

Village Ponds in Jarauli

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The Problem

Karnal village ponds are contaminated with grey water. The contamination of grey water along with animal dung, dust and mud, sludge settlement and fertilizer contamination from nearby fields runoff and water from solid waste dumps around the village's, has caused the humble village ponds to become a cess pool.

During the site visit for the 3 village ponds Bio2pure® noticed significant sludge build up in Pond No.3 which was preventing water from percolating into the ground. Therefore not allowing ground water recharge to occur in Ponds 1 to 3. For ground water recharge the sludge has to be significantly reduced before any treatment. Bio2pure®'s product was sure to aid in sludge removal (therefore reduction of BOD) so the treated water can meet consent; reduce BOD so that water can go back in ground and also be used for irrigation, farming or for animal drinking.

The Solution

Bio2pure® undertook the scope for consultation and recommended a combination application for its Aqua Culture Management® (to stabilize the pond's ecosystem and natural environment by removal of Nitrates and Phosphates to remove duckweed and algae) and Waste Water Treatment® (to remove the toxicity and reduce the load of BOD in the water to be dosed over a period of 15 days). During the operational stage Bio2pure® technical Team made the required site visits for assessing progress of the treatment as well as for sample collection as per the pre-defined schedule and closely monitored the impact of the solution on the lake. The parameters measured were:

- BOD (mg/l)
- COD (mg/l)
- Phosphates (mg/l)
- Nitrates (mg/l)
- Total Suspended Solids (mg/l)
- Concentration of Algae by volume (%v/v)
- Visibility (inches) – using a Secchi Disc
- Sludge Level – using a Secchi Disc with depth reader

The Result

There was no treatment taking place in the ponds when Bio2pure® treatment started. Water coming in and going out was almost of the same colour. BOD and Algae percentage came down drastically in two weeks. Initially there were lot of mosquitoes because of algae and duckweed and lot of children were getting sick. During the treatment of Ponds villagers living around the pond mentioned that there were significantly less number of mosquitoes and flies coming from the ponds. (The result summary and images have been provided in the following pages).

Overview - Jarauli POC 1, Test Results				
Parameters		09.04.15 Before POC	28.04.15 During POC	11.05.15 End of POC
pH	Inlet	6.2	7.8	7.5
	Outlet	7.2	7.4	7.5
	% Change	-16.1	5.1	0.0
TSS	Inlet	240.0	510.0	400.0
	Outlet	200.0	80.0	70.0
	% Change	16.7	84.3	82.5
BOD	Inlet	80.0	85.0	70.0
	Outlet	72.0	65.0	10.0
	% Change	10.0	23.5	85.7
COD	Inlet	210.0	260.0	200.0
	Outlet	150.0	200.0	50.0
	% Change	28.6	23.1	75.0
Phosphate	Inlet	1.3	1.0	0.8
	Outlet	1.0	0.4	0.0
	% Change	23.1	60.0	100.0
Total Nitrogen	Inlet	14.0	20.0	60.0
	Outlet	10.0	2.0	2.0
	% Change	28.6	90.0	96.7
Algae	Inlet	6.5	6.2	3.0
	Outlet	6.2	6.0	2.5
	% Change	5.4	3.2	16.7

Figure: Overview- Water Quality Results of Pond in Jarauli (POC 1)

Pond Before Treatment
as on 21st April 2015



Pond After 2 Weeks of Treatment
as on 5th May 2015



Figure: Village Ponds in Jarauli Karnal POC 1

Overview - Jarauli POC 2, Test Results

Parameters		15.06.15 Before POC	22.06.15 During POC	27.06.15 During POC	02.07.15 End of POC
pH	Inlet	7.1	7.8	7.5	7.5
	Outlet	7.0	7.2	7.1	7.2
	% Change	1.4	7.7	5.3	4.0
TSS	Inlet	400.0	410.0	390.0	110.0
	Outlet	350.0	50.0	55.0	50.0
	% Change	12.5	87.8	85.9	54.5
BOD	Inlet	75.0	80.0	78.0	40.0
	Outlet	70.0	10.0	8.0	8.0
	% Change	6.7	87.5	89.7	80.0
COD	Inlet	400.0	450.0	410.0	250.0
	Outlet	380.0	70.0	65.0	60.0
	% Change	5.0	84.4	84.1	76.0
Phosphate	Inlet	0.0	5.5	5.0	2.2
	Outlet	0.0	0.0	0.0	0.0
	% Change	0.0	100.0	100.0	100.0
Total Nitrogen	Inlet	1.5	20.0	18.0	10.0
	Outlet	1.0	0.5	0.5	0.2
	% Change	33.3	97.5	97.2	98.0
Algae	Inlet	2.1	1.5	1.4	1.0
	Outlet	1.2	0.0	0.0	0.0
	% Change	42.9	100.0	100.0	100.0

Figure: Overview- Water Quality Results of Pond in Jarauli (POC 2)

**Comprehensive Cleaning of the
Drains undertaken by Quash**



**Status of blocked drain leading to
pond before treatment**



Figure: Cleaning operations undertaken by Bio2pure



**Pond 1 (Before
Treatment)
as on
11th June 2015**



**Pond 1 (After 9 days
of treatment)
as on
20th June 2015**

Figure: Village Ponds in Jarauli Karnal POC 2



**Pond 2 (Before
Treatment)
as on
11th June 2015**

**Pond 2 (After 9
days of treatment)
as on
20th June 2015**



Figure: Village Ponds in Jarauli Karnal POC 2

**Sample taken on
11th June 2015**



INLET

OUTLET

**Sample taken on
18th June 2015**



INLET

OUTLET

**Sample taken on
23rd June 2015**



INLET

OUTLET

Figure: Village Ponds in Jarauli Karnal POC (Water Quality)