



LAKE 2020: CONFERENCE ON ECOSYSTEM STRUCTURE, FUNCTION, GOODS AND SERVICES

[THE 12TH BIENNIAL LAKE CONFERENCE]

Date: **28-30th December 2020**

Venue: Auditorium, Ground Floor, New Biological Sciences Building [Near D Gate],
Indian Institute of Science, Bangalore 560012, Phone: +91 080-22933503/22933099

Symposium Web: <http://wgbis.ces.iisc.ernet.in/energy>

E Mail: energy.ces@iisc.ac.in; lake2020.iisc@gmail.com

Organised by

Energy and Wetlands Research Group [<http://ces.iisc.ernet.in/energy>],
Centre for Ecological Sciences, Indian Institute of Science, Bangalore 560012

Adamy Chetana, Bangalore	Energy & Urban Research Group, RCGSIDM, IIT-Kharagpur
Vagdevi Vilas Institutions, Bangalore	Vidyaniketan Public School, Ullal, Bangalore
K.K. High School, Varthur, Bangalore	Bangalore Blaze Girls High School
Auro Mirra International School, Ulsoor	Alva's Education Foundation (R) Moodbidri
Students for Development, Bangalore	World Organization of Students and Youth
BGS National Public School, Bangalore	Vidyanjali Primary and High School

Supported by

Karnataka Environment Research Foundation Karnataka Biodiversity Board
The Ministry for Environment, Forests and Climate Change, Government of India

Lake 2020: CONFERENCE ON ECOSYSTEM STRUCTURE, FUNCTION, GOODS AND SERVICES

Introduction: Symposium focusing on lakes/wetlands popularly known as “**Lake Symposium**” was initiated by the Energy & Wetlands Research Group at Centre for Ecological Sciences, Indian Institute of Science, Bangalore in the year 1998. The theme was broadened in 2000 (Lake 2000) with a wider participation of education institutions, Governmental and non-governmental organisations, etc. The basic idea of the symposium was to bring out the trends in ecosystem conservation, restoration and management including the hydrological, bio-physical, people’s participation and the role of non-governmental, educational and the governmental organizations and the future research needs. **Lake 2020** will be the 12th Biennial Lake Conference focusing on “**Ecosystem Structure, Function, Goods and Services**” will be held at the Auditorium, ground Floor, New Biological Sciences Building [Near D Gate]. The theme of World Wetlands day 2020 is “**Wetlands and Biodiversity**” to demonstrate the vital role of wetlands for the future of humanity and specifically their relevance towards achieving the new Sustainable Development Goals. Lake 2020 conference provides a unique opportunity to increase understanding of the role of ecosystems in sustaining the food, water and human livelihood with the challenges faced by these fragile ecosystems.

Ecosystem is a complex function unit that dynamically respond as per interaction among living (biotic-plant, animal and micro-organism communities) and non-living components (abiotic-sunlight, water, air, minerals and nutrients). The quantity (biomass, productivity), quality (pristine/polluted) and diversity of species (e.g. richness, rarity) governs the ecosystem functions. Biodiversity is the variety of ecosystems, species, and genes recognised as one of the critical elements for human existence as it accountable for vital goods and services such as food, water, timber, carbon sequestration, wastewater purification, soil formation, pollination, etc. The degradation of these vital ecosystems is linked to continuing problems of land cover changes, deforestation, habitat fragmentation, pollution, indiscriminate disposal of liquid and solid wastes, and issues related to economic productivity and ecological security. The structural changes in the ecosystem due to land cover changes, will influence the functional aspects namely hydrology, bio-geo chemical and nutrient cycle, which are evident in many regions in the form of conversion of perennial streams to seasonal and disappearance of water bodies leading to a serious water crisis.

The sustainable development goals have ecological, social and economic aspects for present and future generations with the equitable share of resources. Conservation of natural resources through sustainable ecosystem management and development is the key to our secured future. Sustainable development of a region requires a synoptic ecosystem approach that relates to the dynamics of natural variability and the effects of human interventions on key indicators of biodiversity and productivity. Formulation and implementation of action plans that best conserve vital ecosystems

require an understanding of issues, concerns and threats. This requires awareness of the ecosystem function, goods and services among decision-makers and the public at large. Collaborative planning between scientists, policy makers and community members is an essential element of the ecosystem-based management. Approaches towards this direction include:

- Fostering participation of all stakeholders to ensure that individuals and organizations are provided an opportunity to participate in the ecosystem conservation activities.
- Recommending policies and actions that can be undertaken to restore, maintain or enhance aquatic and terrestrial resources.
- Recommending policies and action plan towards the conservation and sustainable management of ecologically sensitive regions such as Western Ghats – water tower and food bowl for peninsular India.

Scope: Lake 2020: Conference on Ecosystem Structure, Function, Goods and Services ‘demonstrate the vital role of ecosystems for the future of humanity and specifically their relevance towards achieving the new Sustainable Development Goals. Lake 2020 conference provides a unique opportunity to increase understanding of the role of ecosystems in sustaining the food and water with the challenges faced by these fragile ecosystems. Lake 2020 would focus not only on updating of the current knowledge of the scientific community and also would bring in awareness among students, teachers and public. This would provide a platform for interaction among researchers, policy makers, academics and NGOs and address the issues related to wetlands and biodiversity in an era of climate change. This would help in developing a stronger network among experts and institutions to develop efficient strategies for the conservation and management of fragile ecosystems. As a part of the conference it has been decided to have theme-based lead lectures by the eminent scholars, paper and poster presentations by researchers, school and college students.

Objectives: Focus of **Lake 2020** would be (i) assessment of the present status and conservation aspects of ecosystems (terrestrial, aquatic - wetlands, lakes, tanks, ponds, swamps, streams and rivers), (ii) presentation by researchers, practitioners, students of case studies focusing on biodiversity, ecology, present status, threats, conservation measures required, (iii) discussion of current initiatives of conservation and management, (iv) role of education institutions, non-governmental organisations, religious organisations, (v) discussion of people’s livelihood and fundamental right towards equitable resource allocation through scientific assessment of ecosystem goods and services, (vi) presentation by students (schools and colleges) based on documentation focusing on wetlands – biodiversity, present status, ecology, conservation and protection needs, (vii) allocation of financial and human resources to conserve and protect ecologically fragile ecosystems, (viii) proposals by students and non-governmental organisations for conservation, protection, restoration and sustainable management of aquatic ecosystems, (ix) discussion on research gaps and activities to be initiated by researchers to evolve appropriate strategies towards conservation of ecosystems in Western Ghats, and (x) developing strategies for conservation and sustainable management of aquatic ecosystems in Western Ghats to sustain water, food and human livelihood.

THEMES: Papers are invited on the following themes from researchers, faculty from universities, Research Scholars, planners, development managers, economists and social scientists, school (VIII – XII students) and college (UG and PG) students, school and college teachers.

Topics for Paper Presentation/ Poster in Lake 2020:

1. Ecosystem structure and function.
2. Ecosystem (terrestrial, aquatic – coastal, fresh water) Goods and services.
3. Biodiversity, Hydrology and Ecology of Western Ghats.
4. Aquatic and Terrestrial Ecosystems: Linkages.
5. Aquatic Ecosystems - Food and water security, people's livelihood.
6. Wetlands and swamps: Restoration, Conservation and Management.
7. Land use, Land cover dynamics.
8. Carrying capacity of river basins in Western Ghats.
9. Valuation of Ecosystem Goods and services.
10. Sacred Groves (*kans*, *devarakadu*) and Myristica Swamps.
11. Eco-Tourism in Western Ghats and Carbon sequestration.
12. Application of Geoinformatics in Ecosystems Management.
13. Natural and Anthropogenic disasters.
14. Limnology, aquatic ecology, biodiversity and prospects of bio-monitoring.
15. Pollution –terrestrial and aquatic - Monitoring and Management, bioremediation.
16. Sustainable Agriculture and Organic farming.
17. Coastal ecosystems – Biodiversity, Ecology, Productivity and Livelihood aspects.
18. Prospects of Renewable Energy (solar, biofuel, bioenergy) and Energy Conservation.
19. Environmental Education and Sustainable Development.
20. Environment Ethics and Green Technology; and Environment Literacy.

AWARDS: There are **three awards in students and teacher's category**— High School (VIII, IX, X); College (PUC, UG, PG) and Teachers (school and college). Awards for the best paper presentation would include a Certificate and a Memento. The best posters would be similarly, awarded.

REGISTRATION FEE*

- Delegates: Rs. 3,000/-, Accompanying person: Rs. 1500/-
- Research Scholars and University faculty: Rs. 3,000/- (mandatory to attend all days)
- **Masters students:** INR 1500/- (mandatory to attend all days)
- **UG students:** INR 1000/- (mandatory to attend all days)
- Representatives from NGO: Rs. 5,000/-, Industry:15,000/-, Govt Agency: 5,000/-
- School and PU College students: The organizing committee has decided to waive registration fee to school students and school teachers **whose papers are accepted for presentation in the technical session.**

Demand draft be drawn in favour of the “Lake 2020, Indian Institute of Science”, payable at Bangalore. DD to be sent along with duly filled in registration form.

*Registered Participants (Mandatory to attend all three days) will get the certificate on the concluding day of the conference.

The registration fee would include registration kit, working lunch and tea during the symposium. Accompanying person will have access to all technical sessions and hospitality as per delegates except registration kit.

ACCOMMODATION:

- Key speakers and invited delegates would be accommodated at Centenary Visitors House (CVH), IISc.
- Delegates whose paper is accepted for technical session will be accommodated at Hoysala Guest House, IISc Campus on first come first serve basis.
- Participants requiring accommodation need to mention the requirement in the registration form. Room rent is required to be paid by the delegates as per the tariff in the respective hotel (Rs. 1000/person/day – non AC room and Rs 1500/person/day for AC room). Accommodation will be arranged on payment basis upon the request from the delegates.

EXHIBITION STALL: An exhibition of software and hardware related to the Environmental technologies, Restoration and Monitoring technologies, Water quality analysis, Geographic Information System (GIS), Global Positioning System (GPS), Remote sensing, Image processing and Cartography, as well as products and services of other organizations and agencies working in the area related to the theme of the conference, will be organised. Organisations / Agencies can participate in the exhibition on payment of fee of INR 25,000. Registered agencies would be allowed to make 10 minutes presentation. Interested agencies may contact the Convenor, Lake 2020 and remit the fee through DD drawn in favor of *"Lake 2020, Indian Institute of Science"* payable at Bangalore.

LAKE 2020 - Organising Committee:

T. V. Ramachandra, CES	Tejaswini Ananthkumar, Adama Chetana
M.D. Subash Chandran, CES, IISc	Ananth Ashisar, Karnataka Biodiversity Board
Bharath. H. Aithal, EURG, IIT Kharagpur	C. Rajasekara Murthy, Environment Canada
Uttam Kumar, IIIT-Bangalore	Vinay S, CES, IISc and EURG, IIT Kharagpur
M.A. Khan, K.K. High School, Bangalore	S. N. Prasad, OSGEO (India), Hyderabad
Harish K, Vagdevi Vilas Institutions, Bangalore	M. R. Pranesh and C J Jagadeesha, KERF, Bangalore
Vijaikrishna R, Vidyaniketan Public School,	Sanjeev Ningobam, World Organisation of Students and Youth
Vivek Alva, Alva's education Foundation	Prem, Students for Development
Bharath Settur, CES, IISc, Bangalore	Umashankar, Vidyanjali Primary and High School
Uma Mohan, Auro Mirra International School	Rajshree Nair, BGS National Public School
Sreevidya, Bangalore Blaze Girls High School	Vrijulal. M. V, Bangalore

Scientific Committee

T.V. Ramachandra, CES, IISc, Bangalore	G. R. Rao, Bangalore University (Central)
M.D. Subhash Chandran, CES, IISc, Bangalore	Chaturved Shet, HRBSF, Bangalore
N.V. Joshi, CES, IISc, Bangalore	Akshay Chakravarthy, EMPRI, Bangalore
Asulabha K.S., CES, IISc, Bangalore	Sara Kunnath, Koshy Institute of Management Studies
Deepthi Hebbale, CES, IISc	B. M. Kumaraswamy, Shimoga
Durga Madhab Mahapatra, TERI, New Delhi	Y. B. Ramakrishna, Bangalore
Sincy. V., CES, IISc, Bangalore	Chandan M. C, IIT Kharagpur
Sudarshan Bhat, CES, IISc, Bangalore	Shwetmala, MSR Public Policy Centre
Saranya. G., CES, IISc	Alli Rani, K K English School, Varthur
Gayatri Naik, CES	Ravishankar Mishra, Mission-V Foundation
Vishnu D Mukri, CES, Kumta, UK	Sreekanth Naik, CES, Kumta, UK

Call for papers

Call for Scientific Papers: Delegates interested in presenting papers as oral or poster need to submit the scientific paper as per the guidelines given below.

Guidelines for Paper Preparation: The full text paper (e-version preferably in a CD and one hard copy) formatted to A4 (210 mm x 297 mm) size, after having been scrutinized and accepted, will be printed as received, by offset process. Therefore, the text of the paper in English must confirm strictly to the following requirements and be free from errors.

Template as per: <http://wgbis.ces.iisc.ernet.in/energy/lake2014/proceedings.php>

Top/bottom margin	25 mm (on first page 35 mm)
Left/right margin	25 mm (all pages)
Typing area	160 mm x 247 mm (including folio), single space single column
Total pages	8 -10 pages including figures, tables, photographs, references etc., if any.
Font type	Times New Roman/Arial
Title	14 point BOLD CAPITALS
Author's Name	12 point Bold Upper-Lower (Do not prefix name with/Ms./Dr./Prof.)
Affiliation (designation, organisation and place)	<i>11 point italics</i>
E Mail ID, Telephone number and Mobile	11 point
Organisation web URL	11 point
Main headings	10 point BOLD CAPITALS
Subheadings	10 point Bold Upper-Lower
Text	10 point normal
Print	Laser Print or letter quality

The paper title, name(s) of author(s), affiliation and address, center justified, should be typed in a space of 50 mm from the top margin on the first page. The paper should begin with a synopsis of not more than 200 words describing the aim(s) of the work, methods, results obtained and conclusions. Type the headings, subheadings and paragraphs aligned with the left-hand margin (Align Left). Text justified on both sides is preferred. Use double space between paragraphs, and between section headings/subheadings and paragraphs. Do not number paragraphs, but number section and sub-sectional headings except synopsis, in conformity with established convention. The manuscript should be prepared by using MS Word (suitable for Windows). Figures should be drawn in black Indian Ink on translucent paper or acetate material (Gateway Tissue) with lettering of appropriate size using stencils. The figures should be placed nearest to the first reference in the text. Photographs on glossy paper may be included, if necessary. The authors must send brief bio-data (100 words) and the recommendations that they would like to be considered as a part of the conference based on their presentations.

Posters: Size A 0 and template as per

http://wgbis.ces.iisc.ernet.in/energy/lake2014/posters/poster_shrikant.pdf

Lake 2020: Programme Details

Date	Morning Session (9.00 am – 1.00 pm)	Afternoon Session (2.00 pm – 7.30 pm)
Day 1 28 December 2020	Inauguration, Presidential Address, Release of Conference Proceedings, Chief Guest address, Keynote –Valuation of Ecosystem Goods and Services	Terrestrial Ecosystems – Structure, Functions, Goods and Services
Day 2 29 December 2020	Biodiversity, Ecology and Livelihood. Technical Sessions: Western Ghats – Biodiversity, Eco-Economics, Energy, Geo-visualisation, Livelihood, Environmental Ethics and 10 th – 12 th Students presentation (parallel sessions)	Technical sessions: <i>Aquatic</i> Ecosystem, Aquatic Biodiversity, Wetlands Ecosystem, Aquatic Toxicology and Waste Water Treatment and 9 th and 8 th Students presentation (parallel sessions)
Day 3 30 December 2020	Conservation and Sustainable management of Ecosystems Technical Sessions: Urban Dynamics, Hydrology and Soil and Teachers presentation (parallel sessions)	Technical Sessions: Coastal Ecosystem Interactive Session, Panel Discussion, Cultural programme, <i>Sahyadri Young Ecologist Award 2020</i> (student) and <i>Sahyadri Ecologist Award 2020</i> (teacher), Valedictory, prize and certificates distribution.

Dates to Remember

Registration [Submission of Registration form]	26th October 2020
Submission of scientific papers (full length / extended abstract), posters with the Registration Form (with the registration fee, depending on the category) – participants presenting papers/posters.	26th October 2020
Review of Papers and posters by the committee	16th November 2020
Final submission of the revised manuscript (based on review)	25th November 2020
Notification of Acceptance of Papers (on web)	4th December 2020
Lake 2020 Conference	28-30th December 2020

Paper Acceptance details at:

<http://ces.iisc.ernet.in/energy>

E Mail: energy.ces@iisc.ac.in; lake2020.iisc@gmail.com

Energy & Wetlands Research Group, CES, Indian Institute of Science, Bengaluru

The Energy and Wetlands Research Group at the Centre for Ecological Sciences (CES), is actively involved in studies and training on issues related to environment, water resources, energy, ecology, wetlands, geographic information systems, environmental impact assessment and natural resource management. The Centre for Ecological Sciences founded in 1983 with the support of Ministry of Environment and Forests offers exciting opportunities for research in a variety of areas in ecology. Over the past 35 years, and more, CES have instilled a tradition of rigorous enquiry in diverse areas of ecology, evolution and behavior. The projects of CES are often integrative which uses multiple approaches, from theoretical and laboratory studies to field-based research, to explore the research questions. A number of CES research areas are breaking new ground in ecology while others have significant roles in conservation. Details at <http://ces.iisc.ernet.in/energy>

https://www.researchgate.net/profile/T_V_Ramachandra/publications

<https://scholar.google.co.in/citations?user=Woh1fa8AAAAJ&hl=en>

Indian Institute of Science (<http://www.iisc.ernet.in>)

The Indian Institute of Science (IISc) was founded in 1909 as a result of the joint efforts of Jamsetji Nusserwanji Tata, the Government of India, and the Maharaja of Mysore. In 1886, Jamsetji Tata conceived of a university of science that will work for the benefit of India, and in 1898 created an endowment for establishing such an institution.

Over the 107 years since its establishment, IISc has become the premier institute for advanced scientific and technological research and education in India. Beginning with 2 departments and 21 students in 1911, today IISc has 42 departments, units, or centres, 3500 students, and about 500 academic and scientific staff, supported by 600 administrative personnel. Out of this population of students, about 2200 are in various PhD programs, almost 900 are enrolled for various Masters degrees, whereas about 500 are registered in the newly established, research oriented, four-year Bachelor of Science (Research) programme, of which the first batch graduated in 2015.

Address for Communication

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Conference Web: <http://ces.iisc.ernet.in/energy>



LAKE 2020: Conference on Conservation and Sustainable Management of Riverine Ecosystems, 28-30 December 2020, INDIAN INSTITUTE OF SCIENCE

Registration form (to be sent by 26 October 2020):

1	Name	PHOTOGRAPH	
	Aadhar Number		
2	E mail		
3	Mobile		
4	Phone		
5	Fax		
6	Designation		
7	Department		
8	Institution		
9	Organisation Address		
10	Correspondence Address		
12	Presenting -	Paper	poster
13	Title (paper / poster)		
	If Yes, Title of the paper /Poster		
	Enclosed: Abstract / Paper (e-version and hard copy): (Please ensure CD is virus free)		
e-version of the Abstract and paper may also be sent to: energy.ces@iisc.ac.in ; lake2020.iisc@gmail.com			
14	Registration fee	Amount:	DD No:
	Bank	Date:	
15	Accommodation	Required	YES / NO
	Accommodation Charges	Amount:	DD No:
	Bank	Date:	
16	Travel Details	Arrival	Date & time
		Departure	Date & time

(All fields must be filled) *DD in favour of Lake 2020, Indian Institute of Science

Signature of Participant

Place: _____ Date: _____

Signature of HOD/Principal

Organisation: