



# Survey of Fresh water bodies of Ajmer

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## Abstract

Ajmer is situated in the center of Rajasthan , also known as heart of Rajasthan . Rajasthan is the western arid state of INDIA. Ajmer is situated  $25^{\circ} 38'$  -  $26^{\circ} 56'$  north latitude and  $73^{\circ} 54'$  -  $75^{\circ} 22'$  East longitude. Area of Ajmer is 8481 sq km. Population of Ajmer is 5.43 lakhs. Ajmer has semiarid Eastern plane and Arid western plane. Semiarid and arid zones are divided by Aravallis , which are oldest mountains of the world.

Ajmer comes in Agroclimate IIIA zone. Ajmer has 9 tehsils and 8 Panchayat Samitis.

Total 1130 villages are there in Ajmer. Ajmer has 4 fresh water lakes , Anasagar , Foy sagar and Pushkar and one more small Budha Pushkar. Ajmer gets its drinking water from Bisalpur dam which is situated in Tonk district.

## Introduction

The fresh water bodies of Ajmer are Anasagar , Foy sagar , Pushkar and Budha Pushkar :

**Anasagar** is counterfeit (not natural) lake situated in center of Ajmer . It was compeled by King Arnoraja ( He was Grand father of King Prithviraj Chouhan ). The lake escalates 14 km.

Baradari ( Pavilion ) was build by Shahjaha (1637) and the estate Daulat Bagh by King

Jehangir . Circuit house was British abidance. The drainage area 1.9 sq mi (5 km ), the deepness

of lake is 4.5 m the depository volume of lake is 4750000 m<sup>3</sup>. (6210000cuyd.)

**Foy sagar** : Foy sagar is also feigned lake it was named by Mr. Foy who created it during paucity relief project (1892). Its capacity is 15 million cubic feet water spread 14,000,000 sq feet. If precipitation is low all water volatilize and Foy sagar simulated lake dries up. This has become several times. Foy sagar is also endangered lake.

**Pushkar** : Pushkar is hallowed lake and the opening of Thar desert. having 52 ghats. Pilgrims take venerated dip on Purnima(Full moon day), Amavasya (No moon day), Kartik month (November) and Ekadashi (11th moon day), Dwadashi (12<sup>th</sup> moon day) and other propitious occasions. It is situated at aloft of 510m.(Image :1).

**Budha Pushkar** : Budha Pushkar is parked in Aravalli breach. It is surrounded by sand and agriculture land. Budha Pushkar is placed 25°25' – 26°35' North latitude and 74°37' – 74°42' East longitude. It is significant

lake Lord Ram performed last rites of King Dashrath here. Holy Shiv temple is located here. Budha Pushkar is endangered (threatened) lake. Total capacity of lake is 150 cu.m. water spread is 45 hectare. Ground water is 10 feet deep. It is eutropical and endangered lake.

Lokeshwari H, & G.T. Chandrappa (2006) studied impact of heavy metal contamination of Bellandur lake on soil and cultivated vegetation. Bhuvaneshwaran & N.G. Santhalakshmi and S. Rajeshwari (1999) studied water quality of river Adyar in Chennai city.

Lokeshwari H, & G.T. Chandrappa (2006) studied heavy metal content in water hyacinth & sediments of Lalbagh lake Bangalore.

Laxen, D. and R.C. Harrison (1997). Studies the highway as a source of water pollution with heavy metal – lead.

Kishe, M.A. & J.F. Machiwa .2003. Studied distribution of heavy metal in sediments.

Gopal, (1994) Studied conservation of inland water bodies of India. Zedler, (1996) studied restoration requirement, reconstruction of antecedent physical condition, chemical adjustment of soil and water biological manipulation. Water quality of freshwater lakes of Rajasthan were studied in the present paper.

## Methods

Survey was done to identify fresh water lakes of Ajmer. The samples were analysed with Standard methods (APHA 1989), Trivedy and Goel 1986. Zooplankton (Edmondson 1959, Tonapi 1980). Water was collected in clean Plastic bottles of 2 liters.

## Results And Discussion

Physiochemical parameters of Anasagar, Foyasagar, Pushkar and Budha Pushkar are given in Table 1.

Table 1. Physiochemical parameters of Anasagar, Foyasagar, Pushkar and Budha Pushkar Ajmer.

S.No.(Parameter)	Anasagar	Foyasagar	Pushkar	Buda Pushkar
1. Depth	4.4m	74 ft (22.5m)	8-10m	8 m
2. Area (spread)	13km	1400000sq feet 15 m cu feet	10 km	150m cu feet
3. Temperature °C	18.2-29 °C	17-30.2 °C	15-39.0	15.0-39.6 °
4. pH	7.4-8.9	7.1-8.7	7.8	7.2-8.6
5. Conductivity			.32	.8-1.83
6. TDS mg/l	1400-1600	900	180	838.40-1171.20
7. DO mg/l	5.4-10	2.63-5.4	5.2	1.60-7.9
8. Alkalinity mg/l	1400-1700	90-109	50	292.3-775.00
9. Hardness mg/l			300-600	96.90-338.90
10. Ca hardness	88.5			79-258.
11. Mg hardness	250-474			12.2-157.7
12. Ca mg/l				23.5-105.9
13. Mg mg/l				2.9-157.7
14. Cl mg/l	430-590	25.5-75.6	39	31.2-98.5
15. Total solids	1487-1707	900		1330-2971.
16. TSS mg/l	23-26	211-900	180	448-2449.
17. Sodium mg/l	30		36	12.5-68.3
18. Potassium	17-24.7		3.6	8-43.7
19. Free Co <sub>2</sub>		1.5-5.5		4.5-47.5
20. Nitrate mg/l	10-17.9	.1-38		.51-1.5
21. Phosphate mg/l	.11-1.7		.35	2.1-2.9
22. SO <sub>4</sub>			48 mg/l	
23. Flouride mg/l			0.2 mg/l	
24. BOD mg/l	3-10			
25. COD	10-41			
26. conductivity	2140-3500			
27. Coliform MPN/100ml	1110-8080			

Sample water of lakes were analyzed . The average pH of Anasagar lake was 8.2.

Foysagar lake pH 7.5. Pushkar lake pH was 7.7 and Budha Pushkar pH was 7.8.

PH of Anasagar lake was maximum. Other parameters studied were D. O. which was highest for Anasagar lake. Alkalinity (1500-1600) was also highest for Anasagar lake. T.D.S. was also highest for Anasagar lake 1500 -1600. Value of heavy metals Calcium , Magnisium sodium and hardness were also high values for Anasagar lake. These may be due to Anasagar being in Ajmer city and on roads nearby Anasagar vehicular discharge , agricultural runoff, sewage waste , during rains these all pollutants cause pollution of aquatic water.



Image :1 Pushkar Lake



Image 2 : Anasagar lake



Image 3 : Foyasagar lake



Image 4: Budha Pushkar Lake

### Conclusion and Summary

Anasagar , Foy sagar , Pushkar and Buda Pushkar are the 4 main lakes of which Anasagar is largest. Eutrophication , increasing human population, Human activities ,municipal waste, waste water, water detergents, chemical waste, fertilizers, agriculture runoff, aquaculture , , horticulture, urban settlement , siltation, quarrying in Aravallis, bioaccumulation of heavy metals, and these have bad effects on human health. religious ceremonies , tourists , low rainfall , high temperature , Evaporation of water , urbanization , cutting of trees are some reasons for vandalization of lakes. these all cause eutrophication of lake, algal blooms, pollution, low transparency catastrophic collapse of lake ecosystem. The water is not suitable for cleaning , dousing , washing or drinking. These can be restored by planting trees, conservation of lakes, prohibiting human action around lakes.

Allowing Religious Ceremonies at certain places only, ban of polythene. Pushkar and Budha Pushkar are surrounded by sand dunes. High temperature , low rainfall, high evaporation , high wind speed 45-65 k/hr, highest during May June. More dams should be made to conserve water and solve water problem of Rajasthan. Interlinking of rivers is also required.

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