

URBAN LAKE FRONT DEVELOPMENT A NECESSITY FOR A CAUSE

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Abstract - With increasing urbanization and population growth, Bangalore, commonly and popularly known as the garden city has managed to maintain a moderate climate because of its green spaces and mainly water bodies. Bangalore has a history of having around 280 lakes in 1980, which is now deviated or destroyed in one or the other way. Here in the research we see why public spaces are important in terms of water front development and enhancement of public spaces. The main focus of this research paper is to understand the behaviour of lakes in regional context, its water front development techniques and preserve its paths. The aim is to develop the waterfront in the urban context, where the literature and primary studies are done to understand the techniques of development and apply them, where our paper justifies that the proper planning of waterfront leads to the preservation of lakes. therefore, making the space active and user friendly by giving a few proposals which not only focuses on the water development but also helps the localities and nearby vegetation socially and economically in context to the lake.

Key Words - Lakes, public spaces, development, Planning, Landscaping, User friendly, Urban context.

I. INTRODUCTION

An urban lake is an inland body of surface water surrounded by a urban environment and large than a pond ,while an urban pond is an inland body of surface water surrounded by an urban environment but smaller than a lake .Lakes are bodies of water formed in depressions on the earth's surface and as such acts as depositories for a variety of chemical and biological materials .

The study of lake has become increasingly prevalent in the recent year lake and reservoirs are significant and ever changing feature of landscape. Man's attraction to lake is well marked in his history Lakes are valuable resource and this water quality problems such as algae blooms , sediment deposition and fish hills. These problems are products of the eutrophication process which is often accelerated by man , Therefore it becomes important to understand the properties and the process of lake which govern the enrichment and the measures available to control enrichment

Every city has pockets of underused and underutilized land or distressed and decaying urban areas. These pockets of underused land weaken the city's image, livability, and productivity. They are usually the result of changes in the urban growth and productivity patterns. We have documented and studied about the lakes in Bangalore

Urban regeneration doesn't come in a single format or a one-size-fits-all approach. It needs to be delivered taking into account local and market needs, commercial and financial viability and opportunities and pitfalls that are specific to the area in question. Projects can be vast and complex and cannot be delivered by any one single entity.

Successful completion of urban regeneration requires partnerships built on trust and patience, the ability to engage with local issues and to be flexible in terms of solutions.

The impact of Water front development helps deliver better city workspaces where we can do our best thinking and collaboration, while attracting the best diverse talent.

The best places that people want to be are where people work to make a life, not just a living.

II. HISTORY OF BANGALORE LAKES

Bangalore is a city once known for its en number of lakes. Most lakes in bangalore region were constructed In the sixteenth century by the founder of bangalore , kempegaowds, by utilizing the natural valley terrain. Most of lakes were constructed for the purposes of drinking water , irrigation and fishing needs and they have also favorably influenced microclimate of the city. In 1960s the number of lakes and tanks were 280 and in 1993 it got less than 80, as 19 lakes got converted into bus stations, golf courses, playgrounds and residential colonies and few were destroyed under malaria eradication programme . The effect of urbanization has taken some heavy toll on the beautiful lakes in bangalore. The lakes are encroached by builders and construction industry. Many lakes were contaminated by the sewage water outlet from residential areas causing a deadly environment in its surroundings. Many famous lakes back then are now poplar areas
Challaghatta lake is now KARNATAKA GOLF ASSOCIATION

Koramangala lake has changed to NATIONAL GAMES VILLIAGE

Siddikatte lake is now KR.MARKET

Kadugondanahalli is now AMBEDKAR MEDICAL COLLEGE

Dasarahalli Lake is converted into AMBEDKAR STADIUM

Hence the encroachment increased, the lakes were all destroyed and now bangalore is left with less than 18 clean lakes.

Aim:

To create public places in the form of lake front developments in Bangalore

Objectives:

The objectives of the study are:

- To identify the importance of public spaces
- To study developed lakes fronts in Bangalore
- To identify the lakes where lake front development is possible
- To study the area in terms of its demographic context, social structure, vicinity of lands etc..
- To propose ideas for a lake front project in Bangalore.

Need for study:

As public places provide people many opportunities to come together and engage with the community, if public spaces are successful they create harmony amongst different social groups present in our cities. Bangalore is a place where there are mix of various groups and community of people. Mixing these people needs a medium, and these social pockets can satisfy them. Public spaces, specifically, urban space, affect our physical, psychological, and emotional well-being. Therefore a city like bangalore which is known for its lakes history can actually develop its lake boundary in order to create social interacting spaces.



BENEFITS OF OPEN SPACES:

ECONOMIC BENEFITS

- High quality public environment can generate a good economic life
- By good parks, squares and gardens other public spaces are vital business marketing tool.

- Well maintained environment increases the number of people visiting retail areas.
- Good landscape and green areas increases health benefits so reduces the expenditure on health.

SOCIAL BENEFITS

- Public spaces are open to all which increases social equality and stability
- These spaces bring people together, communities together providing meeting spaces
- Disappearing urban spaces will be brought back
- Cultural identity of the area can be represented through these spaces
- These spaces can become a venue for social event

ENVIRONMENTAL BENEFITS

- Vegetation – whether in public spaces or parks – can help to redress this imbalance. It brings many important environmental benefits to urban areas, including the cooling of air and the absorption of atmospheric pollutants.
- Vegetation also provides an opportunity for people to be close to ‘nature’, with the associated positive impact that this can bring in terms of mental health
- Well-designed streets and public spaces encourage walking and cycling, and have the power to make our environment a safer one by reducing vehicle speeds and use
- Acts as buffer zone between habitation and urbanized area

Scope:

Understanding the development of lakefronts in urban context, and developing a lake front in terms of social, economical and architectural perspective for a lake in bangalore.

III. LITERATURE CASE STUDIES

AHMEDABAD SABARMATI RIVER FRONT REGENERATION PROJECT

Ahmedabad is strongly connected to the river Sabarmati, mother river. Growing industrialization has degraded the river. Since it flowed only for three to four months, so rest of the time it is a RIVAARI (that means a place of informal settlements). Reducing the direct access to the river in turn affects the seasonal flooding.

Hence the initiative was taken to revitalize the river front and make it accessible and flourish with amenities. Amenities means the activities which may be commercial or non-commercial, example, food activities or any other trading activities. In the history of Ahmedabad, it went through many economic downfall periods and liberalization acts, which changed the economic history of the Ahmedabad.

Overtime these informal river front settlements encroached to the bank of river. Therefore, there was no more public

access possible along the length of the water body, as well as little access to the water body. As a consequence, the only places from which the water body could be enjoyed by the citizens were the bridges. The initiative was to revitalize and regenerate the Sabarmati river front envisioned making to possible for all Ahmedabad's inhabitants to enjoy the water body access and its amenities.

Many corporations like SRFDCL (the Sabarmati River Front Development Cooperation Limited), many non-governmental and non-profitable organization took an initiative of revitalizing and reconstructing 275 meters of the area and reclaiming 162 hectare/400 acres of river bank into useable and accessible place. The cost was calculated and the project was started. New streets, parks and other civil amenities were provided and few key objectives was taken in planning.

- Make the water body accessible to the public.
- Stop the flow of sewage, and keep the river clean and pollution free.
- Provide a site for the permanent rehousing of informal settlements along the river bed.
- Reduce the risk of erosion and overflow to flood prone neighborhoods
- Create river front parks, promenades and Ghats to enjoy the water body.
- Provide Ahmedabad with new culture, trade and social amenities.
- Generate resources for paying project costs.
- Revitalize the river front neighborhoods and rejuvenate the water.

Here, the SRFDCL agreed to a few strategies, they are:

- Building house for inhabitants.
- Partnering private real estate development
- Arranging funds for the development



Talking about financing the redevelopment project was funded via loans from HUDCO and AMC. The costing was estimated around USG 60 million. Further the Gujarat development funded around USD 218000.

Finally, in 2003 the inauguration of this project was done, later on the informal inhabitants were provided with rehabilitation as it was planned before.

Talking about the implementation, by this redevelopment project, the existence of strong diverse and vocal boards of directors, until date all the implementations are running smoothly, local corporators and ministers were ordered to look after the redevelopment to run accordingly and smoothly. Hence, the redevelopment or the revitalization of this water body was planned and executed in appropriately.

SHANGHAI REGENERATION PROJECT

This literature study provides an overview of how the urban renewal process worked through a series of legislative, policy and government organizational reforms. It highlights three developments along Singapore's urban waterfront carried out during different periods. Unlike most other cities in the world, Singapore is both a city and a state, requiring effective governance and integrated long-term planning to strike a balance between economic, social and environmental goals in its urban-national territory.

Due to the destruction of housing during the war ,Despite the problems, the government did not create an urban renewal program, but instead worked to establish an effective system of urban governance . Two new authorities – the Planning Department and the Housing and Development Board (HDB) – were set up in 1960 to take over the Singapore Improvement Trust's (SIT) land-use planning and public housing provision responsibilities, respectively. Few years ahead of time the government started focusing on urban renewal program, One of the first major urban renewal projects took place in the Golden Shoe area, which was envisioned as the new commercial heart of Singapore's finance sector. Prior to redevelopment, the area consisted of low-rise but densely laid out commercial and retail establishments, as well as overcrowded shop-houses sitting on highly fragmented land parcels.

The rapid modernization of Singapore's economy created significant demand for commercial development by the late 1960s.

This was largely due to the establishment of the Asian Dollar Market in 1968. To fuel growth in the commercial sector, the government started the redevelopment of the commercial heart of Singapore in the Golden Shoe district with the objective of creating revitalized Central Business District (CBD). Although the earlier urban renewal efforts saw significant state involvement, the private sector took a leading role in the renewal of the Golden Shoe area.

During the 1960s, the government recognized that Singapore lacked a focused financial center to support a burgeoning finance industry. The government decided to redevelop the Golden Shoe area for this purpose. Plot ratios were established in view of the road capacity in the area. The Urban Renewal Department (URD) also drafted urban design guidelines for the area, generally specifying a podium and tower configuration to maintain visual uniformity and human scale.

Financing and budgeting is done as part of a “whole-of-government” approach in Singapore. In contrast to most other city governments, urban infrastructure and development programs are not financed solely through land sales or development charges. Rather, they draw from a broader pool of operating revenues known as the Consolidated Fund that includes direct and indirect taxes, licenses and permits, as well as other user fees and charges.

Redevelopment of the Golden Shoe area began with the second Sale of Sites in 1968, with 14 sale sites consisting mostly of state land. After consultations with the Economic Development Board, the URA launched the 1968 land sale focusing on office developments.

The redevelopment of Singapore’s urban waterfront as illustrated by the Golden Shoe district, the Singapore River, and Marina Bay encapsulate, Singapore’s unique approach to urban development in balancing economic, social and environmental goals within a land-scarce context. While the process had evolved since the early days, fundamental principles have been consistently maintained through the years. With the completion of the Golden Shoe District development, the government turned attention to transforming the Singapore River, which began with an environmental clean up. The government recognized the negative impact of poor environmental conditions on the city-state’s image, as well as the Singapore River’s historical importance and potential for redevelopment. It also saw the need to scope new uses for such urban areas which, relied on shrinking economic sectors.

Meanwhile, plans for reclamation along the southern waterfront of the CBD were initially introduced in 1971 as part of Singapore’s first Concept Plan. It was not until 1977 that the government decided to expand the scale of reclamation works at Marina Bay to support development. As early as the 1970s, the URA established a planning strategy to maximize the potential of parks and water. The plan for Marina Bay was drafted as part of the overall Master Plan for Urban Waterfronts in 1989, which identified distinct development characters for each of the prime water front areas in Singapore. Another key master plan review for Marina Bay was conducted in 2003. A rigorous set of urban design guidelines was formulated by the URA for all the developments in Marina Bay, which

allowed for the vision to be realized through private sector participation.

Marina Bay Financial Center: This land sale was formulated as an options payment scheme. This allowed for the flexibility for the successful tenderer to buy and develop the site in phases.

•**Marina Bay Integrated Resort:** During the Marina Bay development period, Singapore began to look into introducing integrated resorts. A fixed price method was chosen for this land sale, by which the land price was fixed during the tender and the developers would compete on the basis of their design and concept proposals.

Outcomes:

The redevelopment of Singapore’s urban waterfront as illustrated by the Golden Shoe district, the Singapore River, and Marina Bay encapsulate Singapore’s unique approach to urban development in balancing economic, social and environmental goals within a land-scarce context. While the process had evolved since the early days, fundamental principles have been consistently maintained through the years.

WASHINGTON D.C REGENERATION PROJECT

CONTEXT

Geographically defined by two important rivers, the Potomac and Anacostia. Potomac is known for its landmarks whereas the Anacostia is traditionally served as the working waterfront. Washington being a racially and socio-economically segregated city, something had to be done to break this division.

Over 90% of the river’s shoreline being in public’s ownership, it was difficult for the government to take appropriate actions in order to regenerate the area. The first residential community coming in 19th century today known as the historic Anacostia, was donned by the industrial activities at the Navy yard which later led to the majority of the land in public ownership. The mid-twentieth century came as a turning point when the neighborhoods along the river’s shoreline became the primary targets of the Washington’s urban renewal actions. The existing residences and businesses were torn down and replaced with housing projects. This led to the beginning of a new neighborhood and the end of social disruption. The Anacostia Waterfront Initiative (AWI) begun with the vision of creating a dynamic live/work/play environment along the Anacostia river. The AWI project came in as a symbol to attempt to bridge the gap between this psychological, economic, social, physical, and civic divide.

SCOPING

The election of Anthony A. Williams as the mayor of the district of Columbia came as a turning point as his personal interest in ecology and rivers and his commitment towards justice helped build an opportunity for social and

environmental revitalization. The AWI scoped and planned to ensure the economic growth in an equitable fashion.

Williams' emphasis was mainly on urban growth to the east. The city's pattern slowly grew around the Anacostia river front reentering the growth of the shoreline.

PLANNING

The National Capital Planning Commission (NCPC) helped create a stage for a successful implementation of the AWI. The MOU identified the district of Columbia as the lead agency in planning AWI. It was clear that any plan for the AWI would be grounded in a specific project, allowing for the planning and implementation to go hand in hand. The five planning themes as identified by the framework plan is as follows:

Environment : Chart the environmental restoration of the river over 25 years.

Transportation : reconstruct transportation infrastructure to better serve neighborhoods and the region.

Public realm: transform over 1800 acres of public open space into an interconnected river banks system.

Culture and institution: introduce new museums and monuments that emphasize the civic importance of the Anacostia.

Economic development: increase the vitality of the waterfront neighborhoods by adding over 20,000 households and up to 40,000 new jobs.

The six target area plans were prepared and applied to the five waterfront planning themes in site specific contexts with the help of chart development strategies. Each plan addressed issues specific to its neighborhoods that were resolved in the context of river wide goals outlined in INSTITUTIONS.

IMPLEMENTATION

The implementation of such a huge project was possible by creating smaller projects that were part of overall framework.

Capitol Riverfront

The Capitol Riverfront is the first neighborhood within the AWI where significant results can be observed. The development of Capitol Riverfront became a reality in 1995 when the US navy decided to move the NAVSEA command to the Navy Yard in southeast Washington. It moved 10,000 employees to the area and created demand for three new private office buildings on M street.

SOUTHWEST WATERFRONT

The redevelopments for this target area took place at Waterfront Station, Arena Stage, the new mandarin hotel and Buzzard Point and 10th Street SW. The additional efforts contributed significantly to the quality of the unique stretch of waterfront near the National Mall.

OUTCOMES AND LESSONS

The AWI directly had an impact on the lowest income communities in the city. In a whole, the project was envisioned to improve the city. The Key positive results for the AWI area Environmental Restoration: DC water has reduced sewer overflow by 36%, and the district has achieved an approximate 50% decrease in the concentrations of oxides.

Connect through transportation: DDOT awarded, half of the 20 mile Anacostia Riverwalk trail complete.

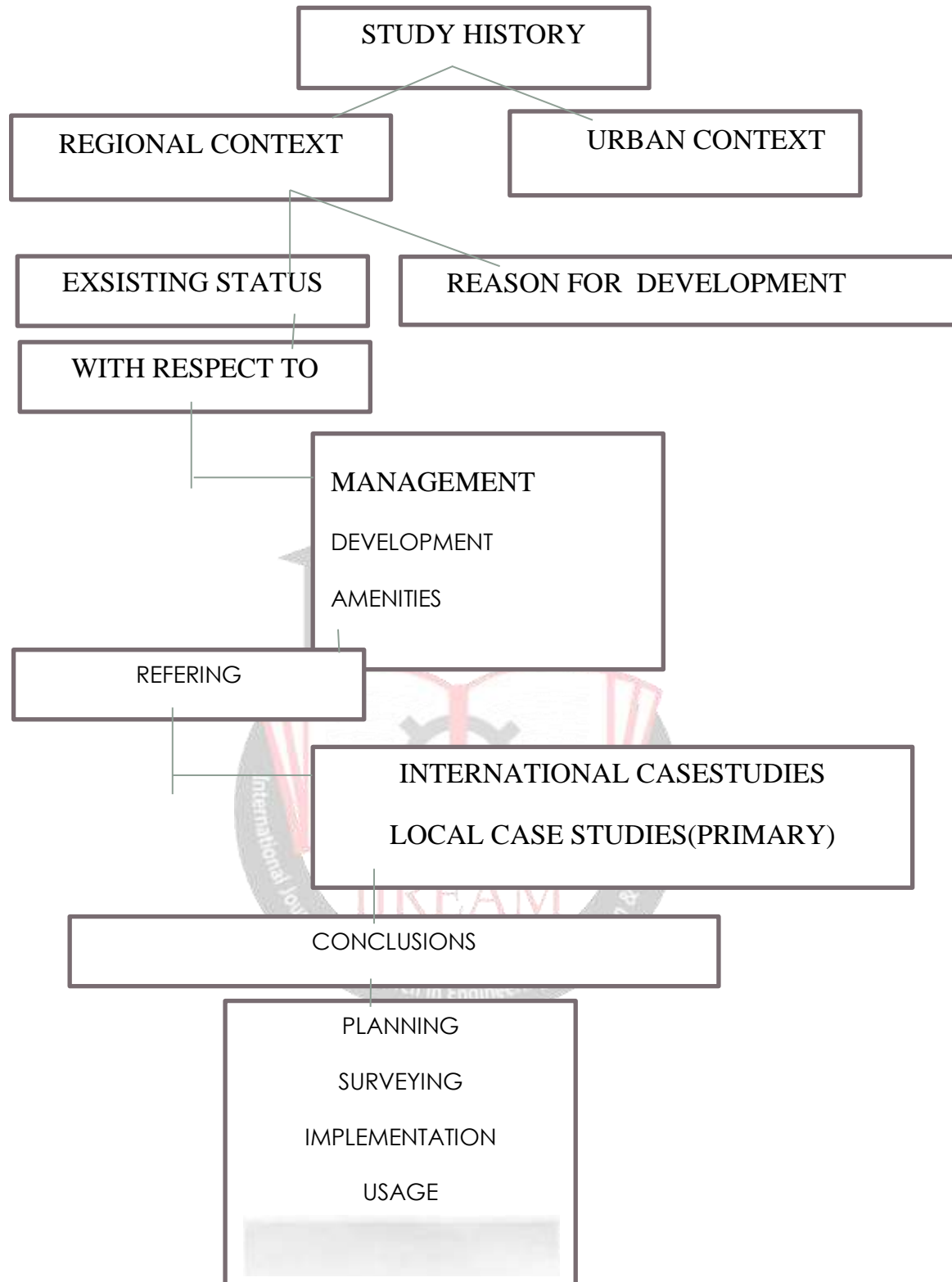
Parks: over 100 USD in public investment.

Neighborhoods: total population of AWI increased from 16,675 to 23,280

Transforming 2800 acres of neglected waterfront land and restoring nation's most polluted rivers takes a lot of complex work and long term undertaking, the AWI has achieved their goal.



IV. METHODOLOGY OF STUDY



V. PRIMARY CASE STUDIES

For primary case studies regenerated, developed and most active lake areas are selected from which the analysis and basic understanding, behavior is noted. The lakes which are chosen are:

LUMBINI GARDENS

SANKEY TANK

These are some of the regenerated and water front developed lake areas, which can also be defined as successful in its own terms and conditions, also from the type of usage. A basic survey was done in order to note down its merits and demerits and also to understand the usage review, The questionnaire segregated the survey based on 3 major points, they are

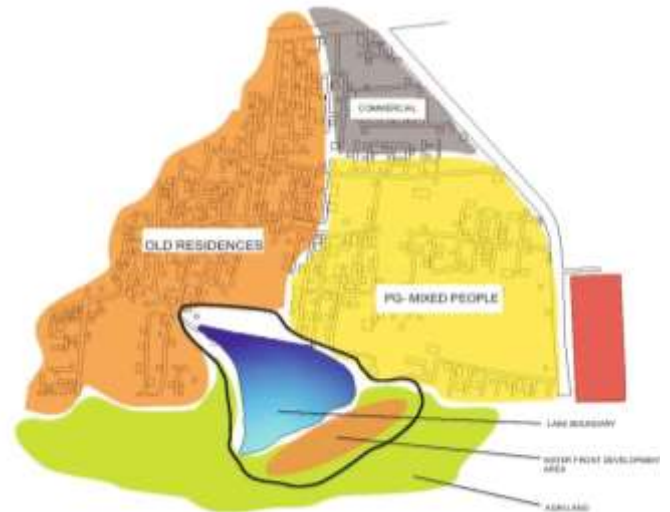
Usage comfort inside the lake, environmental conditions, and experience inside the site boundary

Women and kid safety, basic safety features

And lastly the amenities which the lake offered, which also included the commercial activities

Therefore based on this survey, a basic understanding and knowledge can be obtained on how lakes in Bangalore which are developed function, what are the parameters on which it depends? what are the points that has to be noted before designing any space related or surrounding to it,

Apart from this other basic parameter also include, like government support, funding, clearance of encroached land(slums), providing them a separate shelter or housing, tackling builders and related construction companies etc... therefore, referring to these above points and problems, this paper proposes few points to one of a non-developed lake of Bangalore, KATTIGENAHALLI LAKE



- Land marks can be created in terms of activities and entrances to the existing facilities
- Food plazas and recreation area form the important nodes along with the main entrances
- Landscapes can be given in terms of seating spaces, street furnitures and kids play area
- Local culture can be exhibited in terms of sculptures and fountains or installations which attracts people from different backgrounds
- ACCESSIBILITY to the lake. The lake is not legible as it is surrounded by high rise buildings and also no direct road is accessible to the lake.
- PARKING FACILITIES .
- EXTENDING THE LAKE BOUNDARY. By increasing the lake boundary extra catchment of water can be seen and also the problem of overfilling can be eliminated
- PROVIDING STP. A sewage line is directly connected to the lake boundary from the surrounding residential area. This can be deviated to the STP, as the water has to be treated first and then released into the lake.
- BOATING and other activities. This indirectly increases the economic conditions of the lake association



- CONNECTING THE 4 LAKES OF KATTIGENAHALLI. This in turn can increase the water supply throughout the year.



This Research Not Only Gives An Understanding About Lake Regeneration , But Also Gives The Ideas That Can Be Used In Any Further Lake Regenation Projects In Urban Context, Along With The Parameters That Has To Be Considered.....

Green-centered regenerations reverse the traditional Gestalt relation between figure and background, by conceiving the green areas as the figure and to use human artifacts as background. Eco-neighborhoods are the nurturing place for the green economy, for new services and products aimed at fulfilling the needs of the inhabitants with as little energy and material resources as possible.

Status:

The lakes of the city have been largely encroached for urban infrastructure, and as result, in the heart of the city only 17 good lakes exist as against 51 healthy lakes in 1985.

- Frequent flooding and micro-climatic changes in the city
- Undesirable impact on the diversity of flora and fauna
- Decrease in the number of migratory birds
- Fishing community and washer-men will be robbed of their livelihood
- A recent study says most of the Bangalore lakes are toxic with very less dissolved oxygen.

Issues faced by Urban Waterfront.

Lakes in urban area have suffered due to the apathy of various civic agencies .Lakes which were regenerated and developed Are being maintained poorly .

The lakes are suffering due to agencies shifting their responsibilities to each other .

Industrial effluents and sewage water continuously being released into lakes which were regenerated earlier and there are many instances of garbage being dumped.

Not sufficient spaces are left in the boundary for water front development as they are getting encroached by urban construction industry

Limitations:

- Lack of availability of land makes the development project difficult to achieve.
- No funding or lack of funding creates a barrier in the process.
- Improper planning of the project plays a key role in its downfall.
- Permissions for the project to execute are given by the government, which again is a much longer process.
- Failing to achieve targets on a daily basis.

VI. CONCLUSION

- This research paper talks about the prime importance water front development in context to lakes.
- It shows the drawbacks of urban cities, problems faced in the process, study of regeneration projects (both primary and secondary), and most importantly, the need for study.
- The primary need is to save the lakes in urban cities with respect to the urban growth.
- In a whole, this research tries to focus on the crisis of the present society living in urban areas, and the need to adopt new strategies for the future.

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