

Breathing Life into

Lakes

in

BENGALURU

The United Way



United Way of Bengaluru



Uttarahalli Lake

Foreword

I have been involved with United Way of Bengaluru's 'Wake the Lake' campaign since its inception in 2009. During that time, it was a huge task to bring like-minded and passionate people together, seek sponsors and donors to support a lake. Back then, a handful of communities were working with lakes. The knowledge about how to rejuvenate a lake was extremely sparse and limited. But, we were determined to undertake this journey towards rejuvenating our dying lakes, to learn and grow along with it. True to the global mission of United Way Worldwide, we have strived hard to bring together people from all walks of life and from different sections of the society to take up the cause of lake rejuvenation in Bengaluru.

Three people played a key role in putting together the first template for the Memorandum of Understanding (MOU) for communities, corporates and Bruhat Bengaluru Mahanagara Palike (the Municipal Corporation of Bengaluru) to come together to support rejuvenation work in the neighbourhood lake. That was Mr Sabu Thomas, United Way of Bengaluru's former Chairperson, who is passionate about conserving the Bengaluru environment; Captain Subburao Prabhala, the Chairperson of Bangalore Environment Trust, and former Chairman and Managing Director of Bharat Electronics Ltd and Mr B V Satish, Chief Engineer (Lakes) BBMP. It was a special moment for us when B V Satish presented the MOU to the BBMP's Council of Corporators and got it approved.

Today, it gives us immense pleasure to see more communities coming together to support their neighbourhood lakes. More so, it is extremely gratifying to witness an astute and committed leadership emerging from the community to address issues in collaboration with the government. It has been a remarkable journey so far. We are proud of our association with our city's lakes. Thus far, we have been able to impact 16 lakes in the city. We have received tremendous encouragement and support from the government, our corporate partners, volunteers and the local citizen groups in our endeavour.

This coffee table book is a snapshot of our work on lakes. It provides you a glimpse of the history of lakes, their transformation and the different ways one can support them. Also, we have attempted to capture different concerned voices on the situation of lakes in the city. We are extremely grateful to all our contributors.

We hope this book will stimulate more interest among citizens and start conversations at a coffee table. It is true, United, We Can Make A Change!



Prashanth Prakash
Board Chair
United Way of Bengaluru





History of the land of hills, lakes, gardens, birds and butterflies

Bengaluru's tryst with lakes began as early as the 8th century AD. The city's undulating terrain comprising hillocks and valleys lent itself easily to the formation of water catchment areas.

At an elevation of 900 metres above sea level, with no perennial water systems close by, Bengaluru's early settlers built a series of rainwater catchments across the region. These catchments formed the numerous lakes, tanks and ponds Bengaluru is famous for.

Archaeological surveys suggest that Bengaluru had more than a thousand lakes! It is believed that Bengaluru was once referred to as 'Kalyananagara', a city of Kalyanis or tanks. Inscriptions on a stone slab found in a field near the Agara lake near Koramangala, Bengaluru, states that as early as 870 AD (during the Western Ganga dynasty) Sirimayya, son of Irugamayya, the chief of Irvuliur (modern Ibbalur) fixed sluices to two tanks. He had the eastern tank built and obtained the Bittuvatta or grants for maintenance of the three tanks. Man-

made rajakaluves or canals, connected the surrounding agricultural wetland landscape. They ranged in size - from small ponds (kuntas) of less than a hectare - used for cattle washing and drinking, to large lakes (keras) of hundreds of hectares in area, used for agriculture, fishing, drinking water and domestic use.

Water was also used for domestic purposes such as washing, cooking, cleaning and for maintaining the city's gardens. On special occasions and festivals, idols were immersed in the tanks. When water levels began to recede after the rains, cattle grazed on the wetlands which were largely designated as gomala - common property wetlands for community use.

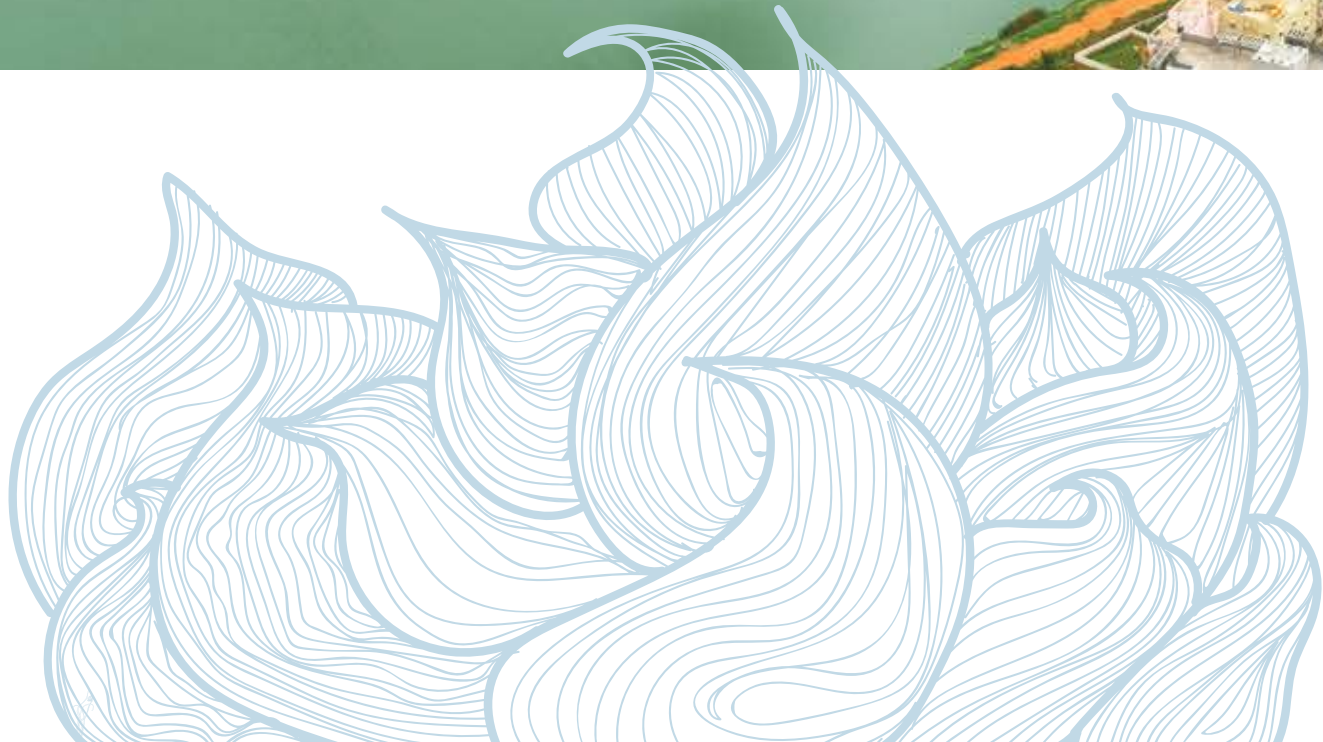
The silt was extracted annually in the smaller lakes, and from the large lakes, in the dry season every few years. This nutrient filled silt was used by local communities to enhance the fertility of their land. The critical role played by lakes in the success of this emerging urban area has been recognised by every ruler from Kempegowda, Hyder Ali and Tipu Sultan to the British as well.



Rachenahalli Lake

After the decline of the Western Ganga dynasty, in 1537, Sri Kempegowda founded what is now identified as Bengaluru. He donated land and commissioned more than a 100 lakes to be built during his lifetime. His successors, and the British who occupied India later, continued this system of creating and maintaining tanks for the next few centuries.

In 1791, a Captain who led the British East India Company soldiers from Fort St. George in Madras arrived in Bengaluru. He was amazed by the climate and environment of Bengaluru and described it as the land of a thousand lakes!



After 1947, the feudal land tenure system was replaced with a more centralised system of maintenance, with various government departments playing a larger role in the maintenance of tanks.

As the growing city started filling up its lung spaces, the government saw merit in importing water from the Cauvery River in the early 20th century.

When this new source of fresh water supply became available, many of the city’s lakes and tanks were drained and converted to suit other land uses such as bus stands, sports facilities, playgrounds, golf courses, malls and residential areas.

As the fast mushrooming city grew vertically as well as horizontally, its waste found its way into the canals and lakes. Over construction around the lake beds resulted in the land around them losing their porosity. From seasonal fresh water lakes, many of the lakes of Bengaluru turned to perennial waste water sources. The once proud lakes of Bengaluru became heavily polluted with sewage and industrial waste significantly reduced water levels.

Different government departments with overlapping jurisdictions took over different aspects of lake management.

The result of this lack of planning and coordination are to be seen everywhere.

Currently, Bruhat Bengaluru Mahanagara Palike (BBMP), Bangalore Development Authority (BDA), Bangalore Water Supply Sewerage Board (BWSSB), Forest Department and Karnataka Lake Conservation and Authority (KLCDA) are key stakeholders.



Kaikondrahalli Lake



The biodiversity of Bengaluru

All of Bengaluru’s waterbodies are rainfed.

In the past, lake ecologies were inter-connected and maintained through a closely linked social-ecological management system, with each species supporting the survival of the other.

Flowing clear water from the streams bubbled with aquatic life and supported the fisherfolk who lived on the periphery of the lakes. The sunny, yet cool climate of Bengaluru lent itself to the growth of a wide variety of fruits and vegetables. Locals lived off the land and the land in turn provided its caretakers with a healthy lifestyle and livelihood.

The waterbodies also supported a diverse range of important endemic flora and fauna, including a rich variety of birds, insects and aquatic life. Located in the path of many migratory butterflies and birds, the lakes formed a critical link for conservation of various species.

Grebes, Pelicans, Cormorants, Oriental darters, Herons, Egrets, Storks, Ibis, Teals, Ducks, Pintails, Swampheens, Moorhens, Pheasant tailed Jacanas, Kingfishers, Cranes, Lapwings, Swallows, Snipe, Jacana, Sandpipers, Terns, Gulls, Wagtails, Quails, Falcons, Kites, Eagles, Doves, Parakeets, Cuckoos, Hoppoes, Bee-eaters, Barbets, Larks, Bulbuls, Drongos, Fantails, Paradise Flycatchers, Mynas, Robins, Sunbirds, Munias, Weavers and Silverbills were some of the winged residents who inhabit the lakes of Bengaluru.

Plant life included Hyacinths, Lily, Nelumbo, Algae, Tapegrass, Mosses, Ferns, Reeds and Rushes. The lakes are rich in fish species such as Common carp, Grass carp, Catla, Rohu, Ompok bimaculatus, Notopteris, Indonesian shortfin eel, Puntius ticto, Ticto barb, Puntius dorsalis, Tilapia and Cirrhinus mrigala. Freshwater turtles, frogs, crabs, molluscs and many other species that play an inextricable role in preserving the biodiversity of the environment formed part of the lake ecology. Threat to one species could well be a threat to all.



Rachenahalli Lake



Kaudenahalli Lake



Dasarahalli Lake

Upkeep of the lakes

Historically, lakes were managed by the village communities living around the lake periphery, with support from the local chieftains. Residents from villages close to the lakes shared the responsibility of maintaining the water bodies closest to their dwelling places.

They maintained bunds, desilted tank beds from time to time and took care of the rajakaluves. Specific families and communities were assigned with these tasks. Only certain groups of people were permitted to use lakes for fishing, collecting fodder, agriculture and washing clothes.

The land tenure system that was followed was called Kodigi Inams. The Inam land comprised fertile wetlands located downstream, and were ideal for growing water-intensive crops such as rice and sugarcane.

These locally varying and adaptive roles played by different communities were gradually replaced by formal governance structures imposed by the princely state of Mysore and British government agencies.

Rise of the fall

Bengaluru today is a perfect example of rapid urbanisation at the expense of natural ecosystems.

Globally, urbanisation is one of the key drivers of environmental change. Population growth, migration from towns and villages to the cities for a better quality of life, increased focus on urban development at the cost of rural development and other factors have converted a predominantly rural population to a city dwelling one.

In Bengaluru, as elsewhere in the world, increasing population resulted in increasing infrastructure needs – housing, transport, roads, healthcare facilities, schools, employment, recreation, public utilities such as water, electricity, food and so on. All of this needed to be built within a certain geographical boundary.

As a result, today, Bengaluru’s 10,819,000 residents share 741 sq km of land and a sewage system (constructed in 1922) which covers 215 sq km.

Bursting at the seams with sudden, unplanned growth, Bengaluru has been plagued by many ills. From untreated sewage and plastic waste, to construction debris and toilet waste, almost everything finds its way into the rajakaluves and via the rajakaluves into the lakes of Bengaluru.

Years of public and government apathy, lack of awareness and zero action have led to the current scenario where most of Bengaluru’s lakes are slowly being choked to death.

Fish are dying and birds seldom come to nest or roost. Cattle that once grazed in the meadows around the lakes now feed on plastic and paper. Overgrown with weeds and filled with effluents and waste, these lakes have become deadly breeding grounds for germs, bacteria and mosquitoes.

The worst that can happen to Bengaluru is already under way...

A light in the horizon

Over the past decade, a series of bizarre events got the attention of the residents of Bengaluru. In order to be heard, concerned citizens began to raise their voices. It became imperative that the lakes of Bengaluru be reclaimed and rejuvenated.

In 1983, in response to increased public concern about the condition of lakes in the city, the state government constituted an expert committee to investigate the issue. The recommendations of this committee, popularly known as the Laxman Rao Committee, led to the transfer of administration of most of the city’s lakes to the Karnataka State Forest Department.

Over the past few years, the BBMP has been making huge efforts to understand how lakes can be managed and restored for urban use, while still maintaining their significance for conservation. BBMP’s key partners in this initiative are BWSSB, KLCDA and BDA. In addition, NGOs like UWBe are playing a leading role in paving the way to ‘Wake the Lakes’. UWBe’s flagship programme, ‘Wake the Lake’ follows a partnership model that has proven very effective. Government bodies, UWBe, environmentalists, scientists, corporates, volunteers and communities are coming together to breathe life back into the dying lakes.



Dasarahalli Lake



Chinnappanahalli Lake

UWBe’s role in reviving Bengaluru’s lakes

Guardians of our lakes

Five years ago, Uttarahalli Lake in south Bengaluru was in the danger of sliding into a dumpyard. The BBMP had revived the lake, but lack of resources and maintenance were turning the revived lake into a withering wasteland. The lake was staring death in its face and could easily have been reduced to a blue dot on old maps.

None of the residents in the area would venture into their locality’s only “commons” that they owned. It was a hub of anti-social activity.

At that time, UWBe, as part of their innovative ‘Wake The Lake’ campaign launched in 2009, identified Uttarahalli as one of the lakes they had to nurture back to life. They explored corporates in the vicinity, who would be interested in injecting life into the lake and making it safe and accessible to the public.

It was a challenge since corporates are more enthusiastic about funding educational and health projects. UWBe convinced Ingersoll Rand about the absolute necessity of maintaining a lake rich in biodiversity and which serves as a recreational space for residents. They stepped forward to take up the mantle of financing the rejuvenation and maintenance of Uttarahalli kere.

Subsequently, UWBe created awareness about the dying lake through pamphlets in newspapers and organising a Lakethon - a walk around the lake. Three hundred citizens participated in this event, happy the lake was being freed up for them.

At the event, UWBe motivated and empowered the local community members to involve themselves in managing the lake. They helped in forming the Lake Walkers Association (LWA), with the Late Vishwanath as its first president. The local corporator also lent his support to the LWA. BBMP too swung into action after witnessing the active participation of the community in taking care of their kere and constructed facilities such as a toilet for the elderly

and children, walking paths, set up benches and a sewage treatment plant. UWBe and LWA entered into a tripartite agreement with the BBMP to give them the official nod to maintain the lake on a daily basis. In Uttarahalli, besides organising the community together, UWBe has helped in enhancing biodiversity, ensuring the water body is clean and encouraging more citizens to come forward.

UWBe’s model of intervention involves tying up with the local lake citizen groups and entering into an MOU with the BBMP to revive the lake. The basic philosophy being that the community owns the lake and the responsibility lies with them to care for the water body.

It is a challenge for UWBe to beat the widespread cynicism over government apathy among citizens to rope them in for community work for the lakes. The Puttenahalli Lake Citizen’s Association is one of the rare examples where the community, who were directly affected by the sad sight of their shrinking lake, overflowing with garbage, emerged organically to revive it.

Today, Uttarahalli Lake is a perfect successful model of UWBe’s work in waking the dying lakes of Bengaluru. The lake is an active, recreational spot for daily walkers, with a thriving ecosystem teeming with fish, ducks and birds. UWBe also conducted eye care and diabetes camps at the lake taking into account the sizable senior citizen population in the area.

Uttarahalli Lake is just one of the lakes UWBe has helped in getting back on its feet. Under their ‘Wake the Lake’ project, they have actively participated in the revival of 16 lakes in Bengaluru.



Sabu Thomas
Former Board Chair
United Way of Bengaluru

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I am delighted to see the progress we have made in rejuvenating Bengaluru’s lakes through UWBe’s flagship campaign ‘Wake the Lake’. Almost eight years ago, the founding board members of the newly-formed Bengaluru chapter of UWBe gathered at a retreat to determine the core focus area through its various activities. That was the time when Bengaluru was facing a severe water crisis and not meeting the WHO requirement of water per capita consumption.

It was predicted Bengaluru could experience a water famine by 2020. Realising the devastation it could create in Bengaluru, UWBe decided to initiate the ‘Wake the Lake’ campaign to protect the remaining water bodies in and around the city by playing the role of a catalyst to bring all stakeholders like communities, civic bodies, corporates, experts, press and research organisations together for a collaborative, sustainable effort to protect, rejuvenate and reclaim water bodies in Bengaluru. The goal of freeing our lakes from garbage, effluents and other pollutants and restoring the water quality almost seemed unviable.

Over the years, this campaign has turned out to be a people’s programme with other stakeholders supporting it and many corporates and citizens’ groups joining in to fund or volunteer for this cause. This initiative of communities owning water bodies near to them by protecting, maintaining and using it with the help of other stakeholders can be replicated to solve many such current civic problems of the city. I hope this campaign will be converted into a national one to protect our most precious water resources and their ecosystem.

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Kaudenahalli Lake

Kaudenahalli Lake

In Kaudenahalli Lake, UWBe tread a different path. They mobilised local community members, who in turn, actively engaged with the local elected representatives to donate funds. The local Member of Legislative Assembly (MLA), B A Basavaraj was encouraged to contribute towards the lake upkeep from the MLA funds. The lake which was once abandoned slowly came to life

with the continuous efforts of BBMP and UWBe. Based on their principle of motivating the local community to participate in the lake upkeep after their intervention, the UWBe team got the Uttarahalli residents to form a group, who proved to be responsive and committed to the cause of lake conservation.

The KR Puram Kere Mathu Parisara Samrakshana Trust (KKMPST) was formed with ten core members and 100 community members. As a KR Puram citizen observed, “We have to be part of the solution rather than get stuck in the problem and complain about it. It is for the communities to take up solving various issues in the society and an organisation like United Way Bengaluru can drive the communities by showing them the way forward.”

Today, Kaudenahalli has turned into a favourite tourist spot. The enhancement of biodiversity and the abundant fish in the lake are attracting scores of different species of birds. It is one of the lakes in which the citizens are extremely active and tap every opportunity to organise community events at the lakes, such as Sankranti celebrations, Community Deepavali celebrations, Children’s Day etc.



Kaikondrahalli Lake

Kaikondrahalli Lake

Kaikondrahalli Lake is located in the south east of Bengaluru on Sarjapur road. As recently as 2000, the lake was filled with fresh water, surrounded by groves of fruiting trees and frequented by birds, foxes and snakes. By 2003, the sprawling lake was fast drying up, with incoming channels to the lake blocked by construction and the dumping of debris and garbage. By 2007, the lake bed was a slushy, malarial bed, swarming with sewage and waste.

Eight years ago, a group of local residents living in the south-east part of Bengaluru engaged with BBMP, to help the water flow back on its bed. They guided the BBMP on the kind of greenery to plant along the lake to attract the birds back to Kaikondrahalli. UWBe provided the crucial support to the local community group to enter into a tripartite agreement with BBMP to maintain the lake.

Today, this beautiful lake attracts over 50 species of birds, and a rich variety of butterflies, frogs, toads and snakes: the variety of animal and insect biodiversity around the lake has blossomed substantially since then, with many more bird species added to this list. UWBe has moved out of this lake after more than five years of intervention and has scaled the lake above 85 percent on its lake scorecard.





Munnekolala Lake

Yalahanka and Munnekolala Lakes

UWBe was also one of the key figures in enhancing the biodiversity at Yalahanka Lake. It is one of the biggest water bodies in North Bengaluru, spread over 300 acres. It has been given a fresh lease of life after the BBMP and KLCDA developed it.

UWBe has helped in reviving Munnekolala, near Marathahalli, which was once on the brink of extinction. The 16-acre lake is now filled with fresh water. Surrounded by a fence, it has two gazebos, overhead tanks, a kalyani (for idol immersions) and a security room.



Yalahanka Lake



Sowl Kere

Sowl Kere

The Sowl Kere spread across 62 acres, is one of the largest lakes in the Mahadevapura zone. More than three acres of the lake were encroached upon by illegal occupants, with houses built on the lake bed. The encroachers paid no heed despite issuing notices to vacate the land. In 2013, they were cleared and restoration process of the lake started.

At present, multiple civic projects are close to being wrapped up at the Sowl Kere. These projects include desilting of the lake, setting up an STP and clearing the inlets and outlets that connect the lake. About 7,000 saplings have been planted including local, herbal, and medicinal plants. Clean up and greenery planting drives are some of the citizen initiatives conducted along with

UWBe and their corporate partner. The active citizen group at Sowl Kere has also been organising several interesting activities like last year’s Vigyan Habba, a science fair on environment for children at the lake.



Rachenahalli Lake

Devasandra, Sheegehalli & Rachenahalli Lakes

UWBe has initiated the process of reviving Devasandra, Sheegehalli, Rachenahalli last year, aiming to improve the biodiversity and community participation in these lakes. In Mahadevapura lake, they are supporting the installation of an STP, while in Kundalahalli lake they have set up two STPs. This year, they are moving in to save Kudlu Dodda Kere and Dasarahalli lakes.



Sheegehalli Lake



Devasandra Lake



Rachenahalli Lake



Rachenahalli Lake



Sheelavanta Kere



Manish Michael
Chief Executive Officer
United Way of Bengaluru

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United Way of Bengaluru addresses complex community issues across the globe. The organisation’s philosophy is very simple yet distinct; which is to provide a platform for the community to resolve local issues. The steady deterioration of Bengaluru’s lakes, which was once hailed as the “City of Lakes” was one such serious issue, which we had identified way back in 2009. With consistent and relentless engagement with various stakeholders like the community, volunteers, government, corporations, subject matter specialists of the lake, we are now witnessing a profound and positive transformation in some of the lakes. Over the past eight years, we have been able to successfully demonstrate that change is possible when engagement starts at the community level. We have a long way to go to protect and preserve city lakes. However, our experiences certainly indicate our efforts are in the right direction.
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Partnering with corporates, the United Way

The expenses involved in maintaining a lake on an annual basis is negligible, as compared to the crores the government spends to rejuvenate a water body. However, a corporate’s support to protect and preserve lakes and stir up awareness among the community to care for their lakes goes a long way. UWBe, is committed to reviving Bengaluru’s lakes, even as a water crisis looms dark and large in the horizon. The NGO taps into the CSR funds of a corporate to achieve its lake rejuvenation goal.

The funds are utilised to curtail sewage from entering the lake and to enhance the lake’s biodiversity by increasing medicinal and fruit bearing plants. One of UWBe’s methods to activate the local community has been to organise kere habbas, lakethons, painting competitions for children, etc. They also provide for the salaries of gardeners and security guards, plant water palms, build water pipes and fences, install children’s play equipment and maintain the lake.

Their activities can be a one-time effort or a sustained, deeper engagement to widen the impact.

Finally, to show tangible results to the corporate funder, UWBe has introduced a lake score sheet. Previously set parameters of the lake are measured from time to time to indicate improvements in water quality, bird and fish population, etc.

Manish Michael, Chief Executive Officer, UWBe asserts that the formal engagement between BBMP and UWBe is the fundamental process behind reviving a lake, but the community has to finally take ownership of the lake.

Traditionally, Bengalureans visit lakes and spend many hours relaxing near the water bodies which nourished them. UWBe’s efforts are aimed at getting Bangalore’s residents to head towards lakes rather than malls.

UWBe’s success model rests on the premise that when the sun sets on the lakes, the community residing around it have to become the guardians of this precious water body. If there is a lively, vigilant community around the lake, the kere can harbour some hope of living, else it will shrivel and die.

UWBe acts as a facilitator, a catalyst to ensure the community come together and participate in keeping the lakes healthy, rippling and alive.



Kaikondrahalli Lake



Kaikondrahalli Lake



Kaikondrahalli Lake



Halasuru Lake

Experts speak



S Vishwanath
Director
Biome

Centuries ago, people had the vision and wisdom to create water-bodies in the geography that we now call Bengaluru. Bunds or earthen walls were built across natural valleys to collect and conserve water during the monsoons. These water zones were called ‘tanks’. All water-bodies in Bengaluru are man-made ‘tanks’ and not natural lakes.

These water-bodies were linked to each other via large channels or rajakaluves, which carried rain water from the upper reaches of the city to its lower lying areas. A network of smaller canals or naalas were connected to the rajakaluve, which emptied into the lake. As one lake overflowed, water would flow into the one situated lower via the naalas and rajakaluves. Rainwater flowed from north to south-east as well as north to south-west, along the natural gradient of the land.

Bengaluru’s three main valley systems – Hebbal, Koramangala - Challaghatta, Vrishabhavati formed a chain of lakes/ reservoirs in each of the three valleys. These lakes supported diverse life forms that lived in and around them. Importantly, they also played an integral role in recharging ground water, aiding irrigation and keeping the environs cool. Fresh water created an important ecosystem in the city and also controlled pollution by trapping dust and heat.

Over the centuries, and more recently, in the past two decades, Bengaluru witnessed unprecedented, unplanned growth, in terms of the influx of people into the city, construction and infrastructure development.

This was both, a boon as well as a bane.

Bengaluru featured on the world map as one of the most sought-after destinations to work and live. Unfortunately, Bengaluru’s existing infrastructure was unable to support this label.

As industries mushroomed in the city and more people flocked to Bengaluru, the pressure on infrastructure and housing spiked. The need for more housing meant more land was required and this meant areas had to be reclaimed from inside the city’s geographical boundaries.

Unfortunately, the lakes of Bengaluru were the first casualty of urbanisation. Many existing lakes were reclaimed for infrastructure projects such as bus stations, roads, buildings and parks. Many were encroached upon illegally. Some dried up from lack of inflowing water. And, almost all the ones that escaped were doomed to die a slow death. A death by choking.

Rajakaluves, which were meant to carry storm water were blocked, encroached or narrowed and connected to sewers. Untreated sewage, garbage, household waste, plastics, industrial waste and heavy metals found their way into the lakes through the stormwater drains, choking both, the drains as well as the lakes. The untreated chemical effluents that flowed into the lakes have snuffed out the life of the aquatic life within. Bengaluru’s lakes have become dumping grounds for garbage and turned into smelly cesspools.

After a lot of awareness building programmes conducted by different stakeholders, fortunately, of late, it seems like the stench from the polluted death traps has woken Bengaluru up from its stupor. Several initiatives are underway to restore Bengaluru’s lakes.

Through a partnership model of working, government bodies such as BWSSB, BBMP, KLCDA, NGOs like United Way of Bengaluru, corporates, water experts, legal experts, volunteers and communities living around the lakes have come together to find integrated water management solutions to revive our dying lakes.

Installing decentralised Sewage Treatment Plants (STPs) to treat the water entering the lake is one solution that works to a great extent. Many such plants have already been put in place.

Treating lake zones as wetlands, creating an ecosystem endemic to the region is another great way of achieving a sustainable solution. Like, for example, growing plants which remove heavy metals and nutrients from the water.

A proposal for declaring lakes as wetlands is gaining ground in the corridors of power and among the electorate that decides its priorities.

Today, we have access to so much data. Our interventions with communities have led us to believe that if communities are provided with the necessary information, they can manage their water resources in a participatory, regulated and negotiated manner.

Ultimately, the power of keeping a lake in good condition lies with the community, since it is they who will benefit from it. A healthy lake is a source of immense biodiversity. And, biodiversity is critical for our planet and its citizens.



Prakriti Panwar

Vice President – Corporate Sustainability
Wells Fargo

Wells Fargo considers caring for the environment as one of our top priorities under Corporate Social Responsibility. We make investments in our communities to help them become more environmentally sustainable. One of the ways we help create more resilient communities is by supporting nonprofits, universities, and other organisations focused on community-based environmental projects and innovative clean technologies.

One such partner is United Way of Bengaluru, a non-governmental organisation that has a clear understanding of the problem: lakes are dying in Bengaluru.

United Way of Bengaluru has formed a partnership model that embraces different stakeholders – Bangalore Water Supply and Sewerage Board (BWSSB), Bruhat Bengaluru Mahanagara Palike (BBMP), communities around the dying lakes, scientists, environmentalists, subject matter experts, volunteers, and Wells Fargo – to work

together to rejuvenate and restore life in and around the lakes. UWBe played an integral role in obtaining the required permissions, getting all the stakeholders on the same page, creating awareness about the environmental hazards of a polluted lake, the benefits of a well-looked after water body and led the way until we achieved our goal of cleaning the lake and handing it over to the community for further upkeep.

Debris was cleaned; lake beds were desilted; trees were planted; fences were put up; and walking paths were built. Today, families from all walks of life converge at the lakes to enjoy the beautiful space. Birds, butterflies, and aquatic life are also present in abundance. The lakes are examples of what can be achieved when we work together towards a common goal.

Wells Fargo is proud to have financed the restoration of Kaikondrahalli Lake, Kaudenahalli Lake, and Kudlu Dodda Kere, and looks forward to future projects with UWBe.

All the relevant stakeholders need to get together in conserving and preserving the lakes. That is the way forward. Every lake has peculiar characteristics and features that need to be examined and an action plan has to be developed and executed in a steadfast manner, as already detailed in my 2011 report.

My report of February 2011 has also stated the following:

Unless sewage entry is restricted, based on the experience of lakes developed so far, no lake improvement is to be taken up except the lake survey, removal of encroachments, fencing and watching and maintaining the lake. There is no point in desilting, if the lake continues to receive polluted water.

The above recommendations and observations have not entirely been met by authorities. Sewage water still finds its way into lakes and the stormwater drains are being infiltrated by sewage lines all across Bengaluru. This must stop. This will in itself lead to an everlasting solution.

The other point is the slow progress in establishing sewage treatment plants in our lakes. The sewage water has to be treated even before it reaches the lake. There is no point in allowing polluted water to reach the lake and then treating it.

Proper hydrological analysis has to be done for the lake and its catchment area needs to be suitably identified and protected.

Finally, if the 2011 report is implemented on a war footing, only then can you expect any changes on the ground. Sadly, the report has not been implemented at all by the government authorities.

There must be more awareness and public-spirited campaigns like yours. You must not relent and must continue the campaign for a better Bengaluru. I appreciate the interest and efforts being put in by UWBe in protecting Bengaluru's lakes.



Justice N K Patil

Retd Judge of Karnataka High Court



Chinnappanahalli Lake



Munnekolalu Lake

M Mohith

Senior Correspondent
The Hindu

One of the problems is the inflow of chemicals, heavy metals, phosphorous, detergents, shampoo etc into the lakes via the rajakaluves or stormwater drains. Varthur and Bellandur lakes are frothing because inlets to these lakes carry chemicals which result in froth and foam.

Whitefield came up a decade ago, almost overnight, and the sewage pipes from these locations were connected to open drains, originally meant to collect rainwater, from one lake to the other. Our underground sewage pipes are almost 80–90 years old and rusted in most places, leaking chemical effluents into the groundwater and contaminating it too. Unplanned growth has led to this problem.

Bengaluru was planned as a small town comprising independent bungalows. In the late 90s, there was a sudden spurt in apartment complexes. A corresponding infrastructure was required to support this huge population. With limited space available, Bengaluru’s lakes were either used as dumping grounds for garbage or filled and encroached upon for construction. Reservoirs and depressions have been levelled. Unlimited sanctions of borewells have resulted in lowering of the water table. Systematically, without a thought for the future, lake after lake has been destroyed.

The seasonal lakes of the past are now perennially filled with stagnant water. They are very dangerous as they negatively impact the biodiversity around the lakes.

Creating wetlands and maintaining them is a very good solution. Building STPs which remove dangerous chemicals in the sewage, before it enters the lake is also a good solution. More importantly citizens and decision-makers must be educated about the damage they are causing to the environment they live in.

UWBe’s model of public private partnership is very good, but sometimes, it gets stuck in bureaucratic tangles. Often, corporates who want to contribute their CSR budget to environmental causes are wary because lake cleaning activities require many clearances which take a long time. Also, it is a very specialised area of work and needs experts on the job. It needs an engineering solution, diversions have to be built to carry the current flow of the sewage away from the lake. Then the lake water needs to be pumped out. After which, the desilting must be carried out and bunds must be built. When this is done, lakes must be fenced and trees should be planted on the banks. Only treated water must be allowed to enter the lakes.

Ultimately, it is for the community to ensure the upkeep of lakes. Without community awareness and participation, long term sustainability cannot be achieved.



Usha Rajagopalan

Chairperson of Puttenahalli Neighbourhood
Lake Improvement Trust

What we have achieved with Puttenahalli Lake is replicable. It only needs commitment and perseverance. The idea that people can save and nurture a lake in their locality has to gain ground if we are to reclaim the surviving few. Residents in the area will be forced to care for their lake, if it is their source of water.

Bengaluru's lakes are in a bad state because people don't think it is their responsibility. Living in an apartment complex near the Puttenahalli Lake, I could not bear to see the lake shrinking and dying, covered with plastic, waste and filth. I can't blame the government of inaction without doing my share. Therefore, I mooted a campaign in our apartment complex to come together and save the lake. When our various attempts failed, Ashwin Mahesh, my neighbour, got BBMP to include it in their list of 23 lakes planned for rejuvenation that year.

BBMP first fenced the perimeter in 2009, scooped out the muck from the lake bed, raised a walkway, created an island in the middle and provided inlets for rainwater to flow in. Since May 2015, we have been getting excess treated water, about 6 to 8 lakh litres every day, from the STP of a neighbouring apartment complex.

We ensure no one pollutes the lake with trash, bottles or puja materials. We closely monitor the stormwater drains. If we see sewage trickling in,

we contact the BWSSB immediately and get them to attend to it. Nurturing the lake is a lot of work but finally, we have clear rippling water surrounded with trees and shrubs and we get to spot beautiful birds. These are our rewards.

My recommendation to other citizen groups is to first get the government to rejuvenate their lake, form a trust and take charge of nurturing it themselves. They will be able to do it more effectively than the government because as the regular users of the lake, they will know what's happening and stop transgressors and miscreants.

From 2010, our source of funds to meet maintenance expenses is donations from the locality. Residents pitch in as volunteers as well. This kind of involvement promotes the idea of the lake being the responsibility of the community. We have been able to raise money because people can see the difference. What was once a dry ground where boys used to play football is now a thriving lake teeming with fish and birds.

To ensure sustained nurturing of our lake, or indeed of any other, the biggest challenge is to get people around the locality to assume responsibility for it. If they don't, lakes will die and so will the city.



Dasarahalli Lake



Uttarahalli Lake



Koudenhalli Lake



B V Satish
Chief Engineer, Lakes
BBMP

Why are lakes in Bengaluru dying? There are multiple reasons, but mainly the residents of Bengaluru lost interest in the lakes after receiving piped water from rivers. Due to urbanisation and rapid development, lakes started to disappear. Layouts started to appear on lakebeds.

The BBMP has managed to revive 55 lakes, starting with 17 in 2008. The lake beds were unfenced, crammed with solid waste, weeds, sewage and encroachments. What did we do? Firstly, we fixed the lake boundaries by coordinating with the revenue department which owns the lakes and holds the lake records.

Next, we fenced the lakes and appointed consultants for Detailed Project Reports (DPRs). Our second priority was to ensure no sewage enters the lakes and water quality is enhanced. We know more than 1200-1400 mld of sewage is generated every day from the core city and flows into the drains. An ageing trunk line and under capacity STPs are unable to deal with the excessive sewage generation which is flowing through the lakes and emptying into the three valleys.

We have diverted the sewage through the lake periphery. One of the key methods we used to revive the lakes was to construct wetlands planting hyacinth, cactus, cana, reeds, vetriver and other wetland plants to absorb the nutrients in the water. We changed the face of 17 lakes like Kaikondrahalli, Chinnapannahalli, Dorrekere, Uttarahalli, Attur, Yalahanka and Kaudenahalli. Ninety lakes under us are alive today.

We have to thank local citizen associations for stepping forward to revive lakes. Local community groups around lakes like MAPSAS at Kaikondrahalli Lake, PNLIT at Puttenahalli Lake have helped us tremendously. They were the ones to contact us initially with a proposal and worked with us in the initial stages of cleaning and rejuvenating their lakes. They did the groundwork, advised us on the kind of plants to use for wetlands and also got an ornithologist and an architect on board to provide expert advice to us.

In 2011, UWBe approached the BBMP to help us in our efforts to revive the lakes. We have to thank them for supporting us for the past seven years. They get funds for us to maintain and sustain the lake for a year. UWBe is responsible

for stirring up local citizen groups to care and preserve their lakes. They have played a crucial role in creating a sense of ownership of the lake among the community. They are maintaining nearly 16 lakes for seven years now.

The solution for keeping our lakes alive is to decentralise and set up small local STPs in each block. Laying bigger UGD trunk lines is not the answer since it will be expensive and problematic to find land. Local small STPs can trap the sewage and put treated water into the rajakaluves.

My suggestion is that institutions should have their own STPs and use the treated water for flushing and gardening. Dorrekere Lake, Uttarahalli Lake, Dasarahalli Lake all have STPs. UWBe mobilised corporate support to fund an STP project at Kundalahalli Lake, which will pump in 750 kld treated sewage in the lake. UWBe is also instrumental in getting together several corporates to support rejuvenation work at Mahadevapura Lake.

The future does not look bleak for lakes. There is a lot of awareness today and the government is keen to protect them. We hope more funds will be sanctioned to keep our lakes thriving and alive.



Munnekolala Lake



Ulhas Anand

Ornithologist and Co-Founder
EcoEdu

Sometime in the mid-90s, 54,000 migratory ducks used to frequent Bellandur Lake. When an aircraft would take-off from the neighbouring HAL airport, the startled birds would fly high-up into the sky. It used to be an amazing, breathtaking sight – the blue sky blotted with graceful birds.

During a bird survey in the late 80s-90s for the Annual Mid-Winter Waterfowl Census, reports of which used to go to the international body Asian Wetlands Bureau, one could wade into the lakes – now you cannot even dip your toe into one.

Back then, the lakes were healthy, clear and pure. We could see fresh water sponges bobbing around in Bengaluru lakes. The large lakes like Bellandur, Byramangala, Varthur, Hoskote were all bristling with biodiversity. It might be hard to believe today but we have spotted diverse migrant ducks like Pintails, Garganeys, Wigeons, Pochards and once even the rare Comb Duck.

The decline started in 2002 with urbanisation and indiscriminate encroachments. This indifference to our water-bodies is largely due to our disconnect with lakes as water sources, the notion that we don't require water from these lakes anymore. People think that water enters our homes through pipes and have lost their connection with lakes and ignored them. Today, we talk of diverting rivers to flow into Bengaluru rather than preserve and manage our water resources better.

I think it may already be a bit too late to save Bengaluru. When water bodies dry up, civilisations have collapsed. We should learn from history.

Solutions lie in making our lakes more biodiverse – by firstly securing the inlets and ensuring only clean water enters the lake. Today, lake restoration is about civil engineering and the lakes are shaped like soup bowls. The natural margins of the lake should be maintained for the water to start out as shallow and get deeper towards the bund. Don't wall the margins, use wetlands instead and jogging tracks too close to the lake margins are unnecessary. Shallow waters support different types of vegetation, important to the aeration of the lake waters and also attract different kind of birds.

Natural cleaning is better, we should use reed beds at the feeder canals because they can trap the nutrients and clean up the water before it reaches the lake.

Community participation in reviving lakes is very good. The Kaikondrahalli Lake is a classic example. It is bringing back the connection between the water and people, and more importantly it is bringing back the birds. It has a good number of species and larger waterbirds like the nesting Pelicans and Herons. The bird population in Bengaluru has dived no doubt. In our sightings during the census across 172 lakes for 2016-17, reported on *ebird.com* as well, we found about 57,000 birds. In the 90s, Bellandur lake alone had 54,000 birds.

It is the Cormorants and Pond Herons that have survived in lakes today. Migratory Ducks and waders like Sandpipers are good indicators that a lake is alive. Ducks like the Wigeon are gone. The last time one was sighted was about four years ago. We saw the rare sight of more than 80 darters (snake birds) at Muthanallur Lake in Bommasandra, near Electronic City this year. This lake is swarming with birds, like in the old days.

UWBe's efforts in making citizens get back in touch with lakes and nature is encouraging. Being connected to our natural resources is the first step towards reclaiming what we have lost.



Sridhar Pabbisetty
CEO
Namma Bengaluru Foundation

Everybody knows that the lakes in and around Bengaluru have reached a flashpoint. The froth, foam and fire are symptoms of a larger malaise. We need to accept that this is a disaster which is likely to spiral out of control, and do everything that we can to stop it from taking a greater toll than it is already taking. We do not have the currency to pay a larger price!

The Bengaluru of yesteryears was a ‘City of Lakes’. Even until the 70s, our lakes were a matter of pride. These were treated as common spaces that belonged to the community and maintained with the larger objective of providing catchment zones for rain water, for replenishing groundwater and for maintaining a balance in the environment. Lakes were important sources for drinking water, washing, agriculture, fishing, fodder collection and climatic benefits.

With the access to Cauvery water in the city, lakes were no longer seen as life giving water bodies. Greedy developers, in cohorts with corrupt officials, viewed these as soft targets for infrastructure development projects. Sanctions were given, when it was illegal to do so. Lakes were encroached upon and buildings came up. In a matter of two to three decades, the face of Bengaluru became unrecognizable!

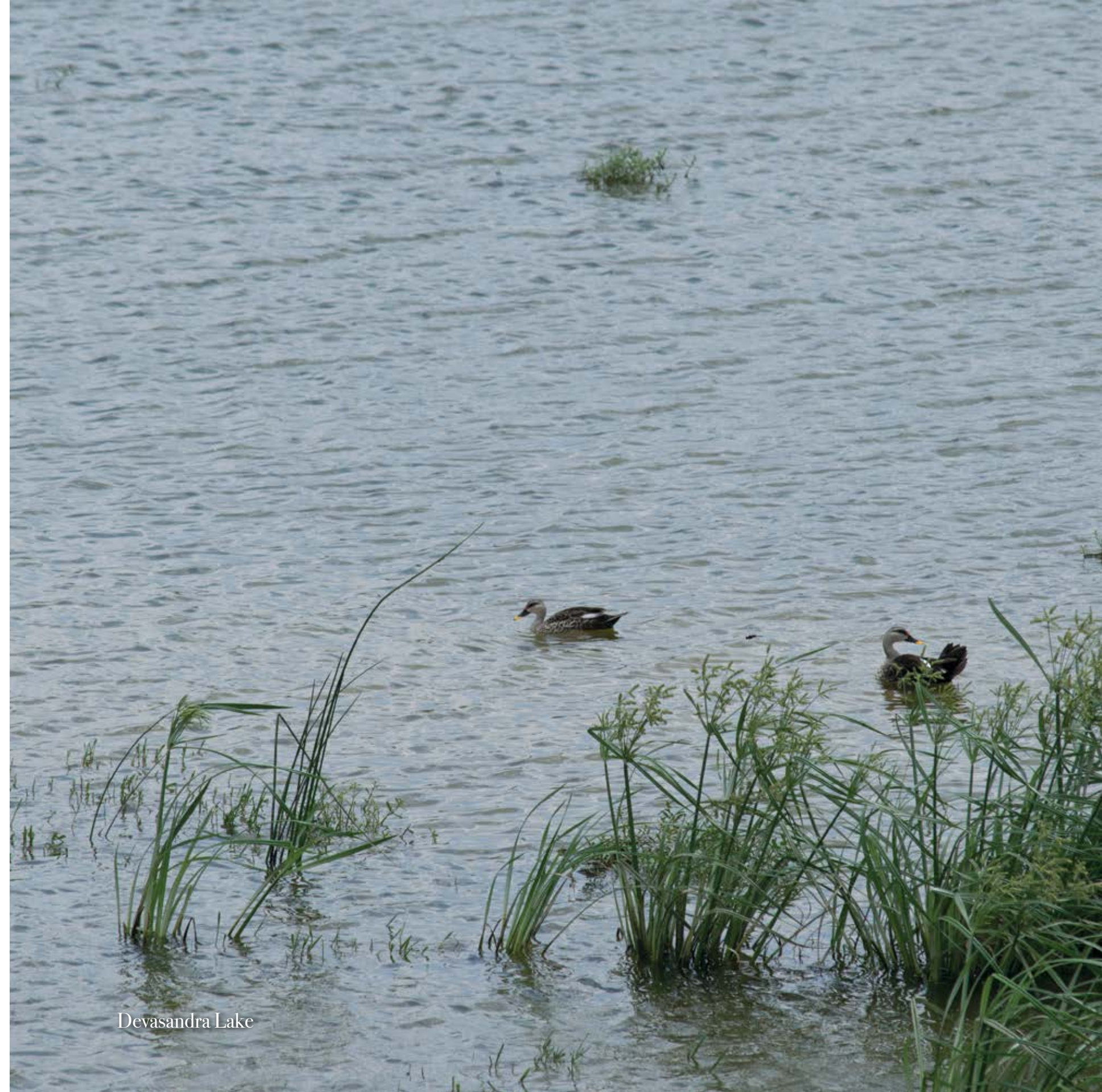
Today, encroachment is not the only problem we have to grapple with. The once proud lakes of Bengaluru have become dumping grounds for construction debris, sewage and industrial effluents. The rajakaluves which form the connecting network between lakes are crammed with toxic waste.

No surprise that we are facing froth, foam and fire. The lakes are only throwing out what the citizens have thrown into it!

The cycle is such that much of what is available in the market today is grown in a toxic lake environment. You don’t have to be a genius to figure out the toll that it will take on our health. The long-term cost of this form of ‘development’ will be shared by all, the perpetrators and the bystanders alike.

Namma Bengaluru Foundation is determined to tackle and reverse this possible environmental disaster. We have taken legal recourse and are working within the framework of our constitutional laws regarding the use of common spaces. We are committed to bringing those violating laws to book. We are committed to creating an awareness among citizens, that like everywhere else in the world, the onus of due diligence lies with the buyer. We have made much headway in our efforts. We see light at the end of tunnel. People are more aware and government bodies are more conscious of the need for proper interpretation of laws and their implementation.

With our partner organisations such as KLCDA and Karnataka State Pollution Control Board , NGOs such as United Way of Bengaluru and ATREE, Residents Welfare Associations, we are working towards bringing back our lakes to their original glory. We will not rest until then.



Devasandra Lake



Kaudenahalli Lake



C Narayanappa

President

K R Puram Lake & Environmental Protection Trust

Situated in the heart of K R Puram, Kaudenahalli Lake was once part of Gangadhara Kere, which extended upto 55 acres, in the 60s. Slowly, as citizens got insensitive about the environment around them, the lake shrunk with unchecked encroachments in the form of a school, migrants setting up temporary shelters and any waste from residences around would inevitably wind its way into the lake.

It was a garbage dumpyard and a haunt for anti-socials elements until the government stepped in around 2011 to restore this kere.

After the clean-up which took four years, as a regular walker, I got interested in volunteering for caring for Kaudenahalli Lake. UWBe was responsible for encouraging me to participate in maintaining the lake. They were conducting awareness campaigns about the necessity of citizen groups to take charge of the lakes around them or watch the lake roll back to its ugly form.

We set up a Trust to run the lake. Since the stormwater drains still continue to bring dirt into the lake, we conduct periodic clean ups, liaise with BBMP to collect the garbage, tend the trees and the plants and handle the daily upkeep of the lake.

Our lake is dotted with different species of flowering, fruit trees and medicinal plants; a 1.5 km walking path, and a gazebo. ಕೌಡೇನಹಳ್ಳಿ ಕೆರೆ ಒಂದು ಶಾಂತಿಯುತವಾದ ಸ್ಥಳ. ಈ ಕೆರೆಯ ತಂಪಾದ ಪರಿಸರವು ನನ್ನ ಮನಸ್ಸನ್ನು ಪ್ರಶಸ್ತಿಗೊಳಿಸುತ್ತದೆ. ಕೌಡೇನಹಳ್ಳಿ ಕೆರೆಯ ಪುನಶ್ಚೇತನ ಚರಿತ್ರೆಯು ಬೆಂಗಳೂರು ನಗರದ ಇತರೆ ಕೆರೆಗಳ ಅಭಿವೃದ್ಧಿ ಕಾರ್ಯ ಮತ್ತು ಸಮುದಾಯದ ಭಾಗವಹಿಸುವುದಕ್ಕೆ ಮಾದರಿಯಾಗುತ್ತದೆ. (To me, Kaudenahalli Lake is where I go to find peace. It is a zone of calm. We want Kaudenahalli Lake to be a perfect model of how citizens can get successfully involved in retaining the life and beauty of a community space.)



Uttarahalli Lake



Hanumantaiah

Corporator
BBMP Bengaluru

We have revived the original beauty of Uttarahalli Lake. Today, the local community, with the help of UWBe is taking care of the lake, the maintenance and its cleanliness. We should thank companies like UWBe, who are facilitating funds to keep our lakes alive. They have rallied the residents of the area together to ensure the lake is maintained well. A number of trees are planted along the lake boundary making it a pretty lake.

A major problem Bengaluru's lakes face today is the garbage, pollutants and chemicals flowing into the lakes from the rajakaluves. Unfortunately, rajakaluves are not separated from the sewage lines. Dedicated sewage lines have not been properly laid because of which all the rajakaluves are getting polluted. Just a little dirty water is sufficient to poison a lake. Uttarahalli still carries 20 per cent of dirty water. The other lakes in my ward like Subramanyapura Lake are extremely polluted.

A permanent solution for our dying lakes would be to divert the sewage line to the corporation's mega STP plants and not let them enter the lakes. Only treated water should flow into our lakes. It is the responsibility of the government to release funds and separate the sewage line from the rajakaluves.

Secondly, the government should set up mega STPs, similar to the one in Kengeri to handle the

city's sewage. You need to set up an STP with a capacity to match the sewage generated. It is a one-time investment, but will solve the problem of our dirty lakes once and for all.

The government works in an unplanned and uncoordinated manner, the roads are laid first and then they remember to lay the drainage and the water line. No coordination exists between the KLDCA, BWSSB, BESCO and BBMP. They do not work as a team at all.

Many years ago, Uttarahalli Kere was a beautiful lake, which was filled to the brim during the monsoons. Then, it was transformed into a wasteland until the BBMP intervened. Today, it is a walker's paradise, we have plans to set up an open gym, and add Ayurvedic medicinal plants. We need to revive all our lakes in Bengaluru.

ಬೆಂಗಳೂರಿನ ಕೆರೆಗಳ ಪರಿಸ್ಥಿತಿಯನ್ನು ಸುಧಾರಿಸಬೇಕೆಂದರೆ ನಾವು ಈ ಕ್ಷಣವೇ ಕೊಳಚೆ ನೀರು ರಾಜಕಾಲುವೆಗಳಲ್ಲಿ ಹರಿಯುವ ಮಳೆ ನೀರಿನೊಂದಿಗೆ ಮಿಶ್ರಣಗೊಳ್ಳುವುದನ್ನು ತಪ್ಪಿಸಬೇಕು ಆಗ ಮಾತ್ರ ನಾವು ನಮ್ಮ ನೆಚ್ಚಿನ ಕೆರೆಗಳನ್ನು ಉಳಿಸಿಕೊಳ್ಳಬಹುದು. (The situation of our lakes in Bengaluru will only improve if we separate the rajakaluves from the sewage lines. And no dirty water is allowed to enter the lakes. Only then, can our lakes which are so important to us, be saved.)



Professor T V Ramachandra

Energy and Wetlands Research Group
Centre for Ecological Sciences,
Indian Institute of Science, Bengaluru

In the 1800s, the city had 1,452 water-bodies in an area of 741 sq km. The temperatures recorded in Bengaluru at that time were 14 to 16 degrees in May, and there were reports of apples growing at Palace Orchards. We have killed the city in the name of development.

The mismanagement and apathy by the bureaucracy is the root cause of the problem. Bengaluru is on the verge of dying. There is 1,005 percent spike in concrete area, 88 per cent loss of vegetation and a 79 per cent dip in water bodies.

We had a good interconnected lake system but the interconnectivity was lost because of land, waste and water mafia taking over the city. Land mafias have encroached on lake beds; water mafia provides contaminated water to the people without treatment and solid waste gets dumped in lake beds gradually making way for them to get encroached. We have a good Air Act 1972 and Water Act 1974. Why don't we get the polluter to pay?

Releasing untreated sewage into the lakes has increased the nitrate level in the groundwater table and it is entering our food. Our study of Bengaluru's lakes shows that 98 per cent of the water bodies are encroached, 92 per cent is filled with sewage and industry effluents.

Diverting the sewage flowing into lakes is not the answer. Today, Bellandur and Varthur is yesterday's diversion of sewage from the upstream lakes. When the authorities divert the sewage to downstream lakes it is like throwing garbage into the neighbourhood compound.

Jakkur lake is a successful model of rejuvenation we implemented in 2008 along with the BDA. Constructed wetlands integrated with secondary treatment plant and algae pond is a low cost option and effective. When the water passes through the constructed wetland and algae ponds, the plants absorb the nutrients to grow and in the process clean up the lake. Algae is a photosynthetic organism which increases the dissolved oxygen in the system. Fountains were built on Sankey lake, which not only bolsters the recreation value but aeration too.

No lake can survive without community participation. Kaikondrahalli and Jakkur are classic successful examples of the sustained effort of communities in reviving lakes. Local people need to participate in maintaining Bengaluru's lakes but they need to improve their knowledge about the lake environment.



Halasuru Kere



Sheelavanta Kere



Leo Saldanha
Coordinator and Trustee
Environment Support Group

In the early 90s, Bengaluru’s lakes were still healthy. It was reckless development soon after that which killed lakes gradually. Lakes were encroached and turned into dumping stations complete with debris, sewage and garbage.

In 1988, the Lakshman Rau Committee report had clearly indicated that if lakes become defunct, they should be turned into green parks; not built over. The area then remains an open space and green, capable of absorbing water and recharging aquifers. The government authority failed to comply with the report and converted lake lands into layouts, bus stands and stadiums. Karnataka Golf Association was Challagatta lake once and Majestic was Dharmapuri lake.

We filed a case in court on behalf of CIVIC in 1995, to stop the construction of the National Games Village on the Koramangala Lake. In 2008, we filed a PIL with ESG to stop the privatisation of lakes. In the early 2000s, the forest department had done an excellent job of rehabilitating lakes like Hebbal, Nagawara, Agara Lake in Koramangala and KR Puram Lake. They were a successful model on lake conservation for the rest of the country. They largely built wetland ecosystems to revive the lakes. Frankly, that is the answer for Bengaluru now.

Instead of building on this model, the government started handing out lakes to private companies for various commercial developments. We ended up in Karnataka High Court with two prayers: to stop the privatisation of lakes and to direct the Government to devise a scheme to rehabilitate the lakes. The court stayed the privatisation of lakes and entrusted Justice N K Patil with the task of proposing detailed recommendations on how to save lakes and thus ensure water and ecological security for millions.

Justice Patil’s report recommended the rehabilitation of lakes as part of a series and not individually; proposed details of how to revive dying lakes; and required rajakaluves to be cleaned up and revived as living streams to ensure clean water flows into the lakes so they could become functional ecosystems.

Justice Patil also suggested a minimum of 30 m no development zone around lakes, and that for lakes larger than 40 ha, the no development zone would increase by 2 m for every hectare increase in lake size.

This direction has largely been violated. Justice Patil Committee Report categorically required that old maps need to be checked to set legal limits for the lakes, as recently produced maps had deliberately reduced size of lakes and rajakaluves to accommodate encroachments.

It is shocking that most people, who work on lake rehabilitation initiatives, have not read the Justice NK Patil report. This is a comprehensive document on the rehabilitation of the lakes system in Bengaluru. If we rigorously follow these recommendations, we can swim in our lakes and drink clean water from them.

Lake protection and rehabilitation, therefore, needs to be addressed in a larger perspective. You might clean up your lake but what about the one upstream, which will continue to pollute the lake?

Statutory Lake Protection Committees (LPCs) need to be set up by the government for every lake and in a manner that is inclusive of people directly dependent on lakes for their livelihood, like the fishing community, washerfolk and people who graze cattle or collect fodder. This is a direction from the Karnataka High Court. A city is not only for those who can afford it.

Unfortunately, there is no sign of LPCs as yet.

We have seen the good work UWBe has done in collaboration with BBMP in maintaining the rehabilitated Uttarahalli Lake. ESG is working on the revival of Subramanyapura Lake and its watershed and has invited UWBe to work on the watershed common to both lakes. This watershed includes the last remaining forest stretch inside Bengaluru city, and till recently was replete with grazing pastures, streams and plenty of ponds and wells. It has now been severely encroached and waste water is flowing from massive residential complexes directly into the lakes.

The Hebbal Lake revival model of developing constructed wetlands in the inflows into the lake is an answer. Planting hyacinths, bamboo and typha grasses, and other water based or water-tolerant species will not only help remove excess nutrients in the water but would also provide fantastic biodiversity rich corridors.



Dasarahalli Lake



Rachenahalli Lake



The way forward

Bengaluru, which once enjoyed the sobriquet of being a city of lakes, does not deserve to be known for its garbage infested lakes which catch fire.

In the 70s, when the city still boasted of 285 lakes, Bengaluru was self-sufficient for its water needs. Today, however, there are just 194 lakes, and a majority are sewage-fed. The rest have been lost to encroachments, private real estate developers and illegal builders who cater to the housing needs of a city of 10 million population.

Bengaluru’s naturally interconnected lakes slowly got swallowed up as dependence on lakes started to diminish. No longer did citizens turn to the lakes for their water needs, including for the purpose of drinking water, as the state started to draw water from Tippugondanahalli Lake and Hesaraghata Lake for the water needs of Bengaluru.

When Cauvery water flowed into home through pipes, lakes became a nuisance. They started to complain about the ill-maintained lakes being mosquito breeding grounds, infested with weeds. The government promptly started converting lake areas into stadiums, bus-stands, hockey clubs, institutions and football grounds.

In the 1970s, as lakes were disappearing faster than the white tiger in the Sunderbans, and what was left were pools of sewage, a concerned government formed the Lakshman Rau Committee. The report clearly indicated that

wherever the lakes were still alive to retain them and if the water had dried up completely to convert them into tree parks.

The report was left high and dry. The surviving 220 lakes were handed over to the forest department, which looked after them from the 1970s to 2008.

The lakes deteriorated due to lack of funds. They became dumpyards brimming with solid waste, municipal waste, weeds and were severely encroached. In 2008, out of the 200 lakes, 17 lakes were handed over to the BBMP and 12 lakes to BDA to develop. The BBMP started to revive their lakes and have developed a model to involve citizen groups to tend to their lakes after they have completed the technical and engineering aspects of cleaning up the muck and setting the lake back on its feet.

In 2011, Justice NK Patil’s comprehensive report to the Karnataka High Court contained exhaustive information on how Bengaluru’s lakes can be rejuvenated.

Lakes are managed today by Trusts like the MAPSAS and the PNLIT, set up by citizens in the lake neighbourhood. For example, five citizens living near Puttenahalli Lake got together to form the Puttenahalli Neighbourhood Lake Improvement Trust (PNLIT), registered under the Indian Trust Act, 1882. In May 2011, PNLIT signed an MOU with BBMP, assuming responsibility to maintain Puttenahalli Lake, for a period of three years and have subsequently renewed the agreement.

It is crucial for citizen groups to realise that BBMP has a “standard MOU template” and any citizen group wanting to maintain their lakes can enter into this agreement with the Corporation. BBMP provides no financial assistance after they have propped up a lake. The PNLIT, for example, meets their annual expenses of maintaining gardeners, lake cleaners (who go out in a coracle to clean the lake of plastic or any other debris) security guards and manager, through public donations.

A Clarion Call to Bengaluru’s Citizens

B V Satish, Chief Engineer, BBMP Lakes sends out a strongly worded message to local communities to come forward and maintain their lakes. His clarion call reads thus: “Local residents need to own the lake, they are users of the lake and need to take charge. They need to develop the ecology of the lake by nurturing the plants and shrubs suitable for lake biodiversity to flourish. They need to monitor and supervise the lake and alert us about any illegal and untoward activity in the lake.”

He also goes on to add that since Bengaluru cannot depend on the Cauvery water in the future, it has to become self-sustainable. “We need to rejuvenate all these lakes, conserve the water and reuse it. In future, we have to start using this lake water, there is no other alternative for us. We have to start recycling, reusing and refilling the lake water.”

For now, if you want to revive the lake beside your home, you can form a Trust with like-minded individuals in your neighbourhood and submit a letter to the BBMP. An MOU will be signed with them mentioning the duties and responsibilities involved in maintaining the lake. Become a citizen caretaker and assume charge of your lake!

UWBe is also playing a role in galvanising the lake neighborhood community to maintain their lakes. Corporate support is also enlisted to revive the lakes. Employees and volunteers living around the lakes are encouraged to advocate the cause for lake revival within the companies as part of their Corporate Social Responsibility (CSR).

Pertinently, Section VII of the latest Companies Act lists ‘Lake Rejuvenation’ as one of the areas in which CSR funds can be utilized.

Residents need to make their connection back with nature. As Rachel Carson, author of *Silent Spring* said in an interview: “Man’s attitude toward nature is today critically important simply because we have now acquired a fateful power to alter and destroy nature. But, man is a part of nature, and his war against nature is inevitably a war against himself. We are challenged as mankind has never been challenged before to prove our maturity and our mastery, not of nature, but of ourselves.”

Dasarahalli Lake



News coverage of UWBe



We believe in creating sustainable solutions

- The New Indian Express, 1/10/2013

Will Uttarahalli go the Puttenhalli way?

- The New Indian Express, 10/10/2013

Lakes here need life support

- The Hindu, 10/02/2014

Palike, NGO ink pact for reviving more lakes under PPP model

- Deccan Herald, 09/03/2016

Kundalahalli lake to get STP by June

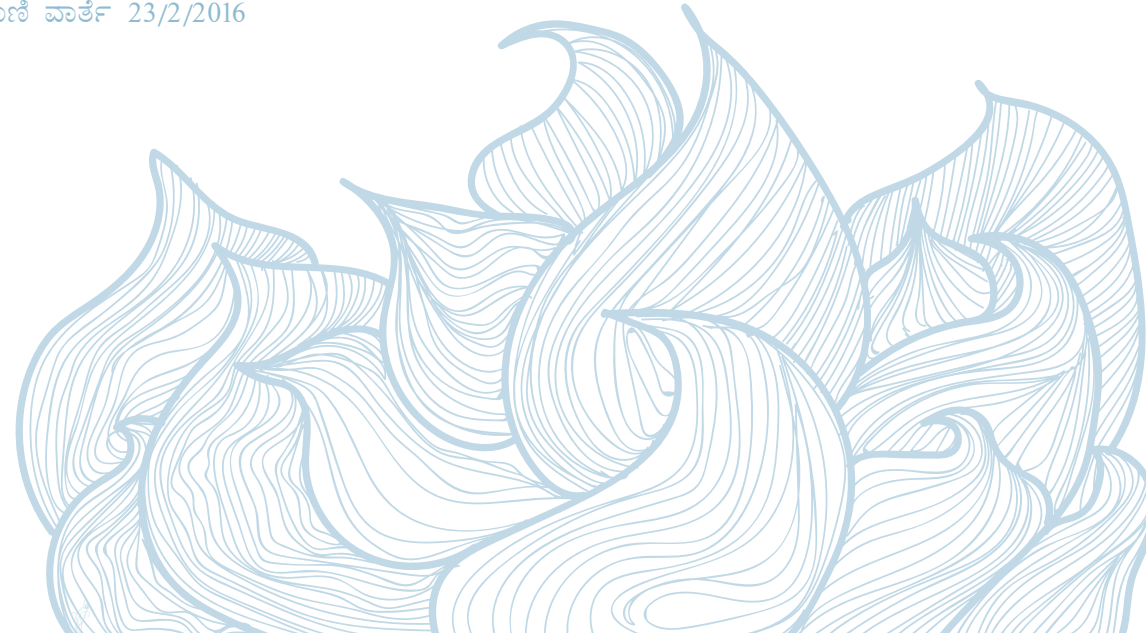
- Deccan Herald, 23/02/2016

Residents, techies join hands to build park

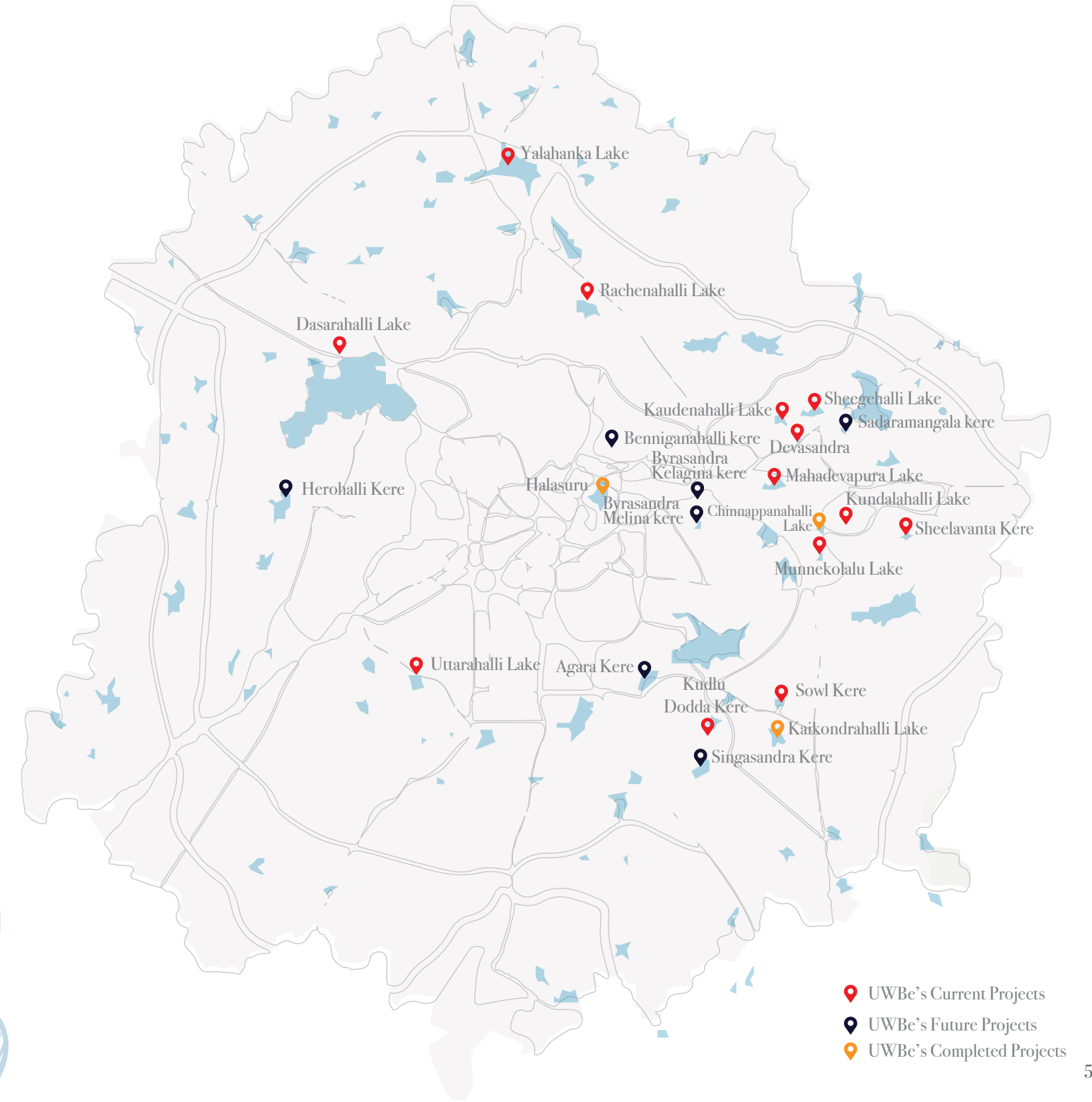
- Bangalore Mirror, 09/03/2014

ಜಲಶುದ್ಧಿಗೆ ಮುಂದಾದ ಸ್ಥಳೀಯರು
ಕೈಜೋಡಿಸಿದ ಉದ್ಯಮಗಳು ♦
ಕುಂದಲಹಳ್ಳಿ ಕೆರೆಗೆ ಸಂಸ್ಕರಣಾ ಘಟಕ

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United intervention in 16 lakes of Bengaluru





Sheelavanta kere

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DISCLAIMER

The opinions and perspectives expressed by the different contributors in this book are entirely their own. United Way of Bengaluru does not necessarily endorse or support their individual viewpoints.



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