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

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Point for discussion this month **Are human activities responsibilities for natural calamities?**

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Eternal Words

In nature, there are neither rewards nor punishments; there are consequences
~ R Ingersoll

"Human use, population, and technology have reached that certain stage where
mother Earth no longer accepts our presence with silence."
~ Dalai Lama XIV

Human inventiveness has created problems because human judgment and
humanity's ability to deal with the consequences of its creations lag behind its
ability to create.
~ Robert Ornstein and Paul Ehrlich, biologist

When we heal the earth, we heal ourselves
~ David Orr

Dear Readers,

Our all sympathy is with the victims of Himalayan tsunami and their relatives. It was a massive stroke by Mother Nature which wiped out the unplanned outgrowth of human establishments. Thousands of devotees unaware of such knockout blow lost their lives. Risk monitoring and alleviation mechanisms were in the place or not, nobody knows. But the devotee lost their lives is the reality. Uttaranchal is known as Abode of God since Mahabharata time. So, devotees from all corners of India frequent temples in Himalayan Mountains every year starting from approximately 2nd/3rd week of May through October.

Cloudbursts, heavy rains, floods and landslides are regular phenomena in interiors of Himalayas. In 2010's summer, we experienced all these phenomena. It was interesting to experience freezing temperature with heavy rainfall at Harsil on the way to Gangotri. Bhagirathi river's water was crystal clear but chilling cold! One needs enough courage to put the hand in running water! We never felt an iota of summer in Uttaranchal.

In our journey we saw many hydroelectric plants, mining and crushing units scattered along the major rivers and tributaries. Many tunnels were also being excavated and trucks were carrying debris to dispose off in the floodplains of rivers. We were wondering whether environment management plans and disaster management plans were in place or not; whether the entire project team including contractors' labours were aware of that or not? We never saw any legible information or displays about the project or precautions being taken up by project implementers; rather we were told not to take the photographs. In this issue, the changing face of the Uttaranchal has been discussed with dedicated brief on what's next in terms of future policies and formulation of action plan by Sandeep Joshi, impact analyst.

We are happy to inform you that Dr. Rajendra Singh ji, waterman of India, Magasaysay award winner appreciated the work of SERI and GRIN of ecological restoration of Ahar river in Udaipur while inaugurating the book "Green Bridges" written by Gopal Joshi on 23rd June 2013. The book unveils the entire series of events of restoration of river. Gopal Joshi researched a lot with his photographer colleague Arwind Telkar in the villages downstream of Udaipur. The book has been published by Menaka Prakashan, Pune.

Thank you,
Chief Editor

Uttarakhand: reeling under modern development

- Pallavi Patil

From June 14 to 17 of 2013, Uttarakhand (Himalayan State in Northern India) received heavy rainfalls which lead to heavy flash flooding and land sliding near Gobindghat, Kedar dome, Rudraprayag district in Uttarakhand and some part of Himachal Pradesh. In this period Uttarakhand and adjoining area received about 375 % more rainfall as compare to normal rainfall during the monsoon period. State of Uttarakhand formed in 2000 extends from the foothills of the Himalayas up to the international borders of China and Nepal.



Uttarakhand is called as "Land of the Gods (Dev Bhoomi)" because numerous numbers of holy spots and shrines are located in this area. Two major rivers of India Ganga and Yamuna originate from Himalayan glaciers in Uttarakhand. Total geographical area of Uttarakhand is 53483 sq. km out of which 86% of the area is mountainous and 70% area is under forest cover. Uttarakhand has abundance of natural flora and fauna with exceptional landscape and scenic beautiful spots/areas. Rich biodiversity spreads from 800 m to higher altitude at 5400 m. World famous Valley of the

Flowers, the Nanda Devi peak, there are numerous ecological spots across Harshil, Uttarkashi, Gangotri, Yamunotri, Badrinath and Kedarnath etc. Nearly 4048 species of Angiosperms and Gymnosperms belonging to 1198 genera under 192 families and out of the 223 species, 150 species of Orchids reported from the Uttarakhand State.

Highly endangered species like the Snow Leopard, Musk Deer, Tiger, Asian Elephant, Bharal, Himalayan Monal, Cheer Pheasant, and King Cobra etc. find suitable habitat in the forests of Uttarakhand.

Himalayas are among the youngest mountain ranges on the planet made up of mostly uplifted sedimentary and metamorphic rock. Modern theory of plate tectonics says it's a result of a continental collision along the convergent boundary between the Indo-Australian and the Arakan Yoma Eurasian Plate. Even today, the Indo-Australian plate continues to be driven horizontally below the Tibetan plateau. It forces the plateau to continue to move upwards by 67 mm per year leading to the Himalayas rising by about 5 mm per year, making them geologically active. Geomorphologically, Uttarakhand is land of valleys, glaciers, highly dissected hills and steep slopes. Upper area of the Uttarakhand is covered by glaciers like Gangotri, Chorabari, Companion Satopanth and Bhagirath Kharak etc. Melting of Chorabari Glacier and eruption of the Mandakini River which causes flash flood in Uttarakhand recently.



The Uttarakhand has a population around 8.4 million with many small scattered communities in hilltop and valley regions. Due to many holy places, beautiful scenic beauties, number of domestic tourist increased during 2001 to 2006 was 12.9 % as against 14 % growth at the national level. According to Uttarakhand tourism department, tourism increases 213 percent over the past 12 years.

Unplanned and irregular tourism leads to, increase traffic congestion and waste management issues. Widening of roads becomes must. Blasting of mountains for roads and highways development affected the geomorphological structures of Himalayan regions. Unplanned growth of hotels, resorts along the rivers or sometimes encroachment into the river bed, mismanagement and inadequate basic facilities for tourist, improper facilities for water and solid waste disposals etc were main critical issues for environment degradation in Uttarakhand. Registration of tourist vehicles in Uttarakhand grew 1,80,000 in 2012-13 from



Lessons from Uttarakhand's Himalayan Tsunami

- Sandeep Joshi

Heavy raining from 14th June through 16th June in the upland catchment of Mandakini River washed away the settlement encircling Kedarnath Temple, even the temple sustained down boulders. Everything in the Kedarnath ravaged due to tsunami like flood-wave from the Kedarnath peak. Was it a "cleaning operation" by Himalaya taking order from Lord Shiva as pious devotee's claims? Or was it impact of global climate change? Or was it effect of developmental projects? Or was it result of heavy traffic due to high influx of thousands of tourists and developmental activities?

It was prudent of National Ganga River Basin Authority to notify Gaumukh to Uttarakashi stretch of Bhagirath; as eco-sensitive zone on December 18, 2012 permitting only 'livelihood' activities and denying the extraction of "marketable" commodities like sand, minerals, water and controlling electricity production. Anything more than "livelihood" has to be supported with feedback restoration and equilibrium mechanism (FREM) for adopting the physiographic, geomorphic, landscape, riverscape and chemo-biologic charges over a period of time for sustainable economy of the region. There should be continual assessment of economy of resetting carrying capacity of the natural set ups being grafted with infra-structural fixtures and developmental processes for better adaptation.

Statement by geologists, glaciologists and sociologists once again emphasize the 'honest' monitoring and scenario analysis of developmental processes for "Genuine Development" and Uttarakhand not to be seen as production units of electricity and water for urban guzzlers. Uttarakhand can boast only one development ambitious target of either production area or other need maximum visitors. Therefore, states' development policy should be oriented towards the most desired economic activity supported with equilibrated alert environment and disaster management mechanisms. This will help in minimizing the losses whenever any untoward incidence occurs. Excavations, vibrations, deforestations, unscientific constructions need to be controlled with careful vigilance and corrective measures.

Government of India in association with state government can draw a very Symbolic Genuine Development Plan (SGDP) with support from other dependent states for equitable growth. Calamity can be converted into opportunity if the policy- makers and decision makers take up a challenge of protecting thousands of lives and investments.

83,000 vehicles in the year 2005-06 (CSE study). Calm and quiet valleys filled with roaring sounds of over speeding vehicles running on meandering roads.

Additionally, construction of several hydro electric projects across the River Ganga and its tributaries proposes by state Government of Uttarakhand. About 500 big and small dams are being proposed over the Himalayan Rivers. It is thought that Bhagirathi and Alaknanda rivers systems have vast potential of hydroelectric power. But Ganga and its tributaries in this area are silt-laden and capable for extreme destruction. Most of the dams are located in species-rich areas of the Himalaya. It is feared that nearly 90% of Himalayan valley would be affected by dam construction. About 54,117 ha of forests may be submerged due to dams.

Severe changes in hydrological flow of river throughout the year, discharge volume, deposition of sedimentation, erosion which destructs the riverine, aquatic and terrestrial habitats of wildlife. Construction of several hydro-electric project, big and small dams, deforestation and ore mining of forest area, illegal sand mining from river bed connived with controlled and unplanned tourism, constructions of infrastructures for tourist on mountainside, along the river violating the environmental laws brought the unprecedented Himalayan tsunami causing severe losses of life and properties. Uttarakhand may take decades to restore economy. Caution of word is not to overlook the risks and impacts of modern development on fragile, sensitive geology and ecology of Himalayas.



Publication of “Green bridges” by Gopal Joshi at the hands of Dr. Rajendra Singh

- SERI Team



“Green Bridges” written in regional marathi language by Gopal Joshi shares the hands on experience of author about the Ahar river eco-restoration. The book now available for the readers as the publication was done on 23rd June 2013 at the hands of Magsaysay award winner Dr. Rajendra Singh ji.

This ceremony was attended by very elite people from various disciplines of the society. The dais was graced by Dr. Rajendra Singh, Sandeep Joshi (SERI), Probir Sinha (GRIN) Dr. Mangesh Kashyap (SEERAM), Anand Agashe, (Menaka Publication), Gopal Joshi (writer) and Arvind Telkar.

Gopal Joshi, author of this book shared his views, findings experiences and interactions with local villagers and supporter urbanites. He observes that a simple zero electricity, natural technology rejuvenated a highly polluted river and that also without any concrete-steel infrastructure. News rang bells in his head and he started to unearth the story about Ahar River eco-restoration. He travelled to Udaipur visited Ahar River its entire stretch; analysed the ground situation interviewed hundred of villagers and concerned authorities and he arrives at opinion that, yes that’s what technology India needed and he wrote a Book “Green Bridges”.



Sandeep Joshi, Innovator of Green Bridge technology told his memories about this eco-restoration project of Ahar River, Udaipur. He briefed the technology and approach behind this successful River rejuvenation. He acknowledged the entire team of Ahar River restoration, especially Probir Sinha, Prof. Anil Mehta, and Dr. Tej Rajdhan for making this miracle to happen and his family for uninterrupted enthusiastic support.

Anand Agashe, Menaka publication expressed his feelings while publishing this book, tackling to pollution is the need of hour and innovative technology that serves society to improve their socio-economical status should reach to every aspect of society.



Rajendra Singh ji, the guest of honor, while addressing the gathering memorized his Aravari Parliament movement. He stated that, "Maharashtra is favorite child of god gifted with natural resources; just we are ignoring its wealth. We are insulting nature while polluting and encroaching rivers and water resources; and building hawoke for ourselves. As Uttarakhand tragedy is in front of us. People's participation always plays a crucial role in environmental sustenance. Success of this Ahar restoration is undoubted and SERI replicated it in Allahabad also. "He congratulates Gopal joshi for writing this book as it delivers the entire crusade of ahar restoration to reader in easy and talking manner.

Dr. Mangesh kashyap enchanted the ceremony with excellent moderation of seesion.

The book is available for sale at Menaka Prakashan, Pune. It also available online on following websites:

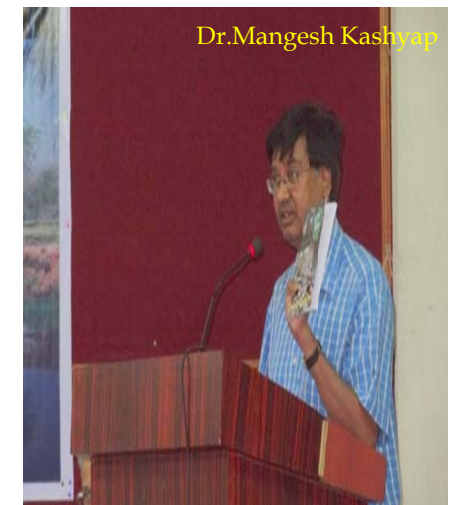
- Menaka Prakashan (<http://menakabooks.com/menaka-prakashan/5995-green-bridges-gopal-joshi-menaka-prakashan-buy-online.html>) and
- Infibeam (http://www.infibeam.com/Books/green-bridges-marathi-gopal-joshi/9789380572635.html?utm_term=green+bridges_1_1)



Publication of "Green Bridge" (L-R) Arvind Telkar, Gopal Joshi, Dr. Mangesh Kashyap, Dr. Rajendra Singh, Sandeep Joshi ,Anand Agshe



Gopal Joshi



Dr. Mangesh Kashyap