Lake 2016: Conference on Conservation and Sustainable Management of Ecologically Sensitive Regions in Western Ghats
[THE 10TH BIENNIAL LAKE CONFERENCE]
Date: 28-30th December 2016

Venue: V.S. Acharya Auditorium, **Alva's Education Foundation**, Sundari Ananda Alva Campus, Vidyagiri, Moodbidri, D.K. Dist., Karnataka, India – 574227, Phone: +91 8258 238105

Symposium Web: **http://alvascollege.com/upcoming-events/lake2016;** http://ces.iisc.ernet.in/energy
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RECOMMENDATIONS OF LAKE 2016

(Date: 28-30th December 2016)

LAKE 2016: **Conference on Conservation and Sustainable Management of Ecologically Sensitive Regions in Western Ghats** provided a unique opportunity for bringing together under one roof a range of stakeholders from high school students to researchers, academicians, policy makers, and NGO's, who with deep involvement and concern addressed several environmental and livelihood issues revolving primarily around water bodies. A range of issues of common concern for the country were brought into the forum, particularly on the water bodies and their catchments. The conference dealt at length with the Western Ghats, considered the "water tower" of peninsular India, to which directly is tied the lives of about 250 million people. It highlighted the compelling need and urgency to regulate the relentless exploitation of Western Ghats and to approach this global biodiversity hotspot, including all its rivers, and their drainage basins, the lakes and tanks, springs and streams en course such rivers with greater respect and sensibility, particularly at a time when our planet is plunging helplessly into a dreadful era of increasing uncertainties in the climate, with telling effects especially upon our food and water security. The conference called for participatory management of all water bodies and their associated ecosystems, on scientifically tested foundations and principles.

The conference witnessed altogether 266 presentations, 142 through paper presentations (documentations) and the rest through posters exhibited, covering 18 different sub-themes. Of the over 1100 participants about 35% were students from high schools and 25% from colleges, who together, *suo motto* themselves worked and presented 72 papers and 34 posters, under the guidance of their teachers who are equally concerned about our crumbling environment and water bodies. The participants arrived from 12 States of India and, from several other countries. Significantly, 120 of them were international students, all the student community bonded together by their common concern for saving the planet and their future. There were also international delegates (senior researchers) from Canada, Finland, Switzerland, etc. The beginning of the symposium was marked by the keynote lectures from experts highlighting the issues of biodiversity, ecology and hydrology.

The key recommendations of Lake 2016 forum are:

- Establishment of ***Parayavaran Ayog*** - Environmental policy think tank (similar to *NITI* Ayog) to foster involvement and participation of environmental stakeholders in ensuring sustainable management and conservation of ecologically fragile regions in India.
- Identification of ecological units (at Panchayath levels) that are ecologically sensitive as per Section 3 of the Environment (Protection) Act 1986 (EPA) to improve ecosystem health through appropriate location specific conservations practices.
- Constitution of the *Western Ghats Task force* with the mandate of facilitating good governance process in the Western Ghats towards achieving conservation and sustainable development. This would also help in synthesizing right policy measures and implementation plans in the entire *Western Ghats* region to ensure water and food security of dependent population.
- Locality-wise documentation and protection of water bodies and their sources, their current status, with estimates of hydrological services, ongoing and potential.
- Rejuvenation of water bodies, to attain their potential ecological services, is a critical necessity. As no integrated account of the status of water bodies is existing, there should be nation-wide, but locality-specific, mechanisms for documentation of water bodies. The Biodiversity Management Committees, being formed nation-wide, under the mandate of the Biodiversity Act 2002 will be the most appropriate statutory body to identify and map water bodies in their respective jurisdiction, and to prepare annual reports on their prevailing status.
- Complementing our Hon. Prime Minister's demonetization drive to free the Indian economy of the evils afflicting it and in consistent with the objectives and spirit of the United Nation's declaration of 2016 as Year of Pulses, we propose a much needed 'de-cerealisation drive' to overcome the following crisis:
    - As the cultivation of starch rich cereals like rice and wheat, which along with sugarcane, are highly water demanding crops the water tables in the country are on decline at an alarming scale. Whereas the cereal production has grown several-fold since 1960's our people, including children are fed on more and more of starch-foods and less of protein, vitamin, mineral and fibre-rich pulses. As a consequence India has achieved the ignominy of occupying the second position in the population of diabetics (associated with cardio-vascular and kidney problems), next only to China. The country has one third of the malnourished and stunted children in the world, who, though fed largely with starch foods, are chronic victims of hidden hunger due to lack of micro-nutrients and proteins.
    - The PDS and mid-day meal programmes in the schools are, by and large, based on cereals and have least component of pulse, promoting not only hidden hunger but too much taxing on our depleting water resources.
    - As uncertain climate is setting in over the planet our agriculture is leaving behind stronger and stronger carbon footprints, developing increased reliance on chemical fertilizers, overlooking the fact that crop rotation with pulses can add on an average 100 kg of nitrates to the soil and spare so much of fertilizers. Nitrogenous agricultural wash-offs are creating serious eutrophication problems for our lakes and other water bodies. This is apart from

the fact that the flooded rice fields are sources for green house gases like nitrous oxide and methane. Further the burning of enormous quantities of paddy straw is creating serious air pollution problems (eg. the infamous Delhi fog). On the contrary the crop residue from pulses can be used as fodder and for soil enrichment.

The Conference therefore expressed the hope that the Government would make radical changes in our agricultural agenda by all out promotion of pulses which is of high significance in this country having the world's largest population of vegetarians and semi-vegetarians, whose main sources of proteins come from pulses.

- Sacred groves, variously named as *kans, kavus, banas, devarakadus, devrais* etc., being the last remains of the primeval forests, and having functioned through generations as centres of water security, including their proven role in ground water recharging, had benefitted humans through generations. Such sacred forests, enshrining the age old Indian tradition of holistic nature worship were important elements of pre-British, community-based conservation systems. They are also acclaimed centres of folk religious arts like *Theyyam, Nagamandalam, Bhuthadhakola* etc. The Government should uphold the involvement of local communities and State forest departments in protecting and restoring them to their original glory. They should be declared as local "Biodiversity Heritage Sites" even if they exist in isolation in the middle of villages or towns. The restoration of sacred groves will also restore or enrich millions of water bodies which are otherwise getting increasingly exposed to the dangers of climatic change.
- Swamps and marshes and shola forests of Western Ghats, being the storage areas for monsoon rains and being perennial sources of water, need to be mapped, and prioritized for conservation and restoration.
- Myristica swamps, ecosystems of high conservation and evolutionary values, of high endemism and from hydrological perspectives, need to be systematically mapped. As unauthorized diversions of streams passing through Myristica swamps are rampant such diversions should be stopped and such swamps along with their catchments need to be safeguarded.
- Lake 2016 reaffirms the proven capacity of the student community in documenting water bodies, associated plant and animal diversity and in portraying human lives centred around such water bodies. Especially at a time when the nation is faced with the challenges pertaining to the documentation of its biodiversity and associated traditional knowledge, as is mandatory under the Biodiversity Act-2002, the Conference acknowledges the potential of the student community in biodiversity documentation (inventorying and mapping of biological resources). As such a task involves applications of academic knowledge in making field surveys and interviews, to be carried out under the guidance of teachers, the conference recommends that academic credits should be given to students working for such projects.
- Water being at the heart of human civilizations, and as the Western Ghats function as water tower for Indian peninsula its management should have water as the core issue, and through adoption of an hydro-centric approach towards development.

- The conference recognizes the fact that people in large numbers migrate to the cities in in search of better livelihoods, mainly from hydrologically depleted villages. As a consequence overcrowding in cities creates various problems including encroachments and reclamations and pollution of urban water bodies. Consequent shortages of water in cities necessitate expensive schemes for transport of water from the Western Ghats in increasing quantities depriving local people of their water resources. State Governments are even harping upon environmentally disastrous projects related to diversions of rivers from their natural courses to meet increasing demands for water in cities. The rivers of the Western Ghats should be spared hereafter from construction of hydroelectric projects resulting in forest submersion and affecting salinity conditions in the estuaries downstream with serious adverse consequences on marine and coastal biodiversity and also collapse of fisheries. These damages are apart from construction of transmission lines, new roads and colonies and also taking heavy toll on the precarious forest wealth.
- To tackle the ever rising problems of the above kind we propose the concept of creation of "smart villages". By smart villages we mean providing the village communities with greater facilities for education, employment, energy, healthcare, transportation and communication. For achieving this we have already prepared a model blueprint for Uttara Kannada district. This blueprint is about grouping for development gram panchayats and small towns into clusters depending on their proximity, and on the kind of human, natural, and agricultural resources to create decentralised sustainable development model. Implementation of such models on a wider scale, at relatively lower costs, is expected to convert villages and small towns into self-sustaining units.
- The Centre and the States should aim at achieving zero pollution norms to safeguard the purity of water bodies, and check the input of effluent and waste disposal from diverse sources including and leachates from landfills.
- It is recommended that the use of biopesticides and biofertilizers may be promoted to substantially reduce use of harmful chemical substances which cause severe water, soil and air pollution problems. To enable the availability of needed raw materials peripheral forests, VFC managed forests and private holdings may be enriched with plant sources for these biochemicals.
- Boundary demarcations norms of water bodies within different states need to be reviewed and revised on fresh consideration of their geomorphology. Inviolable buffer zones should be created around or bordering water bodies or water courses, and these should be maintained along with their natural vegetation.
- Retrieval of original linkages between water bodies, like the *raja-kaluves* (storm water drains) which have been lost or disrupted due to urbanisation, it is important to ensure their recovery from encroachers and restore their water flow regimes for re-establishing normal hydrology and mitigation of floods
- Estuaries being highest productive among world ecosystems, and because of their unique mangrove vegetation and their crucial role in the life cycles of several marine fishes, should be

protected as inviolable areas against developmental pressures, and release of effluents of any kind.

- Construction of new ports should be confined to marine areas only, and not by destroying the fragile ecosystems of estuaries. In this connection the Conference recognizes the fact mangrove swamps and marshes have the highest stores of soil organic carbon per unit area on the Earth. As port construction in the estuary will have devastating impact on these global reserves of carbon, such a recommendation is made.
- Government may assist estuarine stakeholders in restoring abandoned shrimp farms along the coast to facilitate their natural biodiversity and productivity, and to utilise their full potential for carbon sequestration.
- Bio-shielding of the coast is a most ideal, eco-friendly, ever-growing, aesthetically appealing and economic defense against rising sea than attempting to build ecologically devastating sea walls at high cost, along most of India's 7000 km long coastline.

Urban Wetlands

- **Good governance:** Too many para-state agencies operating without co-ordination to be replaced with an integrated agency with statutory and financial autonomy, to be the custodian of urban wetlands, responsible for their maintenance, and empowered to take action against polluters and encroachers. Effective judicial system such as a tribunal for speedy disposal of conflicts, problems related to encroachment/pollution etc. is a necessity. Pollution control board to strictly enforce provisions of the Water Act and EP Act.
- **Transparency in local administration:** Digitisation of land records (especially common lands – lakes, open spaces, parks, etc.) and availability of this geo-referenced data with query based information system to public;
- **Removal of encroachment of lakes / wetlands, lake beds and storm water drains** (connecting feeders) after the survey based on reliable cadastral maps; Ensure proper fencing of lakes and to make land grabbing cognizable nonbailable offence;
- **Prevention of the entry of untreated sewage and industrial effluents into lakes;** Decentralised treatment of sewage (preferably at ward levels). Letting only treated sewage into the lake (as in **Jakkur lake model in Bangalore**); Ensure that sewage generated in a locality /ward is treated locally;
- **Periodic desiltation of lakes** to enhance the storage capacity to improve groundwater recharge, to minimise further contamination of treated water etc.;
- **Ban on use of phosphates by appropriate agency in the manufacture of detergents may be examined** as it will minimise frothing
- Regular removal of macrophytic weeds from the lakes;
- Stricter implementation of 'polluter pays' principle as per Water Act 1974;
- Stoppage of solid wastes dumping into lakes / in the lake bed, including filling of portions of lake with building debris.

- Mandatory treatment plants in industries polluting water bodies and also Environmental Cess be levied for the sustained pollution of water bodies. This amount be utilised for rejuvenation and conservation by the competent authorities.
- Stricter implementation of the Water Act is a necessity
- Decentralised management of lakes through local lake committees involving all stakeholders or BMCs

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