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Urban Recreational & Preservation Park, Seawoods, Navi Mumbai

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Abstract: The paper discusses the idea of preservation of Urban Nature Reserves identified within urban boundaries through interaction rather than isolation. Creating a base model which can be applied throughout the urban nature reserves for similar development. A self-sustaining model-independent in its need for public investment but generating income though partial commercializationof such reserves limited to its operational and preservation needs. Providing opportunities for community awareness and development through entertainment and interaction with nature.

Keywords : Urban Recreational, Preservation Park, Sea woods

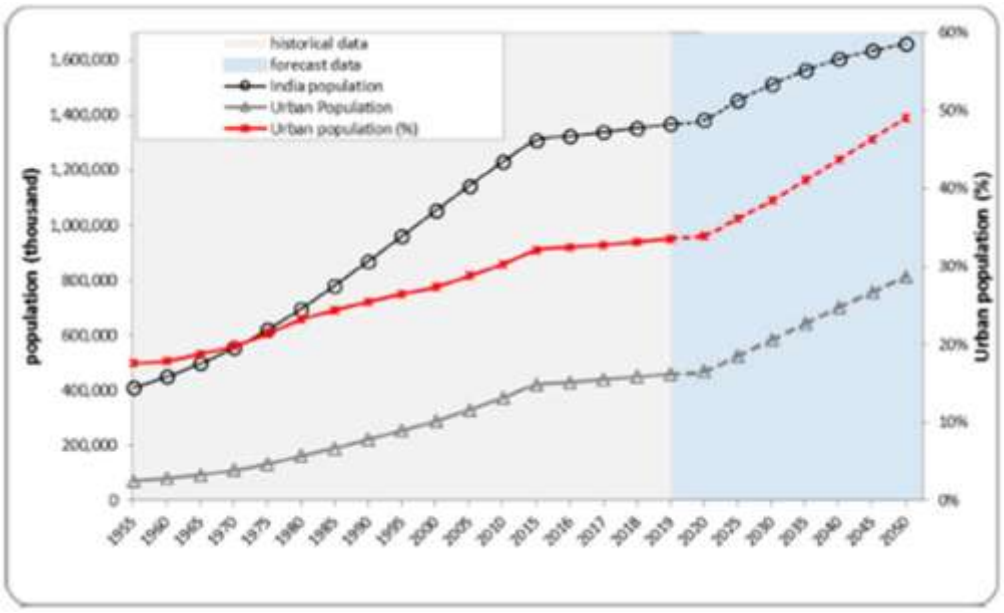
1. Background :

History - India is facing a huge change in urban population, be it because of rapid pace development or migration of rural population to cities. Due to this shift the authorities have to tough choices regarding the development of Area. Ever growing need for infrastructure has led to choices where the cities grow outwards or utilize the existing city boundaries. The choice between the two led to compromises in existing open spaces in the cities or extend the city boundaries deeper into the nature reserves.

Ever increasing concerns of global warning and other environmental issues. More and more public eyes are attracting and generating interest on such development which could lead to environment degradation and exploitation. Many Public and Private infrastructure project have and are still under scrutiny for such development where misuse or a more unsustainable approach are used for development. (Navi Mumbai Airport, Proposed Golf Course at Seawoods). Understanding the growing trend of encroaching the nature reserve and open spaces, and understanding the process behind such decisions, theirs reasoning, requirements, incentive and need behind doing so, is the key to provide an alternative solution to this development.

Impact - For a country to grow urbanization cannot be avoided, it offers opportunity for growth and economic independence providing better living opportunities for its citizens. But in the haze of a better opportunity, often the long-term effects get blurry. Overcrowding and

environmental degradation creeps up unnoticed before it gets too late. With the current global situation where global climate change is escalating at a compounding rate, development strategies in urban landscape needs to addressed. Excessive carbon emissions, mismanagement & exploitation of resources, poor planning is the leading cause of the current situation. Urbanization alters the physical landscape which deteriorated the natural cycle of the area. Heat island phenomenon often associated with the impact of urbanization on the variation of temptation, affecting the atmosphere, lithosphere, biosphere and hydrosphere in the area.



The truth of the situation is, various cities have missed the opportunity for correction resulting in problems in management of the cities during crisis. Many such cities are on the third stage of the development (Planning, Prevention, Restoration as described by author) where their problems needs are too late to prevent but need restoration. Means and methods need to develop to avoid such situation and dependency on restorative process and focus on initial planning and forecast of possible future to prevent any damage to the community and the nature as a single unit.

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2. Introduction:

The project "Urban Recreational & Preservation Park" proposes development of Thane Wetlands into a recreational park and promote importance of Urban Nature Reserves. The project aims to safe guard the endangered Urban Nature Reserves within the city boundaries through Interaction rather than Isolation.

Investment Opportunities - 2020-2021 gave a glimpse of what these nature reserves have to offer when human intervention is kept to a minimum. These Nature reserves have the potential to become a passive investment rather than just a piece of restricted reserve. Thesereserves can contribute to city's economy as well as uplift the quality of life in a fast-paced

urban environment. Central Park New York a perfect example of preserved natural assets that over the time has had a significant impact on its surrounding. Through the resources and services, it provides it had a significant impact on how over the world urban planner are reconsidering their approach. Similar Model fit for Indian context needs to discussed which can act as an alternative development strategy for the development authorities.

"Why can't we have a Central Park like the one in New York?" Justice V M Kanade(Bombay High Court) to BMC.

Design Objectives - The paper aims to transform the endangered wetlands of thane creek into an Urban natural reserve park. Moreover, to develop a park focused on creating awareness to safeguard these nature reserve by attracting locals and tourist through recreational activities planned throughout the park. Design is focused on self-sustainable model in terms of its financial requirement for its day-to-day operation and expansion of its preservation activities. The Park will serve the locals, tourist and also govt bodies to promote such development due to

its effect on the economic growth.

Development of commercial spaces within the park will require careful selection of land piece where development is possible without having to cutdown any trees or make any significant change to the natural landscape.

A Base Area or Zone Will be Provided where all the temporary/Semi Temporary structures can be assembled or a large crowd can be gathered for an event and can be modified as per the seasonal and festive attraction which will become part of the recreational space which will be open to public and services will be provided where one can choose to spend.

Nature Trails and Beautification of existing Landscape with local materials and minimal input will be the key to stay as far as possible from disturbing the landscape.

As a Part Preservation Effort, A facility will be setup dedicated to revitalize the nature, depending on the site selection this can include plantation, treatment of water, restocking of food stock for migratory birds etc.

3. Case Study Conclusion :

During the course of research, many projects were studied to identify the key differences in their approach that helped the design become efficient and applicable in an urban context. Projects like 'Central Park' emerges as a perfect example of integration of nature and human without disturbing the natural essence. Not only restoring the Nature but also helping the community development.

Education through interaction becomes important when the projects like this needs to tell its story. Educating and creating awareness through opportunities created by the nature helps maintain the relationship between nature and human. An approach taken by the 'Sungei buloh Wetland Reserves' to educate the visitors on importance of Singapore's limited nature reserves. Integrating the schools and universities in their awareness programme with help on hands on teaching and learning.

Elements	Central Park, New York, USA	Mahim Nature Park, Dharavi, Maharashtra	Godrej Marina Ecology Centre, Dharavi, Maharashtra	Sungei buloh Wetland Reserves, Singapore	Purifying Park de Ceuvel, Amsterdam Netherlands	Brockholes Wild Nature Reservation, Preston UK
Site Area	843 Acres	37 Acres	80 Acres	320 Acres	1.10 Acres	250 Acres
Typology	Urban Park	Nature Park	Research Centre, Nature Park	Nature Park	Town Scape, Urban Green Spaces	Nature Park
Project Theme	Urban Recreational Park	Nature Reserve Protection	Mangrove Research and Protection	Wetland Conservation'	Redevelopment and Purification	Recreational Nature Park
Natural Featu	Lakes, Forest Cover	Bird Sanctuary, Forest Cover	Bird Sanctuary, Wetlands, Mangroves	Wetlands, Mangroves		Forest Cover, Wetlands, Lakes
Artificial Features	Gardens, Sports Courts, Museum, Library, Jogging Track, Boating, Amphitheatre, Café	Amphitheatre, Nature Trails, Libraries.	Nature Trails, Libraries.	Nature Trails, Learning Hub, Observation Decks, Cafeteria	Offices, Café.	Nature Trails, Learning Hub, Observation Decks, Canoeing, Open Water Swimming, Cafeteria.
Architecture	Picturesque					
Build-up Features	Mostly Artificially Build.	Limited To Development of Services	Limited To Development of Services	Observation Decks, Visitors Centre And Hospitality	Uses Abandoned House Boats for its Offices and Cafes.	Observation Decks, Visitors Centre And Hospitality
Users Centric	Locals and Tourists. Unlike Other Case studies Central Park is the only Park which is publicly accessible to all and offers spaces for day to day use.	Tourist & Enthusiast	Enthusiast & Research Community	Tourist	Locals	Tourists, Locals, Enthusiasts.
Visual Experience	Beautification of Landscape and Urbanised Nature Trails with informative signages	Focused on Preservation than beautification. Thus Does not Attract Users For Recreational	Focused on Preservation than beautification. Thus Does not Attract Users For Recreational	Beautification and Informative Nature Trails	Beautification of site Through Landscaping	Beautification and Informative Nature Trails
Positivise	Maintained, Ideal for Local Community Use. Focused on Preservation and Active involvement of Community.	Develops a Space for biodiversity to thrive without human interaction	Develops a Space for research and conservation of Mangroves	Develops a Space for research, conservation and creates Awareness through its interrogation with the educational programmes dedicated to schools	The Landscape helps Remove the impurities in the site helps provide a more sustainable approach.	Nature Park with Recreational facilities and activities. Sustainable Build spaces help avoid dependency on local services,
Cons		No active Mesures for Public Involmenet. Old Structures, Unmaintained Nature Trails, No Recreational Activies	No active Mesures for Public Involmenet. Old Structures, Unmaintained Nature Trails, No Recreational Activies			

Comparative Analysis : Case Study

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4. Literature Review:

The Central Park Effect - Central Park, New York is one of the largest Urban Parks with over 843 acres of land. It is the most visited park in USA with 115000 Daily visitors. Central Park is not just a recreational park but also an Important contributor to the city's economy. It reports arounds $87.5 million in indirect earnings and $203.8 Million in City wide Economic Output. The Parks also attracts many hotels and museums which are clustered around the park.

The Park also contributes in providing opportunities for the local community residents. The opportunities it provides for physical actives and reduced healthcare can also be accounted for monetary values. This form of Passive infrastructure can be valued in economic terms and attracts cities authorities to follow its example.

The Park not only boosts the real-estate market but also open doors for other opportunism. Providing space for the unorganized sectors, boosting the capacity of lowest market which through trickledown effect reaches to every part of the society. Throughout the year the park provides space for many events which increases its engagement value of the park.

The type of public-private partnership pioneered by the non-profit organization "Central Park Conservancy" has also played a key role in the development of new parks, including Hudson River Park, Brooklyn Bridge Park and the High Line. While the creation of these parks has depended heavily on initial commitments of public capital, their ongoing operations and future development will increasingly depend on their ability to generate both investment and operating revenues from private sources.

Urban Green Spaces - As a part of Urban Planning the open spaces are the most publicly accessible part of the cities. Usually, theses spaces are designed and build around human recreation and the idea of providing pockets of open spaces untouched by the effects of urbanization. The open spaces help maintain some natural characters in an urban environment and regulate the environmental aspects. Open spaces act as a mean for interaction for communities, or simplicity in mobility, better living conditions. But with rapid urbanization and migration of rural population in the cities, the concept of open spaces gets threatened due to lack of land resources. This also effects the quality of such open spaces. If properly scrutinized the available open spaces do not meet the standards for a sustainable development.

City	Population in Millions	Population Density (km^{-2})	Geographical Area (km^2)	Green Cover % (in km^2; 2017)	Per Capita Green Space (m^2; 2018)
Delhi	28.50	12,591	1484.00	20.00 (296.80)	**10.41**
Mumbai	23.50	20,482	603.00	36.48 (220.00)	**9.36**
Kolkata	15.20	24,400	1380.00	7.30 (100.74)	6.61
Bangalore	13.90	4381	2196.00	2.09 (46.03)	3.31
Hyderabad	11.57	18,480	650.00	1.66 (10.79)	0.93
Chennai	9.88	14,350	1189.00	15.00 (178.35)	**18.05**
Ahmedabad	8.41	9900	464.00	17.00 (78.88)	**9.38**
Surat	6.55	1376	326.50	11.84 (38.66)	5.90
Gandhinagar	6.33	660	649.00	54.00(188.46)	**29.77**
Jaipur	3.71	598	467.00	5.43 (24.75)	6.67
Nagpur	2.94	11,000	285.90	18.00 (51.42)	**17.49**
Mysore	1.70	6911	128.40	20.19 (25.92)	**15.25**
Chandigarh	1.05	9252	114.00	35.00(39.90)	**38.00**

Note: Figures in bold indicate the above optimal of 9 m^2 per capita green cover.

The role of open spaces and its significant need to discussed, how they can help enhance the urban experience and preserves the essence of natural in artificial. The Current situation

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demand open spaces to be developed as suitable Urban Green Spaces (UGS). UGS are necessary for counties like India and China, where the rate of development is at its fullest and pollution level at its peak. UGS plays an important role maintaining the air quality, enabling urban agriculture and controlling the Urban heat island effect. The initiative of Government intervention and Urban planners is required for the success of sustainable management of spaces in urban cities. For urban development to be sustainable, it must be environmentally, socially, and economically beneficial. In this context, UGS are an important component of sustainable development. The environmental benefits through green spaces include mitigation of climate change by sequestering carbon emissions and reduction in air pollution. Economic benefits include an appreciation of real estate value. Social benefits include job creation, recreation zones, and better health. Plants provide important ecosystem functions such as shading and cooling through evapotranspiration.

Recognizing the important role green infrastructure and network of green spaces can have on adapting with the changing climate, and creating a strategy based around it will become of significant importance for suitability of Urban Landscape and a community in general.

Restorative Environment **-** Environmental and Phycological wellbeing is often negated in an urban life style. Environmental degradation, Ecological imbalance, Mental and Physical health are the effects of the build environment that we develop around us. The physical characteristics of Urban Build environment, the quality of urban landscape influence the quality of its users and environment. Continuous exposure to stress and exploitation also can have a permanent effect on biological and behavioural patterns of the body which is also true for the environment.

FAVORABLE SETTINGS TO MENTAL HEALTH		
- legible places - attractive, well-maintained, safe places - contact with green space - with privacy - appropriate contact with other people	Can produce	- well-being - life satisfaction - quality of life - social support - ability to concentrate - creative play in children - less mental fatigue
UNFAVORABLE SETTINGS		
- crowded places - noisy places - dangerous places	Can produce	- social withdrawal - reduced social ties among neighbors - smaller social networks - diminished social and motor skills in children - distress - anxiety - irritability

Restoration (from Latin word recreationis – restoration, refreshment, recovery) in psychological perspective can mean recovery from physiological and psychological can be achieved in specific environments. Urban Designs are aimed to develop a better quality of life, but often produce stressors that threaten the quality of life and environment. Emission, Noise,

Visual environment, threatens the ability of nature and human to restore themselves. Spaces where an escape from these stresses is available provide a restorative experience where one can heal. Biophilia is referred as affiliation of human and nature forms and processes. This affiliation is so natural that humans as a consequence enjoy nature outside urban landscape, places that usually do not such integration with the organic.

Interaction with nature is something that comes naturally to a human but somehow goes missing while trying to an experience through architecture. Urban lifestyle doesn't allow the mass to bring this experience into their personal spaces, Public Urban spaces is the area for opportunity to create an environment which cannot be created indoors. Taking advantage of the opportunities the uniqueness of each ecosystem has to offer. Exposure to this environment effecting the behaviour and attitude towards wildlife and creating a sense of attachment.
Biophilia takes advantage of this concepts and strengthens protective behaviour towards a favourable microclimate condition in cities.

Almost all the promotors of an urban biophilic cities suggests implementation of its elements on some levels of urban environment. Focusing on implementing elements inspired in nature: organic form and structure, natural ventilation, natural sounds, restorative environment and mimicking restorative landscapes. The results of research from different strategist and environmentalist suggest the healthy connection between the human and the nature, effecting the people's psychological health and public health. Learning from what surrounds us and healing ourselves and the nature as a collaborative effect.

5. Architectural Interventions :

The Aim of this paper was to expand the knowledge on designing for sustainability by exploring how sustainability can be integrated with Urban Landscape. Thereby addressing the gap of overwhelming knowledge on how to design for a sustainable Urban Landscape.
Answering questions on the relevance of ecological knowledge, its applications and what the future for such design choices look like for the face of Urban cities. Thereby providing the reader with knowledge and tools to maximise the influence of nature in our designs.
Extensive research and data collection has been done in order to achieve the above. The results can be accordingly applied in our design for the development of a "Urban recreational and Preservation Park" for the thesis topic. By this research, the main research and design questions can be answered, such as the development of wetlands in an urban context and maximizing by using natures approach to evolution with the ever-changing context. A short recap of the results and findings that were obtained is provided below with some final notes on the research.

Potential **-** The existing and potential for development for nature reserves have been identified in the paper-based on research papers and first-person observations. Cities of India are rich in natural resources if conserved and preserved correctly. These reserves offer an opportunity for

better living conditions, economic growth and preservation of nature within the urban boundary. Techniques like sustainable development through biomimicry and other biological advances can help the development of nature reserves like wetlands, riverfronts to be developed without causing a disturbance in the ecological balance and even revive in some cases.

Guidelines **-** While designing a process for a sustainable biodiverse design, a few points to approach are noted and formulated as observed while researching for the paper.

- Assessment of existing potential – focusing on the natural qualities of the area, qualitative and quantitative. Opportunities for alternative strategies without an externaladdon.
- Approaching design with a solution-based design rather than mitigation – when a design is approached predetermining the potential problems rather than solution afterthe problem arises.
- Involve the user – includes flora and fauna. When designed with it's dependency on the user, it forces the user to communicate and direct the design in a harmonious way.

Maximising the potential - Maximising the sustainability of any given area requires maximising habitat quantity as well as quality, and creating habitat sustainability. Quantity will determine the layout of the design and thereby forms a framework for further design elaboration. Maximising connectivity with nature, therefore, requires altering the urban configuration. Within existing urban layouts, the possibilities are limited. By making several alterations, such as conjoining green space into a protected landscape, higher levels of sustainability can be reached. To what alterations to nature reserves and the urban configuration can be altered depends on the design.

Significance **-** From a design point of view, this paper introduces the difference of a natural design can make in the preservation and development of biodiversity without depending on traditional means of development. How strategies involving dependency on natural aspects through observation of nature mechanics can help achieve the same goals. From an academic point of view this research tries to bridge the gap in knowledge between architecture & ecology and thereby work towards an integrated approach. It hopes to spark a conversation about and collaboration between architects and nature and encourage further research into the interface between the two.

Implementation strategies **-** Through careful research and identification of the probable site and site conditions, a careful approach towards planning will be required to assist the Recreational and Commercial activities which will become a medium to attract attention toward the need for conservation. These activities will be limited to pure entertainment purposes and revenues generation limited to its operating cost and future preservation expansion. The design will also focus on its permanent and temporary impact on the land and the surrounding.

Preservation Activities

- Public Education Centre
- Beautification and Treatment of Water Bodies
- Restoration of flora and Fauna
- Other Allied Spaces to Support the above

Recreational Activities

- Open Public Gathering Spaces
- Amphitheatre
- Nature Trial
- Pedestrian and Cycling Track
- Public Utilities Spaces
- Public Street

Commercial Activities

- Open Spaces with a modular approach for Events, Flea Market, Kiosks etc.
- Cafeteria, Dedicated Restaurants, Fast Food Joints.

Construction material and techniques will be scrutinized and carefully designed to minimize any irreversible impact. This can be done through the use of modern eco-friendly designs which integrates biotechnology with architecture.

6. Conclusion :

India struggles to arrive at an effective solution for the development of Urban Nature Reserves. As India progresses towards stricter development standards to regulate the growth, greater efforts are required to reduce in the conservation of such resources. Hence there is a need for

Urban development to provide alternate use which safeguards the ecosystem within the Urban Limits.

The existing and potential for development for nature reserves have been identified, Cities of Indian are rich in nature resources if conserved and preserved correctly. These reserves offeran opportunity for a better living conditions, economic growth and preservation of nature within the urban boundary. Techniques like sustainable can help development of nature reserves like wetlands, river fronts to be developed without causing disturbance in the ecological balance and even revive in some cases.

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