

Economic Benefits of Ponds In Urban And Peri-Urban Areas

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Village Ponds and Lakes'**

Venue: Magnolia Hall, India Habitat Centre (IHC), Lodhi Road, New Delhi - 110003

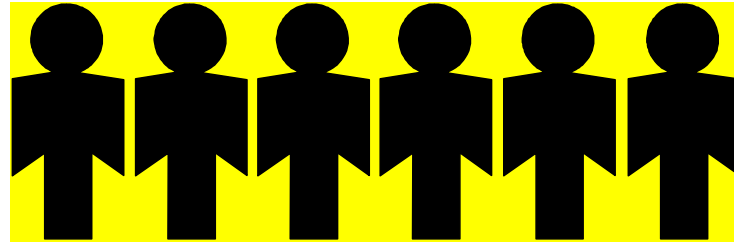
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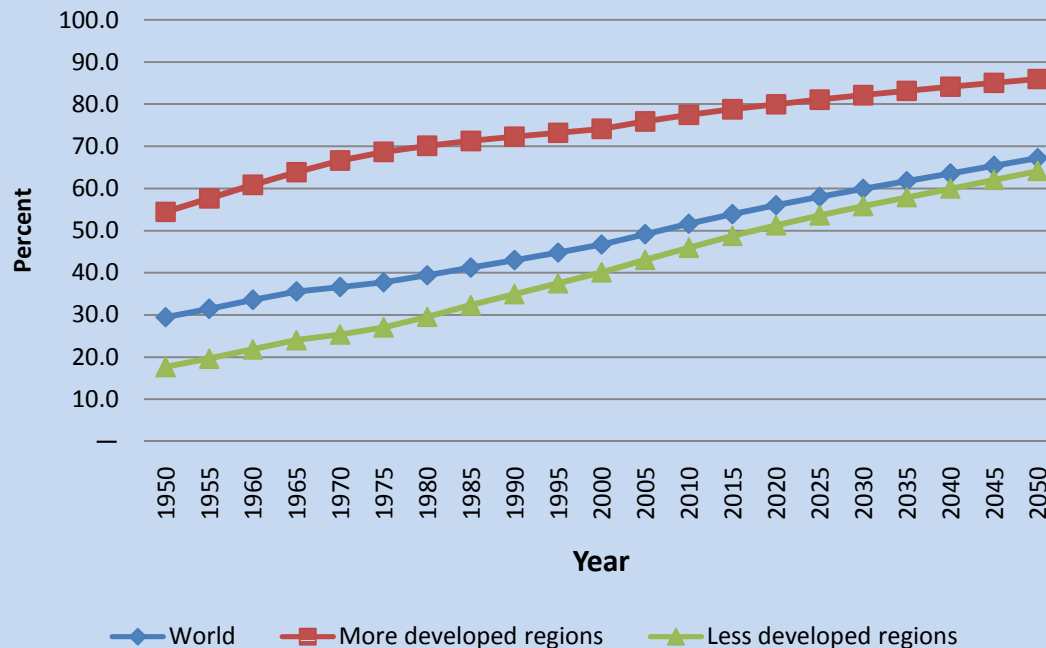
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- India is fast getting urbanized. Level of urbanization increased from 27.81% in 2001 Census to 31.16% in 2011 Census
- The growth rate of population in rural and urban areas was 12.18% and 31.80% respectively. Bihar (23.90%) exhibited the highest decadal growth rate in rural population.
- This increase is mostly not a planned one. Thus, Urban India depends heavily upon various types of waterbodies to meet its daily requirement of water.

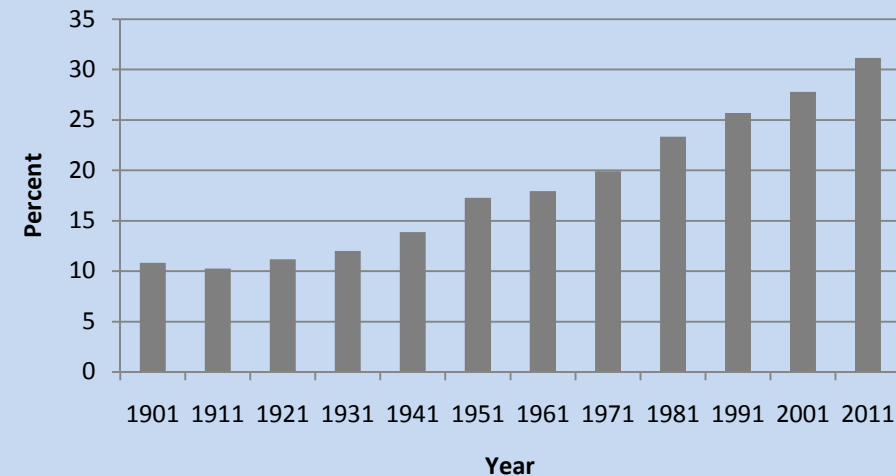
World - People living in Urban Area



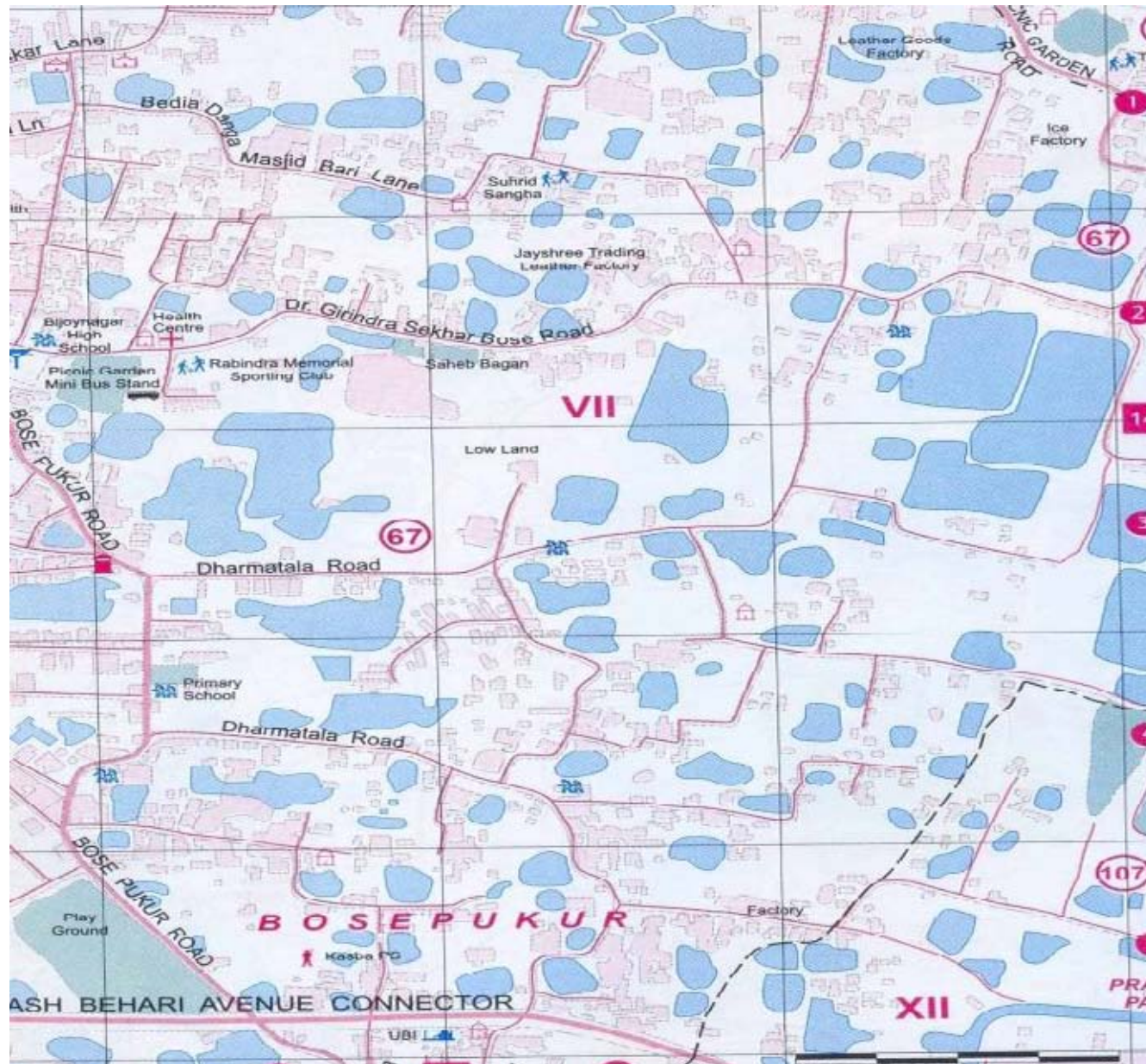
A peri-urban area is a mix of village and town. A tranquil village pond is suddenly exposed to turbulent urban chaos. It needs proper management approach before it gets degraded for any use.

In case of developing countries like India, this urbanization is mainly a product of demographic explosion and poverty induced rural - urban migration. Hence it is urbanization without urban functional characteristics.

India - Urban Population



The City and Its Ponds



HOW MANY PONDS IN KOLKATA?

The actual number of ponds within KMC area is still a guess. The KMC list of ponds showed **3874** ponds in 2006, **1736** ponds in 1997. A detailed map book of Kolkata containing 284 plates by NATMO in 2006 showed **8731**. Counted from Google's satellite imagery of Kolkata was **4889**. It may vary upto 10%, so the number of ponds would vary between **4400 to 5400**. This means about **44%** of the waterbodies have been **filled up in last two decades**.





Bathing & Washing



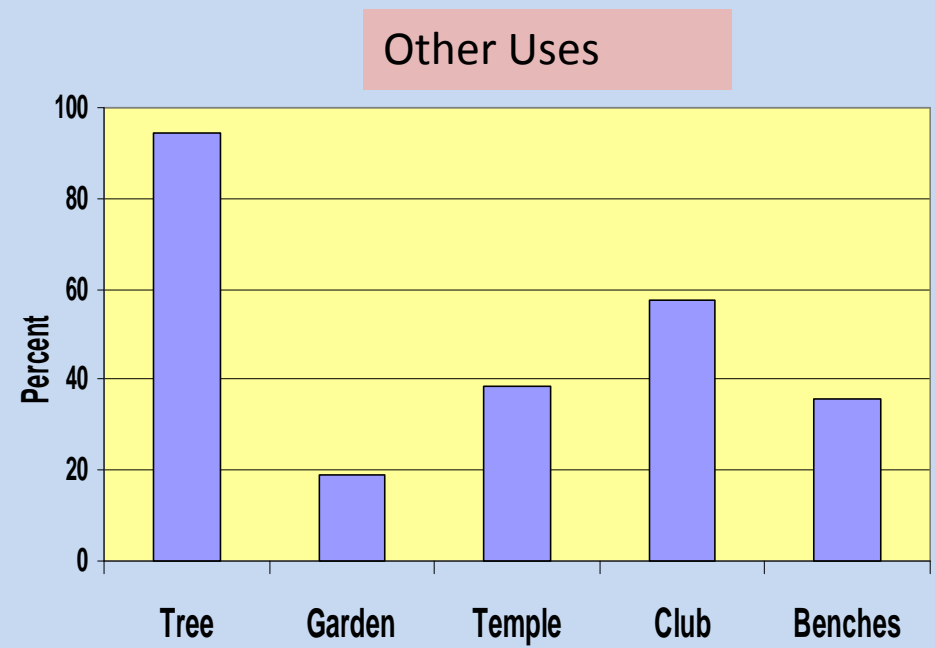
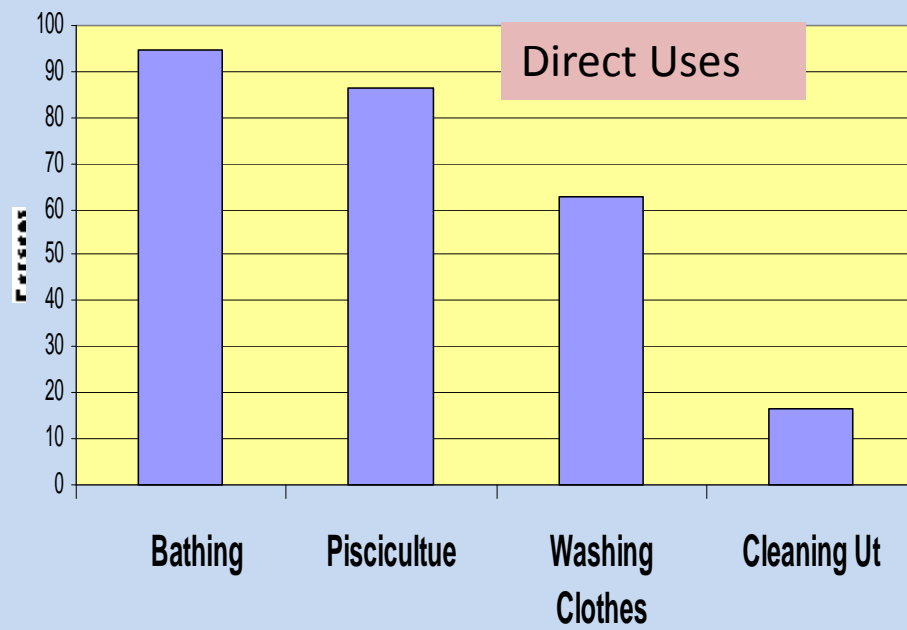
Fish Cultivation



Culture



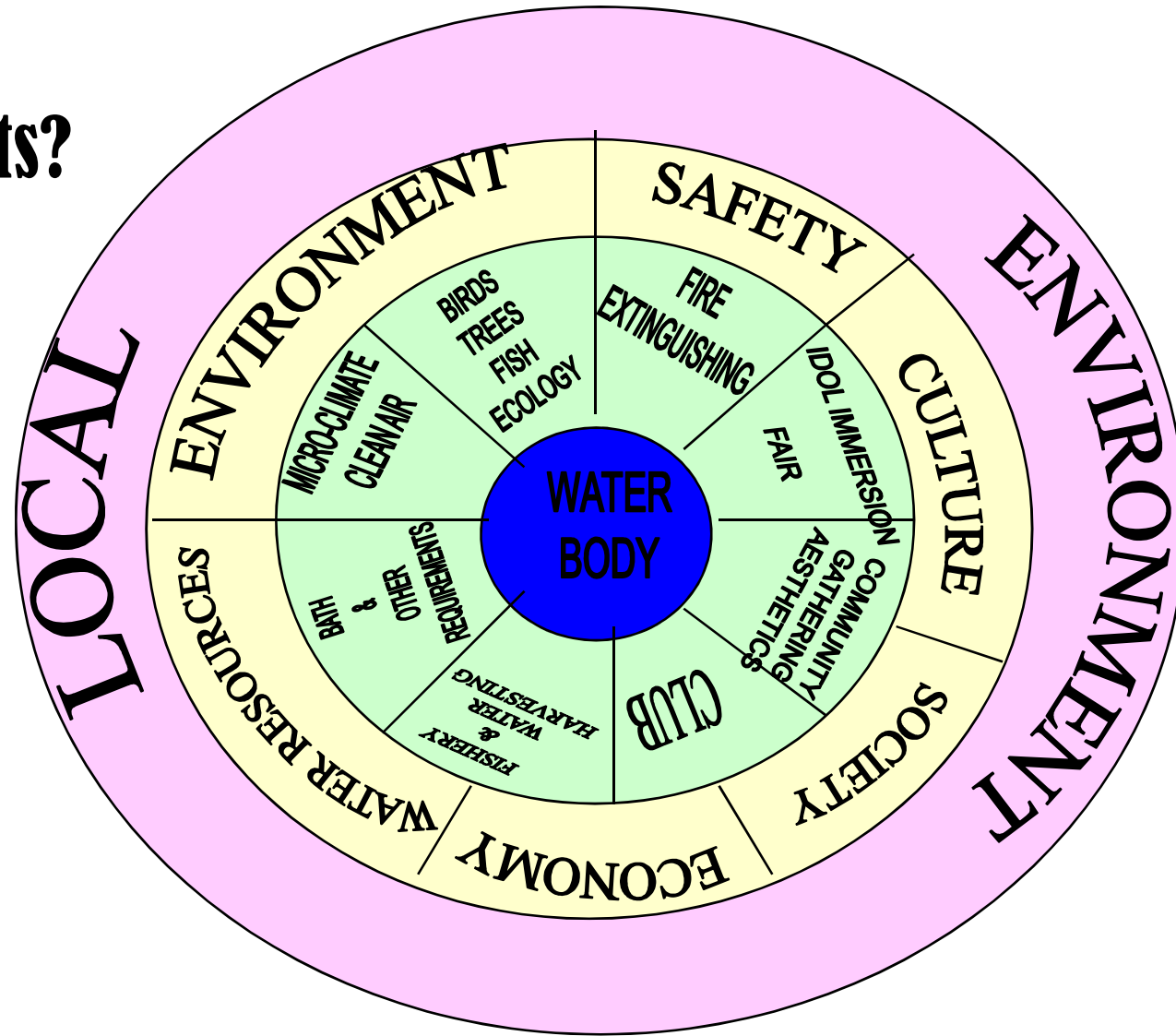
Biodiversity, Water Harvesting



Valuing Natural Resources

- Natural resources can be characterized in terms of their ecological characteristics, social uses and economic value. A pond, like many environmental assets, can be used for consumption purposes (bathing, washing, recreation) as well as an input for productive activities (fish production).
- The economic value of environmental goods like ponds has a composite nature. We will initially classify it into two categories -1) use value and 2) non-use value
- *Use values* are defined as those benefits which are derived from the actual use of the environment.
- *Non use values* are also called existence values e.g aesthetic feelings, moral conviction etc.

**Can we value
all these
components?**



Use Value

- *Market price valuation:* Many goods and services from natural resources are traded in the market, e.g., fish in the case of ponds. These can be valued in terms of their market prices.
- *Indirect Valuation approach:* This approach takes into account services or benefits obtained from natural resources that are not marketed but a reasonable assessment of their value is undertaken through an indirect approach.

Price of a Pond

- On an average the yearly rates at which ponds were leased out for fishing rights in the year 2009 varied from Rs 5000 to Rs 8000 per bigha (1 bigha = 1337.8 square metres) with leases generally being given for a 3 year period at a time.

Or Rs 3.75 – Rs 6 per sq.m.

Information from Lease owners

Source: Five Thousand Mirrors – Understand Urban Waterbodies –
Mohit Ray - Jadavpur University Press (In Print)

How much fish can be obtained

- On an average, 400 kg of fish can be produced per bigha or 300 gram per square meter.

Source: (Mukherjee Madhumita), 2000 Ekus shatak, Nijer Maachh nije utpadan karun (Produce your own fish in 21st Century, p 10 (Fisheries Department, Govt of West Bengal; <http://www.nabard.org/modelbankprojects/fisheries.asp> on 1 May 2011

- Production of fish up to 500 kg per bigha has also been reported in field investigation

Fish Cultivation



Income and Expenditure for a 1000 sq.m pond for the year 2009

Fish Sale Rs		Expenditure Rs					Net Income Rs
		Fish Purchase	Netting	Fish Food	Total		
11000 - 16500		2250 - 3000	1900 - 2600	2500 - 3500	6000- 8250		5000- 8250

Source: Five Thousand Mirrors – Understand Urban Waterbodies –
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Other Earnings from Pond

- **Angling** - In 2009, the average rate charged for angling was between Rs 150-200 per day for one person.
- **Charges for Idol Immersion**
- **Selling fruits and trees planted at the bank of the pond**



Comparison of Two Ponds in Kolkata

Income in Rs

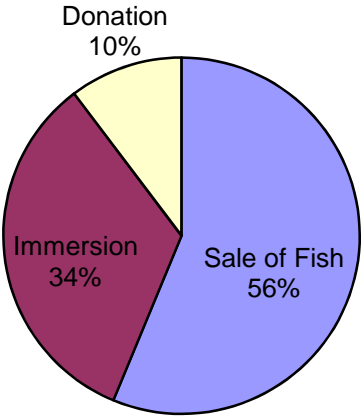
Pond	Angling	Sale of Fish	Immersion	Other	Total
Baghajatin*	144915 (75%)	27451(14%)	0	20152 (11%)	192518
Viveknagar Jheel	0	91467 (49%)	83473(45%)	11058 (6%)	185998

Expenditure in Rs

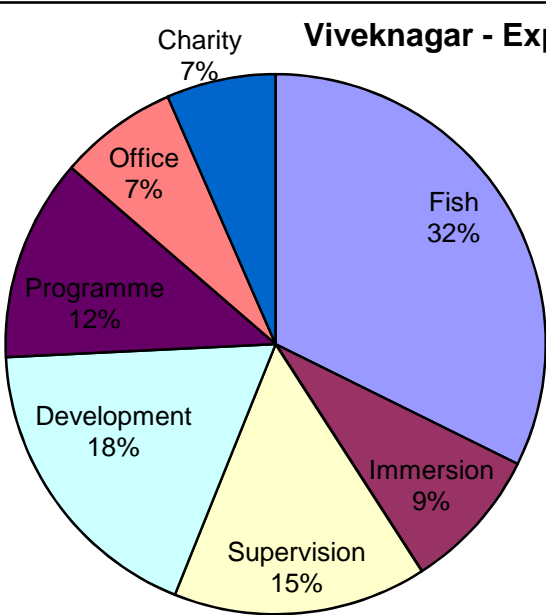
	Fish	Angling	Immersion	Office Exp	Development	Other	Savings
Baghajatin*	54369	12964	0	29219	27720	16993	51250
Jheel Road***	48730	0	14516	52532	17313.5	15193	37500

**Source: Five Thousand Mirrors – Understand Urban Waterbodies –
Mohit Ray - Jadavpur University Press (In Print)**

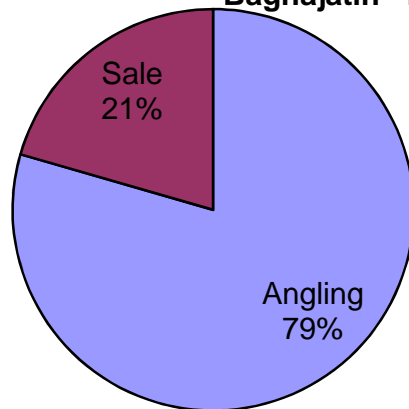
Viveknagar Jheel - Income Pattern



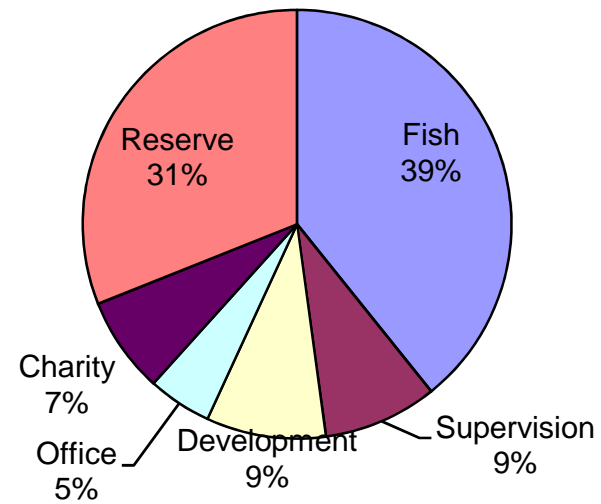
Viveknagar - Expenditure



Baghajatin - Income Pattern



Baghajatin-Expenditure



Real Worth of the Ponds of Kolkata

	Bagha Jatin Lake (BJ)	Jheel at Jheel Road (JR)
Size of Ponds	About 9000 m ²	About 8000 m ²
Surrounding locality	Similar	Similar
Pond Committee	Community Group	Community Group
Use by people	Yes	Yes
Fish Cultivation	Yes	Yes
Environmental Management	No	Yes
Pond beautification	No	Yes
Annual Audited Accounting	Yes	Yes

Annual Valuation of Flow of Utility of Bagha Jatin Lake (BJ)

Service	Basis of valuation	Total Annual Valuation Rs.
<u>Fish Sale:</u> Here fish cultivation is done by renting out to the anglers and direct fish catch	Angling: Rs. 144915	105033.00
	Sale of fish: Rs.27451 Direct expenses:Rs.67333	
<u>Use of Water:</u> Considering 261 bathers and 65 other users (Source: Survey)	Rs. 6 per month for bathers and Rs. 18 for other users	32832.00
	Total	137865.00

Source: Five Thousand Mirrors – Understand Urban Waterbodies –
Mohit Ray - Jadavpur University Press (In Print)

Annual Valuation of Flow of Utility of Jheel of Jheel Road

Service	Basis of valuation	Total Annual Valuation Rs.
<u>Fish Sale</u> : Here fish cultivation by direct fish catch	Sale of fish: Rs. 91467 Direct Exp: Rs.48730	42737.00
<u>Use of Water</u> : Considering 861 bathers (Source: Survey)	Rs. 6 per month for bathers	61992.00
<u>Charges for Idol Immersion</u> : Charges for immersion of idol depends on size of idol	Immesrsion earning: Rs. 83473.00 Direct Exp : Rs.14516 (Source: Annual Audit Report 2001)	68957.00
<u>Recreational Value</u> : Considering 50 morning walkers and 70 evening users	Rs. 20 per month & Rs.10 per month respectively	20400.00
	Total	194086.00



THANK
YOU