Case study: CS002

Bioremediation of Railadevi Lake in Thane City, Maharashtra

The Railadevi lake bioremediation project was funded by Ministry of Environment and Forest (MoEF), Government of India.

The lake is situated in highly urbanized area of Thane city. The condition of the lake was miserable before the project of bioremediation was taken.

Area – 8 acres

Water source – Natural springs

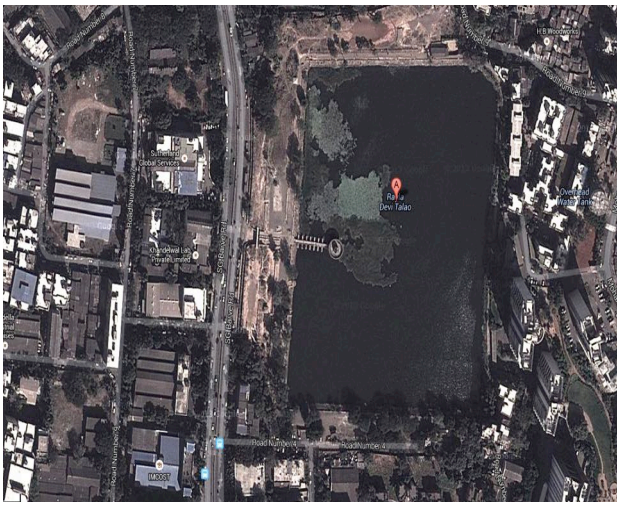


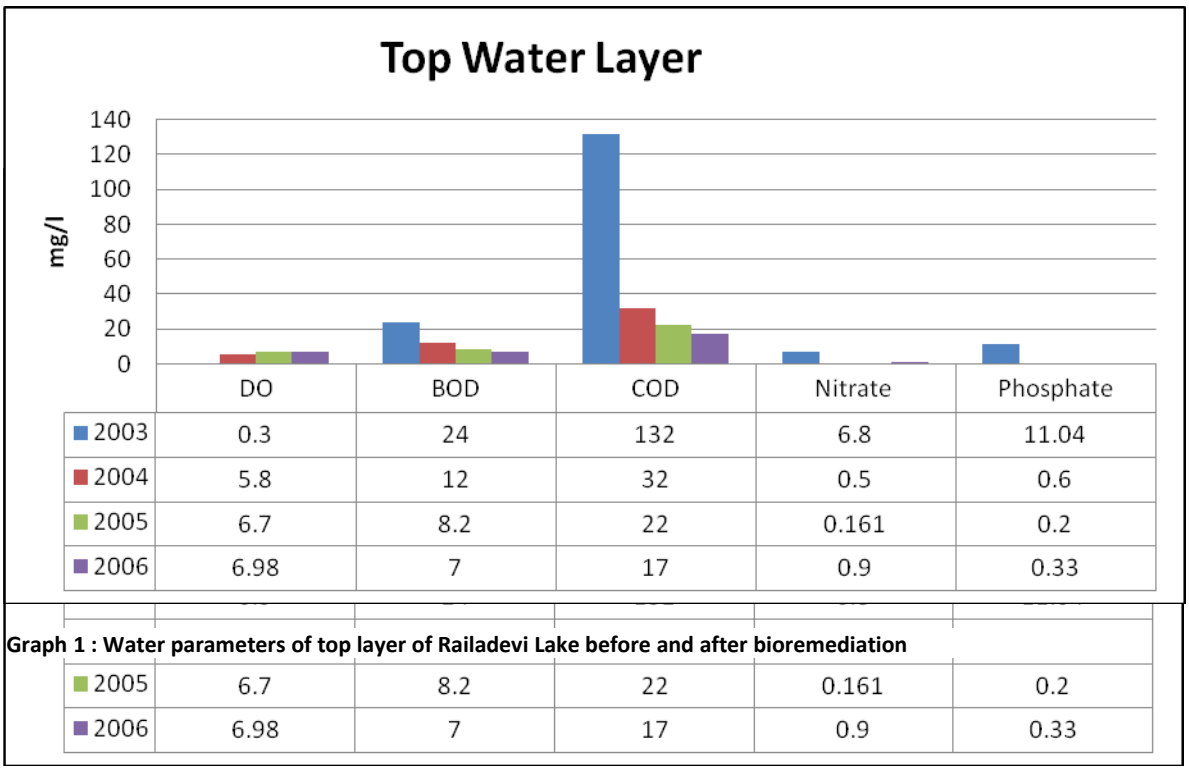
Fig 1: Satellite image of Lake Railadevi

The project was undertaken in the mid of year 2003. The lake was in eutrophic conditions, before starting the remediation process. Due to heavy onslaught of manmade pollution the lake had turned eutrophic. Algal blooms were yearly affair and heavy sludge deposits had blocked the natural springs

Fig 2: Condition of Lake Railadevi – year 2003

Analysis of Water parameters:

After bioremediation of the lake, most of the water quality parameters like COD, BOD, Nitrogen & Phosphate showed declining trend. The overall visual appearance was improved significantly and water quality was found to be very good.



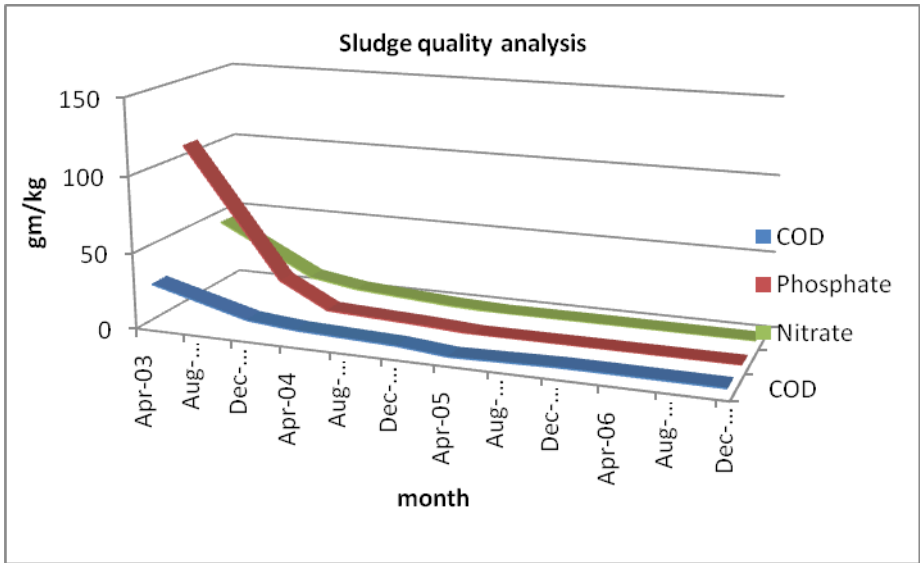
	DO	BOD	COD	Nitrate	Phosphate
2003	0.3	24	132	6.8	11.04
2004	5.8	12	32	0.5	0.6
2005	6.7	8.2	22	0.161	0.2
2006	6.98	7	17	0.9	0.33

Graph 1 : Water parameters of top layer of Railadevi Lake before and after bioremediation

2005	6.7	8.2	22	0.161	0.2
2006	6.98	7	17	0.9	0.33

Graph 2 : Water parameters of bottom layer of Railadevi Lake before and after bioremediation

Sludge Quality Analysis:



Graph 3: Sludge quality analysis of Railadevi Lake before and after bioremediation

Parameter	Unit	April 03	Dec 03	April 04	Dec 04	April 05	Dec 05	April 06	April 06

COD	gm/kg	26	9	6.1	3.8	0.8	2.4	2.4	2.1
Phosphate	gm/kg	108	22	5	2.08	0.064	0.145	0.122	0.112
Nitrate	gm/kg	44	11	5.8	1.32	0.084	0.217	0.134	0.124

Table 1: Sludge quality analysis

Fig 1: Lake Condition after bioremediation project