

August 11' 2019

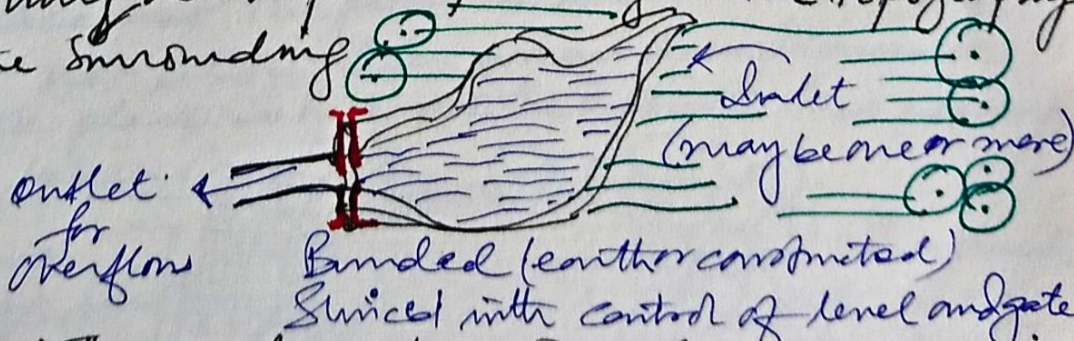
Ahmedabad.

Page 1. URBAN LAKE - NOTES.

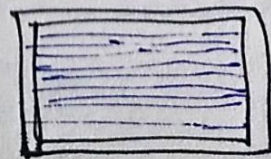
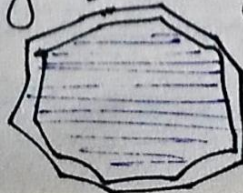
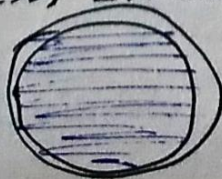
Sometimes people ask me for a 2-Minutes (Noodle-like) Solutions for Lake problems. While I'm visiting a Ramayam for understanding and addressing Lake Problems, I do realize the people's request as they are facing problems and are wishing to do something about it. So Here it is, a 2-Minutes Basics of Lake ABCD with focus on Physical

I. A Lake is a Heritage handed over by our ancestors and it is our responsibility to maintain it and hand over to the future generation. Note that we have not made any lakes in the Independent India. That brings to the point II.

II. Yes, most lakes in India are humanly-constructed structures built for rainwater harvesting. Yet, that was done meticulously and with Science and Conscience. So every Lake has a unique shape depending on the topography of the surrounding.



So in the modern Lake Development, rounding the lakes with pitching and a geometrical shape is something making it similar to Pond.



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Restoring a Lake require Common Science and Conscience not
Rocket Science. © Dr. Mansee Bal Bhargava.

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The difference between these shapes constructed in the past & today is the Lake Envoirs.

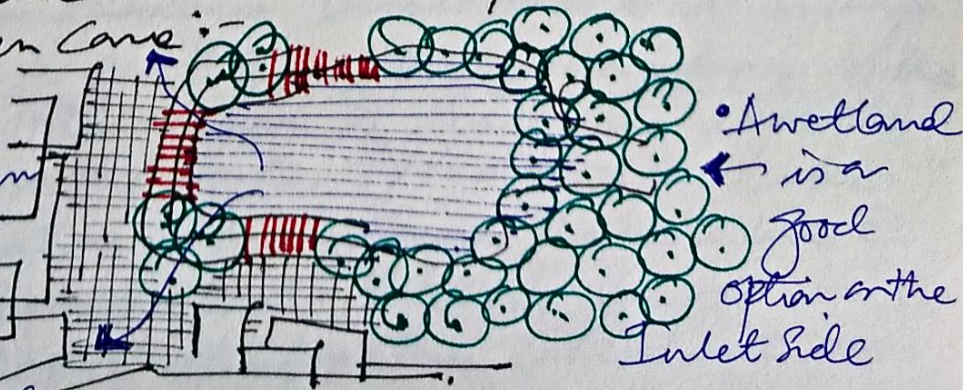
III. A Lake physically is a piece of land covered with water. The condition of the water is determinant of what is in the Lake Envoirs and in the underground. A Lake Envoirs offer the surface water input to the lake and it comprised of four main components from hydrological aspect:-

1. Lake Bed / water Body.
2. Shoreline Buffer.
3. Shoreland Protection Area.
4. Watershed or catchment Area.

There is not much we can do on the 4. point in the Urban Lakes as that part is planned in the city planning. Now let us look at the points 1-3 with a case of Kankaria which also took it account the point 4 when constructed but not later when urban development took place. So here are the 3 points that needs to be taken care:-

- Ensure Outlet/s from the Lake.
- Uniform Design all around

the waterbody is not required.



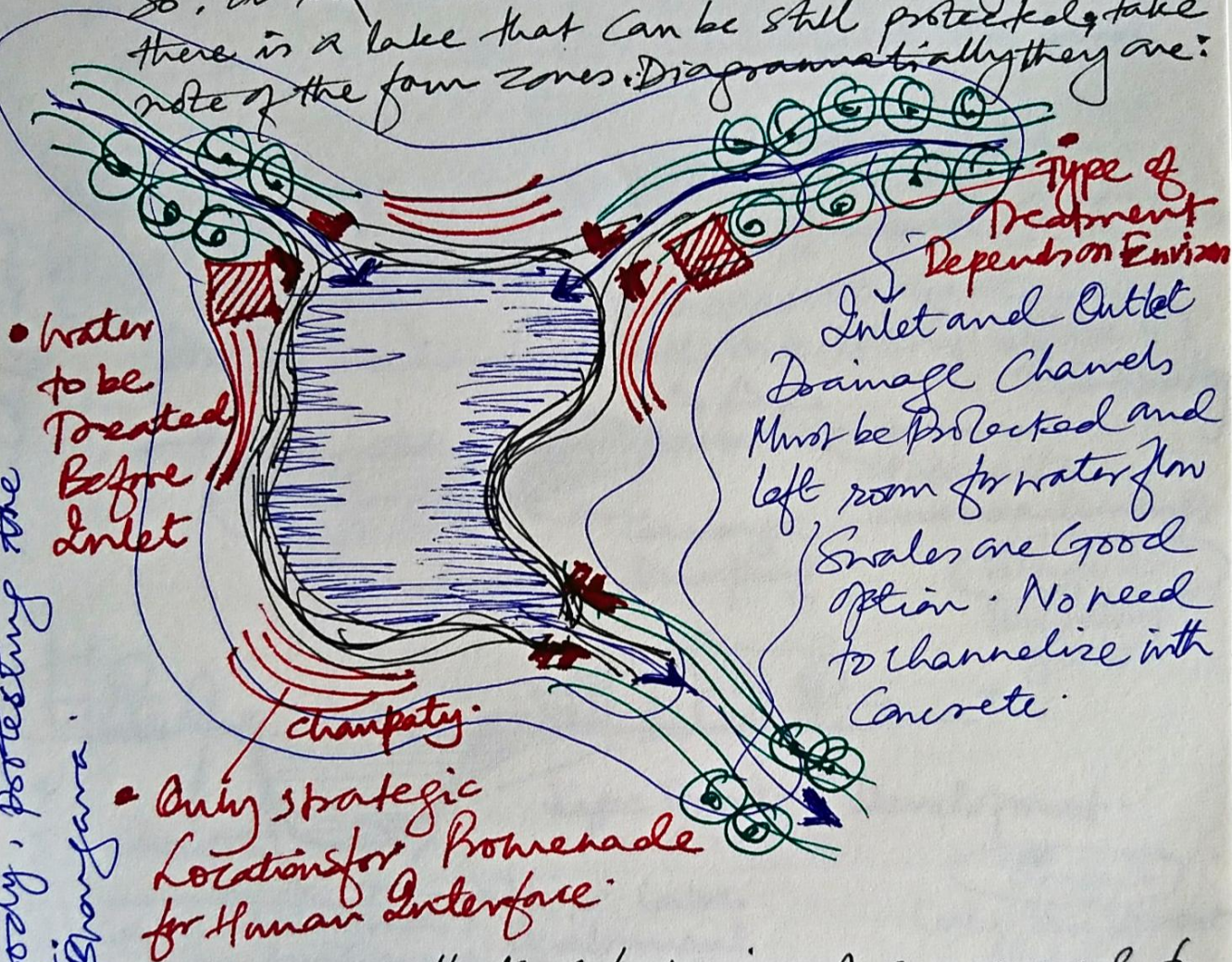
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Lake Development should not be led by Constriction and
Concretisation, instead Conservation and Care for biodiversity.

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So, a lake must be located in locality. So if there is a lake that can be still protected, take note of the four zones. Diagrammatically they are:

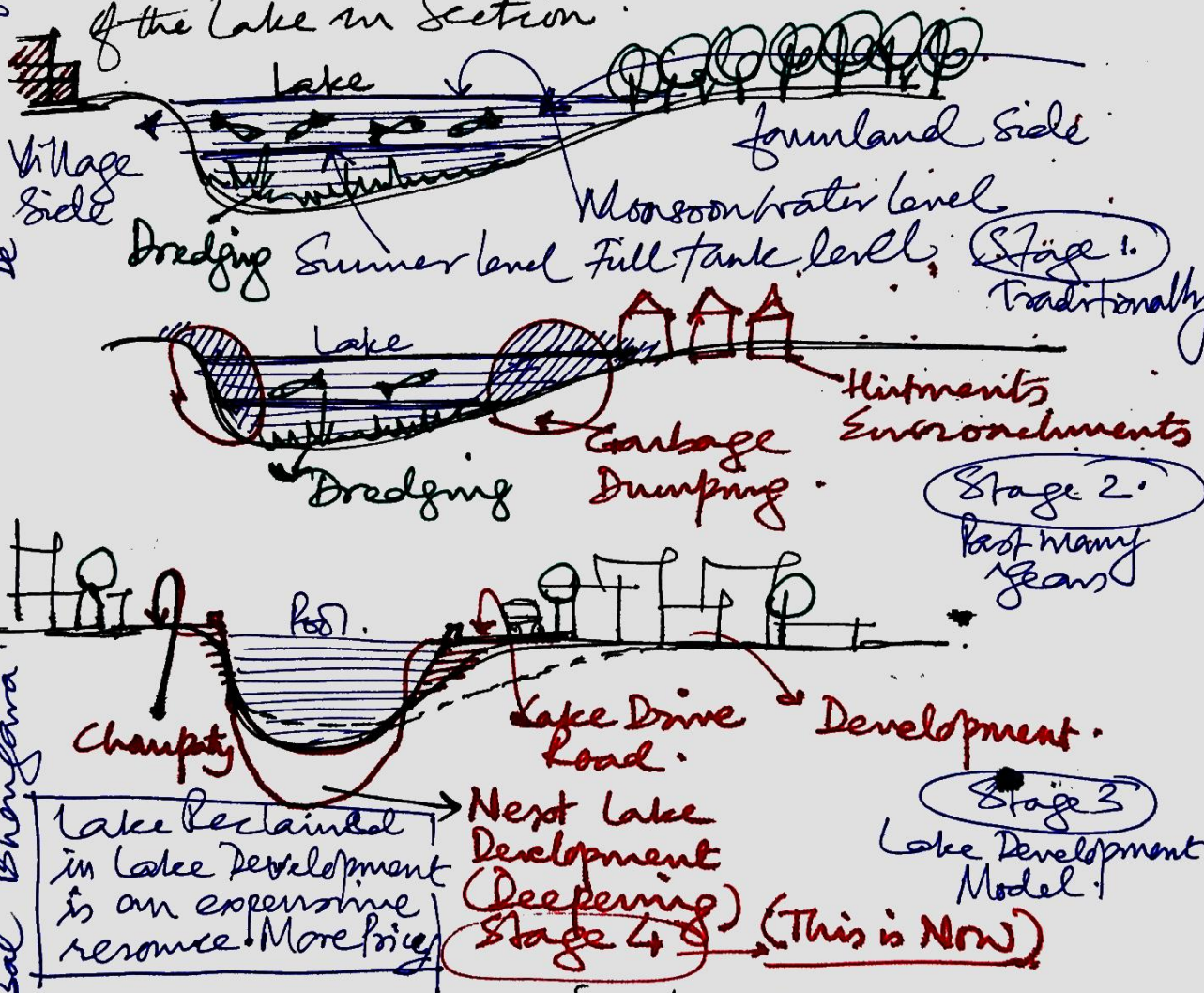


To protect a water body, protecting the water system is must. Dr. Mansee Bal Bhargava.

IV. To ensure that a lake is not succumbed to Uniform Shoreline Development, it is important to get hold of the Delineation of the Lake. Delineation of the in the past was based on the water spread on the Lake. Delineation is the official Revenue line of Lake Designated. Better to get the Old Map or 7/12 from the Collectorate or Revenue Department. In the New Developments the Lake Delineation includes the Lake Development, not in the past. Contd.

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IV The Delineation of the lake is a Political Process now. So let us understand the level of the Lake in Section.



lake is not all about land. It should be about life.

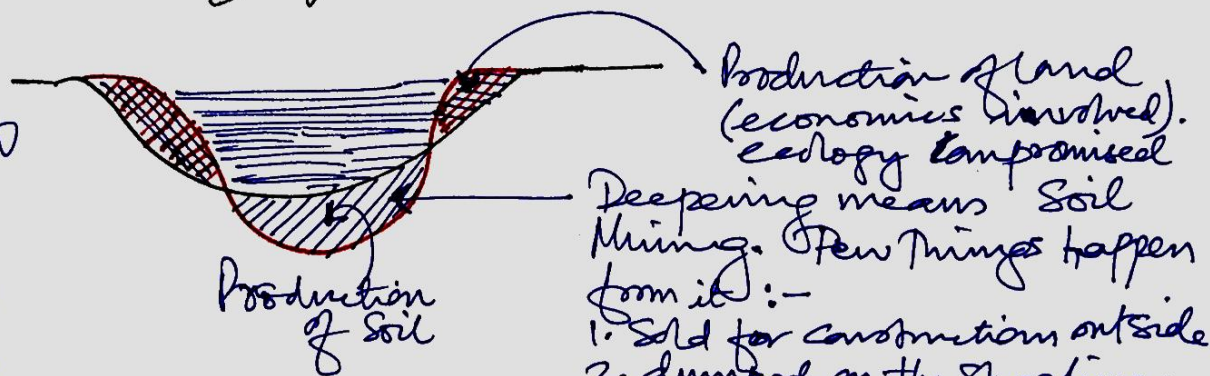
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We need to stop making Lake Drive Road and Champaty all around the lake. Only few sides of the Lake shore must be made public Access. In all cases, it is necessary that the Inlet and outlet Drainage Channels are kept cleaned and greened to act as water sponge. Making them pucca canals is not the answer. Moreover considering all sides of the Lake as same is wrong.

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V. For any action on Lake, Deepening must be avoided. Instead Dredging/Desilting must be undertaken. Now, let us understand why. First, a Lake is a piece of land, with water that contains a living ecosystem in the form of aquatic life (fish and plants). The ecosystem in shallow water body of the lake is what it had for years. That needs to be restored.



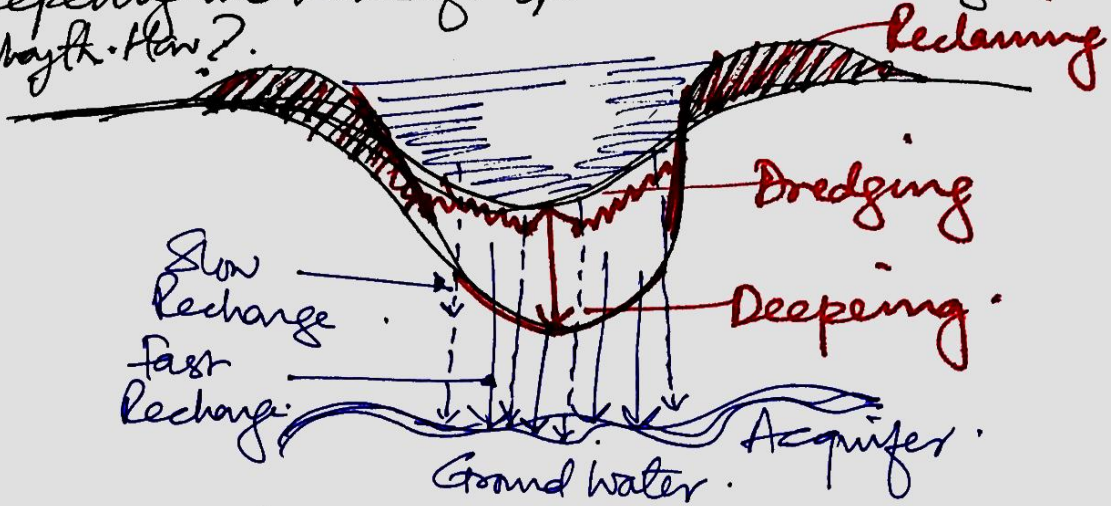
- Deepening means Soil Mining. Few things happen from it :-
1. Sold for construction outside
 2. dumped on the shoreline.
 3. Island construction.

The entire effort in lake development has unfortunately been on production of land and ensuring the water and the process missed/compromised the ecosystem of the lake. i.e. life of lake. For Lake conservation and sustenance it is necessary that the ecosystem is ensured. The life underneath the water is dependent on the depth and soil available. So deepening the lake loses the rich soil that nourishes the ecosystem. Instead Dredging the lake for only few centimeters depending on the soil type is advisable. Moreover, Deepening the Lake for Ground Water Recharge is a Myth and that is explained in the Next Part. Contd.

Planning on/around lakes should be thought around soil, water, biodiversity, air and climate change.
Dr. Mansee Bal Bhargava

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Deepening the Lake for Groundwater Recharge is a Myth. How?

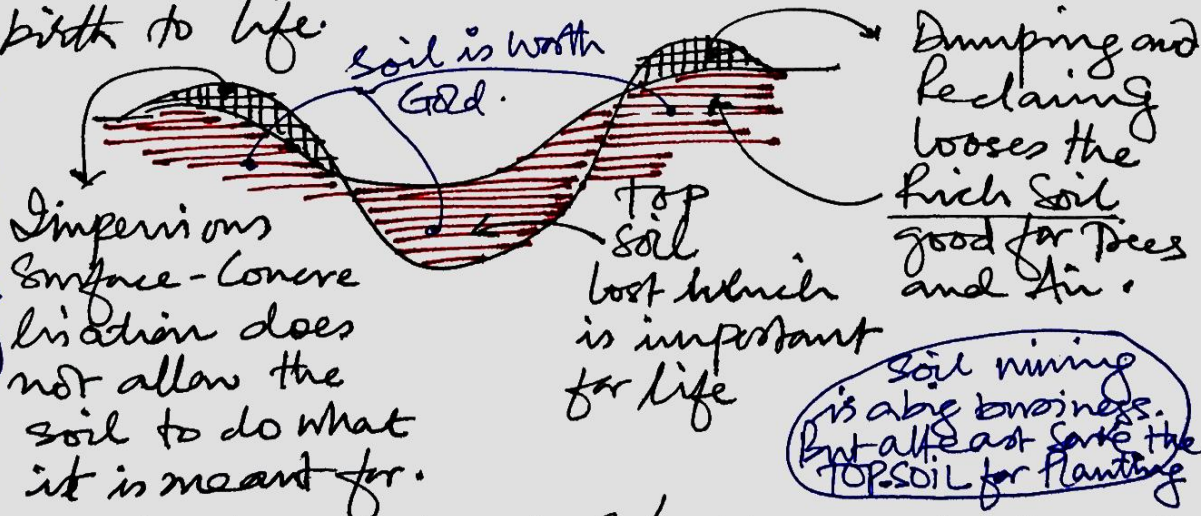


By deepening the ground water recharge indeed happens faster. But we need to understand two things here. First, the faster recharge of the aquifer means more ground water extraction in the non-emergency period as there is rush to development. The slow recharge lets the water percolate with its own time not only recharging the ground water but also the soil. The ground water is also purified in the process. Deepening for recharge is just like Industries are injecting waste water into the ground water, only the type of water is different. So, we not only miss the natural purification of the water before it reaches the ground aquifer, we also miss water retention in the lake, resulting in loss of aquatic life in the lake. Therefore, we see lakes getting dried up quickly meaning lake is not even a lake then. Contd.

Lake dries only by Surface water and Groundwater. SW must reach Lake and GW must recharge the life underneath lake.
Dr. Manseel Bhargava.

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VII. Ironically, in the Rush to Lake Development, Lake Conservation is Missed out. Note, that lake conservation can support lake development but it is not necessary that lake development does the same. More Ironica is that the very Land that is at the centre of all the Lake development is Misunderstood. Okay we don't understand ecosystems, but atleast understand the land that is so dear to us. Land exploitation has to stop through the Soil Misuse. Land is also like water made up of soil and life that gives birth to life.



VIII. the Lake water shed/catchment is where the life of lake lies. The least we can do is: ① Save the drainage channels. Leave them soft ② install rain water harvesting in every building. ③ leave as much area as possible soft area in the plots ④ Reuse the kitchen waste water for horticulture and let the water naturally percolate.

→ To be continued More soon

Lake Economy does not necessarily revive Lake Ecology but
Lake Ecology does revive Lake Economy.
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