PRESERVATION OF MYSORE URBAN WATERBODIES

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ABSTRACT

Mysore urban development over a period of 100 years is unique from ecological planning and development. Shri Nalwadi Krishna Raja Wodeyar formed the City Improvement Trust Board (CITB) in 1903. Innovative planning combined with a humanitarian approach had been cited as the hallmark of CITB. Mysore development authority was constituted in 1988. Now, environs of Mysore – Nanjungud local planning area cover about 495 sq km. Over 120 water bodies are now endangered in this area. The Mysore Urban Development Authority (MUDA, 1997) has the onus to carry the specific ecological features and to provide the city world-class infrastructure so that Mysore becomes a center for Tourism, education and industries.

Study on Mysore Urban development from the EIA and ESTs perspective reveals serious shortcomings leading to loss of valuable resources and irreversible economical and ecological damages. (V. Jagannatha, 1999). During 2002 under ADB support five lakes were earmarked for conservation with Rs 6 crores. However, for lack of pro-activeness at local levels only two lakes got conserved. For the first time International Lake Environment Committee (ILEC,) format for lake status was prepared for all these five lakes. In these presentation socio technical restoration aspects relevant to over 120 water bodies in Mysore – Nanjungud planning area is proposed.

1 INTRODUCTION

Lakes in any urban region are ecological security zones and true indicators of sustainable urban development. In India, both in urban and rural area tanks and lakes were a very important aspect of water supply for drinking, irrigation over the year the tanks and wet lands have been neglected and systematically encroached upon. In Mysore urban, Kukkarahalli, Karanji, Lingambudi, Dalvoy, Devnoor are the 5 man made lakes. These lakes were constructed during Maharaja’s rule during 19th century to fulfill the needs of water like, water supply for drinking, irrigation, industries and other related works. The source for those lakes were mainly rainwater and urban runoff. In 1910, with the introduction of electrical services, pumped freshwater from river cauvery reduced drinking water dependency on these lakes. These lakes also enhanced the ground water table and aesthetics of the city. Sewage, garbage and silt inflows into these lakes have devastated few of these lakes. Land encroachment or diversion of natural runoff from the lakes, illegal construction, cutting of foreshore trees leading to soil erosion, discharge of sewage, siltation are the major problems faced by these lakes. These urban water bodies have become a dumping grounds for the untreated sewage and garbage of the city and is due to lack of scientific management approaches by planners with comprehensive action plans. The legacy of decentralized water sources under the patronage of Mysore Maharaja’s had over 1400 tanks designed to meet various
requirements, among which the above mentioned 5 lakes are included. General standards adopted in urban planning are about open spaces is 6 acres for 1000 population Another standard adopted is reserving 15% of the acre for open spaces. (P. Dinesh, 1995)

1 BACKGROUND

“A Lake is the landscape’s most beautiful and expressive feature. It is earth’s eye: looking in to which the beholder measures the depth of his own nature. The fluvial trees next to the shores are slender eyelashes which fringe it, and the wooded hills and cliffs are its overhanging brows”
- Henry David Thoreau

Lakes in urban regions are ecological security zones and true indicators of sustainable urban development. Karanj, Kukkarahally, Lingambudhi, Dalvoy and Devanoor lakes are five man made Lakes.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Lake</th>
<th>Highest Flood Level (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kukkarahalli</td>
<td>755.73</td>
</tr>
<tr>
<td>2</td>
<td>Karanji</td>
<td>744.14</td>
</tr>
<tr>
<td>3</td>
<td>Dalvoy</td>
<td>705.15</td>
</tr>
<tr>
<td>4</td>
<td>Devanoor</td>
<td>720.33</td>
</tr>
<tr>
<td>5</td>
<td>Lingambudhi</td>
<td>727.09</td>
</tr>
</tbody>
</table>

Fig 2.1 IRS Satellite imagery of Mysore showing the location of proposed restoration of five lakes under ADB Lake restoration during 2003. (NRSA, 1997)

Note: Only two lakes, Karanj and Kukkarahalli Lakes were restored under the Asian Development Bank grants through KUIDFC during the year 2003-2004. Out of 6 Crores of Rupees over 3.5 Crores had to be returned back to ADB for lack of sustained local efforts at Mysore. A technical

There are approximately 1300 bore wells with hand pumps and 580 bore wells with power pumps in the Mysore urban region. Ground water table is depleting fast with no specific macro level policies in urban planning to increase it. There are no specific rainwater harvesting strategies in domestic, industrial and service sectors. However, in practice at industries and domestic sectors a good number of rainwater harvesting systems are available. Major industries and few service sector IT industries have also embarked on efficient water use activities. Water use auditing for various sectors are absent.

Fig. 2.2 Ground water zones for Mysore & Mandya districts: Hydrological mapping for Mysore region based on remote sensing data reveal that the urban region has a moderate to good ground water potentials.

(Source: Hydrogeological Map, NRSA, 1988)

Remote sensing as a tool for managing natural resources is operational at Mysore district in a big way. Karnataka State Remote Sensing Application center (KRSAC) operational since 2005. Students from 25 schools around Kukkarahally lake visited KRSAC as a part of their weekend community eco-literacy campaign sample survey conducted on the status of urban water bodies using remote sensing techniques is available at Table 2.2.
Table 2.2: Conditions of Urban Water Bodies using Remote Sensing Techniques

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of water body</th>
<th>Area (Sq. Km)</th>
<th>Water spread Area (Sq. Km)</th>
<th>Marshy Area (Sq. Km)</th>
<th>Dry Area (Sq.Km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kukkarahalli Tank</td>
<td>0.62</td>
<td>0.3925</td>
<td>0.0425</td>
<td>0.180</td>
</tr>
<tr>
<td>2</td>
<td>Karanj Kere</td>
<td>0.3475</td>
<td>-</td>
<td>0.0675</td>
<td>0.280</td>
</tr>
<tr>
<td>3</td>
<td>Lingambudi Tank</td>
<td>0.84125</td>
<td>-</td>
<td>0.1375</td>
<td>0.70375</td>
</tr>
<tr>
<td>4</td>
<td>Behind RCE</td>
<td>0.075</td>
<td>-</td>
<td>-</td>
<td>0.075</td>
</tr>
<tr>
<td>5</td>
<td>Basavana Katte</td>
<td>0.0325</td>
<td>-</td>
<td>-</td>
<td>0.0325</td>
</tr>
<tr>
<td>6</td>
<td>Devanoo Kere</td>
<td>0.0425</td>
<td>-</td>
<td>0.0425</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>Kyathamaranahalli tank</td>
<td>0.040</td>
<td>-</td>
<td>-</td>
<td>0.040</td>
</tr>
<tr>
<td>8</td>
<td>Gobi Tank</td>
<td>0.030</td>
<td>-</td>
<td>-</td>
<td>0.030</td>
</tr>
<tr>
<td>9</td>
<td>Nachanalli Palya Tank</td>
<td>0.029</td>
<td>-</td>
<td>0.029</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Uttanahalli Tank</td>
<td>0.0375</td>
<td>-</td>
<td>-</td>
<td>0.0375</td>
</tr>
<tr>
<td>11</td>
<td>Dalvoy Tank</td>
<td>0.527</td>
<td>0.1675</td>
<td>0.3595</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>Kamakare Hundi</td>
<td>0.070</td>
<td>-</td>
<td>-</td>
<td>0.070</td>
</tr>
<tr>
<td>13</td>
<td>Jayanagar Tank</td>
<td>0.1375</td>
<td>-</td>
<td>0.1375</td>
<td>-</td>
</tr>
<tr>
<td>14</td>
<td>Mandakalli Tank</td>
<td>0.1175</td>
<td>0.0875</td>
<td>0.030</td>
<td>-</td>
</tr>
</tbody>
</table>

(Source: P. Dinesh, Computation from IRS Imageries - June 1995)

In the process of developing a planning strategy for the restoration of lakes in Mysore urban a detailed status report of the five lakes were prepared. Table 2.3, furnishes details on the geographic location, ownership, aquatic weeds growth, fisheries and public entry status.

Table 2.3: Summary of Physical Features of Lakes in Mysore City

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Parameter</th>
<th>Karanji</th>
<th>Kukkarahalli</th>
<th>Lingambudi</th>
<th>Dalvoy</th>
<th>Devnoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geographic location :</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Latitude</td>
<td>12°18'N</td>
<td>12°18'N</td>
<td>12°17'N</td>
<td>12°15'N</td>
<td>12°19'45&quot;N</td>
</tr>
<tr>
<td></td>
<td>Longitude</td>
<td>76°40'30&quot;E</td>
<td>76°38' E</td>
<td>75°27'E</td>
<td>76°39'E</td>
<td>76°40'30&quot;E</td>
</tr>
<tr>
<td>3</td>
<td>Owned / monitored by</td>
<td>Forest Dept/ Zoo</td>
<td>University of Mysore</td>
<td>Minor Irrigation Dept.</td>
<td>Minor Irrigation Dept.</td>
<td>Minor Irrigation Dept.</td>
</tr>
<tr>
<td>4</td>
<td>Aquatic weeds growth</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Fishery</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Nil</td>
</tr>
<tr>
<td>6</td>
<td>Public entry</td>
<td>Yes (restricted)</td>
<td>Yes (controlled)</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

Table 2.4 furnishes details about the catchments area, water spread area, foreshore area, average silt deposition and water capacity in each of the five lakes is furnished. After the 2003
restoration of lakes under Asian Development Bank (ADB, 2002) grants, a portion of the silt from Kukkarahally Lake and most of the silt from Karanji Lake was removed.

Table 2.4: Details of Catchment Area, Water Spread Area, Foreshore Area and Silt

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Lake</th>
<th>Catchment Area (ha)</th>
<th>Water Spread Area (ha)</th>
<th>Foreshore Area (ha)</th>
<th>Average Silt Depth (m)</th>
<th>Total Silt Deposition $10^3$ (m$^3$)</th>
<th>Lake Capacity (ML)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kukkarahalli</td>
<td>414</td>
<td>49</td>
<td>55</td>
<td>0.45</td>
<td>220.0</td>
<td>2533.3</td>
</tr>
<tr>
<td>2</td>
<td>Karanji</td>
<td>745</td>
<td>22</td>
<td>13</td>
<td>0.23</td>
<td>50.0</td>
<td>629.2</td>
</tr>
<tr>
<td>3</td>
<td>Dalvoy</td>
<td>1379</td>
<td>54</td>
<td>66</td>
<td>0.89</td>
<td>479.0</td>
<td>1771.2</td>
</tr>
<tr>
<td>4</td>
<td>Devanoor</td>
<td>458</td>
<td>5.3</td>
<td>3.2</td>
<td>0.30</td>
<td>15.9</td>
<td>15.9</td>
</tr>
<tr>
<td>5</td>
<td>Lingambudhi</td>
<td>2189</td>
<td>36</td>
<td>60</td>
<td>0.21</td>
<td>74.5</td>
<td>1507.7</td>
</tr>
</tbody>
</table>

Ecological succession of lakes in urban region gets enhanced for reasons of organic and inorganic pollution loads. Simple biological indicators are available for continuous monitoring of the water bodies. This technique in conjunction with remote sensing techniques is very useful. Legal samples on regular intervals are collected from Karnataka State Pollution Control Board as per Statutory requirements. Table 2.5 furnishes details of the five lakes Distribution pattern of plank tonic forms in the lake of Mysore for the decade ending 2001. Chlorococcales, Desmids, Diatoms, Blue-greens and Euglenoids are used as the biological indicators of water bodies. The numbers indicate the microorganisms present in the sample per litre.

Quantification of pollution loads based on the WHO Rapid Environmental Assessment Guidelines are furnished at Table 2.6 Waste volume BOD$_5$, COD, Suspended Solids, Dissolved Solids, Nitrogen Nitrate, Phosphorous as Phosphate which has entered per year to the lake is quantified.

Table 2.5: Distribution pattern of plank tonic forms in the lake of Mysore and surrounding areas for the period from 1981 to 2001.

<table>
<thead>
<tr>
<th>Year / Group</th>
<th>Karanji Lake</th>
<th>Kukkarahalli Lake</th>
<th>Lingambudi Lake</th>
<th>Dalvoy Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorococcales</td>
<td>193.23</td>
<td>358.37</td>
<td>353.251</td>
<td>542.210</td>
</tr>
<tr>
<td>Desmids</td>
<td>545.130</td>
<td>510.0</td>
<td>7.0</td>
<td>332.0</td>
</tr>
<tr>
<td>Diatoms</td>
<td>31171</td>
<td>21250</td>
<td>5822</td>
<td>5132</td>
</tr>
<tr>
<td>Blue-greens</td>
<td>94.68</td>
<td>12454.5</td>
<td>243.25</td>
<td>234.20</td>
</tr>
<tr>
<td>Euglenoids</td>
<td>11355</td>
<td>15421</td>
<td>832</td>
<td>3251</td>
</tr>
<tr>
<td>Dinoflagellates</td>
<td>180</td>
<td>560.6</td>
<td>210</td>
<td>622</td>
</tr>
</tbody>
</table>

Note: Number are represented as organisms / litre
(Source: ET Puttaiah, et al., 2000)

Table 2.6: Pollution Loads of wastewater Contribution to Lakes as source of Eutrophication

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of the Lake</th>
<th>Population</th>
<th>Waste volume at 34 Cu.m/c/yr 80% of 115 lpcd</th>
<th>BOD$_5$ at 19.7 kg/c/yr</th>
<th>COD at 4.4 kg/c/yr</th>
<th>Suspended solids at 20 kg/c/yr</th>
<th>Dissolved Solids at 36.5 kg/c/yr</th>
<th>Nitrogen as Nitrate at 3.3 kg/c/yr</th>
<th>Phosphorous as Phosphate at 0.4 kg/c/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dalvoy</td>
<td>258145</td>
<td>24.05</td>
<td>13.9328</td>
<td>0.00029</td>
<td>0.000763</td>
<td>2.96-08</td>
<td>6.9E-09</td>
<td>3.1767E-14</td>
</tr>
<tr>
<td>2</td>
<td>Devanoor</td>
<td>95239</td>
<td>8.87</td>
<td>5.1403</td>
<td>0.00011</td>
<td>0.000282</td>
<td>1.07E-08</td>
<td>2.55E-10</td>
<td>1.172E-14</td>
</tr>
<tr>
<td>3</td>
<td>Karanji</td>
<td>15020</td>
<td>1.40</td>
<td>0.81067</td>
<td>1.7E-05</td>
<td>4.44E-05</td>
<td>1.69E-09</td>
<td>4.02E-10</td>
<td>1.8483E-15</td>
</tr>
<tr>
<td>4</td>
<td>Kukkarahalli</td>
<td>35813</td>
<td>3.34</td>
<td>1.93292</td>
<td>4E-05</td>
<td>0.000106</td>
<td>4.02E-09</td>
<td>9.58E-10</td>
<td>4.40711E-15</td>
</tr>
<tr>
<td>5</td>
<td>Lingambudhi</td>
<td>26450</td>
<td>2.46</td>
<td>1.42758</td>
<td>3E-05</td>
<td>7.82E-05</td>
<td>2.97E-09</td>
<td>7.07E-10</td>
<td>3.25401E-15</td>
</tr>
</tbody>
</table>

(Source: Jagannatha V, Waste load as per WHO guidelines for quantification of pollutants, 1982)
3.0 CONCEPTS DEPLOYED IN THE RESTORATION OF URBAN LAKES

Restoration Plan and interventions were based on field studies and their analysis. Ecological succession status for each lake had been considered for its restoration. In the proposed restoration plan, established basis for solving the problems facing endangered lakes namely Socio-Economic-Natural Complex- Lake Ecosystems (SENCLEs) was used as guidelines. Further, the State of Art Techniques elucidated in the IETC/UNEP guideline document is followed.

In the SENCLEs approach Fig.3.1 the core is human beings, including the organization, technology, and culture, comprising laws, strategies, customs and traditions for management and utilization of lakes. This is the controlling part of SENCLEs, and may be called the Eco-core. The second layer is the direct environment of human activities within a SENCLE, including the geographic, biological and artificial environment, which is the fundamental medium activities and is called the Eco-base. The third layer is the external environment of SENCLEs, including source, store, and sink, which is the external supporting system of SENCLEs and called the Eco-pool. These three layers are interacting upon one other.

Fig.3.1 Structure of SENCLE

Further, in the SENCLEs functions Fig 3.2 the succession is a result of interaction of natural, social and human exploitation. There are two kinds of effective factors: one is the leading factor; the other is the limiting factor. When the leading factor prevails, various human activities lose no time in making use of the favorable ecological niche and the system grows in an exponential way.

<table>
<thead>
<tr>
<th>Social functions</th>
<th>Control</th>
<th>Production</th>
<th>Living</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural functions</td>
<td>Supply</td>
<td>Acceptance</td>
<td>Economic functions</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reduction</td>
</tr>
</tbody>
</table>

Fig 3.2 : Limiting and leading factors in interaction

Considering the major functional priorities of five lakes, namely Karanji – Wild life and recreational : Kukkarahally- Recreational and Fisheries : Lingabudhi - Recreational and Irrigation : Dalvoy- Irrigation and Recreation : Devanoor – Open Space and Park. SENCLEs model is also a very useful tool for conflict resolution amongst multiple functional priorities for each lake. However, data is now available for Kukkarahalli and Karanji Lakes for the management strategies. Two technical committee have constituted for both the lakes. Legal water samples are being collected by the KSPCB.

4.0 IDENTIFIED ENVIRONMENTAL SOUND TECHNIQUES FOR LAKES MANAGEMENT

Environmentally Sound Planning Strategies for restoration of urban lakes is challenging, based on complexities of the ecosystems. Planning for restoration of five urban lakes at Mysore under the Asian Development Bank, Infrastructure Development Plan through KUIDFC revealed over 23 unique principles such as
1. SENCLE model for management of lakes involving socio-economical and cultural aspects of the lakes,
2. ILEC/UNEP formats for documenting status of lakes,
3. Functional utilization of water bodies based on quality standards such as for drinking, bathing, wild life, ecologically sensitive, fishing and aesthetic uses,
4. Both water shed and water body restoration approach identified,
5. Lakes planned as ecological security zones to improve urban eco-system,
6. Conventional and remote sensing data identified for planning status of lakes,
7. Effective indigenous cultural heritage found necessary,
8. A strong monitoring system with laboratory support identified,
9. Silt from the lake is used for bund strengthening, island formation and road development,
10. Weed and other organic waste used for composting,
11. Each lake given a priority in its utilization and networked,
12. Wet Land technology used for restoration of lake body and reduction of loads,
13. Solar lighting and environment friendly techniques and methods proposed,
14. Aquifer recharge planned for surplus water recharge to augment ground water,
15. Recreational and aesthetic landscaping for each lake incorporated,
16. Urine segregating toilets and bio-gas plants for demonstration plants identified,
17. Each lake with ecological road indications with education hoarding proposed,
18. Feeder canals for each lake and their constraints quantified,
19. Sewage, waste water and trade effluents sources identified and scheme evolved,
20. Effective community participation of villagers and stake holders proposed,
21. Development of lakes planned keeping in mind the requirement of all visitors/users like children, aged, physically challenged people,
22. Environment friendly and low cost construction involved which merge with the natural surroundings,
23. Planning done in consultation with the owners of the lakes and their functional requirements.

Based on the priority fixed by the owners of the Lake, as many as possible Environmental Sound Technologies have been suggested under the phase – 1 now take up for public tender for execution. These strategies are useful tools for the remaining three urban lakes at Mysore and many more now endangered in the urban development at Mysore region.

5.0 PRESERVATION OF MYSORE URBAN WATER BODIES PLANNING STRATEGIES

Principles adopted for rehabilitation

a Vision
- To develop the water bodies as ecological security zones in Mysore Urban Development.
- To reduce the Human population pressure in the form of wastes impact for ecological and economic benefits.
- To develop improved watershed management in urban planning process.
- To bring about changes in individual life style.
- To conserve the water bodies with improved people participation strategies and action plans.

b) Interventions for preservation
- Water body level
- Foreshore level
- Watershed level

1. Water body level interventions
- Diversion of sewage from domestic by improved management of city sewage system.
- Development of storm water drains so that increased water source is ensured.
- Allow recovery of water body by natural means “reversal of ecological succession” by means on increasing flow and the storage of water.
- Productive Utilization of enriched water body by harnessing bio-mass.

2. Foreshore level preservation
- Propose fencing /earmarking the boundary and take action where ever possible to evict the unauthorized occupation.
- Develop recreational, open space and park activities so that the open spaces are fully utilized for the permissible activities in the lake premises.

3. Watershed level
- Restoration of feeder canal based on the report on its absuse (Chandala D N et. al., Lake'02)
- Karanj lake for about 970 M strengthening.
- Kukkarahalli lake for about 3000 M base flow channel proposed.
- Constructed wetlands proposed to mitigate sewage pollution from University of Mysore and open University campus.

Constructed wetlands

Concepts:
- Overflow from domestic sewage, pollutants from storm water and any fugitive wastes from small scales industry are to be polished in constructed wetlands proposed.
- The wetland based treatment process is suitable for remove trace elements, toxic materials, removal of pathogenic bacteria and metals including lead, chromium and zinc.

Life span: Maximum up to 30 years and longer, Area provided in each unit: 300Sq Nos proposed 10 proposed for five lakes. Only at Karanj lake a Constructed Wetland was constructed.

Aquatic recharge facility

- Provision for ground water recharge by means of drilling up to aquifer zone and allowing for filtration of storm water after an initial filtrating and storage in the lakes. This initiative is yet to be taken up as it was not a priority in the first stage. The locations of these bore wells need to be based on geological investigations.

Aquatic Ecosystem health monitoring:

- Providing for field laboratory facilities for sampling and storing samples seasonally monitoring with Physio-Chemical and Biological Parameters proposed. Advanced analysis samples can be conducted at KSPCB or any authorized laboratories.

Strategies for future lakes sustainability

- Immediate
  - Restoration plans taken up now under the KUIDFC support now.
- Long term
  - Strategies for ecological land use patterns by MCC/MUDA for watershed protection.
  - Productive uses of five lakes by stakeholders such as fisheries, minor irrigation and local villagers traditionally dependent on there water bodies.
  - Continues convectional and advanced monitoring techniques for ecological management.
  - Buffer zone eco-restoration in the lake environs and watershed. Urban greenery studies an restoration by MUDA/MCC and forest department
  - Strengthening of MJSO by facilitating other stakeholders in lakes maintenance and management in collaboration with the authorities under which the lakes are restored.

6.0 INFERENCES
After the ADB assistance and restoration of only two of the five lakes, the remaining three urban lakes are being taken up under Jawaharlal Nehru National Urban Renewal
Mission (JNURM). The Mysore city corporation has proposed to take up restoration of Devnoor tank an estimated cost of Rs. 26.26 lakhs. This decision was taken by the Mysore City Corporation Council at its meeting on March 31, 2006.

The restoration project covers desilting, fencing, strengthening of the lake bunds and creation of a park at the lake, located in N.R. Mohalla, to attract people and improve the environment and beauty of the place. This is one of the five lakes in and around the city to be restored under a comprehensive plan of the Karnataka Urban Infrastructure Development and Finance Corporation of the Karnataka Government.

The Corporation has entrusted the development and restoration of the famous Kukkarahalli Lake to the Mysore University, the Karanji and Lingambudi lakes to the Mysore ZOO Authority and the Dalvoy tank to the Mysore Urban Development Authority. These five lakes, which were attracting migratory birds from far off destinations, are facing a slow death with growing urbanization and conversion of the rain feeding lands into these tanks on account of choking of the feeder canals from Chamundi Hills and other upper regions of the city, the lake areas have shrunk in size. They are becoming dumping yards of urban waste. Instead of good rain water, dirty water from these residential and commercial areas is flowing into these lakes. There is an urgent need to clear the encroachment to allow rain water to naturally flow into these tanks, restore and develop these water bodies and ban any sort of pollution of the tank waters and the area around it. Realizing the urgent need to restore these lakes, the Additional Chief Secretary of the Karnataka Government had convened a meeting of the concerned authorities in February last and directed them to restore and maintain the five lakes without further delay.

It may be of interest to note here that the famous Kukkarahalli Tank supplied drinking water to Mysore city, then a small town, before the Vanivilas Water Supply Project was taken up over several years ago, during the reign of the Mysore Maharajas. It attracted leading literacy and other personalities of Mysore in the mornings and in the evening for their daily stroll. It has inspired by poets and writers like Dr. K.V. Puttappa (Kuvempu) and R.K. Lakshman, who were residents of the city. Even today the lake bund is been used by early morning walkers and joggers, despite its deteriorating condition. The Lingambudi Tank was constructed during the period of the Krishnaraja Wodeyar III, in memory of his wife, while the other lakes are older than the Lingambudi.

Now having a Lake Restoration plan and guidelines available there is a need for taking time bound action plan for the restoration of lakes under JNURM.

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