Annexure 1

Title page

Topic Name: - Social Awareness of lakes

Submitted by

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In partial fulfillment for the requirements of the award of the degree

Of

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"B. Tech. (computer science and engineering) (Hons)"

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Annexure 2


Dhruvansh
The Diva of Brightness
Certificate
OF PARTICIPATION
Mr. Harsha Kasi
This to certify that the Mr. Harsha Kasi carried out the Project titled Social Awareness of lakes
in the supervision of our organization.

Annexure 3

Contents: -

- Introduction
- Problem Identification
- Objective to be achieved
- Various steps taken to achieve the objectives
- Cause of problem
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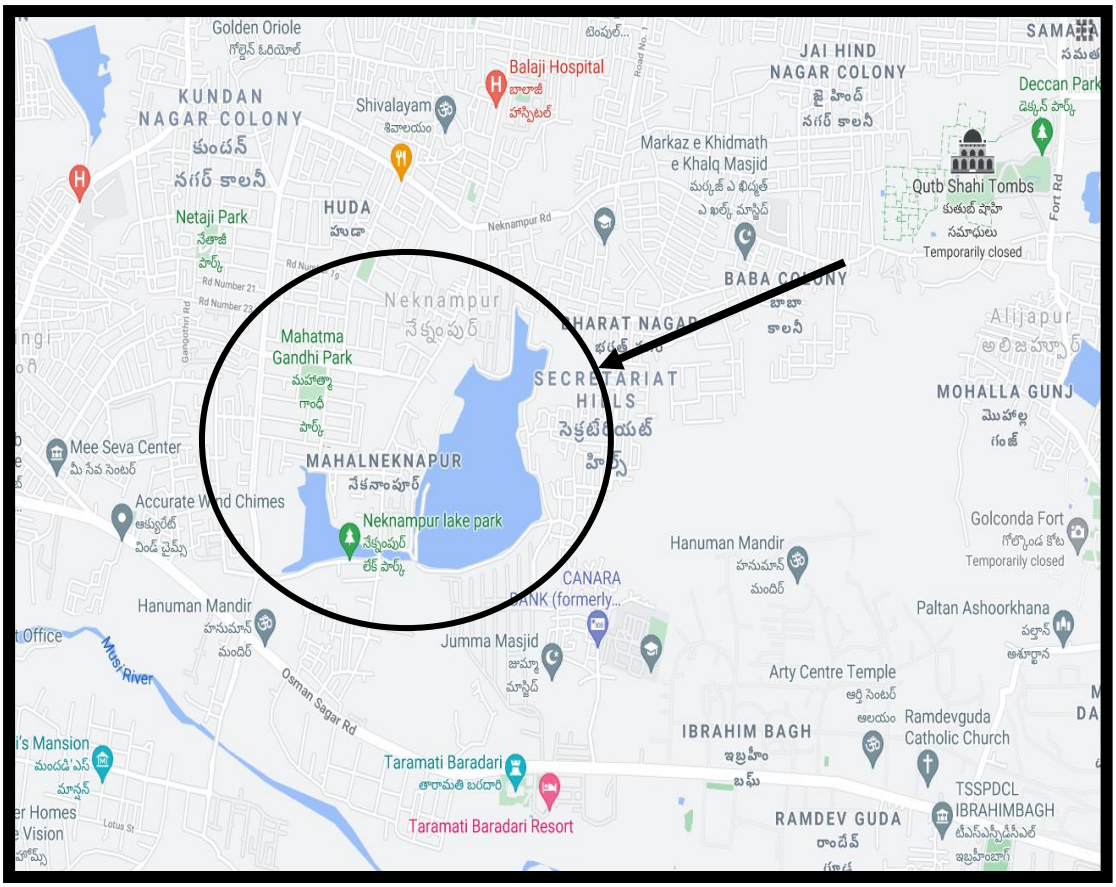
Introduction: -



- Neknampur Lake, in Hyderabad, is a 450-year-old water body and is spread over 108 acres.
- Impact of increase in urbanization has converted this lake into a domestic sewage from the increasing numbers of housing around the lake's edge and weed-choked mixture of chemical pollutants has cropped up the entire lake gradually. It had been often made the headlines for its continued pollution.
- The duo of Dhruvansh NGO, Madhulika and Neeraj Singh started Neknampur restoration programme in June 2016 adopting various cost-effective methodologies to clean the lake.
- The plants clean the lake through hydroponics system, resulting in a cleaner, beautiful lake and an improved habitat for creatures. The latest one to benefit from this treatment method is Neknampur Lake on the outskirts of Hyderabad city.
- This was achieved with supervision and support from the State Irrigation Department, Ranga Reddy District Collector, Hyderabad Metropolitan Development Authority, Telangana State Pollution Control Board, Telangana Fisheries Department and the Telangana State Biodiversity Board.

Neknampur Lake

Problem Identification: -

- Tons of plastic trash entered the Lake every year.
- An additional problem has also been that rubbish were commonly found to be dumped alongside the water's edge, threatening the homes of pythons.
- The water in this lake is full of pollutants and weeds.
- The Oxygen level is decreasing.

- Soil represents a serious threat to humans since they can cause acute toxicity, mutagenesis, carcinogenesis, and teratogenesis for humans and other organisms.
- Lakes often contain high pollution levels relative to the surrounding landscapes and environment.
- All fresh waters contain some human-made compounds, such as pesticides and other industrial and consumer products.
- Fresh waters naturally contain chemicals. The major inorganic elements include calcium, magnesium, sodium, potassium, carbon etc.
- Chemicals resulting from human activities that increase the concentration of specific compounds above natural levels may cause pollution problems.

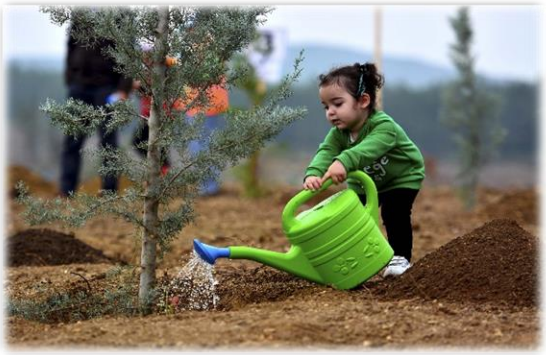
Cause of Problem: -

- The over clearing of shade trees along the shoreline of a lake or stream may also permit sunlight to warm waters above the normal temperature range.
- Chemicals resulting from human activities that increase the concentration of specific compounds above natural levels cause pollution problems.

- Even though acid rain may seem like a natural problem but it is wise to note that acid rains are caused due to acidic particles in contaminated air.

Objective to be achieved: -

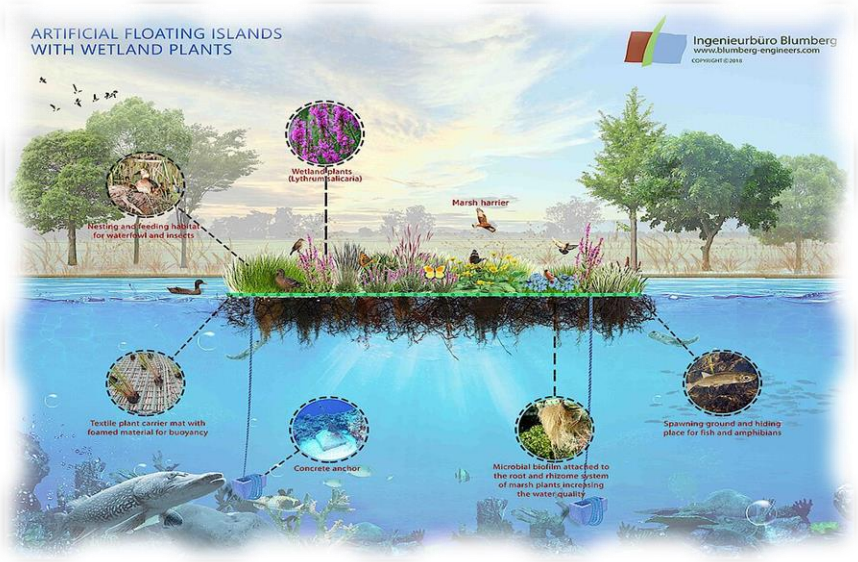
- IMPROVE WATER QUALITY, WASTEWATER TREATMENT AND SAFE REUSE.
- PROTECT AND RESTORE WATER-RELATED ECOSYSTEMS.
- REMOVING PLASTIC WASTE IN THE LAKE.
- END OPEN DEFECATION AND PROVIDE ACCESS TO SANITATION AND HYGIENE.
- To save ecosystem.
- Plant tress at the shore of the lake.



- Use mulch and vegetation to keep soil from washing away.
- Keep chemicals away from storm drains.
- Don’t use the lake as a bathtub. Soaps and shampoos contain nutrients and pollutants that are harmful to the lake and organisms living in it.

Action taken to achieve objective: -

1.) **Floating treatment wetland: -**



- The island is in fact a floating treatment wetland (FTW). Several plants on this FTW play the part of cleaning the lake by absorbing nutrients dissolved in the water, such as excess nitrates and oxygen, thereby reducing the content of these chemicals.
- The FTW, based on the soil-less hydroponics technique, comprises four layers. Floatable bamboo forms its base over which Styrofoam cubicles are placed. The third layer is composed of gunny bags. Gravel forms the final layer.
- Hydroponics permits plants to grow only on sunlight and water. There is no need of soil. There are small holes at the bottom to facilitate the flow of nutrients from the water to the plants which are held upright by the gravel layer.
- “Wetlands can improve improve water quality of storm water runoff and manage watershed nutrients, as well as treatment of wastewater and other industrial contaminants.”

- Floating treatment wetlands (FTWs) or islands are small artificial platforms that allow these aquatic emergent plants to grow in water that is typically too deep for them. Their roots spread through the floating islands and down into the water creating dense columns of roots with lots of surface area.

2.) **Wetland Creation: -**

1.) Wetlands are areas where water covers the soil, or is present either at or near the surface of the soil all year or for varying periods of time.
2.) Restoration is a process that helps to transform an area that has been impacted by human or natural activity to an area that can sustain native habitats.
3.) This can be done only on a site where conditions exist that can produce and sustain a wetland. Consequently, creation is more difficult than restoration. A term commonly associated with wetland creation is "constructed." A constructed wetland is a wetland created specifically for the purpose of treating wastewater, stormwater, acid mine drainage, or agricultural runoff.
4.) Wetland restoration rehabilitates a degraded wetland or re-establishes a wetland that has been destroyed.
5.) Restoration takes place on land that has been, or still is, a wetland. A term commonly associated with restoration is "enhanced."

6.) An enhanced wetland is an existing wetland that has been altered to improve a particular function, usually at the expense of other functions.
7.) For example, enhancing a site to increase its use by a particular species of bird commonly limits its use as habitat for other species.
8.) As the population has expanded across the Nation during the past few centuries, wetlands have been drained and altered to accommodate human needs.
9.) These changes to wetlands have directly, or indirectly, brought about changes in the migratory patterns of birds, local climate, and the makeup of plant and animal populations.
10.) Wetland restoration can serve to reduce coastal flooding and erosion. It has also additional benefits like provide new habitats or improve the landscape for recreational purposes. Wetland restoration relates to the rehabilitation of previously existing wetland functions from a more impaired to a less impaired or unimpaired state of overall function.

3.) <u>Organic Composting: -</u>

- Composting is the natural process of recycling organic matter, such as leaves and food scraps, into a valuable fertilizer that can enrich soil and plants.
- Anything that grows decomposes eventually; composting simply speeds up the process by providing an ideal environment for bacteria, fungi, and other decomposing organisms (such as worms, sowbugs, and nematodes) to do their work.
- The resulting decomposed matter, which often ends up looking like fertile garden soil, is called compost. Fondly referred to by farmers as “black gold,” compost is rich in nutrients and can be used for gardening, horticulture, and agriculture.
- Organic discards can be processed in industrial-scale composting facilities, in smaller-scale community composting systems, and in anaerobic digesters, among other options.
- This focuses primarily on home composting, which is a great way to keep your organic discards out of the waste stream and produce a valuable soil amendment for your own use.

Conclusion: -

1. our environment is an interconnected network of species that rely on each other for various services. So we have to clean lakes
2. Educate and mobilize citizens to demand action from governments to control and diminish plastic pollution.
3. So don't throw trash into lakes.
4. And plant trees around the lake.
5. Reduce or eliminate use of fertilizers and chemical herbicides and pesticides.
6. Rain gardens are special gardens placed in low-lying areas that typically receive a lot of runoff during storms. Planted with native species that can handle wet soil, these gardens help reduce flooding and erosion and filter runoff.
7. Living shorelines prevent erosion, allow wildlife access, and beautify your waterfront.
8. Conduct any programs like Yoga so that people will come there and participate there it would be great platform to create social awareness.
9. Don't use the lake as a bathtub. Soaps and shampoos contain nutrients and pollutants that are harmful to the lake and organisms living in it.

Thank you