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Point for discussion this month Effective environmental governance

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Eternal Words

Brian Moss in his book “Ecology of Fresh Waters – Man and Medium, Past to Future” writes –

The ultimate theatre is the planet itself, and its stage the biosphere, that part of Earth which is capable of containing liquid water, at least for some periods. Such a stage can sustain a living system, whose chemistry though carbon-based, must operate in an aqueous medium. This platform is a thin skin of moist habitat extending to perhaps 6000 m on the mountains and down to 12000 m below sea level in the deepest ocean trenches. On a planet 12760 km in diameter and surfaced by crustal plate that fracture and move against one another, the proportions of the stage are those of a thin film of dew covering a cracked egg.....The characters in the evolutionary play can change through natural selection....

Dear Readers,

One day, God asked a man tell me how much land you want. Man says as much as he can control. God tells him to walk morning to evening that much land will belong to him. Instead of walking, he kept running dawn to dusk without water, food and rest. When he saw back at evening he was quite happy that he grabbed a good expanse of land, but suddenly he collapsed as he was severely exhausted due to continuous running. He did not rise again. When we see vast expanse of land covered with clouds, we don't feel ruling it, but the inner happiness starts surging up. That's nature's gift and we, humans don't have any right to destroy it for any reason under the name of development and command. Supremacy is not in ruling, conquering the world but coping for the sustenance of life with biotic and abiotic processes of the environment.

India's Ministry of Environment of Environment and Forests has taken unprecedented fundamental shift in their stance by announcing the intention to form National Environment Protection Authority. The discussion paper of Sept. 17, 2009 on the same for comments is posted on ministry's website. First of all we would like to congratulate the concerned for taking such a bold step. We have been discussing the need for environmental governance time to time as Sandeep Joshi briefs the need for ecology-based economy and market for sustainability to allay the ecological warfare for water, food and space.

We find the discussion paper as very positive step towards recognising the importance of environmental planners, designers and technologists in the process of regional, national and global development and sustainability in the wake of climate change. In this urban age – maximization of resources exploitation, one should focus on recycling of wasted resources and water for better liveability. For this, we need environment professionals having in-depth knowledge of ecological processes, resources conservation and waste management to maintain healthy places and consequently to strengthen the market and economy.

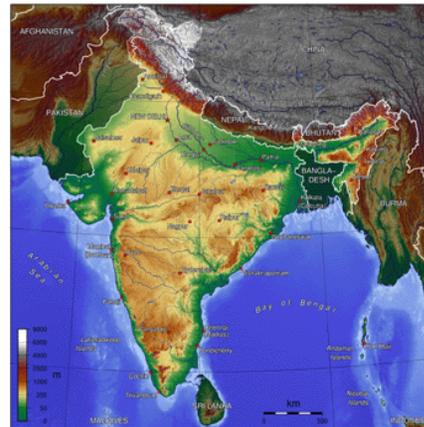
Thank you,
Chief Editor

Food for Thought Theme Article

Environmental Governance: Sustainability for Liveability

-Sandeep Joshi

As per the report of Central Pollution Control Board, 24% population is covered with sewerage system in 233 class - I cities in 14 major river basins of India. Therefore almost 76% of the untreated sewage from these cities reaches to freshwater bodies mainly rivers and lakes. Class -II cities don't have sewerage systems at all for the collection of sewage and mind you just collection of the sewage is not enough, it should be further purified also. Hence, here is the need of environmental governance for the protection of water bodies from pollution, encroachment, and privatization, for sustained common benefits for all.



It is saddening to note that despite spending 17,000 crore rupees on river cleaning projects, Ganga and Yamuna were “no cleaner” now as they were two decades ago, the government has admitted in Lok Sabha (Parliament). Responding to a Calling Attention Motion on checking pollution in rivers and lakes in India, Environment Minister Jairam Ramesh admitted it with full responsibility. Mr. Ramesh added that a “determined and renewed effort” was required to cleanse these major rivers.

Not only rivers but lakes also in the fast swelling urban centres are exposed to unending strings of problems such as the pollution by sewage, effluents and solid wastes, encroachments, extraction of huge waters from the catchment leaving no water for the ecosystems. Actually these ecosystems are the basis of livelihood of man on the only living planet. Therefore USES – Urban Systems



with Ecological Security - should be the principle of environment governance to ensure environment quality for trans-generations.

Need of the Hour

Pollution control authorities, government officers, journalists, citizens and policy makers of state and central governments - everybody is expressing the urgency of the affordable indigenous pollution control techniques which will improve the quality of environment for the society. Profusely spreading pollution is deteriorating our valuable and limited freshwater resources. The pollution is reaching to the water bodies useful for drinking and irrigation purposes through natural drains and streams making them unfit for any application.

The issues can be listed as below -

- a. Neglecting and failure by urban local bodies - corporations & municipal councils in providing clean water supplies.
- b. Utter failure of urban local bodies in collection, conveyance, treatment of wastes generated in their notified areas.
- c. Poor implementation of pollution control laws in urban and industrial sectors.
- d. Not only wastewaters but solid wastes are also disposed off near or in the water bodies.
- e. Encroachment on flood plains of streams and rivers and basins of ponds & lakes by developers, massive changes in cities watershed.
- f. Severe pollution of ground water near polluted rivers & lakes.
- g. No support to development and implementation of indigenously developed technologies & honest efforts to curb the pollution.
- h. Poor communities are exposed to various diseases to chemical and biological pollution especially the down stream of cities.

Central Government's Proposal for National Environment Protection Authority (NEPA) -

As per the discussion paper of Sept. 17, 2009, the ministry proposes to reform existing regulatory, monitoring and enforcing agencies will be getting new facelift and powers to regulate, monitor and enforce the pollution acts and rules. The policy making and adjudication shall be the responsibility of ministry and green tribunal respectively.

It's a welcome declaration that an autonomous statutory body with substantial budget will be professionally managed while drawing in best-in-class expertise from all relevant fields. Some additional responsibilities like environmental planning, sustainability studies, chemical and biosafety, environmental health and ecosystem protection etc. will be conferred on the NEPA.

There is need to focus on river basin as a whole unit. Working of NEPA shall be like a hospital - to enrol the river basin as a basic planning unit where equitable resources allocation and utilization, waste management to maintain the ecological quality of surface and ground water resources, and maximization of renewable energy sources while monitoring the impacts of development - urbanization and industrialization, public education and participation shall be done as "service". There is a need of one more role of NEPA to rejuvenate the water bodies and land masses ecologically. A new concept of development-with-conscience shall be sown in the polity, bureaucracy, and community to make the NEPA successful.

There are some hopes that there will not be old wine in new bottle as the organisation will be managed by professionals with best-in-class expertise. Therefore it can be emphasised that sustainable liveability will be reality due to "services" rather than "regulation". There are many agencies to "regulate or monitor or enforce" but there is no agency to "correct the aberrations" created by development.

Just monitoring or punishing the errant is not enough. Need is of properly trained and experienced environment professionals to further the national goal of sustainable growth. These professionals may be divided into three groups - analysts - who can analyse the samples, monitor the changes and interpret for the corrections required; naturalists - who can list the naturalness of the urban systems and warn against the imminent ecological catastrophes and third group of environment technologists - who can correct the causes and impacts pollution or damage due to developmental processes.

The expert who has ability to correct the aberrations - water pollution, air pollution etc can be termed as "Green Surgeon". He should have knowledge of pollution treatment from concept to commissioning. He should be supported by monitoring agencies with environment tribunal. This "Green Surgery" shall be insulated from politicization, administrative delays, hurdles, inactions and corrupt practices. Then the dream of environment governance for sustainability and liveability will be a desired truth.

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Punya Nadi Sansad's Manifesto for River Culture

Pune is known for many initiatives from hundreds of years, as Vinod Bodhankar quotes' "the first independence movement by Shivaji Maharaj started in 17th century to free the land from clutches of mughals (regional spread), second was to free India from British rule (nation wide) in 19th century and third is to free rivers from pollution (global) in 21st century. All movements have their roots in the soil of Pune". Incidentally, a process of creating a people's platform for the integrated cooperation irrespective of their personal and organisational ambitions and goals was being discussed for a long which finally culminated as Punya Nadi Sansad (Pune's Rivers Parliament) encouraged by Dr. Rajendra Singh's presence, a Magasesey Award Winner who is better known as waterman.

The Sansad's philosophies, constitution, goals, objectives, are being evolved with the initiatives of Vinod Bodhankar, Narendra Chugh, Suneel Joshi, Veena Patil, and Vijay Paranjapye as co-ordinator. They are being helped to weave the structure of people's own initiative of Punya Nadi Sansad for the sustainable River Basin Management by experts like Sandeep Joshi, Environment Technologist and Ecological Designer for technical inputs. Punya Nadi Sansad has announced a manifesto for the candidates of Maharashtra State Assembly Elections 2009.

It states that the key issues which require immediate and urgent attention for policy formation and implementation are as follows -

1. Protection of riverine ecosystem while maintaining the ecological flow for equitable distribution and usage of water
2. Commitment to achieve zero pollution discharge (ZPD) by ensuring 100% recycle and reuse of treated wastewaters by local bodies, industrial estates and commercial farms
3. To identify, demarcate, notify and declare lands with belonging to river as "Protected Green River Zones" to control Encroachment
4. To stop commercialization and privatization of water resources to check and prevent over exploitation of rivers, lakes and ground water resources
5. Commitment to conserve and protect our rivers and lakes from natural and cultural erosion

Punya Nadi Sansad asks voters to seek the commitment for the river policy and reforms to restore and rejuvenate health of water bodies. The citizens of Maharashtra should not miss this opportunity to revive the water quality of

rivers and lakes and should make the politicians accountable for the restoration of ecology of rivers. In their statement of People's Water Manifesto for Maharashtra General Assembly 2009 they have put forward eight demands such as -

1: Water Security: Right to Water - On the lines of Right to Food as promulgated by the Central Government, our State Government should be the first to make Right to Water as a Fundamental guarantee by the State to every citizen. No person or riverine ecosystem should die for want of clean, pure flowing water.

2: Declare and notify one river as a "State River" - Central Govt. has declared and notified River Ganga as our National River, thereby according it a national importance. On similar lines the State Govt. should declare one river as a "State River". The state government shall endeavour to implement all positive reforms on this "State River" and make this as a "Development model river basin".

3: Control and stop the pollution of rivers and lakes of Maharashtra with time bound programme

4: To remove, monitor and further prevent encroachment.

5: Stop commercialization and privatization of water resources to check and prevent over exploitation of rivers, lakes and ground water resources

6: River as a Planning Unit

7: Commitment to conserve and protect our rivers and lakes from natural and cultural erosion with public participation

8: Restoration and rejuvenation of Mithi River in Maharashtra's Capital City Mumbai

The Prospective candidates should appreciate that rivers of Maharashtra in general are polluted and citizens of rural village areas in absence of water treatment facilities are forced to drink polluted waters. The citizens can ensure and see to it that their valuable votes will go to candidates and parties who solemnly affirm to protect their basic Fundamental right of "**RIGHT TO LIFE**" by ensuring that their rivers are protected restored and rejuvenated.

- SERI Representative

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Study of SERI's Low Cost Water Filters

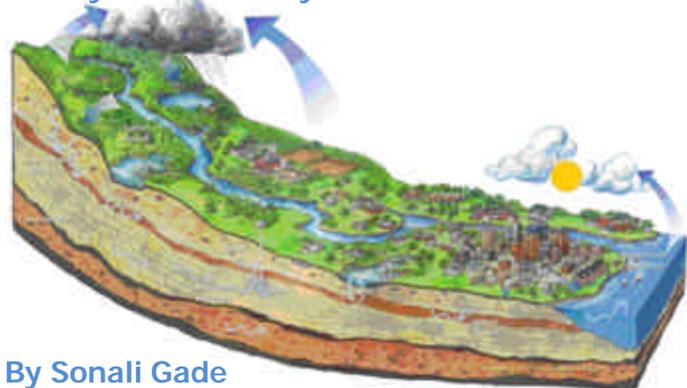
SERI's low cost drinking water filter is an outcome of Sandeep Joshi's research of about 18 years. He is assisted by Sayali Joshi in checking the suitability of materials for the filtration purpose. The materials used to develop filter are easily available. Development of filter was demonstrated in Jal Dindi of 2003 also. The extensive research has culminated into development of low cost drinking water filter with no compromise on quality of treated water. In the research of ecotechnology and field applications of Soil Scape Filter and Green Bridges to treat various industrial effluents and sewage from cities, the validation of Drinking Water Filter was delayed.

Experimentation and validation of the treatment of raw water for coliforms reduction by the Shrishti filter was taken up by the Central Laboratory of Maharashtra Pollution Control Board. The Lab-in-Charge Dr. Amar Supate was keen on finding the efficacy of filter in the interest of victims of pollution flowing through the rivers. He told that the people along the rivers downstream of Pune city are disadvantaged due to the discharges from the city and industrial areas. Under his supervision and guidance of Dr. Nitin Desai of D. Y. Patil Institute, a student of Biotechnology studied the efficiency of Shrishti Filter in treating the coliforms with permission from Member Secretary of Maharashtra Pollution Control Board.

While reporting the results she notes - Shrishti Eco Research Institute- a good step ahead: the water from various water bodies such as the rivers, lakes, bore wells and ponds are generally preferred as a drinking water source by the people living in the rural areas (i.e. along the river banks of the Jal dindi path and people belonging to the below poverty line (BPL) communities. It is very imperative that these people receive clean and germ free water. Shrishti Eco Research Institute has taken an excellent step in this accordance and has developed low cost water filters which have proved to remove out the total coliforms and faecal coliforms from the water as observed in her project's result.



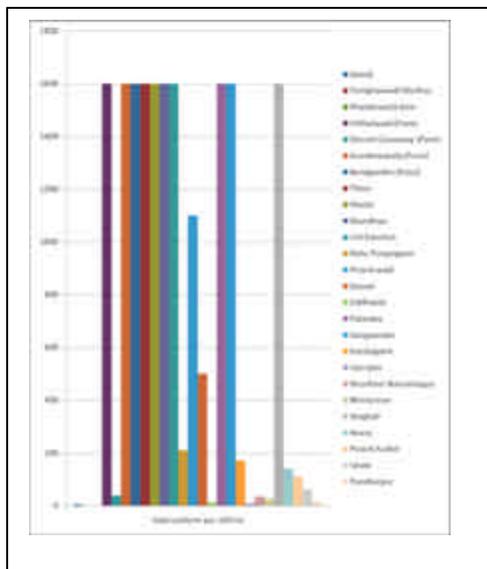
Study the efficiency of low cost water filters



By Sonali Gade

As of 2003, it was estimated that only 30% of India's wastewater was being treated, with the remainder flowing into rivers or groundwater. The lack of toilet facilities in many areas also presents a major health risk; open defecation is widespread even in urban areas of India, and it was estimated in 2002 by the World Health Organization that around **700,000 Indians die each year from diarrhoea.**

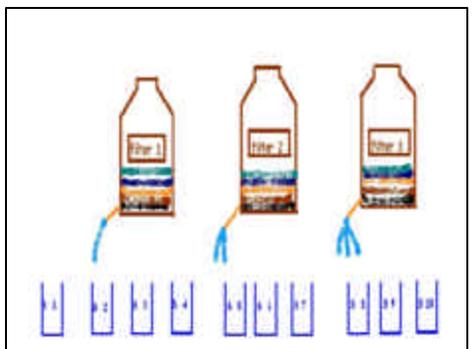
She worked on efficacy of filters in removing coliforms at different flow rates and concentration of coliforms as she noted the findings of SERI of high concentration of faecal coliforms in river water down stream of Pune city due to discharge of untreated sewage. She shows high concentration of coliforms in her report graphically as -



Rather than test water directly for pathogens, which can be difficult, expensive and even hazardous, researchers use indicator organisms to assess the possibility of fecal contamination. Fecal coliform bacteria, members of the family *Enterobacteriaceae*, which include *Escherichia coli*, *Citrobacter*, *Enterobacter* and *Klebsiella* species, are often used as indicators. If high numbers of fecal coliform bacteria are found in a sample of stream water, one may conclude that there has been recent faecal contamination

Coliform Standards (in colonies per 100 ml):

- Drinking water<1 Faecal Coliforms (FC)
- Total body contact (swimming).....<200 FC
- Partial body contact (boating)<1000 FC
- Treated sewage effluent.....not to exceed 200 FC



The experiment was set up by Sonali by developing filters and arrangement for the raw water filtering through Shrishti Filter and collecting the treated water as shown in the figures and photograph. The Shrishti Eco Research Institute in Pune has worked on the design and development of low cost water filters. The thrust in the R&D effort is on the use of the **bio fertilizer** – which they have given a trade name as **Ecofertilizer**. The objective is to provide safe drinking water to rural population in India. The common sources of water in villages are canals, tanks and wells. Water from these sources is very often unsafe to drink and is the cause of several water borne diseases. SERI's development addresses the issue of purifying the water at household level.

The tap water with 5% sewage water had massive number of total coliform count and fecal coliform as the MPN table the count comes to 1800+ which is quite obvious. In the first filter through which sewage water sample with a flow rate of 10 liters/hour is passed the initial sample showed the presence of total coliform though it was drastically reduced by the second sample i.e. from 1800+ to 17 in sample 1 and 2 in sample 2 and completely nil- 0 in sample 3 showing that the filter is very efficient in treating the highly contaminated sewage sample with a flow rate of 10 liters/hour.

Although the contamination in the sample 1 = bore well water (17= total fecal coliform count) was not as high as the previous sewage sample the filter showed amazing results here both sample 2 and 3 were devoid of any coliforms, though sample 4 from the same filter1 showed the presence of coliform but eventually treated the water against fecal coliform giving in complete negative result. She concluded that these filters are useful for a family of five person or 10 to 12 liters per day and These filters are found to be suitable for the hardness reduction of the borewell water also.

The MPCB initiative to provide a good drinking water to the villagers suffering from the polluted rivers is commendable and SERI congratulate MPCB officials contemplating their concern for disadvantaged.

- SERI Representative

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