Table 3: Channel Geometry of the Jamuna River

Locations	Width (W) in m	Height of Concave Bank (H) in m	Angle of River Bank(in degree)		RC (m)	RC: W
			Concave	Convex		
Labangola	4	7.5	1st segment 46 2nd segment 56	1st segment 6 2nd segment 7	76.80	19.2
Diara	3.5	6.5	1st segment 65 2nd segment 59	1st segment 4 2nd segment 5	112.50	32.14
Molladanga	4.5	8.2	1st segment 36 2nd segment 39	1st segment 8 2nd segment 9	85.45	18.99
Source: Calculated by the author based on SOI maps and field survey						

8. Water Quality Scenario of the Study Area

Table 4: Specific Energy and Froude No. at Labangola, SwarupnagarC.D. Block

Stations	Depth(m)	Mean Velocity (m/s)	Froude No. (fd)	Specific Energy(Es)
Molladanga	1	0.10	0.0387	1.00
	2	0.15	0.0290	1.00
	3	0.15	0.0190	1.00
	4	0.40	0.0386	4.01
Source: Field survey and Calculated by the author				

i. The average depth has been found to be in the range of 3.5 to 5.0 m.
ii. The velocity variation in the range of 0.10-0.40 m/s obtained by plotting the mean velocity at each cross section against the longitudinal distance along the stretch of the river. The huge variation of velocity may be principally due to fish trap structure (e.g. komor, vessel, nets etc.) constructed along the stretch and also high rate of siltation at various different sections. The velocity fluctuations can also be attributed to water influx and efflux through streamlets at certain different cross sections.
iii. From the velocity profile graph we can see that the maximum velocity is achieved near about the 60% of total depth from the bed of the river, which is matching the characteristics of velocity profile in case of open channel uniform flow.
iv. In the cross section wise it can be seen that the river velocity is maximum in the dredging zone and if we go towards the banks, the velocity decreases. The maximum velocity occurs where the depth is found as maximum below the water surface.
v. The salinity of the river water increases progressively as we move from upstream towards downstream as observed from the results.
vi. The pH of the river water remains more or less constant with sudden dip observed around 2.5 km and 9 km downstream, indicating a corresponding rise in salinity of the river water as observed from the results.
vii. The TDS in the river water shows a gradual increase due to an increase in the amount of dissolved solid present in the river water as we move downstream which is a result of the river gradually moves into its lower course siltation occurs as its sediment carrying capacity decreases.
viii. The conductivity increases correspondingly with the increase in TDS as expected.

9. Findings

The findings of the present study can be pointed out as below:

1) The economy of the area is agriculture and fishing based. Both the small and medium farmers practice extracting huge amount of groundwater, mainly in the dry season to grow boro-paddy. Hence, groundwater table is getting lower day by day.
2) The peasants use chemical fertilizers and pesticides in agricultural land. These materials make the soil sterile.
3) The river water gets polluted by dumping of domestic wastes on the river bank and also by mixing of the chemical components used in agricultural purposes.
4) When heavy rain occurs in the monsoon period, the area of lower portion of river Jamuna basin becomes flooded and normal life of the inhabitants is disrupted.
5) The width and the depth of the river are become very narrow in the middle portion than the upper and lower portion.
6) After analyzing the satellite images the landform and channel has been changed due to human interference over the 33 years (1977-2010).

Acknowledgement

I express my profound gratitude to Prof. Arunabha Misra (VEC), Late Prof. Subhas Ranjan Basu (CU), Prof. Subhas Chandra Mukherjee (CU) and Dr. Nitai Kundu (IWMED) that I had with them during this research have helped me to understand the various facts of Ground water in the study areas. There have been many unmentioned names that have been a part of this paper. Yet, it does not belittle their contribution of this work, nor my gratitude towards them.

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