



# SERInews

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*With you in Pursuit of Sustainable  
Management of Finite Water Resources*

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**Point for discussion this month** **What is needed to save mother Ganga?**

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## Eternal Words

"I think most people in business understand that we are running into a funnel of declining resources globally. We will soon be 10 billion people on Earth -- at the same time, as we are running out of forests, crop land, and fisheries. We need more and more resource input for the same crop or timber yield. At the same time pollution is increasing systematically and we have induced climate change. All that together creates a resource funnel."

*-- Robert Karl-Henrik Robert.*

Wildlife of the world is disappearing... simply because of a general and widespread ignorance and neglect.

*- HRH Prince Philip.*

Nature is the most thrifty thing in the world; she never wastes anything, she undergoes change, but there's no annihilation, the essence remains - matter is eternal.

*- Horace Binney*

Dear Readers,

Delayed monsoon by 30 days or so in India is leading to shaky agriculture on which the economy of country is largely dependent. Even smallest deviation in the monsoon pattern affects the GDP, inflation and livelihood of the people. So, there is need to look into create sustainable water resources in decentralized manner to make water available near the human settlements either in city or villages. The first and foremost identified demand is for the drinking purpose as stated in the government's water policy. Second priority is given to the agricultural demand. But the water management is too based on detailed scientific and hydrologic inputs for the watersheds and demand mapping so that the sustainability is achieved despite of erratic rainfalls and monsoon. As mentioned by Dr. M. A. Chitale in the Institution of Engineers of India (IEI), technical system of Water Resources Department needs radical improvement in monitoring the rainfall and other environmental factors.

It was welcome initiative by Ministry of Water Resources; National Mission for Clean Ganga, Ministry of Environment, Forests and Climate Change, Government of India organized a conclave "Ganga Manthan" where activists, experts, specialists, government officers and politicians were invited to share their views and knowledge to initiate public movement for Clean Ganga Mission. Sandeep Joshi, Green Surgeon - Environment Technologist of SERI was also invited to contribute his views. He expressed ecological solutions should be mingled with engineering structures to minimize the energy requirement and consequently reducing the operational costs.

In the international conference organized by SEERAM in association with College of Engineering (Deemed University) of Pune, SERI, Sandeep Joshi in the vision talk told that knowledge should preside over qualification (as perceived by government agencies to execute the project) experience over documentation of contracts and innovation over precedence for the successful ecological restoration of rivers and lakes. But the today's water projects are perceived as Infrastructure-asset development and not the continued "process" management.

Thank you,  
Chief Editor

*From SERI's Desk*

## 2<sup>nd</sup> International Conference on "Waste Water Technology for Greening India"

The 2<sup>nd</sup> international conference on "Waste Water Technology for Greening India" was organized by Society for Environment Education Research and Management (SEERAM) in association with College of Engineering Pune (CoEP) and Shrishti Eco-Research Institute (SERI) on 29<sup>th</sup> June 2014 at the CoEP Auditorium.

The goal of the Conference was to discuss the best Indian and international experience as well as new and innovative approaches in the field of water supply and wastewater treatment in villages, towns and Cities (small, medium and large). Legislative, administrative, financial and technical issues of sustainable water supply and wastewater treatment were presented and discussed within the conference sessions

Waste Water if treated properly becomes a resource that will go a long way in ensuring the water security of the Nation, by reducing the need for fresh water, and decreasing the pollution load of the water bodies. A paradigm shift is required in the approach towards Waste Water Management, the planners must swivel their attention from the standard - sewer and STP to comprehending the linkages between water, sewage, pollution and help to develop and adopt low cost innovative technologies for Waste Water Management.

This 2<sup>nd</sup> International Conference helped to provide a common platform where experts in the field of waste water technology, the industrial sector, the agricultural sector and the decision makers to discuss in detail all the facets of Waste Water Management to further the Indian economy and the vision of a sustaining Green India!

**Dr. Mangesh Kashyap**, President, SEERAM introduced the theme of the conference by explaining the economics and the environmental issues related to waste water and the importance of waste water management. He said according to Lux Research, the area which dominates innovative company activity in the coming years will be Low cost, minimum energy, no chemicals requirement, zero sludge generating wastewater treatment. Also he told that if the money needed to be spent to treat waste water is immense, the temptation to just dump it is overpowering. The closure of polluting industries is not the only answer to get rid of the pollution but equal importance should be given to take proper precautionary measures to treat contaminated water and recycle wherever possible.

One of the major problems with waste water treatment methods is that none of the available technologies has a direct economic return. The available technologies are unaffordable due to high capital and maintenance costs with no economic return

hence local authorities are generally not interested to invest huge amount for wastewater treatment, thereby it creates severe health hazards and environmental pollution problems. In India out of about 4700 towns/cities, only 232 have the sewerage system but most of these treatment systems are not working properly due to huge electricity requirement and high chemicals cost. Most of the untreated or partially treated wastewater is directly discharged into rivers or other water bodies. There is no question of treatment/recycle or even reuse of wastewater as people are not aware about such type of technology, and therefore main aim of this conference was to demonstrate/introduce the low cost treatment technologies as also highlight the simple techniques of waste water management so that this wastewater is not wasted but becomes a resource which will help to achieve sustainable green and prosperous India, without the present curse of polluted water sources.

The key note address was given by **Prof. Dr. Suresh Kulkarni**, Secretary of Maharashtra Water Resources Regulatory Authority (MWRRA), Mumbai. He pointed out, the efforts of the various Governments and Municipal bodies on waste water treatment were not enough to deal with the amount of sewage generated especially in the metro and urban cities hence MWRRA offered some directives to these municipal corporations to tackle these problems.

He declared that the only way forward would be

- To close the gap between WW generated, treatment capacity and actual treatment,
- Adopt corporate style governance to improve urban water and wastewater services
- Increase investment in infrastructure, capacity building and education to address water and wastewater issues
- Accelerate the process of IWRM planning at the basin level involving stakeholders
- Adopt low cost technologies for WW treatment
- Promote safe reuse of treated wastewater for irrigation and other industrial uses,
- Develop national guidelines for safe disposal and use of TWW for agriculture and other use
- Impact assessment studies of use of treated/ untreated WW on soils, crops, groundwater and human health.

The first vision talk was given by **Dr. Sandeep Joshi**, President, Shrishti Environment and Sustainability (SES) Society and Technical Director, SERI. Dr Joshi is being a hardcore ecologist spoke about the eco-health of our water bodies. The quality of surface (rivers, streams and lakes) and ground water bodies is severely polluted due to unplanned development, over exploitation of environmental resources into catchment areas. He said that, ecology is neglected by infrastructure and economic growth in last few decades which needs to be incorporated into the

developmental planning, market and economy has overtaken on sustainable livelihood and regional equilibrium. Sustainability is all about harmonizing human development and environment, and no country can aspire to progress without sustainable development.

Dr. Joshi also stressed that the target of every wastewater treatment process should be reduce Green house gases (methane), reduce nitrogen percentage, eliminate pathogens - fecal coliforms from wastewater, reduce eco-toxicity and increase the concentration of dissolved oxygen instead of focusing on insignificant conventional BOD - COD parameters.

He stressed the need of bridging the gap between the engineers, economists and the ecologists to develop comprehensive ecosystem approach for resources management by harnessing ecological processes. The waste management should be a versatile, multipurpose tool to achieve eco-friendly, sustainable economic development of India.

Also he discussed how water policies could be improved upon. The solution to the problems in the current scenario is decentralizing the water utilities of supply as well as treatment. Also he gave brief about physical assessment of changes occurs in the Buddha Stream after installation of ecotechnological in-situ treatment -Green Bridges - system.

The second vision talk was given by the **Mr. Ramani Iyer**, Member, Confederation of Indian Industry (CII). He firstly addressed the issue of out of control problems of wastewater pollution area. And according to him, the answer to this is non-functioning of STP and ETP plants. These plants are not functioning because of many reasons some of which are lack of operation costs, electricity shortage, no technical knowledge, lack of skilled operators, and finally lack of willingness due to all above points!

He further gave the example of the Ranjangaon MIDC (industrial hubs situated 35 km away from the Pune city) where MPCB has given closure notices to many of the Industries because nearly more than half the numbers of ETPs are not working and untreated effluent disposed off into the nearest river. Now it's time to understand that it is not a question whether one should save the environment or save the business. The need of time is to adopt new technologies which are cost effective and non-polluting and required minimum and unskilled maintenance.

He said all efforts should be taken for good environmental management then it will help to achieve benefits of protection of Long Term Investment, lower Operating Costs, value addition for project proponents and compliance with Legislation all of which have a better payback in the long run. Therefore Environment Management practice along with the infra structure planning of any business venture is most

important. Futuristic planning he said always has better returns. He suggested for the better working of the STPs and ETPs the following measures should be adopted:

- Develop and implement a Preventative Maintenance Programme.
- Hire an independent maintenance contractor.
- Train treatment plant and other maintenance personnel at ALL levels. In fact all staff should be aware of how their daily activities can affect the functioning of the treatment plant.
- Make Operation & Maintenance Manuals available, or develop them if necessary.

He extended the zero water discharge concept, its merits and challenges and presented chemical industries viz Godrej Industries Ltd, Valiaand PVC and Chlor-Alkali plant Chemplast, Mettur case studies for better understanding of concept.

**Ms. Maria Mendizabal**, Executive Director, LKS India Private Limited presented the work and the projects that her company is doing in India. Speaking about the work culture of the organization she's representing, she clarified that LKS is not an acronym for initials of the name of anybody but the initials of three different words in the ancient Spanish language, meaning "Come Together and Work". When working on any project all stakeholders were considered and cooperation from everybody was sought. She quoted that "A plan is inert until somebody believes in it. You have to have a champion to give any plan a life."

She said she believes in the restoration of rivers because she had seen it actually happened in her lifetime in many of the European rivers including the Thames, therefore she told that it will only be the goodwill of the people that will help to clean the polluted rivers of India and require a multi-disciplinary approach with many organizations involved as well as the political leadership and will, to create more resilient cities, coastlines, and agricultural areas.

An eminent panel of experts in the various streams of water expertise was set up for a panel discussion in the afternoon session on the topic "**Professional Ethics in Water Sector for Developing India**". Expertises present in the panel were Dr D. M. More, Ex Secretary and Director General for Maharashtra Engineering Research Institute, Nashik and President of the Maharashtra Sinchan Sahyog, Dr. Sudhanshu Gore, Social Scientist, Mr. Dr K C Mohite, Dean, Faculty of Science University of Pune, Prof. R. P. Thanedar, Assistance Professor, COEP and Mr. Anil Patil a water activist.

**Dr. D. M. More** began the discussion by saying that even though the word 'Ethics' sounds very confusing it is hardly. He said he had expressly looked up the word in the dictionary and the dictionary meaning of the word is 'morally correct' being morally correct in the water sector could be summed as the following:

- Harvest -store water but while doing so one should leave adequate for the care of Nature, one must always remember that one is only a small part of the whole

and every being in the natural order needs water. Therefore a minimum ecological flow of a river -stream must be ensured while creating storages.

- For ground water abstraction the abstraction must equal the actual recharge of the aquifer, more than that should never be abstracted.
- Every living entity requires optimum quantity of water for healthy growth and maximum output. This optimum quantity should be achieved in agriculture so that wastage of water will be avoided.
- Volume measurement is a must in irrigation so that optimum quantity is achieved, ad hocism or unplanned for actions should be avoided.
- Illegal abstraction of water should never be attempted.
- Solid or liquid waste should never be allowed to pollute a water source.
- Equitable distribution must be arrived at with the consensus of all, any disparity or inequality will give rise to dissension

**Dr. Mohite** said that there is need to develop environmental awareness in the masses and mass education programmes are needed. Students should be encouraged both by Academic Institutions and the Industry to develop innovative technologies which are in harmony with the Indian culture and adapted to be used with very little training. He said that in his department students were always encouraged to take up innovative projects. He then discussed the merits of two projects undertaken by students: a) use of solar power for saline water purification and b) Use of sensors to prevent wastage of water in agriculture (Automated Irrigation System). As both were entirely developed with material available here he said that both the projects are replicable on a commercial scale.

**Prof Thanedar** discussed merits of the usage of an on-site decentralized W/W treatment system. He also highlighted the importance of the implementation of Green Technology in waste water treatment which states that whatever you take from the nature give back, that is recycle in the natural system.

**Mr. Anil Pail** discussed problems being faced by residents of Indapur Taluka in Solapur district due to high levels of nitrates, COD, BOD and fecal coliforms in the Ujjani water. Due to unavailability of any other source, locals, continue to depend on water from the dam. He said the lead will have to be taken by the urban polluters - and so Pune needs to think and discuss and set up a Vision of - Pure Water Discharged from Mula-Mutha to downstream populations. Rivers basins are the growing fields of current economic progress and future growth. Mr. Anil Patil said that therefore, there is a dire need for the development of River Basin Organizations (RBO) in India to further prevent the deterioration of the quality of downstream waters.

**Dr. Sudhanshu Gore** analyzed the concept of 'Ethics'. He said Ethics helps us to decide which 'thought, utterance or action' is appropriate in a given context, he also stressed the one important point that it is difficult to be ethical on an empty

stomach! He also added that Materialism should be tempered by Humanitarianism. The frame of reference should be sufficiently broad, not limited to a small action or section of society. In this context he said 'think global, act local' is very important. Democracy has been unfortunately misunderstood by masses or even perhaps by some sections of learned in India. 'welfarism' as a politico-economical idealism has turned into 'rights without responsibility' mentality of everyone. Politicians have always been after winning elections by appeasement of masses. Populism has overtaken their role of 'leadership' by example.

The new freedom made available by democracy is being abused by masses. On the one hand, expectations are rising, comparisons are being made with advanced countries regarding physical facilities and means of luxury, but at the same time, awareness regarding duties of a single citizen towards society is not being inculcated by any means. Therefore, he said that mass education programs and drives are very important and necessary if we wish to bring Ethics in the society regarding the preservation and conservation of our natural resources.

There was a session of paper presentations where young researchers and faculty members presented some technical solutions on many facets of water problems like "Enhancement of Solubilization on Waste Activated Sludge by Advanced Pre-treatment Technologies" study by Gopikumar. S, Research Scholar from Anna University, Tirunelvel, "Importance of Sewage Treatment Plants in Nashik City" by Mrs. V. S. Bhagwat, Scientific Officer and her team, Maharashtra Engineering Research Institute(MERI), Nashik and "Nanotechnology as a tools to remediate waste water" by Dr. Biplab Sarkar, Senior Scientist (fish and fisheries) National Institute of Abiotic Stress Management, Baramati.

Dr Shirish Ambegaonkar expressed vote of thanks on the behalf of the organizers.



From L to R : - Dr. Sandeep Joshi, Ms Maria Mendizabal, Dr. K. C. Mohite, Dr. Suresh Kulkarni, Dr. Mangesh Kashyap and Dr. R.P. Thanedar



Prof. Dr. Suresh Kulkarni



Dr. Mangesh Kashyap



Dr. Sandeep Joshi



Ms. Maria Mendizabal





Release of Journal "Environment Observer"



Sitting L to R – Dr. K. C. Mohite, Dr. Sudhanshu Gore, Dr. D. M. More, Prof R. P. Thanedar, and Mr. Anil Patil

From SERI's Desk

## Ganga Manthan

A one day national dialogue on the Ganga River - "Ganga Manthan" - was organized by National Mission for Clean Ganga which is currently being functioned under the Ministry Of Environment, Forest and Climate Change (MoEFCC) on 7<sup>th</sup> July 2014 at Vigyan Bhavan, New Delhi. Union Ministers like Water Resources and Ganga Rejuvenation Minister Uma Bharti, Environment Minister Prakash Javadekar, Transport and Shipping Minister Nitin Gadkari, Tourism Minister Shripad Naik and Minister of State for Water Resources Santosh Kumar Gangwar and some selected scientists, experts, religious leaders and NGOs participated in this day-long brainstorming on the Ganga river rejuvenation plan.

Main objective of this Ganga Manthan was to bring all stake holders including religious gurus, technocrat on one platform where they can share their views, findings and suggestions with various issues related to the Ganga pollution. This point of discussions will be shared with a Committee of Secretaries (CoS) which has been working on a blueprint to develop the river. This group will be expected to submit its plan shortly.

Uma Bharti, Water resources and Ganga rejuvenation minister emphasized that the river cannot remain clean unless every citizen cooperates. The ministry will launch a website on the river Ganga where peoples from all over the world can share their suggestion and ideas for cleaning the river.

The outcome of this Ganga Manthan will help to rejuvenate not only River Ganga but also Yamuna and other important rivers of the country which also need to be cleaned.

Dr. Sandeep Joshi, Director of SERI was invited for this Ganga Manthan programme, to discuss his views on technical feasibility of the restoration programme.

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