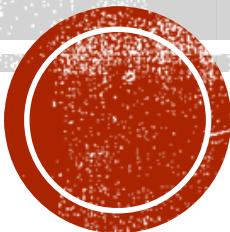
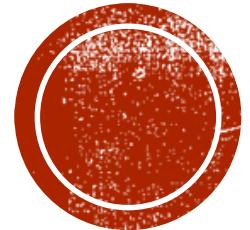


# **ARTHALA LAKE DEGRADATION**





# PRESENTATION BY:

**Manvi Chawla (17104041)**

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**Adhar Agrawal (17104068)**

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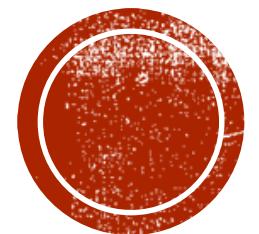
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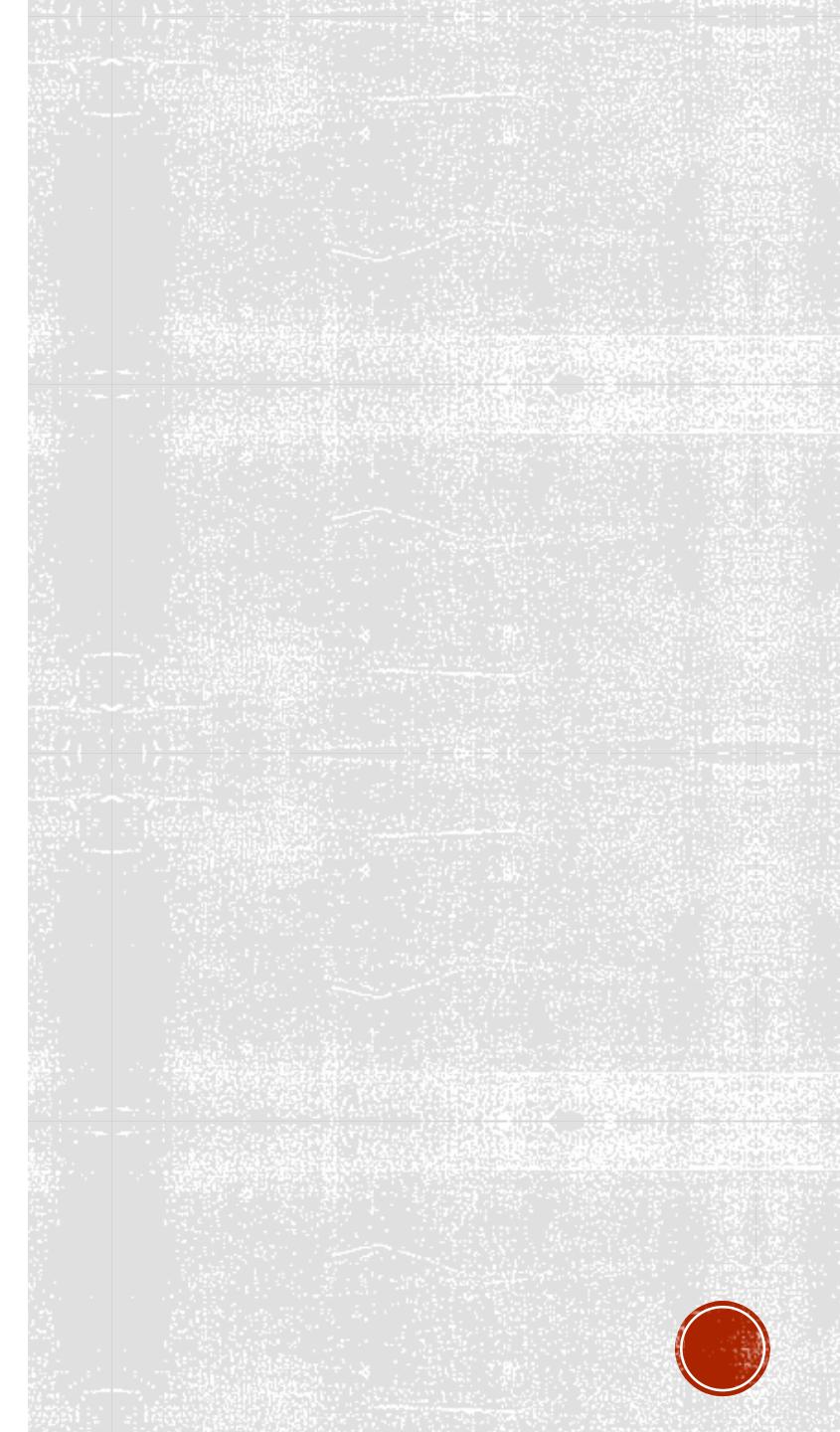


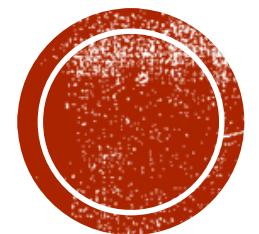
# OBJECTIVES



## **THE MAIN OBJECTIVES OF OUR PROJECT INCLUDE-**

- EMPHASIS ON CONTRIBUTION OF LAKES TO OUR ECO-SYSTEM.**
- MAKING PEOPLE AWARE ABOUT THE GROWING DEGRADATION OF LAKES IN OUR COUNTRY.**
- STUDY OF CONSERVATION, RESTORATION AND MANAGEMENT OF LAKES.**





# INTRODUCTION



**ESSENTIAL FOR HUMAN HABITAT**

**HOME TO BIRDS, FLORA & FAUNA**

**USEFUL IN RECHARGING GROUND  
WATER**

**VITAL PART OF THE FRESH WATER  
ECO-SYSTEM**

**FLOOD CONTROL AND STORM  
PROTECTION**

# **USES OF LAKES**



# **CAUSES FOR LAKE DEGRADATION**

**INADEQUATE RAINFALL**

**INDUSTRIAL WASTES**

**UNPLANNED URBANIZATION**

**DIGGING OF BOREWELLS**

**SOME OTHER CAUSES INCLUDE...**



Untreated  
sewage being  
poured into  
the lakes:



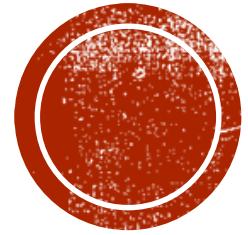
# Washing of clothes on the lake shore:



**Buffaloes  
wading  
into the  
lake:**



fine art  
america



# CURRENT SCENARIO OF WETLANDS IN INDIA



# **WETLANDS ARE NOT WASTELANDS!!!**

Wetlands are defined as areas of land that is either temporarily or permanently covered by water. It recycles nutrients, purifies and provides drinking water, reduces flooding, recharges groundwater, provides fodder and fuel, facilitates aqua-culture, provides a habitat for wildlife, buffers the shoreline against erosion and offers avenues for recreation.



Wetlands across the country, however are threatened by reclamation by draining and filling, besides pollution, and are exploited for their natural resources, leading to the loss of biodiversity.

The situation is dire, according to environment ministry. Research suggests that one-third of Indian wetlands have already been wiped out or severely degraded.



# RAMSAR CONVENTION

India is a signatory to the Ramsar Convention (February 1982), an international treaty for the conservation and sustainable use of wetlands. The country has only 26 sites (see table) designated as wetlands of international importance, with a surface area of 689,131 hectares, whereas a much smaller country like the UK has 169 Ramsar sites.

Even these 26 sites are plagued by uncontrolled development and illegal encroachment. They include all of India's largest and well-known lakes—Wular in Kashmir (fresh water), Sambhar in Rajasthan (salt) to Chilka in Orissa (brackish)—each one of them rapidly shrinking.



# WETLANDS IN INDIA THAT COME UNDER THE RAMSAR CONVENTION

No.	Name	Date of declaration	State	Area (in ha)	Co-ordinates
1	Ashtamudi Wetland	19 Aug 2002	Kerala	61,400	08°57'N 076°35'E
2	Bhitarkanika Mangroves	19 Aug 2002	Orissa	65,000	20°39'N 086°54'E
3	Bhoj Wetland	19 Aug 2002	Madhya Pradesh	3,201	23°14'N 077°20'E
4	Chandertal Wetland	08 Nov 2005	Himachal Pradesh	49	32°29'N 077°36'E
5	Chilika Lake	01 Oct 1981	Orissa	116,500	19°42'N 085°21'E
6	Deepor Beel	19 Aug 2002	Assam	4,000	26°08'N 091°39'E
7	East Calcutta Wetlands	19 Aug 2002	West Bengal	12,500	22°27'N 088°27'E
8	Harike Lake	23 Mar 1990	Punjab	4,100	31°13'N 075°12'E
9	Hokera Wetland	08 Nov 2005	Jammu & Kashmir	1,375	34°05'N 074°42'E
10	Kanjli	22 Jan 2002	Punjab	183	31°25'N 075°22'E
11	Keoladeo National Park	01 Oct 1981	Rajasthan	2,873	27°13'N 077°32'E
12	Kolleru Lake	19 Aug 2002	Andhra Pradesh	90,100	16°37'N 081°12'E
13	Loktak Lake	23 Mar 1990	Manipur	26,600	24°26'N 093°49'E
14	Nalsarovar Bird Sanctuary	24 Sep 2012	Gujarat	12,000	22°46'33"N 072°02'21"E
15	Point Calimere Wildlife and Bird Sanctuary	19 Aug 2002	Tamil Nadu	38,500	10°19'N 079°38'E
16	Pong Dam Lake	19 Aug 2002	Himachal Pradesh	15,662	32°01'N 076°05'E
17	Renuka Wetland	08 Nov 2005	Himachal Pradesh	20	31°37'N 077°27'E
18	Ropar	22 Jan 2002	Punjab	1,365	31°01'N 076°30'E
19	Rudrasagar Lake	08 Nov 2005	Tripura	240	23°29'N 090°01'E
20	Sambhar Lake	23 Mar 1990	Rajasthan	24,000	27°00'N 075°00'E
21	Sasthamkotta Lake	19 Aug 2002	Kerala	373	09°02'N 076°37'E
22	Surinsar-Mansar Lakes	08 Nov 2005	Jammu & Kashmir	350	32°45'N 075°12'E
23	Tsomoriri	19 Aug 2002	Jammu & Kashmir	12,000	32°54'N 078°18'E
24	Upper Ganga River (Brijghat to Narora Stretch)	08 Nov 2005	Uttar Pradesh	26,590	28°33'N 078°12'E
25	Vembanad-Kol Wetland	19 Aug 2002	Kerala	151,250	09°50'N 076°45'E
26	Wular Lake	23 Mar 1990	Jammu & Kashmir	18,900	34°16'N 074°33'E

# PULICAT LAKE

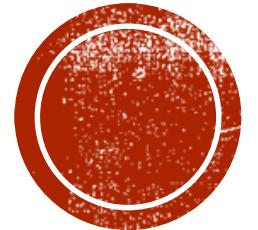
Pulicat Lake, India's second largest lagoon bordering Andhra Pradesh and Tamil Nadu, is threatened by the Dugarajapatnam port project, which has already acquired 2000 acres of its area.



# KOLLERU LAKE

Kolleru Lake, the second biggest freshwater lake located in Andhra Pradesh, faces massive anthropogenic pressure. Almost 90% of the lake bed has been covered by fish tanks that have turned into a drain.





# ARTHALA LAKE





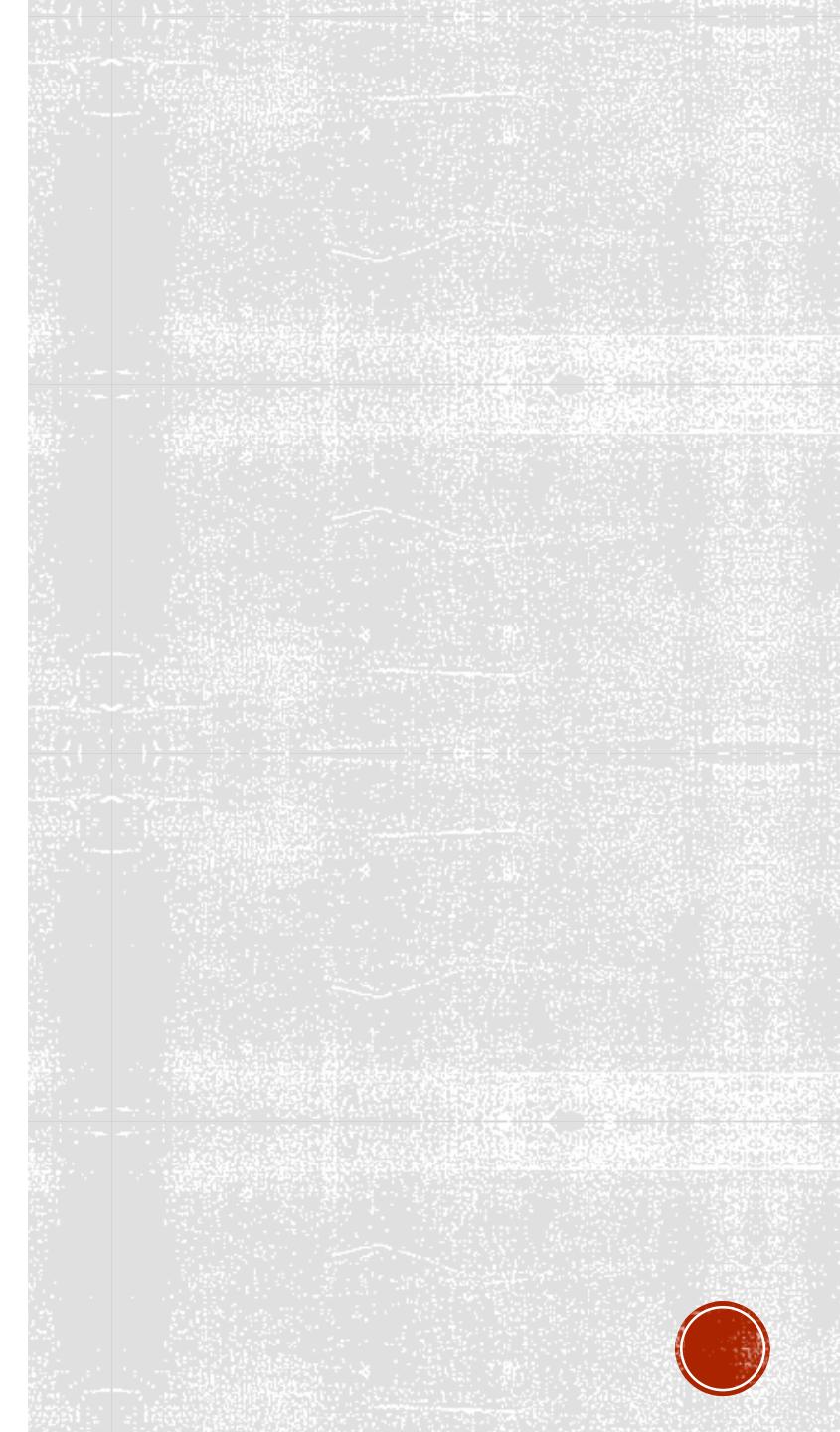
This is the Arthala Lake (locally known as the Boating lake) located in Ghaziabad, Uttar Pradesh.

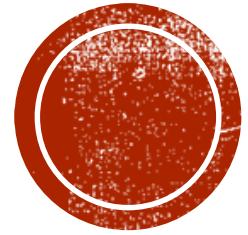


**Arthala lake is one of the main water bodies in the Ghaziabad district and lies in close proximity to the Hindon. It is also one of the major ground water recharging sources in the district.**

**Earlier the Arthala Lake was spread over 50 acres (203662 sq. metres).**

**Now the Arthala lake has been reduced to 35000 sq. metres which translates to only 8.6 acres.**





# **REASONS FOR ARTHALA LAKE DEGRADATION**



# **DUMPING OF GARBAGE**

**Massive dumping of solid and biomedical wastes, disposal of sewage from the unauthorized, illegal colonies situated in Arthala village in Pargana Loni serve as one of the major reasons for the lake degradation.**



# **EXCESSIVE WEED GROWTH**

Excessive growth of weed can have a detrimental effect on a body of water and its inhabitants.

Some of the problems caused by aquatic weeds are as follows:

- Interfere with or prohibit recreational activities such as swimming, fishing, and boating.
- Detract from the aesthetic appeal of a body of water.
- Stunt or interfere with a balanced fish population.



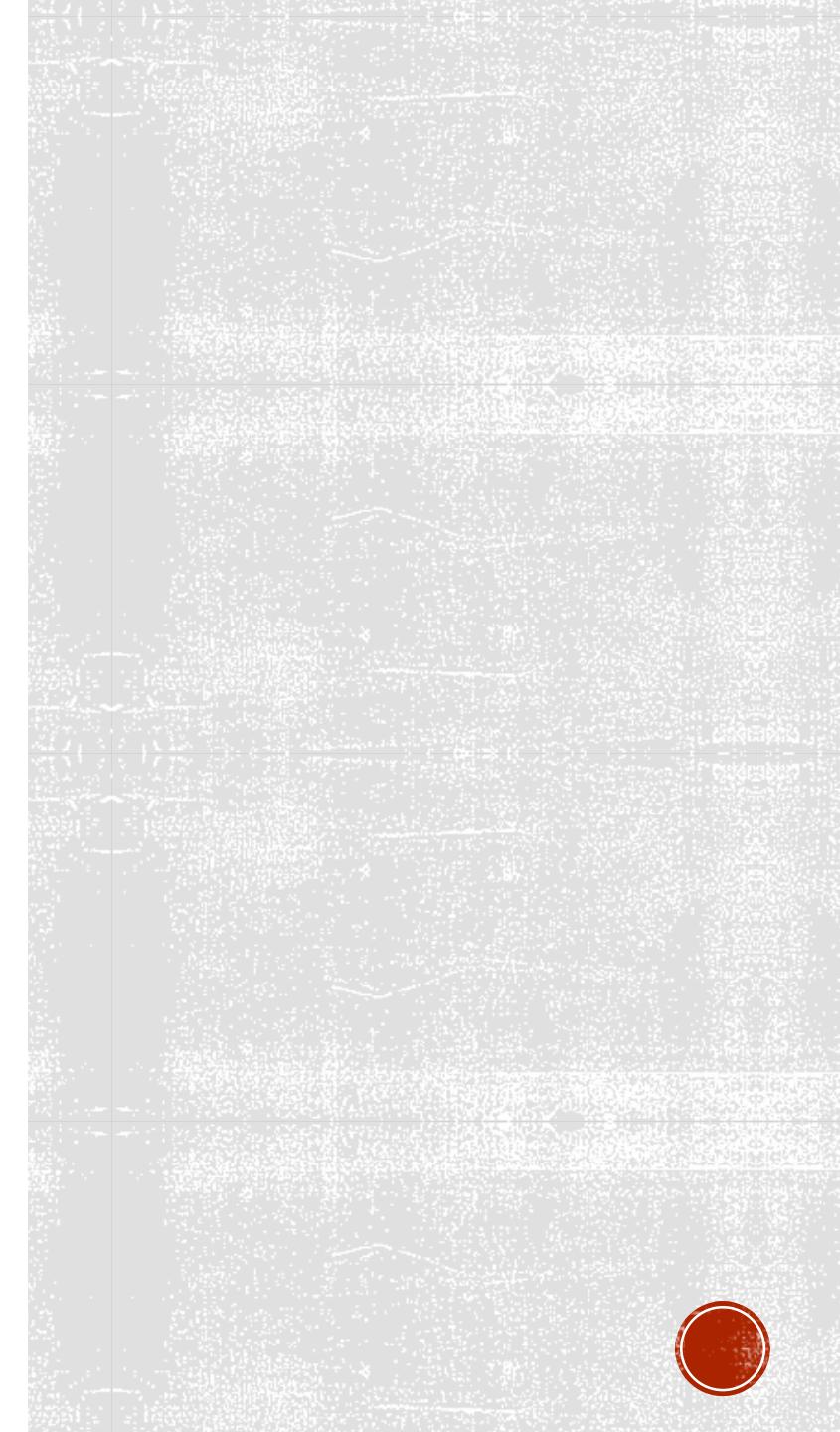
# **UNPLANNED URBANISATION & ENCROACHMENT**

**Encroachment-**  
A gradual advance  
beyond usual or  
acceptable limits.



Encroachments have, over the years, shrunk the water body, and large parts are full of filth. Encroachments along with the illegal and unauthorized constructions on and around the lake have, over the years, reduced the area of the lake, which was originally 2,03,662 sq. meters. Around 1,60,000 sq. meters of the lake has been encroached.

The encroachments around Arthala lake are estimated to be housing at least 7000 residents. Locals residing in the vicinity dump solid waste in the swampy areas near the water bodies.



# **INDUSTRIAL WASTE**

Massive industrial discharge in the form of effluents into the lake from factories and hospitals in the vicinity has contributed vastly into the degradation of the lake.

Effluents discharged from Mohan Meakin Ltd is causing groundwater contamination, further decimating the very lake which has shrunk to almost a fourth of its original size.



# ILLEGAL CONSTRUCTION

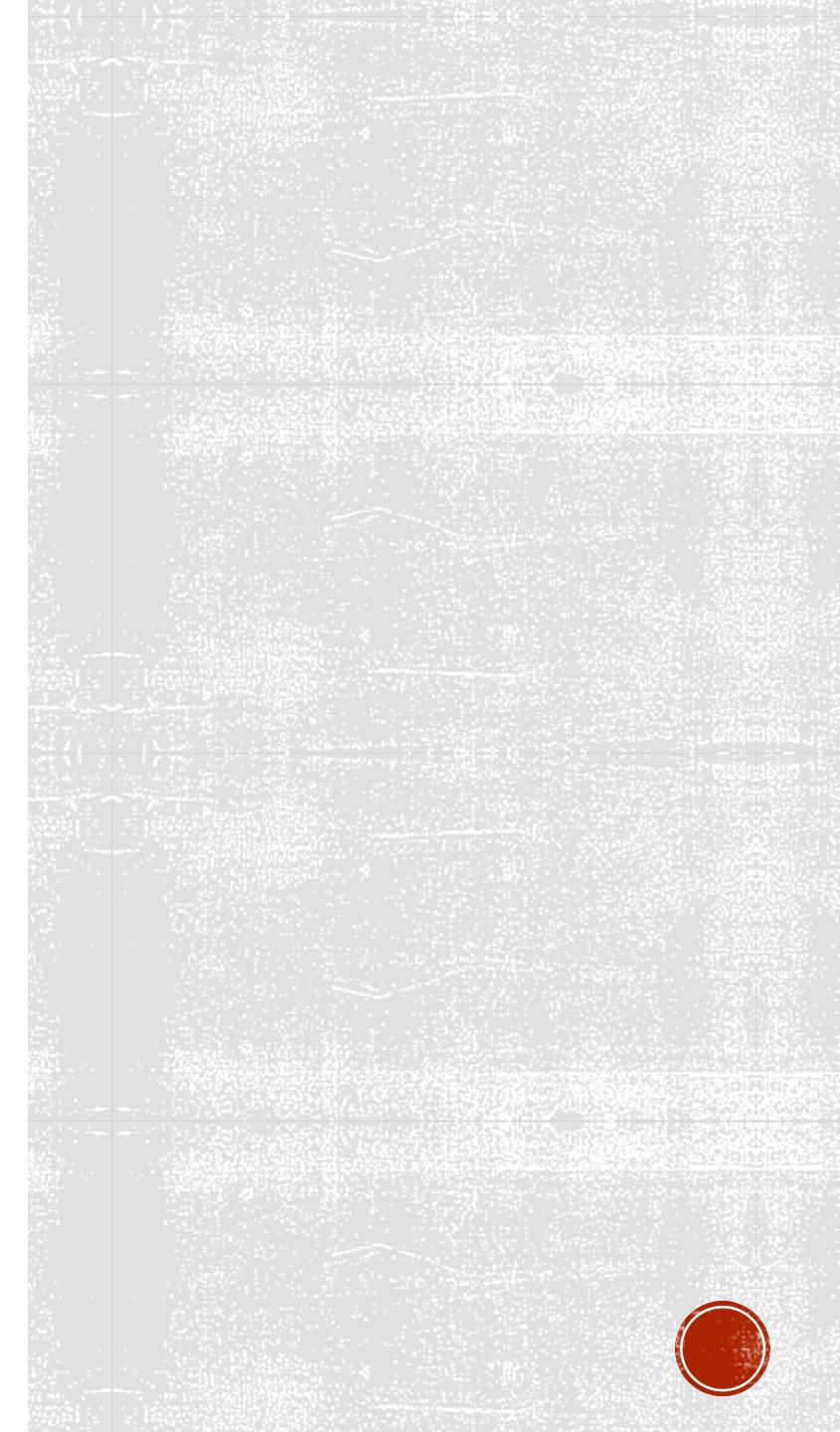
Owing to an act of illegal construction, Arthala lake gave way to a banquet hall and its original size was substantially reduced by influential politicians who took over the area.

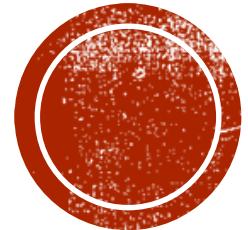
The Arthala lake which was spread over 50 acres earlier has been reduced to 35000 sq. metres. The rest was filled with solid waste on which an Indira Priyadarshini Park was developed and leased to influential politicians at throwaway prices.

The lease holders converted the park to a banquet hall and reduced the original lake to the size of a pond, with mud and dirt flowing from neighbouring residential localities. Four restaurants too came up in violation of rules.



Ghaziabad Development Authority instead of taking action against violators, has constructed an underpass on Khasra no. 1446 of the lake and more than 10 pillars have been erected on the elevated road of 18 km without environment clearance from the State Level Environment Impact Assessment Authority on the land of lake, violating Wetland(Conservation and Management) Rules 2010 and section 132 of U.P Zamindari Abolition and Land Reforms Act 1950.





# STEPS TAKEN



# **NGO- SPEnBIO**

**AUGUST 24,2017**

When the authorities failed to take any action on residents' complaints about a hospital and a distillery discharging untreated waste in Arthala Lake, the city based NGO- SPEnBIO approached the green tribunal seeking removal of all illegal constructions and encroachments on Arthala lake and restoration of the lake to its natural form.

"The encroachments, illegal constructions and unauthorised occupation on Arthala lake are resulting in environmental degradation and causing hazard to public health." the NGO submitted.

"The industrial effluents, sewage and solid, biomedical wastes flowing directly into the lake, are contaminating the entire ground water table of the region and is adversely affecting the health of the thousands of people residing in nearby residential colonies and is a violation of the Environment Protection Act, 1986 and Water (Prevention and Control of Pollution) Act 1974," head of the NGO said.



# NGT

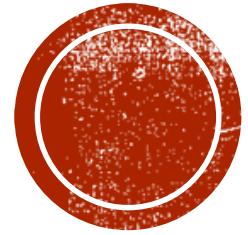
After a year long litigation started by the Society for Protection of Environment and Biodiversity (SPEnBIO), the NGT passed an order on the matter directing the authorities in the city, including the Ghaziabad Development Authority, to take action against the polluting parties, and restore the lake's natural disposition.



## AUGUST 7, 2018:

The National Green Tribunal directed the district administration to remove all encroachments from near Arthala lake. The tribunal's principal bench in Delhi, headed by judicial member Justice Raghuvendra Singh Rathod and comprising expert Dr S S Garbyal has given the authorities three months' time to comply with its order. The NGT order implies a recovery of the lake's catchment area which would entail removal of illegal houses and factories in the vicinity.

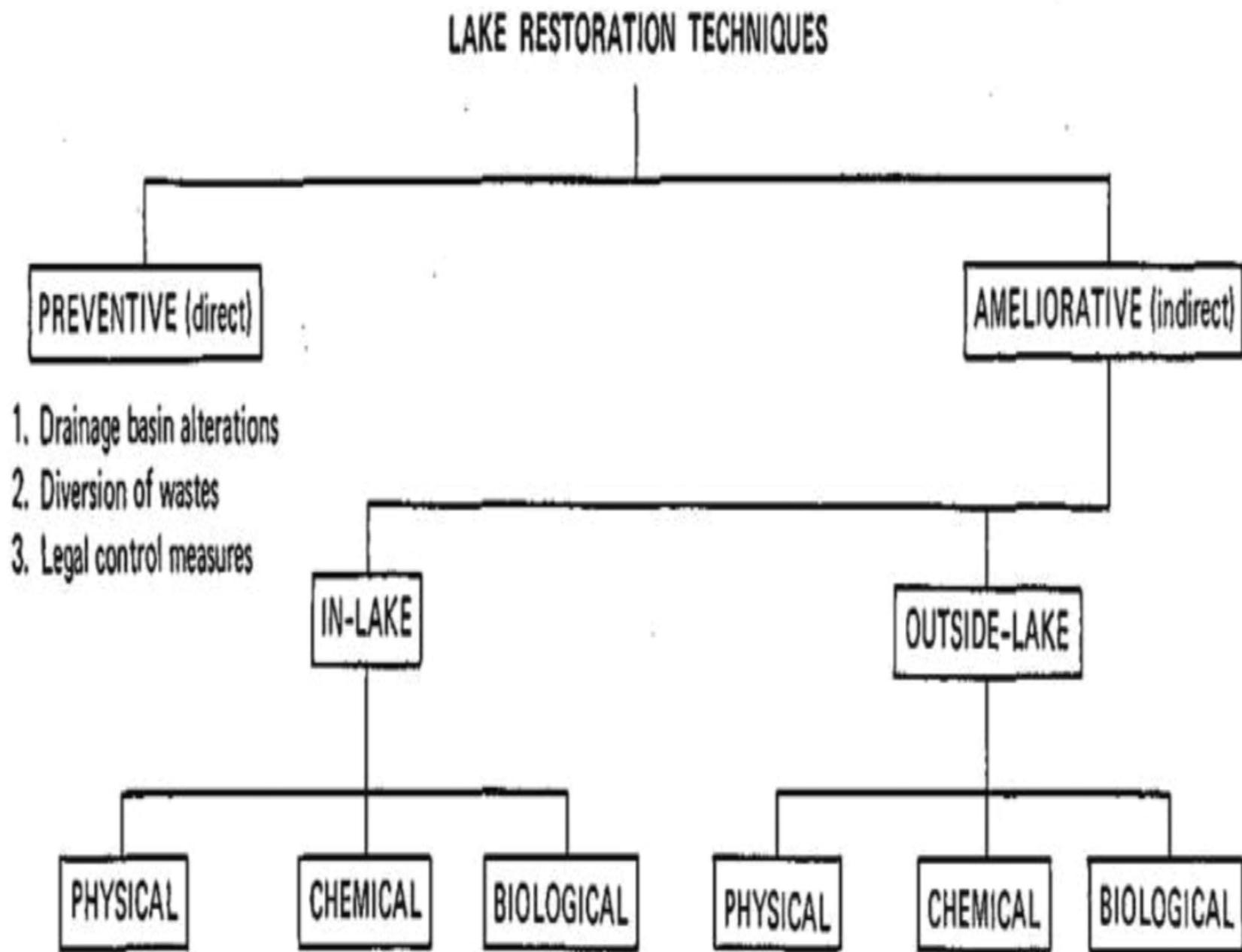




# LAKE CONSERVATION AND RESTORATION



# LAKE RESTORATION



# IN LAKE RESTORATION TECHNIQUES

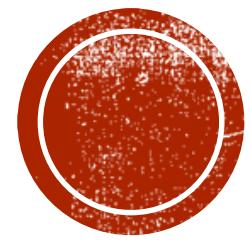
METHOD	ADVANTAGES	DISADVANTAGES
DILUTION	WASHES OUT SURFACE ALGAE	REQUIRES LARGE VOLUME OF WATER
ARTIFICIAL CIRCULATION	PROVIDES AERATION AND OXYGENATION	DOES NOT DECREASE ALGAE BIOMASS
DREDGING	CONTROLS AQUATIC VEGETATION	HIGH COST



# AQUATIC PLANT CONTROL TECHNIQUES

METHOD	ADVANTAGES	DRAWBACKS
<b>Manual Methods:</b> (Hand pulling, raking and cutting)	Inexpensive. Flexible.	Not practical for large areas.
<b>Weed Rolling:</b> Rolls plants flat or detaches them from bottom sediment	Easy to operate, Can give season-long control.	Good only for limited area around dock.
<b>Herbicides:</b> Apply chemicals to kill or control plants.	May control macrophyte and algae growth.	Potential toxic effects. Decomposes plant material
<b>Sediment Covers</b> (Bottom barriers)	Nontoxic. Low environmental impact	High cost. Prone to damage, displacement, and plant regrowth





# SUGGESTIONS AND CONCLUSION



# **SUGGESTIONS**

**DEVELOP AQUATIC LIFE**

**PREVENT ENCROACHMENT**

**SET UP AN INTERAGENCY REGULATORY BODY**

**INVOLVE INSTITUTIONS AND COLLEGES IN WATER  
QUALITY MONITORING**

**CREATE PUBLIC AWARENESS.**



# **CONCLUSION**

**ENVIRONMENTAL PRESSURE OF UNPLANNED  
URBANIZATION AND GROWING POPULATION  
HAVE TAKEN ITS TOLL ON WETLANDS**

**LAKES ARE POLLUTED MAINLY DUE TO SEWAGE  
FROM DOMESTIC & INDUSTRIAL SECTORS**

**IT REQUIRES IMMEDIATE ATTENTION FROM THE  
AUTHORITIES TO RESTORE THEM**



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**THANK YOU**

