

Cluster Innovation Centre

University of Delhi

Student Innovation Project Fair



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Urban Wetlands Monitoring Using GIS Technology

Problem

What Are Wetlands ??

Wetlands are part of the natural landscape and are defined by the presence of water. These include Lakes, Ponds, Marshes etc.

Why To Conserve Wetlands?

Wetlands Benefits include:

- Flood control
- Groundwater recharge
- Water filtration and purification
- Erosion control
- Wildlife habitat
- Recreation
- Research and education
- Regional economic vitality



What is the Problem???

Wetlands in NCT of Delhi are alarmingly decreasing in number. The total number of wetlands in Delhi exceeded 1,000 until a few decades back. The Delhi Climate Action Plan (2009) includes a listing of wetlands in Delhi and reports the occurrence of only 621 wetlands, many of which are already dry or beyond recovery.

So, there is an urgent need to monitor the status of these wetlands in order to conserve them.

Objective

- The present research contribution attempts to use Geographic Information System (GIS) technology and prepare an interactive web-based inventory of wetlands in the NCT of Delhi

Project Team

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Method

- The initial data of wetlands was obtained from the Department of Environment, Govt. of NCT of Delhi.



- Wetlands were first located using GPS satellite imagery.



- North-west and North districts of Delhi were considered and the Vulnerability Assessment was carried out for the same by using **Survey as a tool**.



- An **Inventory** was then prepared and periodically updated on a GIS tool (MapInfo v. 12)

MapInfo is a tool (GIS software) for input, storage, manipulation and output of geographic information. It is also used to manipulate, summarize, query, edit, visualize - generally, to work with information stored in computer databases.



A Geographic Information System (GIS) lets us visualize, question, analyze, interpret and understand data to reveal relationships, patterns and trends

- The database was made on MS Excel and it was updated on MapInfo.
- A KML file was also made so as to link MapInfo with Google Earth.

Keyhole Markup Language (KML) is an XML notation for expressing geographic annotation and visualization within Internet-based, two-dimensional maps and three-dimensional Earth browsers. KML was developed for use with Google Earth, which was originally named Keyhole Earth Viewer.

- The GIS-based Wetlands Inventory was web-enabled and can be browsed at this website: <http://urbanecology.in/>

Result

Survey Results

Out of 16 wetlands surveyed almost, 60% of the wetlands were highly degraded.

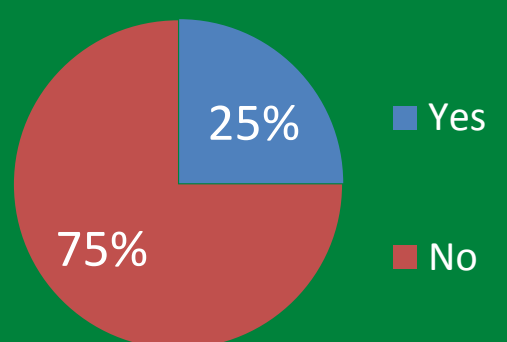


A wetland in Holambi Khurd threatened highly by encroachment and pollution.

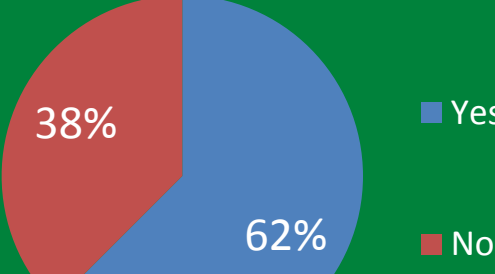
Statistics

Some important inferences were obtained through the survey.

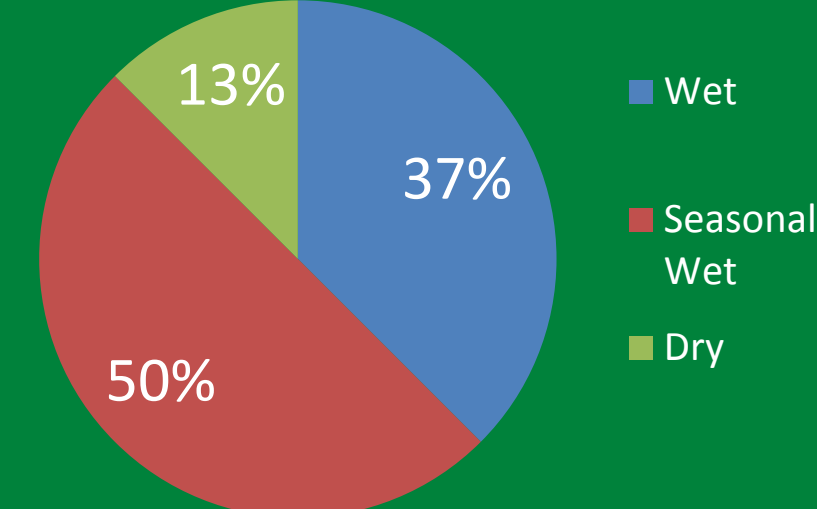
Potential For Tourism in Wetlands



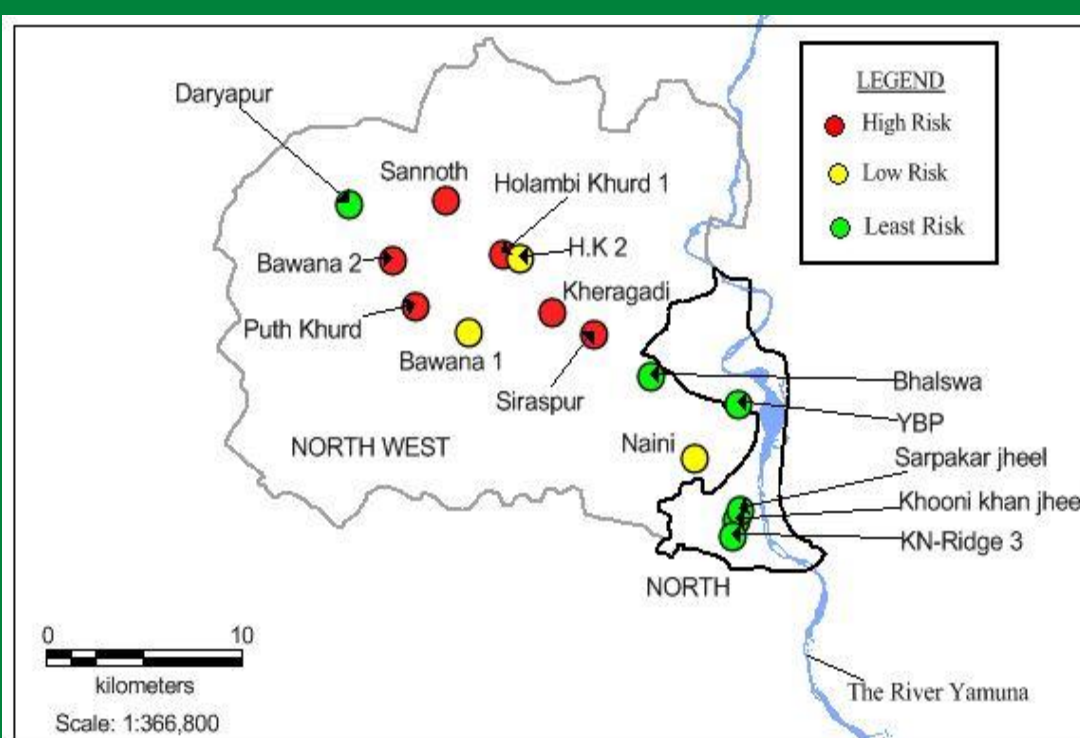
Scope for Fishing



How dry or wet are Wetlands?

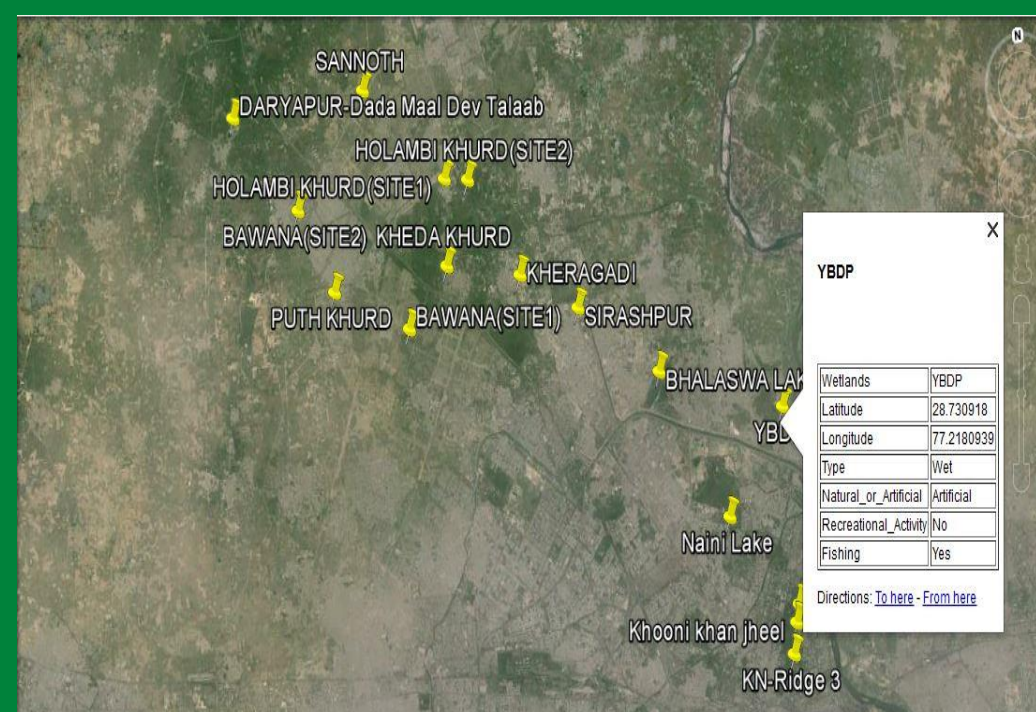


Implementation on GIS (using MapInfo)



Another important inference is that the wetlands further away from River Yamuna are being degraded at a faster rate.

You can also easily view the wetlands surveyed by us on Google Earth by downloading the KML file.



Also visit the web portal www.urbanecology.in to know about the various wetlands surveyed by us.

Conclusion

!!! RED ALERT !!!

Wetlands around us in Delhi are disappearing!!

- Wetlands which are authorized under some maintenance or Tourism Committee are poorly managed.
- Wetlands that are not officially demarcated are threatened by encroachments and pollution.
- There is need to use technology like GIS for monitoring the status of Wetlands.
- Active Participation from the society and stakeholders to conserve wetlands is a must.
- So, go ahead and take the first step in wetland conservation by visiting the web portal and informing us about the status of wetlands around you: www.urbanecology.in

References

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E-books

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- Use of Wetlands for Sustainable Tourism Management by Christine Lim and Michael McAleer
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- Conservation of Wetlands in India: A Profile(Approach and Guidelines), Ministry of Environment and Forest (GOI)



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