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Point for discussion this month **River health Monitoring - whose Responsibility?**

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Eternal Words

There is nothing in which the birds differ more from man than the way in which they can build and yet leave a landscape as it was before.

~Robert Lynd, The Blue Lion and Other Essays

The activist is not the man who says the river is dirty. The activist is the man who cleans up the river.

~Ross Perot

We say we love flowers, yet we pluck them. We say we love trees, yet we cut them down. And people still wonder why some are afraid when told they are loved.

~Author Unknown



Dear Readers,

Modern man fails many times to recognise the healthiness of river throughout its length from origin to confluence – from zero order to seventh order stream. There are a lot many things not to be exploited to maintain the naturalness of the stream – river. The very first property of river is its continuous, uninterrupted flow from higher terrain to low levels. The laws of physics are derived from such perpetual deluge of knowledge and observations with perceptible measurements. The river as entity is much beyond the measurable parameters such as length, breadth, depth, velocity and water volume.

SESS in association with SETU, Jalbiradari and scientists of SERI conducted a very innovative programme of measuring the health of the river. Five rivers of Pune city are selected for round the year ecological health monitoring programme in the year 2013 – an international year of water cooperation. The theme is to check the dissolved oxygen (DO), transparency or turbidity, temperature, pH, and total hardness using simple test kits. The aim is to inculcate water-volunteers among the enthusiastic students and environmentally awakened citizens who can keep the watch on deterioration of riverine/riparian ecosystems, so that they can contribute to delink the waste streams from natural pure streams – a part of natural hydrologic cycle.

This activity is well-vetted by the clause of Indian Constitution conferring the responsibility of environmental protection on the citizens in addition to all Government's systemic plans and actions. In the era of fast-paced development, it has become an essential task to keep tap on the waste streams where they are generated.

Pune's awakened citizens like Mr. Narendra Chugh, chief of one construction group, Mr. Vinod Bodhanakar, social reformer, Mr. Suneel Joshi, environmental activists, Mr. Kapil Chugh, civil engineer, Mr. Shailendra Patel, spiritually inspired social activist, Mrs. Indu Gupta and Mrs. Pragati Kaushal, victims of river floods due to encroachment with Ms. Pallavi Patil and Mr. Pradnyesh Agre, scientists of SERI have been instrumental in analysing the ecological health of rivers of Pune with scientific back up of Mrs. Sayali Joshi, Vice President of SESS.

Thank you,
Chief Editor

Pune's River health Check up

Shrishti Environment and Sustainability (SES) Society is committed to water, food and sustenance through work culture, work awareness and accomplishment. With reference to 51 A (G) of Indian Constitution, SESS wants to bring the harmony for the environmental health through the self-reliant comfortable standard of living. SESS is committed to the concept of continual improvement through network of life processes.

As a part of long term strategy, SESS has initiated a programme with its associate organizations to understand the citizens' views on Pune's environmental issues and their solutions. These studies will be focused on cost of living, water pollution, deterioration of rivers and lakes, ever-increasing problem of solid waste. The attempt is to find the sustainable solutions on the basis of ecosystem approaches with a theme "Urban Systems with Ecological Security" (USES). The aim is to network various stakeholders to lead to environmental governance for creation of well-acted pioneering culture of Pune city (bigger than some European nations). In this social initiative the participation of citizens, students from any faculty such as arts, commerce, science, engineering or health is welcome.

Shrishti Environment and Sustainability Society (SESS) in association with SETU, Jalbiradari, Shrishti Eco Research Institute (SERI) and other many likeminded organizations and citizens are taking up round the year monitoring Program of Pune's 5 rivers namely Mutha, Mula, Ram, Pavana and Indrayani at 4 selected locations.

As per the stated guideline in 51 A (G) clause, SESS is proposing to check the dissolved oxygen levels in Mutha River at four locations from Vitthalwadi to Sangam. This round the year activity will start from 25th December 2012. Current information about temperature, humidity and rainfall is always available in public domain; similarly aliveness of the Mutha river is judged on the basis of dissolved oxygen concentration which will be made available in public domain. SESS invites the volunteers to participate in collecting the water samples, testing for dissolved oxygen, and preparing weekly reports. SETU has come forward to upload the information on website for the netizens. SESS requests the newspapers, periodicals and electronic media to participate in spreading the information about aliveness of the river and if they participate, then the attempt shall be made to spread this movement all over Maharashtra and dissolved oxygen levels of major rivers shall be reported weekly.

First monitoring session was performed on 20th to 24th December 2012.



River	Sampling Point
Mutha	Vitthalwadi, Mhatre bridge, Bhide Pul, Mutha-Nagzira Sangam
Ram	Bangalore bypass culvert, Ram Nagar, Pashan lake Overflow, Baner Road bridge
Mula	Aundh, Harris bridge, Holkar Bridge, Kalyani Nagar
Pavana	Ravet Upstream, Morya gosavi Mandir, Rahatani Bridge, Before Mula Confluence
Indrayani	Talegaon - Induri Bridge, Talawade, Moshi, Alandi

Mutha River

Site No.	Site 1	Site 2	Site 3	Site 4
Location Name	Vitthal wadi	Mharte Bridge	Bhide Bridge	Mutha-Nagzari Sangam
pH	7.5	7.5	8	8
Turbidity	JTU	70	100	>100
DO	mg/l	1	Nil	Nil
Hardness	mg/l	450	400	500

Mula River

Location Name	Aundh	Near Harris Bridge, Bopadi	Near Holkar Bridge, Khadaki	Near Westine Hotel, Kalyani nagar
pH	8	8	6	7.5
Turbidity	JTU	>70	40	70
DO	mg/l	3.8	Nil	1.8
Hardness	mg/l	650	475	475

Ram River

Location Name	Bangalore bypass culvert	Behind Ram nagar Colony	Pashan Lake	Baner
pH	7.5	7.5	8	8
Turbidity	JTU	>100	>100	40
DO	mg/l	Nil	Nil	9
Hardness	mg/l	300	450	550

Pavana River

Location Name	Ravet Bandhara, Near basket bridge, (Punawale)	Near Morya Gosavi Mandir, Chinchwad	Near Mahalaxmi Temple, Pimple Saudagar	Crematorium, Sangavi
pH	8	7.5	7.5	6.5
Turbidity	JTU	10	20	>40
DO	mg/l	6.5	3.9	Nil
Hardness	mg/l	150	300	450

Indrayani River

Location Name	Indori Bridge	Dehu, Near Temple	Moshi	Alandi
pH	8	8	7.8	7.9
Turbidity	JTU	10	20	40
DO	mg/l	8.6	8.4	4.2
Hardness	mg/l	175	200	350

From this monitoring it can be concluded that -

1. Mutha, Ram and Pavna rivers have are no more rivers, now but they have become gutters. This is the outcome of scientific sampling and analysis of Dissolved Oxygen (DO) which is less than 1 ppm at the sampling stations in the city limits.

2. Mula River is progressing towards "gutter" denomination which is evident from reduction in DO concentration. Earlier it used to be 7 - 8 ppm near Aundh Bridge but now it is 3.9 ppm and after that near Mula- Pavna confluence DO is less than 1 ppm, means the river water quality is deteriorated to such a level, aerobic life is negligible. After that there is no much sewage ingress due to sparsely populated CME, BEG and other military establishments, the river breathes again and DO increases near Holkar Bridge. Finally near Westin Hotel, due to Bhairoba Nala discharge, the DO dips again.

3. Indrayani is comparatively clean among all fiver rivers of Pune Metro region. DO of river water near Indori fort and Dehu is quite satisfactory though some floating plastics were observed. But near Moshi, due to Chikhali Nalla discharge and other city drainage, Indrayani's water stinks a lot. Near alandi, the river is very dirty.

Glimpses of River Monitoring Programme:

