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Point for discussion this month

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Dear Readers,

2nd February is celebrated as Wetland Day all over the world. Wetlands are the ray of hope in today's day by day deteriorating healthy environment. That's why National Environment Policy, 2006 of India has suggested use of wetlands to treat the pollution. We suggest not using natural wetlands for management of city wastewaters. But artificial wetlands with novel concepts of Brown Biodiversity Park can be used to control the climate change while managing the wastes at very low energy and material inputs.

In Maharashtra state of India first Eco-village set to take off! Its very welcoming step and this will help to restrict the migration of village people toward urban area and very healthy environment for generation next!! And I am feeling very proud that SERI is offering its expertise for this activity. You can read more about this in this issue.

Also you can read about the streams of Pune city and some effective remedies or solution to pollution of these streams.

Thanking You,

Sayali Joshi

Chief Editor

Newsviews

-Priyamvada Joshi

Maharashtra's First Eco-Village

The Katewadi Village in Baramati taluka is going to become first eco-village of the state. It's a home town of Union Agriculture Minister Mr. Sharad Pawar.

The Rs. 8.0 crore project is developed by Maharashtra Pollution Control Board (MPCB). This project report was prepared by Mr. Amar Supate of MPCB and his team. The aim is to reverse the gradual disintegration of environment in the village. The Gram Panchayat and people of Katewadi are very positive for this

Founder of Gramin Swachata Abhiyan Sunetra Ajit Pawar, who is very much involved in this project said that the plan is very efficient and it will definitely change the scenario of village environment.

As per Mr. Amar Supate the motivation for establishing an eco-village is to reverse the gradual disintegration of supportive social and cultural structures and avoid destructive environmental practices.

The plan focuses on sanitation and health which aims at promoting community livestock management, solid waste management, sewage treatment by green bridge technology.

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Right To Get Water Part Of Right To Life

The supreme court judge Markandeya Katju stated that right to get water is a part of right to life under the constitution. He also suggested that Central Government should set a panel of scientists to solve the water problems. He further stated that Government should request the scientists to do their patriotic duty by carrying out scientific research to find ways to resolve the water problems in the country. Katju's was giving decision on the petition by the state of Orissa, which sought directions to end its dispute with the Andhra Government over construction of barrage over Vamsadhara river. According to him the country has many capable scientists in this field but they are not brought together or not given the facilities to do this kind of task. He concluded that such panel should be formed immediately and these issues are to be sorted out on war footing or else there would be great suffering and social unrest everywhere.

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Future Of Climate Change!

In the journal "proceedings of the National Academy of Sciences" scientists from different countries wrote that the world's growing population may not be able to sustain the ecological changes due to hot climate.

This warmer temperature may be good for a while but after certain level plans will be stressed and this will results in to more droughts. The situation will get worst day by day as the rapidly growing population can not be sustained on limited food. This group of researchers have examined the time period 1400 to 1900 or the Little Ice Age in which the lowest average temperatures were recorded around 1450, 1650 and 1820 each separated by slight warming intervals. When such ecological situation occurs, People tend to move to another place and this mass movement leads to wars like in 13th and 17th century.

Although the study included only temperature decline periods the same prediction could be made of global warming. A report said climate change will put half the world's countries at risk of conflict or serious political instability.

International Alert secretary general Dan Smith said," I would expect to see some pretty serious conflicts that are clearly linked to climate change on the international scene by 2020.

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Hope The Dream Comes True

Pune Municipal Corporation (PMC) has very ambitious plan of cleaning Mutha river and making it free of sewage pollution in next two years. To accomplish this it has given permission to five new STPs of cost 150 corers to treat 190 MLD.

Present STPs can handle only 300MLD of sewage while Pune city generates about 500 MLD of sewage.

PMC is doing this to recharge the Mutha river with more fresh water so that Navigation Project can be implemented on this river.

According to PMC authorities people can see free flowing pollution free river with in next two years! Lets hope the dream comes true!!

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Excerpts from Article

Streams of Pune: Waiting for Restoration

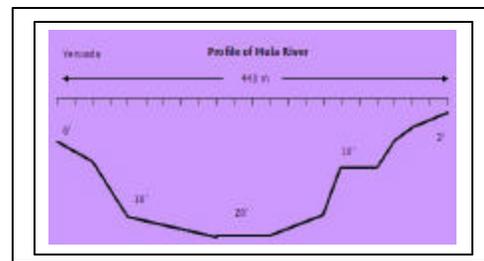
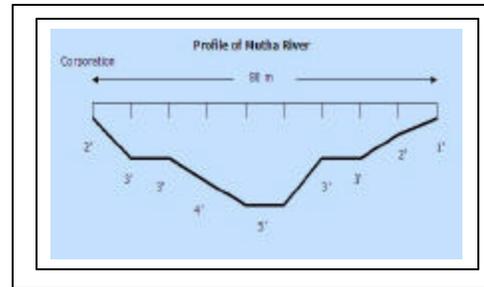
- Sayali Joshi

Pune is knowledge city attracting intelligent people from all over the world. The population growth of Pune is more than 2,00,000 per annum which reflects in increased vehicular population and filthy living conditions with improper sewage disposal. Inadequate sewerage systems for 4 million strong populations in Pune Metropolitan area are leading to the pollution of natural drains in the city's watershed and finally pollutants reaching to rivers. These rivers were having sparkling waters just two decades ago; but now they have become large gutters carrying the muck from the city. There is a gross system failure as the city service providers are not able to keep pace with the city growth.

There are five major rivers flowing through Pune city and near by industrial area. Mutha and Ram rivers collect wastewater from the residential areas in the Pune City. Mula and Pavna rivers are mostly contaminated by industrial discharges, agricultural runoffs and sewage. Indrayani River encircles the city passes through Alandi which receives wastewaters from newly emerging industrial and residential areas from Dehu to Alandi. Pavna joins Mula River near Dapodi. Mutha joins Mula River near College of Engineering, Sangam Bridge. The combined river Mula crosses down south and joins Bhima River. All these rivers are the victims of ultramodern hi-tech development in their catchment.

Ram rivers have been polluted to such an extent that they are not useful for any purpose. The condition of Mula river is comparatively better. But Maharashtra Pollution Control Board has categorized these rivers into Class A-IV because of high level of contamination and pollution. The contamination of rivers by sewage and industrial effluents has lead to eutrophic conditions, dense growth of a particular aquatic species - Water Hyacinth and finally the blackening of water due to accumulation of organic matter. Thick mats of the water hyacinth reduce the velocity of the river and

this becomes the breeding ground for mosquitoes and other nuisance insects. It adds to the problems downstream where the deposited organic matter, undergo anaerobic degradation. This has become common feature of the rivers of Pune and Pimpri Chinchwad region and Upper Bhima River Basin as a whole. SERI has studied these rivers extensively from 2000 onwards. The following figures show the river profiles at particular locations –



SERI's solution for pollution from point and non-point sources is ecotechnology. It is also suggested to use wetlands - natural powers of ecosystem to curb the pollution generated by human settlements in National Environment Policy 2006 of India. It's a welcome swing from the standpoint of fervently insisting energy intensive mechanized waste treatment systems. The 150 years old conventional aerobic and anaerobic treatment systems are yet to be accepted worldwide as they are cost intensive and complicated to maintain. Investment of crores of rupees in the Ganga Action Plan could not give the results due to unavailability of electricity to run the modern facilities of state-of-the-art-treatment systems and technologies. Same was the case with Yamuna Action Plan and Dal Lake Pollution Control Plan.

The application of ecological engineering principles and using the biopower of living components of detritus food chain – bacteria,

fungi, microinvertebrates are found to be effective in the treatment of wastes. The waste generated through anthropogenic activities is consumed by the living components of ecotechnological treatment units. Though ecotechnology is comparatively new option, polluter has got a very cost effective technique to control the pollution and convert it into resources. Ecotechnological treatment units such as Soil Scape Filter (vertical filtration), Hydrasch Succession Pond, and Green Channel are found to be effective for the treatment of pollution from point sources. The capital costs and operational costs are 50 - 60% and 10 - 20% respectively that of conventional aerobic or anaerobic systems.

Innovative horizontal filtration system – Green Bridge (patent is registered in author's name) is found to be very promising technology to treat the pollution from non – point sources flowing through the natural drains / streams in the urbanized areas. Green Bridge system is supported by Green Lake Systems. There are other forms of ecotechnologies such as Stream Ecosystem technology, Green Contour technology etc. Practical applications of all these ecotechnologies are found to be very economical and simple as far as operations are concerned because their source of energy is sun and they require least machinery for the routine process maintenance and operations. Applicability of the Ecotechnology is proven through the number of installations of field scale units on domestic as well as industrial wastewater from last 12 years in various parts of country.

Nowadays, climate change has become a buzz word among the administrators and leaders who control the resources as it is understood that it would lead to many known and unknown health and economy impacts on individual. Kyoto Protocol was developed to assemble world leaders, bureaucrats, technocrats and scientists to counter the climate change. The most overlooked activity in the climate change is the control of water pollution which normally contributes to generation GHGs.

The plants with microbes play a major role for the carbon sink and aerobic degradation of the wastes. These are the natural forces

which are useful in managing the wastes. Ecotechnology harnesses these biopowers to assimilate anthropogenic wastes into ecological cycles without putting demand for man-made electricity. Conventional waste management systems need a lot of electricity which in turn does not become a candidate for carbon credits. But, ecotechnological treatment units having multiple uses like carbon sink, reduction in use of electricity and minimizing release of methane like GHGs are more useful in getting carbon credits at international levels. These techniques are more useful for the developing countries which cannot afford the cost of sophisticated mechanized autocontrol techniques to manage the waste.

The concept of City's Brown Biodiversity Park (CBBP) encompasses the needs of waste management and biodiversity conservation. It's a novel concept of integrating the treatment of waste with park development. If Pune city develops Brown Biodiversity Park, area requirement for 1000 MLD will be about 240 ha for Centralized and 320 ha for decentralized ecotechnological STP.

City authorities are planning 1200 ha biodiversity parks in and around city out of which about 25 – 30% can be assigned for CBBP scheme. Investment for the waste treatment facility using CBBP will be Rs. 120 crores (excluding land and conveyance of wastewater) for centralized and Rs. 80 crores for the decentralized (excluding land) scheme. If done successfully with ecotechnology - total Certified Emission Reductions (carbon credits) will be about 360 million for Pune City with conservative estimates. Then Intelligent City will be leading in the world even in the maintaining natural wealth free of pollution.

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