



ENVOICE

A Newsletter from the Department of Environmental Science, Vivekananda College, Thakurpukur, Kolkata

Vol. 3 No. 1

Earth Day Issue

April, 2012

FROM THE DESK OF PRINCIPAL

On the eve of Earth Day, it is all set to reappear ENVOICE for the third consecutive years. It is really creditable to a new born department to maintain this effort continuously and successfully. This newsletter may be very small one or may be very simple, but the footprint it marks on the mind of the society is a gigantic one. I congratulate the department, specially the students, for their active participation and wish them more and more success in the future.

Dr. Tapan Kumar Poddar,
Principal
Vivekananda College, Thakurpukur

GOOD NEWS

The Department of Environmental Science is planning to establish an **Arsenic Testing** Laboratory soon, to extend the Arsenic testing facility to the society.

Contact us: envs.vc@gmail.com

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Linking the Rivers: Playing Science or Politics?

Rajarshi Mitra

Head, Dept. of Environmental Science, Vivekananda College

The 27th day of February rang an alarm and raised a question whether the Judiciary and political lobbies can overrule the science?

The SC on 27th directed the centre to constitute a 'special committee' on linking of rivers and expedite the project. According to the news source of *The Hindu*, a Bench of Chief Justice S.J. Kapadia and Justices A.K. Patnaik and Swatanter Kumar, said: "It is clear that primarily there is unanimity among all authorities concerned, including the Centre and a majority of the State governments — with the exception of one or two — that implementation of river-linking will be very beneficial. In fact, the expert opinions convincingly dispel all other impressions. There shall be greater growth in the agricultural and allied sectors, prosperity and stimulus to the economy, potentially causing [an] increase in per capita income, in addition to the short- and long-term benefits."

The River linking proposal is indeed being debated for years not only due to unanimity among authorities, but more importantly due to movements of environmentalists as the proposal seems to be potentially detrimental to the countries hydrological and environmental balance. Even for the country's largest river – Ganges, an estimate of Central Water Commission in 2003 showed that the per capita water availability (1447 CM) along the crowded river basin fall short of the international standard which recommends a per capita availability of 1700 CM to become water sufficient. Therefore, diverting water from the stream will invariably lead to a deficient condition for one of the most fertile plains for the country. On the other hand diversion of water from the real surplus basin of Bramhaputra, will invite problems of habitat and corridor loss for wildlife at the biodiversity rich areas of Assam and West Bengal, in addition to the problems of gradient loss and international water sharing.

In this context, it is really surprising to have such a directive directly from the apex court, inclined towards a particular action. Does science has anything to say over the economy, politics and judiciary?

Eco-feminism - another measure of environment protection

Sandipan Chatterjee

Research Scholar, University of Calcutta

Eco feminism and Vedic culture are greatly interrelated subjects. Our Indian epics are the evidence about the fusion of these human practices. Vedic norms or life style methods are so organic and women have a great role to create the knowledge. Collection of forest product and different animal product by the women are worked as a wonder product in the evaluation of human society. These paper address the inter collaboration between evaluation of natural product and eco-feminisms by defining the role of joint forest management and other program, and promote motivation for the use of eco-feminisms for environmental protection.

Women and nature are characteristically very similar, both of them are truly used to the need of human being and at they are abused by people in wrong way. But from ancient time to now nature and the mother provide every ingredient to make our life better. In India most of women are related with the collecting of non timber forest product (NTPF) and the dry leaves and branches of trees. After the phase of hunters gathers era, humans mainly women are so connected with environment to evaluate the effectiveness of natural product. Their traditional knowledge and application methods of natural product, contribute a different light in the growing pathway of human civilization. These types of activity provide the fuel 90% household and provide the fodder in 70% household.

Women's are now so much organized in self help group by collecting and processing of different natural forest and animal products, due to related with joint forest management, also the uses of traditional practice gives them new dimensions for life improving methods and also creating new trends of jobs, applying micro economy process.

In cultivation process, they joined with different activities. In different part women provide the irrigation facility to cropland and convert it into

highly productive land. In hilly region women are associated with farming, when they are husbands are migrate for another jobs. But women are so much oppressed; they don't get proper wages like men by investing same kind of physical labour. In domestic life they get small amount of food and regard, sometime they faced the domestic violence.

Hinduism has great regard for earth or the motherland, and also for the worship of cosmic mother. According to Bible, there we get the notes about community or organized society, also according to the theological fact, Plaskow (in Adms 1998) mention about the biblical prophecy or forecasting and according Jweish the rectification of earth is possible and it will be curable from any disorder. In bible the affection and love for women, for the earth and the people is evident.

Women protect the society, humanity, nature and many thing but they don't get adequate regard or protection from us. The environment is always provide its extreme hospitality to us but we do little for environment.

Providing legal protection to the eco-feminism activities by using IPR is important. We can use utility model and patentise there thoughts .Our proper humanism and effective gesture for the protection of feminism and environment can help to give them a new dimension in Human Society.



NEWS FROM THE DEPARTMENT

- The department organized a **UGC Sponsored National Seminar** on Environmental Science and Technology in February 2011, where nearly 30 papers were presented.
- A seminar Lecture on 'Sundarban and it's people' were organized for **Earth day 2011 celebration**.
- The students of the Department have been awarded Best poster prize in State Level Seminar organized by Ashutosh College in November 2011.
- The students were also awarded third prize in poster session of State Level Seminar organized by Netaji Nagar College for Women in January 2012.

Environmentalism in Tagore's vision

Sumana Mukherjee

Faculty Member, Department of Environmental Science.

Environmentalism is a broad philosophy, ideology and social movement centered on a concern for the conservation and improvement of nature and natural environment. It is an attempt to balance relations between human and its surrounding environment. Environmentalists frequently speak of a planet facing some urgent threats often associated with over consumption of natural resources, destruction of wildlife resources, unlimited economic growth, materialism, intensive development and human population explosion.

Environmental awareness was sensed first in Europe after industrial revolution that gave rise to environmental pollution. Establishment of great factories and consumption of immense quantities of coal and other fossil fuels resulted in air pollution and industrial chemical discharges. As a result environmental laws, such as British Alkali Act(1863), were implemented. In US environmental movement started during 1700's, when Benjamin Franklin and other residents of Philadelphia petitioned citing public rights at Pennsylvania Assembly to stop waste dumping and remove tanneries from Philadelphia. Here, it is very important to mention the name of Rachel Carson as an early environmentalist who wrote 'Silent Spring' on environmental impact of indiscriminate spraying of DDT in agricultural lands. The book suggested that DDT and other chemical pesticides may cause cancer and their use in agricultural fields was a threat to wildlife of agro-ecosystems specially birds. The consequent rise in public concern led to the establishment of United States Environmental Protection Agency which subsequently banned agricultural use of DDT in U.S.

Although far behind the western world, India also saw a comparable increase in the public concern regarding environment following the footsteps of the likes of Ravindra Nath Tegore and others. Rabindra Nath Tagore's thought on environment can be seen as nature runs as a consistent motif in all of his oeuvre. In fact nature thought was reflected his first writing, '*Jal pore pata nore*', during his childhood. When the young poet visited Bolpur for the first time with his father, he explored each and every beauty of nature and described the soil, vegetation,

climate and river of Bolpur as his literary art. He was an inherent nature lover, he wrote extensively about nature and the relationship between human beings and their surrounding environment. In his poems, plays, short stories 'Nature' came again and again in different looks and moods, sometime blended with human emotions sometimes as a single entity. Tagore considered nature and human life as integral part of the single entity. The Nobel Laureate poet depicted his intense affection for the nature and its beauty in his literature – '*Chader haashi baandh bhengeche, uchhle pore alo...*' or '*Aji dhaner khete roudra chayay..*'. Clearly, he discovered beauty even in the most common aspect of nature. When the poet considered us, the whole human kind, as offspring of mother nature, he churned – '*Ami tomai matir konnya, janani basundhara*'.

In fact he had placed his songs reflecting love for nature or depicting respect for environment under a separate name '*Prakkriti Parjay*', thus emphasizing the need to protect our mother nature. Tagore not only wrote on human- environment relationship but implemented it too by establishing '*Viswavarati Vishyavidyalay*' at Shantiniketon. It is all surrounded by greenery where classes are not bounded inside concrete class rooms, where classes were held under the shade of the trees in the harmony with the surrounding environment. Through these practices Tagore wanted his students to come closer with nature and increase their respect to the mother nature. At Shantiniaketon Tagore started the festival of the Earth through '*Brikharopan*' (planting trees) in 1927. This approach reflects his concern for deforestation and also mass awareness on environmental degradation. '*Halakarshan*' (tilling the land), another festival was introduced by him on the same year. As we know tilling of land increases its fertility and protects land erosion. He had given vivid description of the geomorphology of '*Khoai*' (a place near Shantiniketon having gully erosion) and '*Kopai*' (a river at Shantiniketon). He gave thrust on the conservation of these natural beauties in his own way. His song '*maru bijoyer ketan urao he shennye*'- was a clarion call to increase green cover all over the world to stop desertification. Conscious mind of the poet felt the necessity of plantation to stop desertification – a widely discussed and debated issue even in recent times. He also started an annual celebration of the arrival of the monsoon at the end of summer (*Borsha Mongal*). In his short story '*Balai*', Tagore described a young boy's love for a

shimul tree in front of his house. Through the poem 'I plucked you flower', human aggression on nature and exploitation of natural resources is expressed. Tagore's play 'Raktakarabi' (Red oleanders) was inspired by the image of a red plant crushed by pieces of discarded iron that Tagore had seen while taking a walk in Shillong.

We humans feel that we have full right on our surrounding resources so we can extract whatever we want from nature. But contrary to being a silent spectator all time, nature is dynamic. Due to over exploitation and consumption of natural resources soon we will face severe resource crisis. Anthropogenic interferences can invite devastating disasters in near future. Amidst the environmental degradation of the present time, making human activities environment friendly is a recurring issue all over the world. In this 150th birth anniversary of Tagore when we are giving this legend our respect by churning his poems, singing his songs, I think it is more important to understand his messages feel his love for nature and enlighten ourselves by the touching words of Tagore. Inspiring common people to love and respect our mother nature will be the proper way to convey our respect to him. To emulate Tagore's deep love and respect to nature is the only way to prevent a catastrophe on our dear Earth.

Impressive Agumbe

Rik Bhattacharjee, 2nd Year Environmental Science (Honors)

Agumbe is a small village situated in the Shimoga district of Karnataka. It is the home of the Agumbe Rainforest Research Station, the only permanent research station in India. It is often called Cherapunji of the South India. Recently I had an opportunity of visiting the place for attending a workshop organized by ARRS in association with The Gerry Martin Project India.

During those days of visit we walked a long way discovering harpeto-fauna including frogs, toads, snakes and lizards, birds, insects and off course butterflies. It was indeed an experience for the life. As we walked



down the forest, Gerry made us to learn how to identify an animal by investigating excreta and paw mark. In this way we learnt to identify the presence of Civet Cat, Leopard Cat, Jungle Cat.

At night we had our night survey. In the night survey, when UV Lamp was used to identify Scorpions in the bushes and surroundings, which



glow greenish blue whenever the UV ray falls on them. That very thrilling trip made me listen the 'sound of silence' at midst of the forest. It cannot be expressed in words. It was just awesome. It's adventurous, thrilling, with the fear of King Cobra in the heart and also ray of joy of enjoying the rain forest.

The next morning was colourful and full of songs as we had our bird watching session and photography. We found Bee eater, Malabar whistling thrush, Malabar Giant Hornbill and many more birds form paradise. Although the meadows were manmade but it was amusing, to see the brown grasses with dew on the tops that made it even romantic.

We had our nature trail at a nearby sanctuary, where to my astonishment I found a type of mongo tree as tall as 40 feet. Another tree named as Indian Prickly Ash, was found there, whose bark is somewhat like the skin of crocodile. It was a thrilling nature trail with a 20km walk and we reached the river side. The river was beautified with rocks in it. The river is also the home of many fishes like cat fish, tiger fish, red tail sharks and many cool fishes, which in cities are frequently used as aquarium fishes. We also saw Malabar Giant Squirrel, it was playing on a tree branch of a very tall tree.

It was indeed tough to say Agumbe 'bye', but the time was gone. Experience and memories tickle me till now.

GLIMPSSES OF STUDENT'S RESEARCH

(Abstracts of Papers written and presented by students in different Seminars during 2011-12)

Seasonal fluctuation in soil macro-invertebrate diversity in College campus

*Debalina Naskar, T.Bera, S. Mukherjee**
3rd year and Pass out students. *Faculty Mmember

Multiple observations suggest that structure of different communities should experience wide range of changes with changing environmental conditions associated with change in seasons. To address this issue scientifically, the present study was made to investigate the seasonal fluctuation in community structure of soil macro invertebrates in Vivekananda College campus. The sampling was done in two different seasons (monsoon and winter) by pit-fall trap method. The samples are immediately sorted on the basis of their morphological features and identified and enlisted. Digital photographs of each species were taken for future identification and documentation. Apart from general documentation, the study generated a gross idea of the structure of the well defined community with dominant, scarce and rare species of soil macro invertebrates.

A total of 28 invertebrate species were recorded from 30 pit-fall traps in two seasons. The result shows a sharp change in species frequency, relative density and abundance in the two different seasons. Species diversity analysed by Shanon-Weiner diversity index shows species diversity is higher in monsoon season than winter, although not by much as the evenness aspect of diversity was higher in winter compared to monsoon.

Study of Dominance index shows in monsoon *Diacamma* sp. (black ant sp) was dominant where as in winter *Solenopsis /Myrmica* sp. (small red ant sp) was dominant.

Feasibility assessment of laboratory scale Vermicomposting with college canteen waste

Debalina Misra, A. Banerjee, M.Mondal, B. Dandapat, M. Purkait
3rd Year and Pass out Students of the Department

Vermicomposting is a process of converting biodegradable soil waste to valuable soil amendments using Earthworm as a natural composting agent. In this present study, trial has been made to assess the potential of converting the college canteen soil waste to vermicompost in a small laboratory set up. Although an optimistic trend was found but the overall experiment failed to

achieve the desirable quality of vermicompost. It seems that running a vermicomposting set up within regular college curriculum may not be successful unless a bigger pit is built and a dedicated manpower is deployed.

Assessment of water salinisation trend at coastal township of Digha, W.B.

Yasmin Parvin, P. Roy, K. Chakraborty and N. Mistry
B.Sc. 1st Year, Department of Environmental Science

Digha, being the most popular coastal tourist destination of West Bengal is facing huge pressure of development especially in tourism sectors. With increasing tourist flow the township is expanding westward beyond even the known areas of Digha – New Digha township. In absence of any specific control on groundwater extraction, most of the establishments have installed a shallow tube well (21 to 30 meter depth) as personal source of water. Consequently, such sprawling is expected to result in groundwater depletion and salinisation mostly attributed to saline intrusion from the sea. A preliminary assessment have been made during a four day visit to Digha – New Digha area in November (post monsoon) 2011, exploring whether there is any indication of such salinisation or not. The ratios of Magnesium to Calcium ions are found to be higher in groundwater from coastal areas, which resembles the trend of sea water composition.

It seems from the preliminary assessment, that although sea water intrusion in ground or surface water is presently not a severe problem of Digha – New Digha area, but chances of such contamination cannot be ruled out.

Biodiversity and their distribution at Digha-New Digha Area, West Bengal

Saikat Manna, Nafisa Mistry, J. Chakraborty, V. Sikder, S. Das
B.Sc 1st yr., Department of Environmental Science

The coastal township of Digha being a transitional zone is having a very rich biodiversity. The unique about the biodiversity of Digha is its diversity of plants from different ecological classes like halophytes, psammophytes, xerophytes, hydrophytes and mesophytes are found flourishing independently.

The present study is a simple biodiversity checklisting conducted within 500 mts from the high tide line (HTL) which falls within the CMZ regulation. Only plants, butterfly, birds and beach fauna have been taken under consideration.

However, due to limitations in identification, a few grass and sedge species could not be identified in the field. Taking all these limitations under consideration, a total of 115 plant species, more than 40 beach and ichthyofauna, 40 butterfly and 33 avifauna species have been reported.

It was interesting to note that, the occurrence of butterfly and their food plants are much more in areas sheltered by the dunes and areas without direct tourist interference. *Glycosmis pentaphylla*, *Lantana camara* and *Mikania scandens* were found to be the most preferred food plants of several species and hence host maximum butterfly diversity. On the contrary, most of bird species were reported near sea shore and in comparatively open areas. Two estuarine portions, Digha mohna at east and Subarnarekha estuary at west are found to host colonies of hermit, fiddler and ghost crabs which are absent in the stretches through Digha – New Digha tourist destination beaches.

The study clearly indicates that Digha area demands attention on its biodiversity too. The distribution suggests rapid growth of tourism without consideration of ecological sensitivity may become a threat to local biodiversity.

Study of coastal erosion and shore protection at Digha, West Bengal

Indrani Roy Chowdhury, S. Kar, R. Sen, P. Bose, N. Mondal
B.Sc 1st yr., Department of Environmental Science,

The coastal township of Digha has lost its bathing beach to severe coastal erosion. This is mostly attributed to the reduced sand supply from *Subarnarekha*. Consequently, the tourist inflow has shifted westward inculcating development of a new destination as New Digha.

The condition of beach and protection measures taken, have been studied through stretch between *Digha river* estuary and *Subarnarekha* estuary (at *Talsheri*). The maximum erosion has been reported at Digha area, where no beach is found beyond Seawall. Even, in places signs of wear and tear of the boulder embankments and seawall are evident, while the eroding features are almost absent in the areas beyond *Udaypur* beach to the west. However, in the Eastern part of Digha between old Digha and *Digha Mohana* a restoration or regeneration pattern of the beach has been found. This regeneration of beach is perhaps an effect of an oblique wall, called Groin, which arrests the sand from offshore drift.

It seems that, the traditional protection measures like seawall, gabions and wave breakers, although are capable to tone down the impact but is not sufficient to restore the beach. Construction of groin however, has been found effective in this concern.

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