



# 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** **Human, Ecology and Development**

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## Eternal Words

Humankind has not woven the web of life. We are but one thread within it. Whatever we do to the web, we do to ourselves. All things are bound together. All things connect.

~Chief Seattle, 1855

We must limit our technological interventions into nature long before we have definitive scientific proof of harm. This is the principle of precautionary action, and if we don't adopt it, nature will get along just fine without us.

- Peter Montague in Rachels Environmental & Health Weekly

"We have overwhelmed the natural systems from which we emerged and created the dangerous illusion that we no longer depend on a healthy environment. As a result, humanity now faces a challenge that rivals any in its history: restoring balance with nature while expanding economic opportunities for the billions of people whose basic needs--for food and clean water, for example--are still not being met."

World watch Institute, State of the World (1998)

The human race will be the cancer of the planet.

~Julian Huxley, attributed

Dear Readers,

The cover photo is of Lake Victoria, a trans-boundary lake between Kenya, Uganda, Tanzania, one of the largest lakes in the world as far as water volume is concerned. Its vast spread of freshwater is an abode of various floral and faunal species. The lake harbours many endangered species. From the north end of the lake the White Nile River originates. It is being trans-boundary Lake, there are some socio-geographic issues came to fore due to geopolitical boundaries which need to resolve for sustenance of life in the basin.

There are many issues of such water bodies. At international level a firm policy for Trans boundary water bodies is yet to be formed which will be very much helpful in addressing issues like water distribution, pollution and minimum ecological flow to sustain the water body through all seasons of the year. One such case of Trans-boundary River between India and Pakistan is discussed in this issue. India's Water Policy of 2012 has acknowledged and addressed the issues of trans-boundary Rivers and Lakes. The entire Himalayan region having boundaries of India, Pakistan, China, Nepal, Bhutan share the bounty of highest water towers of the world and the Bangladesh is at the tail end of the Ganga and Brahmaputra river basins. Therefore, all the countries need to share the water at the same time maintaining the integrity, quality, sanctity and sustainability of the water bodies.

India is enjoying winter. At some places it is very pleasant but in northern part heavy snow is affecting daily routine, transport and overall livelihood. In winter India is a favourite halt for many migratory birds. It's a feast for birdwatchers and researchers. But one study shows that the number of these migratory birds is reducing.

We are deeply sorry to inform that we have lost Mr. Probir Sinha, an ardent field worker of river restoration who was always in the front for installation of green bridges on the polluted rivers from last 10 years. This industrious devotee had his heartware in protecting the rivers from the curse of pollution.

May God give strength to Sinha family in this period of grief! Our warmest condolences are with the family.

Thank you,

Chief Editor

## Condolence



Rest In Peace Mr. Probir Sinha

*Though nothing can bring back the hour of splendour in the grass, of glory in the flower  
We will grieve not, rather find strength in what remains behind.*

- William Wordsworth

## Ecology: new weapon in stands of diplomacy

- Pradnyesh Agre

A hydro-hegemon prevents every water drop that flows to delta from being wasteful hardly referring the science of ecology. But when hegemon find itself under stress of geographical disadvantages it calls upon science of ecology for keeping aside a rigid approach.

Pakistan is getting brainstormed by the international experts and team of lawyer to pull out all the stops and get the settlement in its favour for Kishanganga water dispute.

Pakistan's argument about violation of Indus water treaty from India, by building 37 meter high dam on the Kishanganga River known as Neelum in Pakistan as a part of 330-megawatt hydel project, was dismissed by court in February 2013, while interim award gave India the go-ahead to divert water for power generation.

To allow its final ruling by December court sought more information to work out the dam operations to ensure a flow of water downstream of the dam due to insufficient data, specifying June as deadline.

As per stipulated in final award of the court nine cumecs of water (or 9000 litres per second) be released downstream of the dam at all times. That means half the average flow during the lean flow months of December through February at the dam site should be released by India. Where India had desired to release less than half of the nine cumecs, Pakistan is claiming to release more on basis of enough scientific information and inferences collected by them.

The Kishanganga, would suffer significantly reduced water flows which flows from India into Pakistan and meets with the Jhelum River, one of the rivers covered by the Indus Water Treaty, as Pakistan too has plans to use and divert water for hydroelectricity generation once the river crosses the border, referred to as the line of control given the conflict between the two countries.

Both Pakistan and India are accountable for two-sided pretensions. Court appreciated, very detailed study using advanced methods such as Downstream Implications of Flow Transformation, or DRIFT methodology done by Pakistan. This inter-disciplinary methodology examines a large number of indicators of water quality, fish, macro-invertebrates, sediment loads, hydrology, etc., before arriving at a decision on acceptable environmental flows (e-flows) downstream of a dam. In the name of ecological sustainability, Pakistan wants release of more water for its own uses being the downstream area. Instead of using simplistic methodologies of minimum flows – which is an arbitrary fixed percentage of average flow that they were using for domestic projects, Pakistan employed international e-flows experts to produce more comprehensive impact assessment to justify a larger release

volume. In short, Pakistan is wrapping entire scenario under envelope of ecology to shield its hydropower desires.

The court sought more evidences of possible impacts of Kishanganga project with due respect to environmental sustainability. While developing 17 different flow scenarios, Pakistan claimed that 4.25 cumecs figure by India is a non scientific arbitrary value. India counters that the Pakistan is influencing to array a greater environmental flow than their actual necessary. The supportive submission by Pakistan is just a 'constellation of environmental material' and excessive than what court's demand for. According to India; use of complicated methodologies by Pakistan, are not justified when more simplistic minimum flow methodologies are usually being used.

Pakistan had done more in-depth assessments than what is routinely done for domestic projects in India. Hence the Court is interpreting that an in-depth assessment done by Pakistan is more appropriate tool for estimating potential changes in the downstream environment'.

In India the (Federal) ministry of environment and forests is of little concern whether the stipulated thumb rule of three season flows, i.e. 20% of the lean season flow in the lean months, 30% of the monsoon flow in the monsoon months, and 20-30% of the average seasonal flow in the other months, will trigger fish kills or not.

The difference between environmental sensitivity that Pakistan urges in this dealing and its historical practices where the environmental flow has often been set at a low minimum was raised by Indian representative and was acknowledged by the court. The scheduled date of completion was set at seven years from the date of sanctioning, or January 2016; which will most likely exceed. After the project is commissioned India and Pakistan are allowed to re-examine the final grant.

Paradoxically, India urges that comprehensive impact assessments of large hydro-projects on the Yearlong Anglo (or Brahmaputra) should be performed by China, where China is the leading upstream power. This mimics the Pakistan's expectation from India in case of Kishanganga River.

Using such double standards as per convenience and distant use of ecology to further selfish goals will only have disastrous consequences for our rivers, shared or otherwise. The uniformity in guidelines of assessing impacts at downstream should be critically determined. We have to accept that nature is hegemony itself, so with due respect to the ecology we should restrict dilation of baggy green from our lust for infrastructure development. The desire of protecting river ecology should be non-negotiable.

## Changing pattern of Avian migrates in New Delhi

- Pradnyesh Agre

Arrival of cold breeze is siren to birdies to gear up with binocular and cameras to welcome migratory birds. The cold we feel that makes us sometime uncomfortable is a warm stopover for magnificent migratory birds. Every year several wetland and biodiversity rich plateau get flooded with the number of birds that began their journeys from Europe, Siberia, the Himalayas and other South Asian countries at the onset of winter.

Enthusiastic bird watchers and scientist conduct survey and studies every year for migrant birds in various cities. Most of the metropolitan cities, and forests or sanctuaries in vicinity are being surveyed every year since last few years in the form of Bird Race. Most of the researchers and ornithologist also are documenting scientific information about migratory birds, their behavioral pattern etc. More organized birding with the use of more sophisticated camera better at catching the swift birds is attributed to unusual or rare bird sighting. Along with good birders, changing habitats and excellent guides in identifying and spotting birds are responsible for the different varieties of birds being documented.

The studies that have evolved pattern of number of species visiting every year is pronouncing. There is a gradual decline in the number of species that visit every year in some areas.

While Experiencing Collapsed air traffic due to fog and cold and low visibility on other hand, New Delhi, the capital of India is being one of the warm stop over for this foreign flights. Insectivorous birds that migrate because of scarcity of food during winter in the Himalayas get halts in Delhi and then migrate to warmer places. Lot of closed canopy birds have also started arriving at Okhla bird sanctuary, Sultanpur Bird sanctuary, Aravli Biodiversity Park and Yamuna Biodiversity Park in Delhi.

This year only 22 species of birds have been spotted till now, compared with about 38 species of winter migratory birds that were seen in January 2012. This number is far lesser at Okhla Bird Sanctuary.

At Sultanpur Bird Sanctuary in Gurgaon also, a far lesser number of birds have been sighted this month. Last March threw up more unusual sightings that included the verditer flycatcher along with the long-billed dowitcher and Baikal teal in Sultanpur National Park. There have been only three recorded sightings of the longbilled dowitcher in India. On the other hand presence of the marbled teal in and around Delhi has been reported for the first time.

The Aravalli Biodiversity Park in Vasant Vihar is also being host for about 30 species of colourful migratory birds from the Himalayas and upper reaches. The great pied hornbill was also seen in the summer. A lot of Bar-headed geese that

migrate from Siberia are being seen this time. At the Yamuna Biodiversity Park, about 4,000 birds of 18 to 20 species have arrived. At the National Zoological Park, painted storks have arrived in large numbers and given birth to chicks. Most of these species like Teals, wild ducks and pintail ducks will return to their breeding grounds in different countries by March.

Alongwith the greater adjutant stork and sub-adult Brahmany kite birders have recorded the presence of the great bitten in the monsoon months at Najafgarh drain. The bristle grass birds are seen nesting (July and September) in Dadri and the Indian night jar at Surajpur is also lifer. Greater white fronted goose, the marbled teal and black stork were seen in Dighal; the grey bushchat and dark throated thrush, Asian paradise flycatchers and European rollars are also seen here .The jack snipe was seen at the Basai wetlands in both March and September. White-capped buntings and red-headed vultures were spotted in Bhatti Mines.

However, the capital has been witnessing a steady loss in the number of birds and their species. Climate change and its subsequent affects on number of migratory birds are being assessed as migration pattern of birds is susceptible much to the climate change. Missing of some key species like painted snipe in 2013 is seemed to be an indication of dying wetlands in NCR .A sign of climate change or fallout of too much disturbance of their habitat and infrastructure developments around is turning out the dire state of Sanctuaries.

Though some water birds, including Mallard, Common Teal, Gadwall, Tufted Pochard, Common Pochard, Common Coot, Northern Pintail, and others can be spotted in the sanctuary these days. Okhla bird sanctuary is the great example of victim wetland.

The ecologists are concerned about too much fluctuation in the water-level in November and December at the Okhla Bird Sanctuary due to Withdrawal of water from the wetland by UP government. The Uttar Pradesh irrigation department's decision to open the barrage of Yamuna to drain out water in October has left the Okhla sanctuary dry due to which migratory and resident birds deserted it for some time. Being global trend inadequate water at peak time and encroachment by local youth has affected the migration of birds here also.

Activities of the local people are deteriorating the adjacent small wetland habitat for birds in the buffer zone towards Noida. Grazing, instances of people dumping garbage, stealing parts of iron fence of the sanctuary can be seen in the sanctuary wetland, which headed the destruction of the natural habitat of birds. High tension wires passing through sanctuary is also a major issue.

Lack of visitor's vigilance due to deficit basic facilities and Lack of birds Okhla Sanctuary is under threat of being just Green Park.

## Gene Revolution

- Bhargavi Thorve

Should GM crops get a nod for commercial cultivation? Is GM crops panacea for all the problems in the agricultural sector? How to ensure sustainable nutritious food supply to the increasing population of India in the wake of emerging climatic changes? These are amongst the several questions ushering in the gene revolution. The plant cell transformation using recombinant DNA made it possible for farmers all over the world to grow crops with improved yields, resistance to insects and disease and the ability to tolerate extreme variations in climate such as extreme heat and drought. GM crops also offer crops with more nutrients and with greater shelf life. Protestors against GM crops demand regulatory mechanism and safety standards since certain toxic produced by GM crops might have adverse ecological consequences. Though field trial of Gm crops in India is banned, it is however, very supportive of transgenic plant research. Efforts have been taken not just by private sectors but also public sectors research institutes to develop pest and drought resistant, nutrient rich varieties that may boost farmers' income and help in tackling malnutrition in India.

The Technical Expert Committee appointed by Supreme Court recommended that 'product testing outside of the laboratory [field trials] be stopped until a comprehensive and effective process for such testing could be implemented.' It also stated that 'except for a ban on testing GM crops for which India is a centre of biodiversity or origin, all testing can restart as soon as the government provides a robust and proper procedure'. Though TEC recommendations were rejected, Indian agriculture needs to adopt drastic new measures to lift the moratorium and benefit from GM foods.

There are many challenges ahead for government in the areas of safety, regulation, food labelling and policy making if the moratorium on GM food is lifted. The enormous potential benefits of genetic engineering to counteract the country's endemic poverty and feed its exploding population cannot be ignored.

In spite of controversies, Bt cotton has doubled the production, making India a significant exporter of cotton. With caution for food safety, the regulatory norms setup by government of having a 'refuge' belt for planting non Bt-crop surrounding the Bt cotton fields is not followed by the farmers of Maharashtra, Punjab and Andra Pradesh. This belt acts as virtual pollen sink as no cross pollination is possible within different varieties of crops. Another solution to reduce environmental hazards suggests, creating male sterile GM plant or to modify them in such a way that the pollen does not contain the introduced gene. But this will raise the price of the seeds, further increasing the gap between the wealthy and the poor farmers. A 'suicide gene' has been introduced to combat cross-pollination, which can be used only for one growing season. This will lead to financial disasters

for small farmers who cannot buy seeds each year as they traditionally set aside a portion of their harvest for the next growing season. Studies say that GM trails should be carried out in a confined environment like that of a green house, to avoid spread of genes which can have an effect on the future generations.

Risk assessment studies of the effect of GM crops on soil and its surrounding fauna showed possible ill effects on cultivating GM food. Bt-toxin secretion from Bt maize roots can cause harm to the microbes present in the soil in turn affecting the fertility of the soil. Another argument is that growing insect resistant varieties will affect the biodiversity of that area.

Many scientists have also pointed out the negative health impacts on humans such as allergies, cancer, reproductive, renal, pancreatic and hepatic disorders. The need of an hour is to have a detailed study and proofs to know the risk that it could pose in the future. Even if we believe that we need them it is important to proceed with food caution.

There is a need to educate people about both the benefits as well as the potential problems of these new technologies. A new survey reports that non-compliance with "refuge" norms limits the full benefit of the genetically modified cotton varieties that give higher yields than traditional cotton and reduce pesticide usage. There are several research studies carried out keeping in view the farm production, rising demand, price hike and supply crunches. The critics argue that the main challenge in India is not production but the economic and physical access which causes food insecurity. To have an economically and environmentally sustainable agriculture it is important to address agro-economical approaches to solve nation's food crisis. The debates that have come across show a better transparency and education that leads to the better understanding of these modified crops. The positive and the negative impacts of GM crops are well justified and thus we can conclude that GM crops is not the only way to solve nation's hunger. It is important to carry out an alternate research to improve Indian agriculture which can result into higher crops yields. Along with that it is also necessary to focus on the loop holes in the Public Distribution System to ensure food security.

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