Horticulture, Engineering	Clusters: Corporate sector, Management, Wildlife, streetscape and conservation.
Subdivisions	Finance, planning and maintenance	Finance, procurement, communication and marine conservations.
Special areas	Enforcement	Natural reserves and education.
Clusters	None	Groups directors areas associated with them
Finance	Director of Finance	Financial controller

Community engagement	Less focused	Highly active, with projects such garden city fund, and community projects.
Design initiatives	Does not have a dedicated office for Landscape design.	Highly active in research and design based projects.
Risk Management	Not focused	Has a dedicated Director for emergency planning and Risk management.

4.2-Comparative analysis of legislative acts:

Aspects and features	PHA (Punjab Government)	National Parks (Singapore)
Jurisdiction	Punjab, Pakistan.	Entire Singapore territory
Authority	PHA, Lahore	National Parks board
Main Legislation	PHA Act 2012	N parks board act, Parks and trees act with subsidiaries.
Goals	Improvement and maintenance	Conservation, maintenance, greenery and public awareness.
Powers dedicated	Management planning and development Green spaces, also regulations.	Management, Natural reserves, biodiversity and regulation of green areas.
Participation in Public	Limited	Very effect on all platforms.
Conservation & preservation	Emphasized on beautification and horticulture.	Focused on sustainability, beautification and natural habitats.
Violations	Imprisonment for six month for violation.	Formulated detailed rules based on damages to parks and open spaces
Subsidiary laws	Limited	Detail laws formulated in detail upto management of plant species related to marine life.
Sustainability	Not directly emphasized	Strong focus towards climate change
Biodiversity	Limited focus.	Strong focus
Plants preservation	Limited provisions	Documented with a lot of details in parks and trees act.
Budget and funding	Semi-autonomous status, salaries and operations expense met through budget generated from advertisings sites.	Dedicated budget allocated from government, and funds generated from Public private partnerships.

The Parks and Horticulture Authority Act of 2012 established the PHA, which has been crucial for establishing and upkeeping multiple green spaces throughout Punjab. In order to promote its cause, there are horticultural fairs and exhibitions planned and supervised placements of signage and advertisements. Notwithstanding its achievements, PHA still has to deal with a multitude of problems such as lack of resources, space and encroachment.(Razia, 2024)

Conversely, National Parks board, which was founded by the National Parks Board Act of 1996, has a wide range of authority due to which under

the jurisdiction of NParks, urban green areas have improved tremendously and rapidly in Singapore. This includes involving the public via specific programs, improving and implementing green infrastructure and protecting biodiversity. NParks however has a set of obstacles that they too must overcome such as adjustment to climate change, removal of invasive species in the region and essentially environmental preservation. NParks is exploring new technologies and solutions to boost ecological connections and progress in their cause.(Singapore, 2024)

In conclusion, PHA and NParks have different future outlooks and address different problems despite the fact that both are essential to managing and conserving urban green spaces. However when it comes to funding, NParks are more favored in terms of funding to create a healthier sustainable environment in comparison to the PHA. Greater awareness of the importance of urban green areas and the work these organizations make toward ecological sustainability, biodiversity conservation, and community participation is made possible by realizing these distinctions and commonalities. (Mehmood, 2024)

5. Discussion:

4.1 Scope and Focus:

This paper compares the management of park and horticultural green space at the government level through the PHA Act 2012 with another developed country Singapore and NParks Acts. The major activity in Punjab is focused on plaza beautification which also includes horticulture targeting the development of parks and green belts within the urban environment (Maria Elena Zingoni de Baro, 2022). It is mostly design related and most of the work is oriented towards the make-over and upkeep of the general appearance of the public centers (Aziz, Asad, 2023). The PHA Act has a narrower scope with it being mainly urban centered, and it has no targeted objectives in terms of environmentalism or wildlife protection.

4.2 Public Involvement and Education:

A number of significant measures have been taken to have public engagement in Singapore’s park management, and this is evident in the NParks legislation. Public participation is strongly supported by educational activities, volunteering projects, and appeals to increase public awareness of the preservation of natural environments. The

NParks framework incorporates the goal of educating the public into the organization with the view of instilling the sense of responsibility amongst Singaporean’s concerning the environment(Ooi, 1992). Thus, this community-based strategy improves park management since the community is more accountable for environmental conservation and the protection of what belongs to it, including the parks. In contrast the PHA Act does not seem to place much weight on public participation. Even though the authority may interface with the local communities, there are no well-developed avenues for public participation or local organizations. This eliminates the public participation in the decision making process of the park, management or conservation. Increasing park policies’ accessibility in Punjab could enhance the inclusiveness of public spaces by providing a greater amount of information to the population.(Henderson, 2022)

4.3 Environmental and Biodiversity Conservation:

Particularly impressive for Singapore’s NParks legislation is that environmental and biodiversity conservation is its major concern. Some of the laws include the Parks and Trees Act where trees and greenery especially the heritage trees are protected by law (Bugna, 1997). The Act also provides a clear framework regarding the conservation of trees as well as the management of open spaces. Some of the key responsibilities of NParks includes participation in the conservation and management of Singapore’s biological diversity, protection of endangered species, and safeguarding natural resources from irresponsible development.(Timah, 2018)

PHA Act of Punjab has narrower objectives of its counterpart laws and restricts its action only to the

Table 1 Area and green space distribution in Lahore *Source:* (Parks and Horticulture Authority, 2020)

Name of zones	Total area (sq. km)	Total green space area (sq. km)	Percentage (%)
Ravi	64.71	4.55	7
Shalamar	26.44	4.24	16
Aziz Bhatti	68.65	0.95	1
Data Gunj Baksh	34.01	6.73	20
Samanabad	38.34	5.68	15
Gulberg	43.54	15	34
Wagha	470.7	1.22	0.3
Iqbal	445.1	27.22	6
Nishtar	394.46	6.78	2
Cantonment	186.05	15.32	8.2
Total	1772	88	5

conservation of the bio-diversity. The legislation is mostly focused on gardening, landscaping, and the aesthetic management of green areas. Although these are also important, lack of specific measures with regards to wildlife protection and ecological

Figure 6: PHA Department Lahore.

4.4 Penalties and Enforcement:

Both the legislations propose sanctions for noncompliance, although the intensity and coverage of the punitive measures vary greatly. NParks laws in Singapore have stiffer fines on offences that affect the environment in the country including; cutting down trees without permission, construction of structures in the parks, abusing wildlife. The enforcement procedures involve high penalties together with imprisonments (Gulsrud & Ooi, 2015). These strong penalties guarantee

factors represents a more limited perspective. If Punjab broadened its roles to include protection of the nation’s biological diversity, it could afford to be more consistent with global norms in managing the environment.(PHA, 2024)

obedience and discourage people from endangering the environment.

However, the penalties prescribed for violation of the provisions of the PHA Act are comparatively less severe and condemnations expressed in fines and imprisonment terms appear to have a localized and horticulture focused approach(Khalid Chauhan, 2024). The focus in Punjab is on compliance with certain regulations that govern aesthetics of public space and its cleanliness rather than environmental preservation. Increasing the severity of the fines for such violations

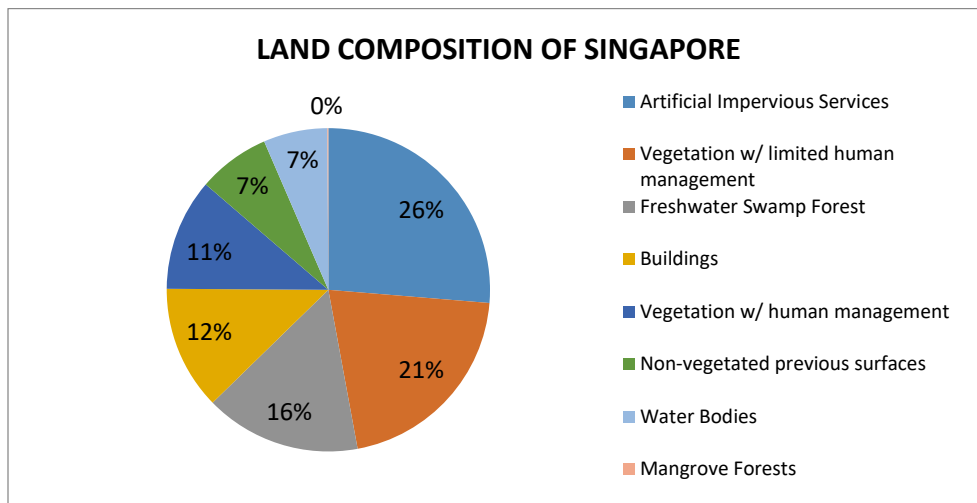


Figure 7 Pie Chart showing land composition of Singapore (recreated from <https://storymaps.arcgis.com/stories/34ac438da27d45c1b536ff702f6e04d8>)

6. Conclusion:

An analysis of legal frameworks of two entities, Punjab’s PHA and Singapore’s NParks, shows difference in approaches due to difference in environmental perspective in the two territories. The PHA Act largely focuses on aesthetics and maintenance of the urban environment, thus does not encompass much of environmental conservation or even protection of bio diversity. On the other hand, Singapore’s NParks legislative structure is more extensive, encompassing the management of parks, and essential concerns, such

as trees’ protection, bio-diversity, and public engagement in conservation.

The Singapore experience has teachings that Punjab could learn, especially in environmentalism, conservation of the biosphere, and public engagement. These elements have been integrated in a way that enabled Singapore to create a balance between the expansion of the city structures and the bearing of proper concern of the ecology, making the environment greener and more sustainable. All these principles, if enacted for Punjab, would also be helpful especially in light of increasing urban drift and growing

environmental problems. Increasing the scope of work of the PHA, implementing a higher level of conservation measures, increasing sanctions for violations, and enhancing public engagement may contribute to the adaptation of the region to global practices in the management of parks and the environment.

In conclusion, while both legislative frameworks serve their respective purposes, the breadth and depth of Singapore's NParks laws offer a more forward-thinking approach to managing parks, greenery, and natural resources in an urbanized context. Enlarging the role of the PHA for more stringent preservation measures, increased fines for errant parties, and increased community participation should assist the area in meeting global standards for park and environmental management.

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