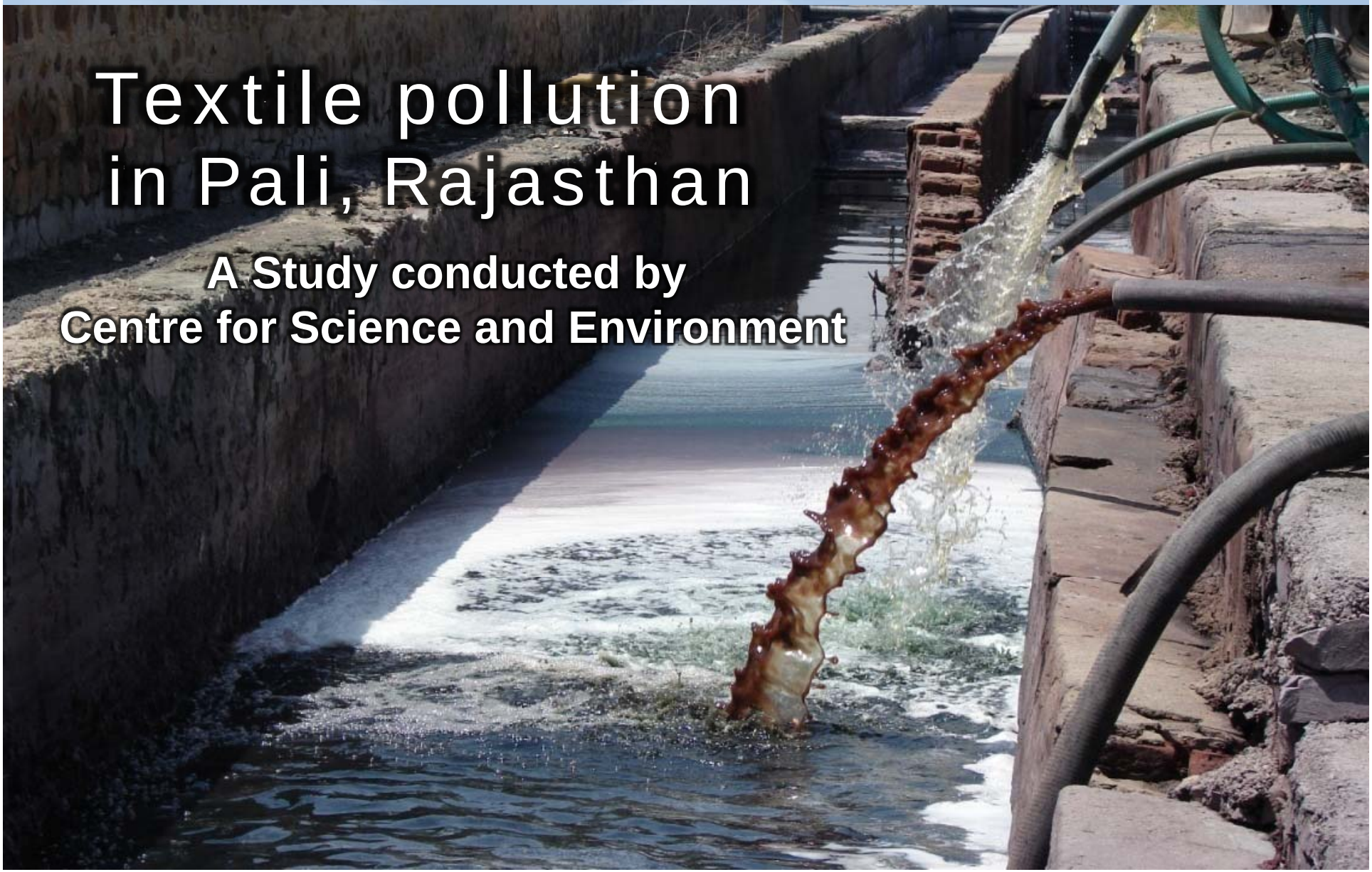


Textile pollution in Pali, Rajasthan

A Study conducted by
Centre for Science and Environment

About CSE

- **CSE was started in 1981 by the late Anil Agarwal, a leading figure in India's environment movement, to analyse and study the relationship between environment and development.**
- **Independent public interest research organisation that aims to promote an informed public opinion and build capacity on environmental sustainability and sustainable development.**
- **CSE's work is widely acknowledged for its intellectual leadership and the institution has grown into one of India's most influential environmental think tank.**

Our Association with Pali: A timeline

In November 2005, CSE conducted its first study in the Bandi basin; study released in May 2006.

The study found that the effluent reaching the common effluent treatment plants (CETPs) was inadequately treated as they were badly designed and operated.

The partially treated and untreated wastewater was mixed and discharged into the dry river and finally dammed 50 km downstream at Nehda leading to groundwater contamination severely impacting livelihood and public health.

The administration and the industry agreed that there were problems and assured that action would be taken.

Was any progress made?

Community Water Pollution Monitoring Programme

Timeline

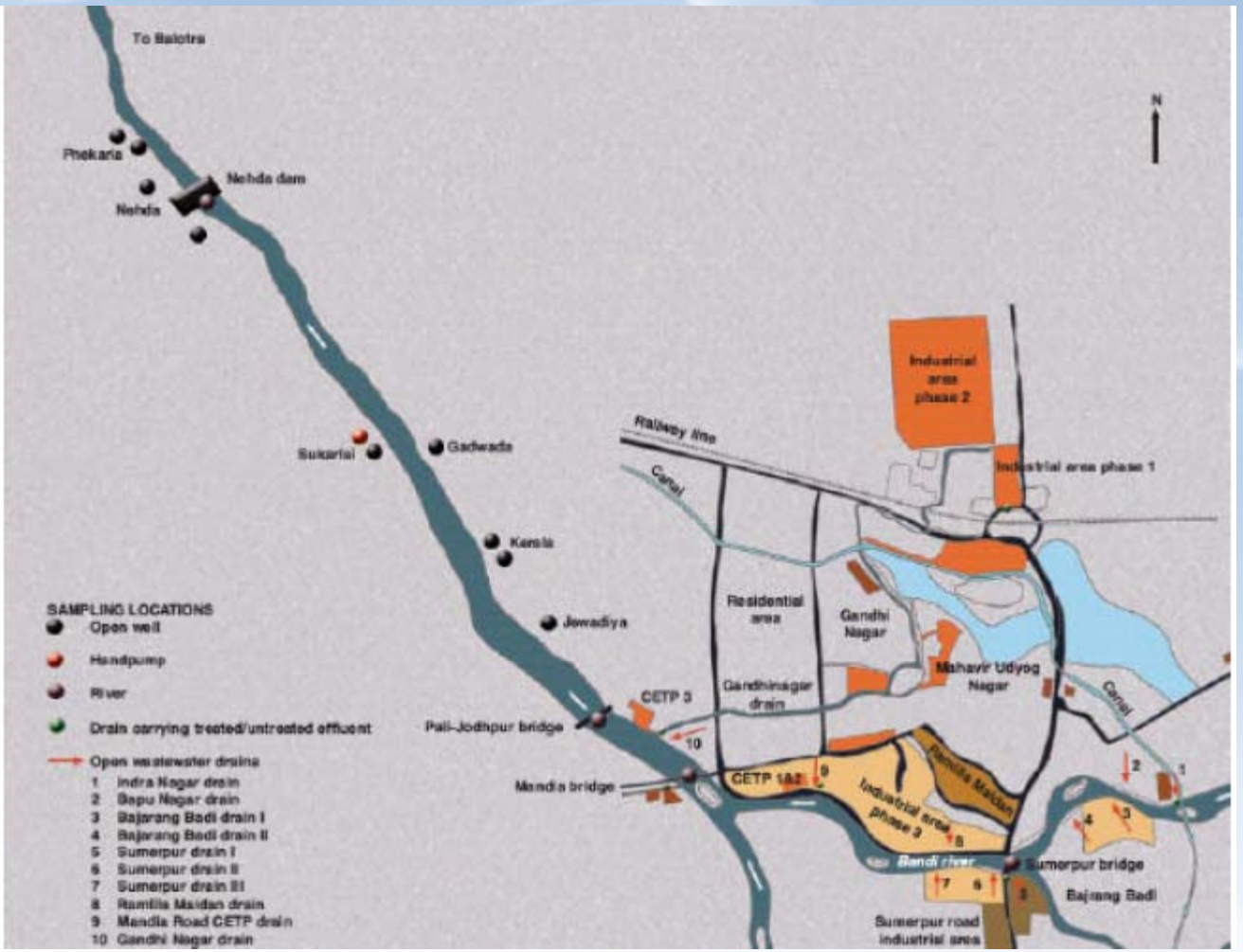
Conducted study in 2007

Report on the pollution in Bandi river by textile industries

December 2007

Centre for Science and Environment
41, Tughlakabad Institutional Area
New Delhi-110062

Sampling Locations



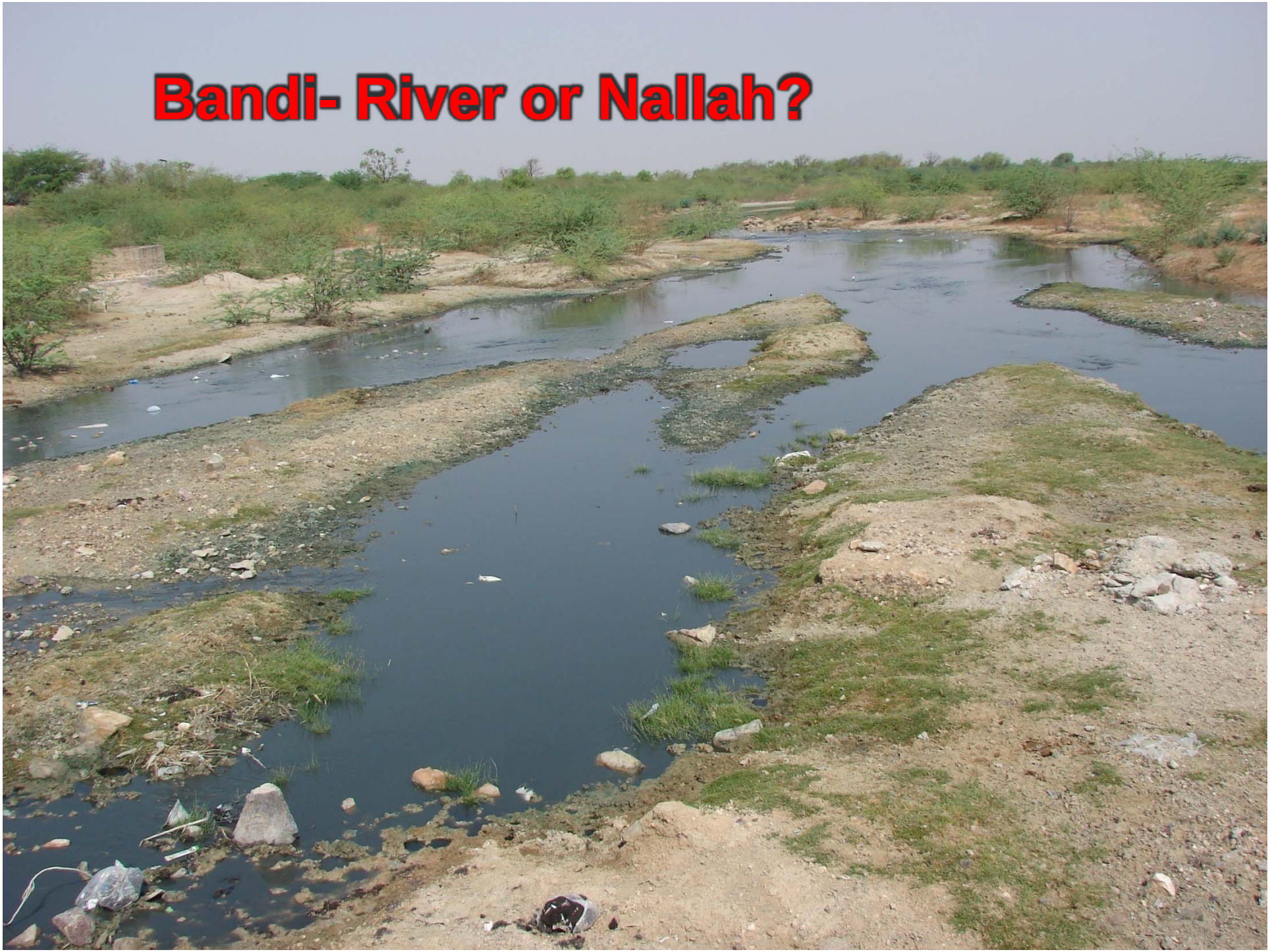
Our findings from the study in 2007

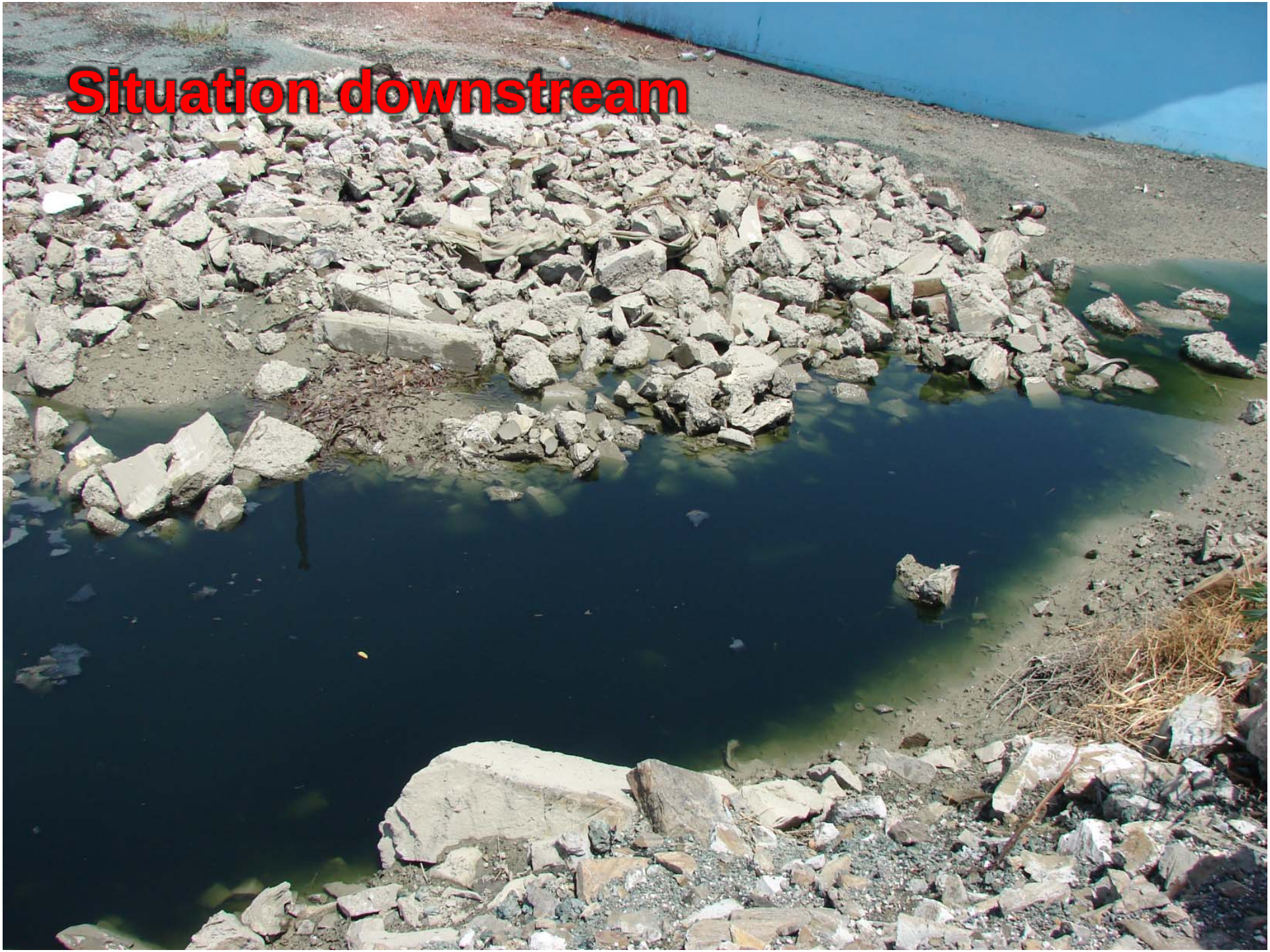
- **About sixty per cent of wastewater is discharged untreated**
- **Upgraded CETPs violate discharge norms**
- ***Effluent discharge standards for which the CETPs are designed are too lax and ineffective***
- **Extensive pollution in drains, river and groundwater**

Our Lab Study in May 2014

Based on 15 water samples from a widely dispersed area collected by CSE and analysed in its Pollution Monitoring lab (PML)- the results were disturbing.

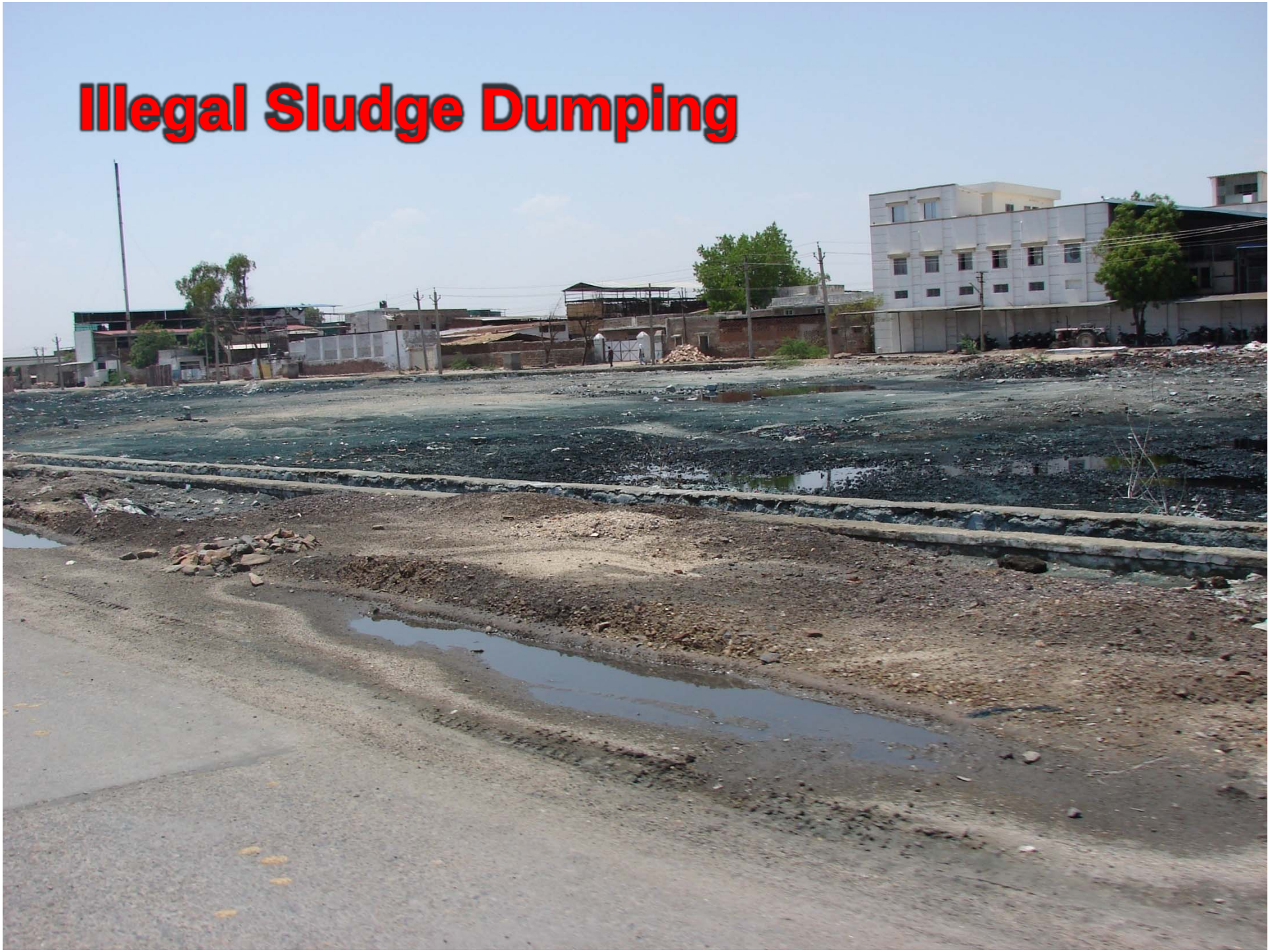
- **Out of the total five surface water samples, 80% (four) were not fit to be used under any class of surface water given high levels of various pollutants/contaminants [high values of pH, DO, TDS, electric conductivity, COD, chloride, sulfide and sulphates] .**
- **Of the three drinking water samples only one was fit for drinking while two samples taken from the wells in Jaitpur and Nehra villages in Pali district were not potable.**
- **Seven samples were taken from effluents from the mills; approximately 80% of the samples were found to be highly polluted when even compared with CPCB standards for textile effluents as per the results obtained for their pH, DO, TDS, COD, chloride, sulfide and sulphate analysis.**
- **Phenolic compounds were found in five samples obtained from the CETPs of which the level in one was higher than permissible levels.**

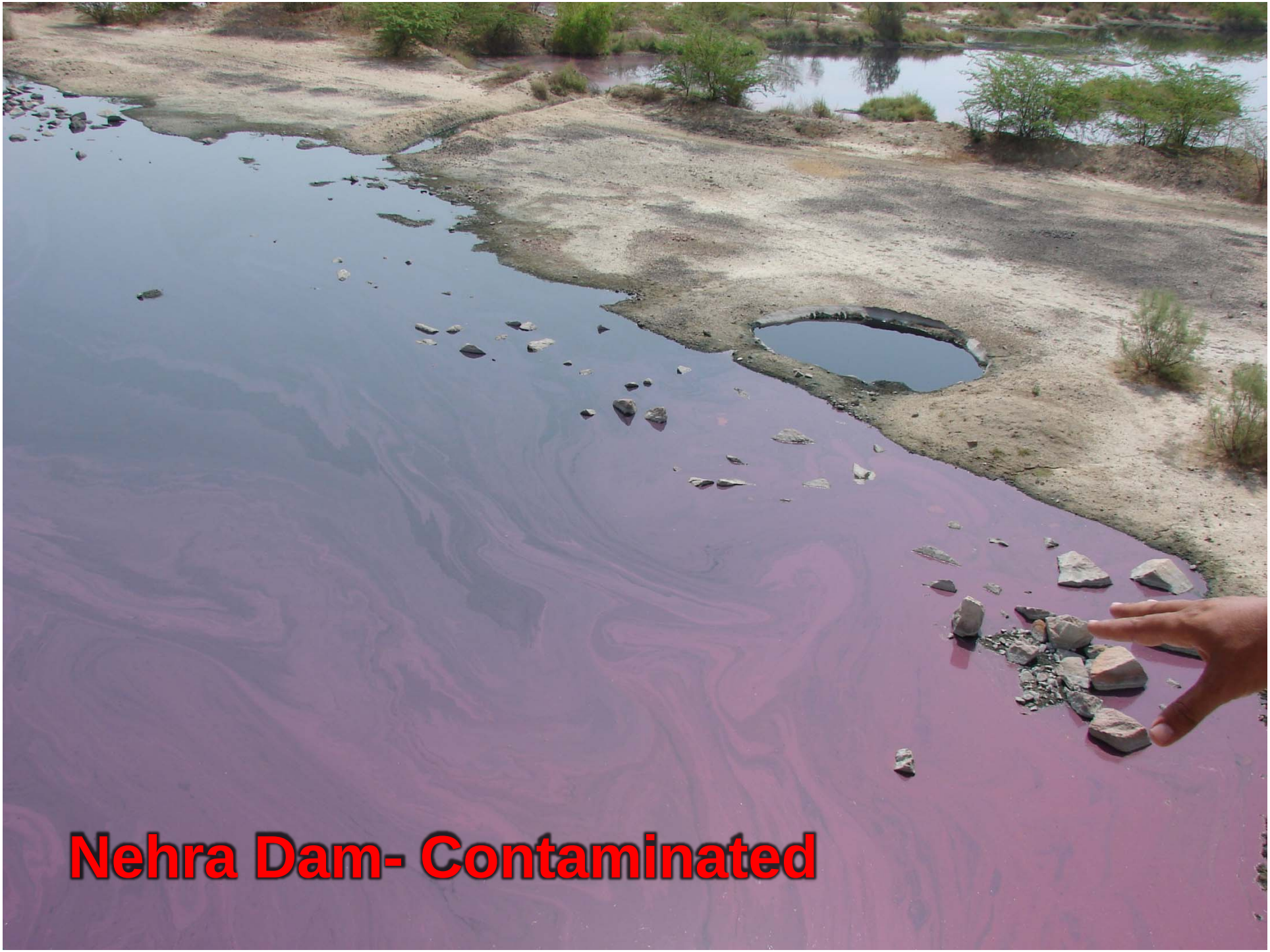

Bandi- River or Nallah?


Situation downstream


Soil and water contamination in the industrial area due to transport of effluents by tankers---- No dedicated drainage

Illegal Sludge Dumping




Nehra Dam- Contaminated

Our Findings

S. No.	Sample Code	Sample Name	pH	DO (ppm)	TS (ppm)	TDS (ppm)	TSS (ppm)	Electric conductivity (mS)	COD (ppm)	Chloride as Cl (ppm)	Sulfide as H_2S (ppm)	Sulphate as SO_4 (ppm)	Phenolic compds as C_6H_5OH (ppm)	Zn (ppm)	Ni (ppm)	*Total Cr (ppm)
Surface water		**ISI-IS: 2296-1982**	**6.0-8.5**	**4.0-6.0**	**—**	**500, 2100**	**—**	**1.0**	**—**	**250**	**—**	**400, 1000**	**0.002, 0.005**	**15**	**—**	**0.05-1.0**
1.	I	Bandi U/s river	6.9	6.82	4580	4560	20	6.9	219	1969	0.7	417	ND	ND	ND	ND
2.	X	D/S river 15 Km Raopawas/ Karel road	9.1	0.04	7016	6190	826	9.2	1313	1904	30.2	295	ND	ND	ND	ND
3.	XI	D/S river 30 Km (Jaitpur)	8.9	0.15	7586	6650	936	10.0	1330	2090	16.1	440	ND	ND	ND	ND
4.	XIII	Bandi Nehra Dam (U/S) 40 Km	8.8	0.19	9674	8600	1074	12.8	718	2182	1.3	605	ND	ND	ND	ND
5.	XIV	Bandi Nehra Dam D/S (43 Km)	9.2	0.25	9794	8740	1054	13.0	648	2322	9.1	650	ND	ND	ND	ND
Drinking water		**IS – 10500: 2004 (Amended)**	**6.5-8.5**	**—**	**—**	**500**	**—**	**—**	**—**	**250**	**0.05**	**200**	**0.001**	**5.0**	**—**	**0.05**
6.	IX	Drinking g/w near CETP 4	7.2	3.3	1050	1040	10	1.6	230	227	ND	45.2	ND	ND	ND	ND
7.	XII	Open well 30 Km (Jaitpur)	8.3	1.21	7736	6880	856	10.2	938	1857	0.3	480	ND	ND	ND	ND
8.	XV	Open well Nehra village	6.8	0.24	7382	6540	842	10.0	358	2898	24.1	627	ND	ND	ND	ND
Textile effluents		**CPCB Standards**	**5.5-9.0**	**—**	**—**	**—**	**100**	**—**	**250**	**—**	**2**	**—**	**1**	**—**	**—**	**2.0**
9.	II	CETP 1/2 inlet	10.6	0.58	9674	7200	2474	10.8	2604	1625	ND	1185	ND	ND	ND	ND
10.	III	CETP 1 outlet	7.5	0.3	9090	7870	1220	11.8	684	2415	ND	1395	0.2	ND	ND	ND
11.	IV	CETP 2 outlet	8.1	0.15	8584	7360	1224	10.8	979	1950	3.8	1012	ND	ND	ND	ND
12.	V	CETP 3 inlet	11.3	0.05	11136	7850	3286	11.8	2153	789	48.7	802	0.5	0.68	ND	0.32
13.	VI	CETP 3 outlet	9.1	0.04	10722	8810	1912	13.1	673	2275	45.3	855	0.8	0.34	ND	0.21
14.	VII	CETP 4 inlet	12.2	0.95	16620	8780	7840	13.2	2826	1904	8.5	857	0.2	0.20	ND	ND
15.	VIII	CETP 4 outlet	9.9	0.5	11478	8820	2658	13.2	2273	464	46.7	397	1.7	0.27	ND	0.14

Recommendations

- **No discharge of effluent in Bandi**
- **Recycle and Reuse of effluent generated**
- **Push for Zero Discharge Technology**