

ESW XI Annual National Research Conference
“Impact of human activities on Ecosystem and Climate change” January 28 to 29, 2024



Organized by

Environment and Social Welfare Society, Khajuraho, MP

(Redg. No. SC2707/2K, M. P. Govt. Firms & Society Act 1973/44. Accredited by NITI Aayog, MP/2014/0076324 and Income Tax Dept. under sec. 12a(1)(ac)(iii) 2022-23 to 2026-27 Govt. of India, Registered for undertaking CSR, Ministry of Corporate Affairs, Government of India)

In association with



Zoological Survey of India, Ministry of Environment, Forest and Climate Change, Government of India, Kolkata, West Bengal.



International Union for Conservation of Nature-CEC, Switzerland



Mahakoshal Vigyan Parishad, Vigyan Bharti, Jabalpur, Madhya Pradesh



The National Academy of Sciences India, Bhopal Chapter, Madhya Pradesh

Editor

Dr. Ashwani Kumar Dubey

(Zoology, Ichthyology, Biochemistry, Free Radical Biology, Toxicology, Stress Monitoring, Biodiversity & Natural Resources Management)

In collaboration with MoU Institutes

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Assisted by: Godavari Academy of Science & Technology, Chhatarpur, MP

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"Impact of human activities on Ecosystem and Climate change"

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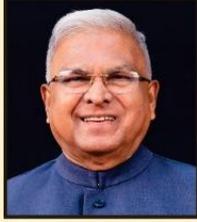
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मंगुभाई पटेल
MANGUBHAI PATEL



सत्यमेव जयते

राज्यपाल, मध्यप्रदेश
GOVERNOR OF MADHYA PRADESH

राज भवन
भोपाल-462052
RAJ BHAVAN
BHOPAL-462052

क्रमांक 028/राजभवन/2024
भोपाल, दिनांक-12 जनवरी, 2024

संदेश

हर्ष का विषय है कि एनवायरमेंट एंड सोशल वेलफेयर सोसायटी खजुराहो द्वारा **Impact of human activities on Ecosystem and Climate change** विषय पर 11वें वार्षिक राष्ट्रीय अनुसंधान सम्मेलन का आयोजन किया जा रहा है। इस अवसर पर **स्मारिका** का प्रकाशन सराहनीय है।

पर्यावरणीय असंतुलन मानव-प्रकृति के स्वस्थ संबंधों के बीच हस्तक्षेप है। इससे वनस्पति और जीव जन्तु की पारस्परिक सहजीविता प्रभावित होती है। परिणाम स्वरूप जहाँ एक ओर मानव अस्तित्व के समक्ष गंभीर चुनौतियाँ उत्पन्न हुई हैं, वहीं दूसरी ओर पारिस्थितिक तंत्र के लिए ज़रूरी वनस्पति और जीव-जंतु का अस्तित्व भी संकट में है। जलवायु परिवर्तन के कारकों का अध्ययन, पारिस्थितिक तंत्र की मज़बूती के उपायों और मानव गतिविधियों के प्रभावी दिशा-निर्देशन के वैचारिक चिंतन के लिए मंच उपलब्ध कराना सराहनीय पहल है।

आशा है, स्मारिका शोधकर्ताओं, वैज्ञानिकों और विद्वानों के मूल्यवान मार्गदर्शन और मानव-प्रकृति संतुलन के लिए उपयोगी जानकारियों का संकलन बनेगी।

शुभकामनाएं,

(मंगुभाई पटेल)

दूरभाष : 0755-2858828, 2858830, फ़ैक्स : 0755-2858832, ई-मेल : mprajbhavan@mp.gov.in

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डॉ. धृति बैनर्जी
निदेशक
Dr. Dhriti Banerjee
Director



भारत सरकार
भारतीय प्राणि सर्वेक्षण
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Government of India
Zoological Survey of India
Ministry of Environment, Forest and Climate Change

MESSAGE

I am happy to know that Environment and Social Welfare Society, Khajuraho, Madhya Pradesh India is organizing the ESW 11th Annual National Research Conference on “Impact of human activities on Ecosystem and Climate change” to be held during 28 & 29 January, 2024 at Godavari Self-Employment Centre, Nahdora-Khajuraho, Madhya Pradesh, India.

Human-driven changes in land use and land cover such as deforestation, urbanization, and shifts in vegetation patterns also alter the climate, resulting in changes to the reflectivity of the Earth surface, emissions from burning forests, urban heat island effects and changes in the natural water cycle.

I am sure that this unique opportunity provided by regular national conference will be fruitfully utilized for ensuring better quality of life for Earth today and for generation to come.

I extend my best wishes and congratulate to Dr. Ashwani Kumar Dubey, Organizing Secretary and to organizing committee members for taking up the task to organize regular Annual National Research Conference.


Dr. Dhriti Banerjee



प्राणि विज्ञान भवन, 535, एम. ब्लॉक, न्यू अलिपौर, कोलकाता - 700 053, दूरभाष : +91 33 2400 6893, टेलीफैक्स : +91 33 2400 8595
Prani Vigyan Bhawan, 535, M-Block, New Alipore, Kolkata - 700 053, Phone : +91 33 2400 6893, Telefax : +91 33 2400 8595
E-mail : director@zsi.gov.in, dhritibanerjee@gmail.com, Website : zsi.gov.in

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Dr. Rajkumar Acharya
Vice-Chancellor

डॉ. राजकुमार आचार्य
कुलपति



Awadhesh Pratap Singh University
Rewa - 486 003 (M.P.)

अवधेश प्रताप सिंह विश्वविद्यालय
रीवा - 486003 (म.प्र.)
vcapsu@gmail.com

दिनांक 09 जनवरी 2024

संदेश

यह जानकर अति प्रसन्नता हुई कि दिनांक 28 एवं 29 जनवरी 2024 को गोदावरी स्वरोजगार केन्द्र, नहोदरा- खजुराहो में पर्यावरण एवं सामाजिक कल्याण सोसायटी द्वारा "Impact of human activities on Ecosystem and Climate Change" विषय पर 11वें वार्षिक राष्ट्रीय अनुसंधान सम्मेलन का आयोजन किया जा रहा है।

पारिस्थितिकी तंत्र एक शब्द है जो वातावरण, प्राकृतिक संसाधन और मानव विकास के बीच जोड़ने वाले वैज्ञानिक तथा समाजशास्त्रीय तंत्र का हिस्सा है। यह तंत्र उन सम्प्रेषणों, प्रक्रियाओं और निर्णयों को अध्ययन करता है जो पर्यावरण, राजनीति और समाज के बीच होते हैं।

जलवायु परिवर्तन मानव स्वास्थ्य को प्रत्यक्ष और अप्रत्यक्ष दोनों तरीकों से प्रभावित करता है। जलवायु परिवर्तन खाद्य सुरक्षा को भी प्रभावित करता है, जिसमें लोग दूषित खाद्य पदार्थों के सम्पर्क में आकर खाद्य जनित बीमारियों से ग्रसित हो जाते हैं। अतः हम सबका यह कर्तव्य है कि हम पर्यावरण को दूषित होने से बचायें। वर्तमान समय नये-नये तकनीकी शोध की ओर अग्रसर हो रहा है इसके भी कई दुष्परिणामों की वजह से हमारा जलवायु तंत्र प्रभावित हो रहा है। हमें इनको अमल में लाने के पूर्व इसके लाभ एवं हानि के बारे में अध्ययन करना आवश्यक है, ताकि हमारा समाज इन परिवर्तन से होने वाले नुकसान से बच सके।

मुझे विश्वास है कि इस सम्मेलन में विभिन्न क्षेत्रों से आये विद्वानों द्वारा विषय-वस्तु पर गंभीरतापूर्वक विचार विमर्श होगा तथा एक सफल परिणाम इस क्षेत्र को प्राप्त होगा जिसका लाभ हमारे समाज एवं पर्यावरण के क्षेत्र को प्राप्त होगा।

सम्मेलन के सफल आयोजन हेतु मेरी हार्दिक शुभकामनायें।


(डॉ. राजकुमार आचार्य)
कुलपति

ESW XI Annual National Research Conference
“Impact of human activities on Ecosystem and Climate change” January 28 to 29, 2024




महात्मा गाँधी चित्रकूट ग्रामोदय विश्वविद्यालय, चित्रकूट
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आचार्य

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पत्रांक :

पूर्व कुलपति

सतीदुर्गावती विश्वविद्यालय, जबलपुर, मध्यप्रदेश

पंडित शंभूनाथ शुक्ल विश्वविद्यालय, शहडोल मध्यप्रदेश (प्रभार)

राजाशंकर शाह विश्वविद्यालय भिंदवाड़ा मध्यप्रदेश (प्रभार)

दिनांक :

MESSAGE

I am happy to know that Environment and Social Welfare Society, Khajuraho, Madhya Pradesh India is organizing the ESW 11th Annual National Research Conference on "Impact of human activities on Ecosystem and Climate change" to be held during 28 & 29 January, 2024 at Godavari Self-Employment Centre, Nahdora-Khajuraho, Madhya Pradesh, India.

Human-driven changes in Burning fossil fuels, cutting down forests and farming livestock are increasingly influencing the climate and the earth's temperature. This adds enormous amounts of greenhouse gases to those naturally occurring in the atmosphere, increasing the greenhouse effect and global warming.

This objective of the conference is to create climate change awareness and importance of protecting our nature. I hope the outcome of the conference will provide valuable guidance to the academicians and researchers.

I extend my best wishes and congratulate to **Dr. Ashwani Kumar Dubey**, Organizing Secretary and to organizing committee members for taking up the task to organize regular Annual National Research Conference.

Dr. Kapil Deo Mishr

e-mail: drkapil.cku@gmail.com, Mob: 9407333760, Web: www.gramodayachitrakoot.ac.in

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प्रो. अखिलेश कुमार पाण्डेय
कुलपति

Prof. Akhilesh Kumar Pandey
Vice Chancellor



विक्रम विश्वविद्यालय
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उज्जैन (म.प्र.) 456010 भारत
दूरभाष : 0734-2514270 (कार्यालय)

VIKRAM UNIVERSITY
Accredited 'B++' Grade by NAAC
Ujjain - 456010 (M.P.) India
Phone : 0734-2514270 (Off.)
E-mail : vcvikramujn@gmail.com
Website : www.vikramuniv.ac.in

MESSAGE

I am pleased to acknowledge that the Environment and Social Welfare Society, Khajuraho, Madhya Pradesh India is organizing the ESW 11th Annual National Research Conference on “Impact of human activities on Ecosystem and Climate change” to be held during 28 & 29 January, 2024 at Godavari Self-Employment Centre, Nahdora-Khajuraho, Madhya Pradesh, India.

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I extend my best wishes and congratulate to Dr. Ashwani Kumar Dubey, Organizing Secretary and his entire team of the organizing committee of the Annual National Research Conference.

(Prof. Akhilesh Kumar Pandey)

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जीवाजी विश्वविद्यालय, ग्वालियर (म.प्र.)
JIWAJI UNIVERSITY, GWALIOR (M.P.)

प्रो. अविनाश तिवारी
कुलपति

Prof. Avinash Tiwari
Vice Chancellor



Phone (O) : 0091-751-2442701
2341348

Fax : 0091-751-2341450
e-mail : vcjiwaji@gmail.com
website : www.jiwaji.edu



MESSAGE

I am happy to know that Environment and Social Welfare Society, Khajuraho dedicated to Environment, Education, Art and Science & Technology entire India since bi-millennium, Under Government of M.P., Firms & Society Act 1973, accredited by NITI Aayog, Govt. of India & CSR, Ministry of Corporate Affairs, Govt. of India is organizing the ESW 11th Annual National Research Conference on “Impact of human activities on Ecosystem and Climate change” to be held during 28 & 29 January, 2024 at Godavari Self-Employment Centre, Nahdora-Khajuraho, Madhya Pradesh, India.

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(Prof. Avinash Tiwari)

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ABOUT ENVIRONMENT & SOCIAL WELFARE SOCIETY, KHAJURAHO

Environment & Social Welfare Society (ESW Society) *Dedicated to Environment, Education and Sciences & Technology throughout India since Bi-Millennium* is registered organization under the society Act 1973, Government of Madhya Pradesh, India on 31 January 2000 with No SC2707. It was affiliated by Nehru Yuva Kendra Sangathan, Ministry of Youth Affairs and Sports, Government of India. It is accredited by Jan Abhiyan Parishad, Government of Madhya Pradesh, since 2013, NITI Aayog, (National Institution for Transforming India), Govt. of India. ID MP/2014/0076324 and Registered under 12a(1)(ac)(iii) 2022-23 to 2026-27 Income Tax Dept. Govt. of India & Registered for undertaking CSR, Ministry of Corporate Affairs, Government of India.

Now it's worldwide known for its impact. ESW Society has been to develop the relationship between Environment and Society envisions the promotion of Education and Sciences among the University, College and School students as well as in the society for Environment Social Welfare.



Object of The ESW Society:

1. To establish, arrangement and management all around development in the field of Education and expansions of educational institutions.
2. To develop Ideal morality, Character building in the Children according to Indian tradition and Culture.
3. All around development of the Children. Arrange training programme to establish Self Employment Centre.
4. To organize Seminar for Environmental management, Pollution control, and establish Awareness centre for the same.
5. To make awareness for Social welfare. Check against Animal cruelty and to protect against cruelty and Tyranny.
6. Open animal house for improvement of animal health and provid necessary facility for them.
7. To highlight modern Technology, Computer, Games & Sports, Music, Art, Literature, and various languages Hindi, English, Urdu, and other foreign languages in the field of Education.
8. Establish Research Centre

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ACKNOWLEDGEMENT

This is an honor for Environment and Social Welfare Society, Khajuraho organize its ESW 11th Annual National Research Conference on “Impact of human activities on Ecosystem and Climate change” to be held during 28 & 29 January, 2024 at [Godavari Self-Employment Centre, Nahdora-Khajuraho](#), Madhya Pradesh, India organizes by Environment and Social Welfare Society (ESW Society), Khajuraho, Madhya Pradesh, India.

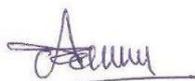
I am Thankful to Dr. Dhriti Banerjee, Director, Zoological Survey of India, Ministry of Environment, Forest and Climate Change, Government of India, Kolkota, West Bengal, Dr. P N Vasanti, Regional Vice Chair for S & SE Asia, IUCN CEC, Switzerland, Dr. B. N. Johari, President, The National Academy of Sciences India, Bhopal Chapter, MP, Dr. Sunita Sharma, President, Mahakoushal Vigyan Parishad, Unit of Vigyan Bharti, Jabalpur and Dr. Anil Kothari, Director General, Madhya Pradesh Council of Science and Technology, Bhopal for its association.

I am Thankful to Honourable Vice Chancellor, Dr. Bheem Rao Ambedkar University, MHOW, Indore, Prof Ram Shankar Honourable Vice Chancellor, Pt. S. N. Shukla University, Shahdol, Madhya Pradesh. Prof Akhilesh Kumar Pandey, Honourable Vice Chancellor, Vikram University, Ujjain, Madhya Pradesh, Prof. Kapil Deo Mishra, Honourable Vice Chancellor, Rani Durgavati Vishwavidyalaya, Jabalpur, Madhya Pradesh, Prof. Mukesh Pandey, Honourable Vice Chancellor Bundelkhand University Jhansi, Uttar Pradesh, Prof Rajkumar Acharya, Honourable Vice Chancellor, Awadhesh Pratap Singh University, Rewa, Mr. J. N. Misra, Honourable Chancellor, Nehru Gram Bharti Deemed to be University, Prayagraj, Uttar Pradesh, Honourable Vice Chancellor, Sikkim Skill University, Sikkim, Director, ICAR-CAFRI, Jhansi, UP, Principal, Mr. Anil Khajuria, Principal, Govt. Degree College Chenani, Jammu & Kashmir, Dr. Pragya Khanna, Principal, Govt. Girdari Lal Dogra Memorial College, Hiranagar, Jammu & Kashmir, India and Principal Govt. Kalidas College Ujjain, MP for its collaboration as MoU institutes in this conference.

It is my privilege and pleasure to express my profound gratitude to our VIP Guest of inaugural & Valedictory session.

I am heartily thankful to honorable Invitee Guest who have very kindly consented and given us an opportunity to share valuable thought which will provide milestone on the way of leading Scientists in the Conference.

I am especially thankful to all delegates who actively participated in this Conference. I am thankful to Electronic and Print Media. I am profoundly thankful to my Board of Director and All members of ESW Society for their invaluable cooperation, and those entire person who are directly or indirectly concerned with this conference.



Dr. Ashwani Kumar Dubey

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Environment and Social Welfare Society

Head Office: Vidhyadhar Colony, Khajuraho-471606 India

Regional Office: Godavaripuram, Bajrangnagar, Ward No. 17, Chhatarpur-471001 Madhya Pradesh

Prof. Ashwani Kumar Dubey
Executive Director

Website: www.godavariacademy.com
Email: ashwanikhajuraho@gmail.com



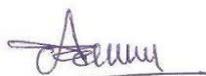
EDITORIAL

The ESW 11th Annual National Research Conference on “Impact of human activities on Ecosystem and Climate change” from 28 to 29 January, 2024 at Godavari Self-Employment Centre, Nahdora-Khajuraho, Madhya Pradesh organized by Environment and Social Welfare Society, Khajuraho, Madhya Pradesh, India. The theme is “To take some positive steps towards improving our Earth for future generation” which will underpin the need for collaboration and cooperation of individuals from a wide range of professional backgrounds.

The ESW Conference will strive to offer plenty of networking opportunities, providing you with the opportunity to meet and interact with the leading professionals as well as sponsors and exhibitors. And also to provide a platform to Educational Administrators, College Principals, Deans, Readers, Professors, Assistant Professors, Scientists, Environmentalist, Stakeholders, Researchers, Young scientists and Students to disseminate knowledge related to Strategies for promotion and conservation of environment and native species to protect and restore the nature and possible solution by technological approach.

Human-driven changes in land use and land cover such as deforestation, urbanization, and shifts in vegetation patterns also alter the climate, resulting in changes to the reflectivity of the Earth surface, emissions from burning forests, urban heat island effects and changes in the natural water cycle. Burning fossil fuels, cutting down forests and farming livestock are increasingly influencing the climate and the earth's temperature. This adds enormous amounts of greenhouse gases to those naturally occurring in the atmosphere, increasing the greenhouse effect and global warming. Climate change is altering ecosystem productivity, exacerbating the spread of invasive species, and changing how species interact with each other and with their environment. These changes are reconfiguring ecosystems in unprecedented ways.

ESW Society, India and its MoU institutes have joined hands in fulfil the object of ESW Society, raise awareness and valuable solution of Sustainable Development Goal. Take urgent action to combat climate change and its impacts, and will continue to coordinate their endeavours in support of its implementation.



Dr. Ashwani Kumar Dubey

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Under auspicious of: Environment & Social Welfare Society, India

ESW XI Annual National Research Conference
“Impact of human activities on Ecosystem and Climate change” January 28 to 29, 2024

ABOUT ESW XI ANNUAL NATIONAL RESEARCH CONFERENCE

It gives us immense pleasure to invite and welcome you in the Environment and Social Welfare Society (ESW Society), Khajuraho, Madhya Pradesh, India to participate in The ESW 11th Annual National Research Conference on “Impact of human activities on Ecosystem and Climate change” to be held during 28 & 29 January, 2024 at [Godavari Self-Employment Centre, Nahdora-Khajuraho](#), Madhya Pradesh, India organizes by Environment and Social Welfare Society (ESW Society), Khajuraho, Madhya Pradesh, India.

Object: To provide a platform to Vice Chancellors, Educational Administrators, Academicians, Professors, Readers, Associate Professors, Assistant Professors, Scientists, Environmentalist, Researchers, Young scientists and Post Graduate Students to disseminate knowledge related to Strategies for promotion and conservation of environment and native species to protect and restore the Nature.

Goal: The principal goal of this conference will be to present some of the latest outstanding breakthroughs in Strategies for promotion and conservation of environment and native species to protect and restore the Nature to bring together both young and experienced scientists from all regions of the world, and to open up avenues for research collaborations at regional and global level.

Theme: To take some positive steps towards improving our Strategies for promotion and conservation of environment and native species to protect and restore the Nature for our future generation

THE GENERAL TOPICS COVERED IN THE CONFERENCE WILL BE AS UNDER

1. **Biological Sciences:** Biological Sciences, Agricultural Science, Anthropology and Behavioral Sciences, Animal Husbandry, Aquaculture, Biodiversity, Biotechnology, Biochemistry, Bioinformatics, Cell and Molecular Biology, Fish and Fisheries, Home Sciences, Immunology, Life Sciences, Limnology, Medical Sciences, Microbiology, Nutrition, Plant Sciences, Taxonomy, Tissue Culture, Toxicology, Veterinary Sciences, Wildlife Conservation, Zoology.

2. **Environmental Sciences:** Environmental Ethic, Environmental Legislation, Environmental Impact Assessment, Environmental Management, Environmental Policies, Environmental Pollution, Natural Resources Conservation.

3. **Earth and Atmospheric Sciences:** Mineralogy.

4. **Sustainable Development:** Nutritional and Food Security, Biodiversity conservation, Promotion and conservation of indigenous species, Strategic and advocacy for nature conservation, Scientific approach of native species conservation, Scientific temper to protect and restore the nature, Livelihood.

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Brief Report of ESW X Annual Research Conference International Level on
“Strategies for promotion and conservation of environment and native species to protect and restore the Nature”

Date: 29 to 31 January, 2023. Venue: Khajuraho, India

Organized by: Environment & Social Welfare Society, Khajuraho, India.

In association with International Union for Conservation of Nature- CEC, Switzerland.

Zoological Survey of India, Ministry of Environment, Forest and Climate Change,

Government of India, Kolkota, West Bengal.

The National Academy of Sciences, Bhopal Chapter, Madhya Pradesh, India,

Vigyan Parishad, Mahakoushal Prant, India

Madhya Pradesh Council of Science and Technology, Bhopal

Website: www.godavariacademy.com and www.ijgsr.com



*Dr. Mordhwaj S. Parihar, President, BIOEXONS LLC Washington, USA inaugurated
ESW 10th Annual Research Conference International Level - 2K23*

A PRELUDE: After the success of ESW 9th Annual National Research Conference on “Impact of Environmental Stressors on Human and Disaster Management” during 30 & 31 January, 2022. Environment & Social Welfare Society, Khajuraho, India organized its ESW 10th Annual Research Conference International Level on “**Strategies for promotion and conservation of environment and native species to protect and restore the Nature**” to be held during 29 & 31 January, 2023 at UNESCO Heritage site of India Khajuraho, Madhya Pradesh in association with The National Academy of Sciences, Bhopal Chapter, Madhya Pradesh, India, International Union for Conservation of Nature- CEC, Switzerland, *Zoological Survey of India*, Ministry of Environment, Forest and Climate Change, GoI, Kolkota, West Bengal, Vigyan Parishad, Mahakoushal Prant, India with collaboration MoU Institutes Dr. B. R. Ambedkar University of Social Sciences, MHOW, Madhya Pradesh. Pt. S. N. Shukla University, Shahdol, Madhya Pradesh. Vikram University, Ujjain, Madhya Pradesh. Rani Durgavati University, Jabalpur, Madhya Pradesh. Bundelkhand University, Jhansi, Uttar Pradesh. *Nehru Gram Bharati* (Deemed to be University), Prayagraj, Uttar Pradesh. Govt. College, Chenani, Jammu, Jammu & Kashmir. Govt. Girdari Lal Dogra Memorial College, Hiranagar, Jammu & Kashmir. Internationally collaborated with Basha Research Corporation, Singapore, MONACHUS, Constanta, Romania, Dr. Fawaz Azki Geological Museum, Kismis, Syria and Iranian Ornamental Fish Society, Tehran, Iran. Assisted by Godavari Academy of Science and Technology, Chhatarpur, MP, India.

OBJECT: To provide a platform to Policy makers, Vice Chancellors, Educational Administrators, College Principals, Deans, Head of Departments, Professors, Readers, Associate Professors, Assistant Professors, Scientists, Environmentalist, Researchers, Young scientists and Post Graduate Students to disseminate knowledge related to environment and native species.

GOAL: The principal goal of this conference will be to present some of the latest outstanding breakthroughs in environment and native species, to bring together both young and experienced scientists from all regions of the world, and to open up avenues for research collaborations at regional and global level.

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THEME: In the preamble to the 2030 agenda, world leaders affirmed that they are: “Determined to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change, so that it can support the needs of the present and future generations.” Therefore, ESW Society organized this conference to take some positive steps towards improving our Environment, Society and Human health for our future generation.

INAUGURAL FUNCTION: The **ESW X Annual National Research Conference inaugurated on 29 January, 2023 by Dr. Mordhwaj S. Parihar**, President, BIOEXONS LLC Washington, USA. by candle lighting in front of Goddess Saraswati in the gracious presence of **Patron** Dr. Mohan Yadav, Hon'ble Minister, Dept. of Higher Education, Govt. of MP (virtual), Guest of Honour Dr. Ulrich Berk, German Association of Homa Therapy, Germany, Dr. S. N. Pandey Pro Chancellor The Open Global University, Nagaland, Dr. Arun Arya, M. S. University, Baroda, Gujarat, Dr. Ashwani Kumar Dubey, Founder President, Environment & Social Welfare Society, Khajuraho, Madhya Pradesh, Fellow/Member of Environment & Social Welfare Society Khajuraho, India, Mrs. Vandana Dubey, Managing Director, Godavari Academy of Science and Technology, Chhatarpur, MP and distinguished guests, participations from various part of country and hundreds+ participants including social media were participated in conference. Miss. Deepika Tiwari Ujjain presented Saraswati Vandana and Dr. Sudha Srivastava, Dr. Shobha Soche and Vandana Dubey welcomed ESW Society by putting badges.



Souvenir released with Message of Mr Mangubhai Patel, Honourable Governor, [Rajbhawan Madhya Pradesh](#), Dr. Mohan Yadav, Minister, Higher Education, Govt of MP, Dr. [Dhriti Banerjee](#) Director, ZSI, Govt of India, Dr. [Ayyanadar Arunachalam](#) Director, ICAR-CAFRI, Jhansi, Dr. [Bharat Sharan Singh](#) Chairman, MP Private University Regulatory Commission, Govt of MP, Prof Dinesh Sharma, Honourable Vice Chancellor, BRAUSS, Mhow, Prof. Ram Shankar, Honourable Vice Chancellor, Pt. S. N. Shukla University, Shahdol, MP, Prof. Kapil Deo Mishra, Honourable Vice Chancellor, Rani Durgavati Vishwavidyalaya, Jabalpur, Prof. Akhilesh Kumar Pandey, Honourable Vice Chancellor, Vikram University, Ujjain, Prof. Mukesh Pandey, Honourable Vice Chancellor, Bundelkhand University, Jhansi, UP, Prof. Rajkumar Acharya, Honourable Vice Chancellor, Awadhesh Pratap Singh University, Rewa, MP, Mr. J. N. Misra, Honourable Chancellor, Nehru Gram Bharati (Deemed to be University) Prayagraj, UP., Dr. Pragya Khanna, Principal, Govt. Girdari Lal Dogra Memorial Degree College, Hiranagar and Dr. Anil Khajuria, Principal, Govt. Degree College Chenani, Udhampur, J&K.. Ninety nine abstract received and published related with Biological Sciences, Environmental Sciences, Earth and Atmospheric Science and sustainable development from various States of India viz. Madhya Pradesh, Rajasthan, Uttar Pradesh, Jammu and Kashmir, Maharashtra, West Bengal, Kerala, Bihar, Uttarakhand and from Abroad Germany, Nepal, Argentina, Korea and Algeria. Its available online <https://godavariacademy.com/godavarinew/wp-content/uploads/2022/02/ESW-IX-annual-national-research-conference-souvenir-30-31-January-2022.pdf>

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Book released by Guest: Book *Animal Diversity: Non-Chordata* Authors Dr. Ashwani Kumar Dubey & Dr. Sunita Singh released by VIP guest during [ESW X Annual Research Conference 2023](#). Animals are a diverse group of organisms that make up the kingdom known as Animalia. They are a very familiar group of organisms and are the very kingdom of life that humans belong to. In this introduction to animals we will cover the difference between vertebrate and invertebrate animals and introduce a range of animals from both groups.



ESW Society, Khajuraho, India and ICAR-CAFRI Jhansi, Uttar Pradesh, India



ESW Society, Khajuraho, India and LND College Motihari, Bihar, India

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ESW Society, Khajuraho, India and Govt. Kalidas College, Ujjain, Madhya Pradesh, India



ESW Society, Khajuraho, India and Sikkim Skill University, Sikkim, India

MoU Signed and exchange file between executive of institutes by ESW Society, Khajuraho and ICAR-CAFRI Jhansi, LND College Motihari, Bihar, Govt. Kalidas College, Ujjain, MP, Sikkim Skill University, Sikkim.

Patron Dr. Mohan Yadav, Hon'ble Minister, Dept. of Higher Education, Govt. of MP (virtually) blessed to the organizers and participants of this conference.

Chief Guest **Dr. Mordhwaj S. Parihar** said that this program helps in environmental protection and solution of global warming and climate change.

President **Dr. S. N. Pandey** highlighted in his presidential address that scientists can make the body weather friendly by gene editing but we should change our nature ourselves and we should work with satisfaction.

Guest of Honour Dr. Ulrich Berk said that we should respect our mother earth contributes to the solution.

Guest of Honour Dr. Arun Arya threw light on conservation of local species.

Executive Director, ESW Society and Organizing Secretary of conference Dr. Ashwani Kumar Dubey, highlighted the 10 years activities of the society, said that all the members associated with this organization are working dedicatedly for environmental protection.

The general topics discussed in the conference as follows in Five Scientific Session and One Poster session.

1. **Biological Sciences:** Biological Sciences, Agricultural Science, Anthropology and Behavioral Sciences, Animal Husbandry, Aquaculture, Biodiversity, Biotechnology, Biochemistry, Bioinformatics, Cell and Molecular Biology, Fish and Fisheries, Home Sciences, Immunology, Life Sciences, Limnology, Medical Sciences, Microbiology, Nutrition, Plant Sciences, Taxonomy, Tissue Culture, Toxicology, Veterinary Sciences, Wildlife Conservation, Zoology.

2. **Environmental Sciences:** Environmental Ethic, Environmental Legislation, Environmental Impact Assessment, Environmental Management, Environmental Policies, Environmental Pollution, Natural Resources Conservation.

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- 3. Earth and Atmospheric Sciences: Mineralogy, Wildlife.
- 4. Sustainable Development

TECHNICAL SESSION: After the inauguration, the technical session started where Research papers and posters presented by research scholars & academicians.



VALIDICTORY & AWARD CEREMONY: 30 January, 2023.

Chief Guest: Dr. D. K. Sharma Hon'ble Vice Chancellor, BRAUSS, Mhou, **Guest of Honour** Dr. Ulrich Berk Germany **President** Dr. S. N. Pandey and President ESW Society Dr. Ashwani Kumar Dubey, were the Guest of the Valedictory and Award ceremony of the conference and other eminent scientists were present on this auspicious occasion.

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AWARD CEREMONY:

National Amazing Godavari Memorial Award (NAGMA) “Excellence in Education and Science” Dr. Mordhwaj S. Parihar, President, BIOEXONS LLC Washington, USA



Lifetime Achievements Award: Dr. S. N. Pandey, Pro Chancellor, The Global Open University Nagaland

Best Scientist Award Dr. Stuti Mishra, JNKVV, Jabalpur

Young Scientist Award Dr. Baba Tabassum, Devi Ahilya University, Indore

Young Environmentalist Award Dr. Ruby Yadav, Gangapur, Rajasthan.

ESW Fellowship Award Dr. Gaurav Sharma, Rani Laxmi Bai Central Agriculture University, Jhansi, UP

ESW Excellence Award Dr. Santeshwar Kumar Mishra Allahabad.

The Godavari Academy Impact Award is given to Dr. Amit Pal Bundelkhand University Jhansi and Dr. Neeraj Kumar Laxmi Narayan Dubey College Motihari Bihar for the activities of the Society to be conducted at the department or institution level.

International Recognition Award: Dr. A. Arunachalam Director ICAR-CARI Jhansi, Dr. Kusum Arunachalam, Dehradun University Uttarakhand, Prof. Arun Arya, M. S. University, Baroda, Gujarat, Dr. D. K. Sharma Vice Chancellor, BRAUSS, University, Mhow, Prof. Harish Vyas Kalidas College Ujjain Dr. Alka Vyas Vikram University Ujjain, Dr. Kanhaiya Mahawar Farrukhabad Dr. R. B. Singh Dr. Bhimrao Ambedkar University, Agra Dr. Kavita Chaudhary Government PG College Noida Dr. Arvind N. Shukla and Dr. Shivi Bhasin School of Studies in Zoology and Biotechnology Vikram University Ujjain Dr. Rohit Kumar Singh Pandit J. N. College Banda, Mohd Shamshul Haque Government Indira Gandhi Home Science Girls PG College Shahdol and Dr Vandana Dubey Managing Director Godavari Academy of Science and Technology Chhatarpur. Dr. Sameer Joshi, Indian Plastic Institute, Mumbai, Maharashtra.

ESW Appreciation Gold Medal: Dr. Jyoti Sharma Kota, Rajasthan and Mr. Sharang Ambadkar, FeelGood EcoNurture LLP, Mumbai, Maharashtra.

Woman Young Environmentalist Award was given to Miss Priyanka Singh, Bundelkhand University, Jhansi.

Best Paper Presentation Award in 1st Technical Session Dr. Bilal Ahmad Bhat University of Kashmir and Netri Dutta Vishwa Bharati University West Bengal 2nd Deepika Tiwari Govt. Madhav Science College Ujjain 3rd Priyanka Singh Government College Piprai Ashoknagar 4th Kumari Pooja CMP University of Allahabad Poster presentation was provided to Dwitimoy Mukherjee and Samiparna Saha Vishwabharati University West Bengal by the guests from the stage.

The Social Innovative ESW International Award was given to the NGO's and those working in the welfare of the society Dr. O. P. Sharma Government College Bundi Rajasthan, Prajapita Brahmakumari Ishwariya Vishwavidyalaya Khajuraho, Shri Ashish Tamarkar Jan Abhiyan Parishad Chhatarpur, Prof. K. K. Sharma Director Institute of Herpetology Rajasthan, Praveen Gupt Hum Foundation Chhatarpur, Dr. Saroj Gupta Pandit

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Deendayal Upadhyay Art & Commerce College Sagar, Dr. Anil Mehra Jabalpur Management Association Jabalpur, Dr. Jai Prakash Paliwal Hospital Bhopal, Rajeev Khandelwal Senior Advocate Indore, Mr. Ramesh Sharma Author Open Eye, Bhopal.

Vote of thanks: Vote of thanks given by In Inaugural session Prof. Prahlad Dube, Kota & In Vaedictory session Dr. Harish Vyas, Professor of Zoology, Government Kalidas College, Ujjain to our all respected guest and participants..

31 January, 2023: Celebration of 23rd FOUNDATION DAY OF ESW Society

On the 23rd Foundation Day of ESW, all the scientists took out a rally from Hotel Green House to the temple site of Khajuraho and gave the message of environmental protection and together with Khajuraho On the call of Honorable Prime Minister of India Mr. Narendra Modi, Regional MP, Mr. V. D. Sharma and District Collector Mr. Sandeep G. R. ESW Members & Clean Green Army with all the guests and researchers of conference cleaned the ghat of Shiv Sagar pond and spread the message of cleanliness to the whole world.

Dr. Ashwani Kumar Dubey conducted the program.

Beneficiary: Thousands+ Listeners/ Research scholars/ Students/ Academician/ Social workers were benefited by this event.

RECOMMENDATIONS:

- Systematic research on effects of Agnihotra on purification of atmosphere, soil, and water resources.
- Systematic research on effects of Homa Organic Farming on sodic / saline / and acidic soil.
- Testing Homa Organic Farming on farm level.
- Creating Homa Organic Model Farms in each State of India.
- Including Homa Organic Farming in the syllabus of B.Sc. / M.Sc. courses at Agricultural Universities.
- Including methods of Homa Organic Farming in the Package of Practices.
- The temple area is clean and maintained. Similarly the whole city particularly from station to city near temples should have many dust bins. All the waste should be segregated and recycled. The work can be given to the contractor or any NGO.
- Burning of waste should be discouraged and use of plastic bags and bottles should be banned.
- Water quality of lakes should be tested and more cleanliness of lakes should be done.
- Vaccines are chief weapon in fighting against the covid 19 pandemic.
- Protected Areas, viz, National Parks, Sanctuaries, Conservation Reserves and Community Reserves all over the country covering the important habitats have been created as per the provisions of the Wild Life (Protection) Act, 1972 to provide better protection to wildlife, including threatened species and their habitat should be followed strictly.
- We can help save threatened species by Join a community national parks organisation, Visit a nearby national park or nature reserve, Use cleared areas more efficiently rather than clearing more land, Provide areas exclusively for wildlife and Plant local native trees and shrubs.



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LOSS OF BIODIVERSITY DUE TO ILLEGAL TRADE AND POACHING AND THE GENERATION OF SCIENTIFIC PROOFS WITH MAJOR EMPHASIS ON MAMMALS

Archana Bahuguna

Northern Regional Centre, Zoological Survey of India, 218, Kaulagarh Road, Dehradun, Uttarakhand

Email: archana.bahuguna65@gmail.com

Major threats to fauna are illegal trade, habitat fragmentation and climate change. According to IUCN (assessed in 2022), 41,000 species are threatened with extinction, this constitutes 41% amphibian, 27% mammals, 34% conifers, 13 % birds, 37 % sharks and rays, 33% reef corals, 28% selected crustacean, 21% reptiles and 69 % cycads. Developing countries are facing loss of faunal species at an alarming rate due to developmental activities but one of the major reasons is poaching and illegal trade. Illegal trade is known to be the biggest trade after the trade of arms and ammunition and narcotics. The present study demonstrates the use of taxidermy samples for tricho taxonomy for providing scientific proofs for the identification of threatened species of mammals (Lagomorpha; Rodentia: Sciuridae; Carnivora: Felidae, Viverridae; Artiodactyla: Cervidae) and also discusses the failure of the technique in identification of some faunal mammals groups. Same taxidermy samples can be used for generating the gene sequences for threatened mammals for wildlife forensic as well as for identification of the species. This technique is useful where hair samples either present in less quantity or only meat or blood samples or other wildlife parts and products are available for generating the scientific proofs.

Keywords: Wildlife forensic, Scientific proofs, tricho taxonomy, Molecular tools

BIOENERGY FROM AGRICULTURAL RESIDUES: A SUSTAINABLE WASTE-TO-ENERGY SOLUTION

Amita Srivastava* and Ratnanjali

Department of Zoology, Dayanand Girls P.G. College, Kanpur, Uttar Pradesh

*Email: amitasrivastava159@gmail.com

Bioenergy is a renewable form of energy derived from organic waste materials such as plants, animals and their byproducts, which are often referred to as biomass. It serves as a fundamental base for human welfare, socioeconomic advancement and the overall aspect of life. Over the past few decades, a sustained escalation in energy demand has been observed, primarily due to industrialization, urbanization, and modernization. Meeting this demand is a significant requirement of the present era. Numerous natural resources, including landfill gasses, municipal solid waste, animal waste, and sewage sludge, contribute to fulfilling this demand. However, the agriculture sector plays the most crucial role in this approach. Agricultural residues constitute a broad range of by-products originating from farming activities, encompassing leftover crop materials, stalks, husks, and other organic matter that remains after harvesting. Traditionally, these residues have persisted as waste, sometimes contributing to environmental challenges such as air pollution through open-field burning. Modern technologies particularly, anaerobic degradation, pyrolysis, and fermentation have significantly reduced this concern to a great extent. Anaerobic degradation involves the microbial breakdown of organic matter in an oxygen-depleted environment, yielding biogas that can be used for power generation. Pyrolysis employs thermal energy to convert biomass into biochar and bio-oil, whereas fermentation utilizes microorganisms i.e., bacteria and yeast to produce biofuels like ethanol. Bioenergy from agricultural residues represents a symbiotic relationship between waste management and energy generation. By viewing agricultural residues not as a problem but as a valuable resource, we can unlock the potential for a more sustainable and environment-friendly future energy landscape. The fundamental principle of this approach is to repurpose waste into valuable inputs, thereby offering a comprehensive solution to the intrinsic challenges associated with waste and energy management within the agricultural sector.

Keywords: Bioenergy, Agricultural residues, waste management.

DETERIORATION OF MARBLE BUILT HERITAGE AT AGRA

Abduraheem K. and Mohd Suwaid

Department of Museology, Aligarh Muslim University, Aligarh, Uttar Pradesh

Agra, a city in Uttar Pradesh, India, is renowned for its magnificent monuments of the Mughal period like, the Taj Mahal, the Agra Fort, the Itmad-ud-Daulah's Tomb and the Akbar's tomb etc. The Taj Mahal, is an exquisite marble monument, architectural marvel and UNESCO World Heritage Site, symbolises India's rich cultural heritage and attracts millions of visitors annually. The Buland Darwaza, a massive gateway made of red sandstone with marble embellishments, is a prominent highlight of Fatehpur Sikri. Other notable monuments with marble structures include the Jama Masjid, Panch Mahal, and the Tomb of Salim Chishti. These monuments continue to captivate and inspire people worldwide as a timeless symbol of beauty, craftsmanship, and human expression. However, these magnificent monuments have gradually deteriorated, jeopardizing their structural integrity and aesthetic appeal. This paper aims to provide an overview of the key factors contributing to the deterioration of the marble-built heritage and the measures taken to address the issues. The deterioration of the marble-built heritage is attributed to a combination of natural and anthropogenic factors. The monument's location in Agra, a city grappling with severe air pollution, has deposited sulfur dioxide and particulate matter onto its pristine white marble surface. These pollutants interact with the marble, causing discolouration, erosion, and weakening structure. Additionally, the nearby Yamuna River is heavily polluted, accumulating sediment and promoting algal growth, fungi, lichens, insects dropping, and other organic matter. The above-mentioned biological factors enhance the deterioration and discolouration of the marble-built heritage, including the Taj Mahal. The details will be described in the full paper.

Keywords: Taj Mahal, Deterioration, Marble heritage, Agra, Biological factors

Biological Sciences

Biological Sciences, Agricultural Science, Anthropology and Behavioral Sciences, Animal Husbandry, Aquaculture, Biodiversity, Biotechnology, Biochemistry, Bioinformatics, Cell and Molecular Biology, Fish and Fisheries, Home Sciences, Immunology, Life Sciences, Limnology, Medical Sciences, Microbiology, Nutrition, Plant Sciences, Taxonomy, Tissue Culture, Toxicology, Veterinary Sciences, Wildlife Conservation, Zoology.

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ASSESSMENT OF TOXICITY OF DICHLORVOS ON FRESHWATER TELEOST FISH *CHANNA PUNCTATUS* BY CHRONIC EXPOSURE.

Phool Gend Kumar

Department of Zoology, Brahmanand Post Graduate College, Kanpur, Uttar Pradesh

E-mail: gpgyadav545@gmail.com

Dichlorvos (2, 2-dichlorovinyl dimethyl phosphate) is an organophosphate compound used to control household and public health. It is effective against mushroom flies, aphids, spider, caterpillars and white flies in greenhouse and vegetable crops. The cellular detoxification processes may be different represent a more general and well known situation of oxidative stress due to the production of free-radicals. This free radical react with other chemicals of the tissues and causes various defects in blood parameters. Present investigation was aimed to study of the Dichlorvos in fish *Channa punctatus*. Value of LC₅₀ of Dichlorvos was determined as 1.26 ppm for *C. punctatus*. It was found that after chronic exposure of Dichlorvos, damage value was highest at all concentrations in tissues.

Keywords: Dichlorvos, *Channa punctatus*, LC₅₀, cellular detoxification

ANALYSIS SURFACE WATER DYNAMICS IN OF LADAKH: A WATER DEFICIT COLD -DESERT IN THE HIMALAYAS

Maneesh Yadav, Suresh Ramanan S.*, A. K. Handa and A. Arunachalam

ICAR-Central Agroforestry Research Institute, Jhansi, Uttar Pradesh

*E-mail: suresh.s@icar.gov.in

Ladakh is the highest plateau extending from the Himalayan to the Kunlun ranges, including the upper Indus River valley. It is known for being extremely dry and having severe moisture deficient all year round which is in contrast with other regions of Himalayas. It receives very little precipitation (less than 150 mm annually), and due to western disturbances, the majority of this precipitation is in the form of winter snowfall. With scarce water resources, Ladakh is highly sensitive and vulnerable to climate change. The primary objective of this work is to assess the dynamics of surface water changes in the Ladakh. For the analysis Global Surface Water (GSW) dataset showing the location and temporal distribution of surface water from 1984-2021 including the details on the size and evolution of water surface areas was used. The result indicated that the 24.061 sq. km. (1.07%) of permanent water surface area was lost and few were converted into seasonal water areas (83.415 sq. km. (3.71%)) compared to 1984. In some regions, excess glacier melting has led to development of new seasonal water surfaces (294.088 sq. km (13.10%)) and new permanent surface water areas (181.7 sq. km. (8.09%)). With increasing population of 33.26%, and more than 70% are rural residents who primarily rely on glacier melt for irrigation, livestock's, and daily needs. There is a need for inclusive water management strategy wherein traditional and modern methods have to be deployed to suit varying needs in the cold-desert landscape.

Keywords: Surface Water Dynamics, Change Detection, Himalayas, Glacier Melting, water scarcity

COMBAT OF MALNUTRITION IN CHILDREN WITH FISH COLLAGEN FORTIFIED COOKIES

Anil Kewat*, Priti Mishra, Madhuri Sharma, S. K. Mahajan and Sona Dubey
College of Fishery Science Jabalpur, DVSU, Madhya Pradesh.
*E-mail: kewatanil64@gmail.com

More than one third of the world's malnourished children live in India, among these, half of the children under three years old are underweight. To combat this issue, readily available and digestible meat sources are advisable, since fish meat are a promising source of omega-3 fatty acids, high-biological-value protein, vitamins (A, D, B6 and B12), minerals and almost all essential amino acid which are necessary for the overall growth of a child. Fish meat can be added to the basal food diet as a fortified supplement. It has been seen that children reject to consume fish due to fishy smell and tiny bones. Therefore, indirect consumption of fish is advisable for those children who have no religious boundaries. In this study cookie snacks were prepared with the addition of freshly prepared fish collagen at different percentage, with Rohu fish fillet to increase the nutritional value of cookies and remaining taste and flavour unchanged. The prepared cookies were investigated for nutritional and physical properties. In addition, a sensory analysis was also carried out for the acceptability of the end product. It was concluded with the reference of results that the 5 percent of rohu fish collagen can be added in cookies to combat malnutrition.

UNVEILING THE ADVERSE IMPACT OF AUTOMOBILE EMISSIONS ON HUMAN HEALTH

Rafat Khan and Asha Agarwal
Department of Zoology, Mahatma Gandhi Balika Vidyalaya (P.G.) College, Firozabad, UP
Email: rafatkhantrue@gmail.com

The automotive industry's rapid growth and widespread use of internal combustion engines have led to a consequential increase in automobile emissions, contributing to a complex web of environmental and health challenges. This research paper critically examines the adverse impact of automobile emissions on human health, shedding light on the multifaceted consequences of exposure to vehicular pollutants. The study employs a comprehensive approach, integrating findings from studies, environmental monitoring, and public health research to elucidate the direct and indirect effects of automobile emissions on human well-being. Special emphasis is placed on the intricate relationship between air pollutants released by vehicles and their role in the escalation of respiratory illnesses, cardiovascular diseases, and other health issues. Key areas of investigation include the identification of specific pollutants responsible for adverse health outcomes, the exploration of vulnerable populations disproportionately affected by automobile emissions, and an assessment of long-term health implications. Additionally, the research investigates the global and regional variations in the impact of automobile emissions, considering the implications for diverse communities and environments. In light of the findings, the paper discusses potential mitigation strategies, ranging from advancements in automotive technologies to the development of stringent regulatory frameworks. Furthermore, it underscores the importance of public awareness campaigns and policy initiatives aimed at promoting sustainable transportation practices and reducing the overall burden of automobile emissions on human health. This research paper aims to contribute insights to the ongoing discourse on the environmental and health ramifications of automobile emissions, fostering a deeper understanding of the challenges at hand and proposing actionable solutions for a healthier and sustainable future.

Keywords: Automobile Emmission, Human health, Environment.

SINKING HERITAGE: AHMEDABAD'S BATTLE AGAINST FLOODING AND THE IMPERILLED LEGACY OF ITS HISTORIC STRUCTURES

Hiteshkumar Solanki

Department of Botany, Bioinformatics & Climate Change Impacts Management and Environmental Science, University School of Sciences, Gujarat University Ahmedabad, Gujarat

Email: hasolanki@gujaratuniversity.ac.in

It's unfortunate to hear about the challenges that Ahmedabad, the first World Heritage city of India, is facing, especially in terms of flooding and the potential threat to its heritage structures. Addressing these issues requires a comprehensive approach involving policy changes, urban planning, and community engagement. Here are some policy-based solutions that municipal corporations could consider to mitigate the problems. These are: **Integrated Urban Planning:** Municipalities should adopt integrated urban planning approaches that consider the city's historical and cultural significance. This involves coordinating land use planning, infrastructure development, and environmental conservation to ensure sustainable growth. **Stormwater Management:** Develop and implement effective stormwater management systems. This includes regular maintenance of stormwater drains, ensuring they are free from blockages, and investing in modern drainage infrastructure to handle excess rainwater during monsoons. **Road Resurfacing and Maintenance:** Develop guidelines for road resurfacing that take into account the impact on street levels and drainage. It's important to address the issue of continuous resurfacing without proper planning, which can lead to elevated street levels and exacerbate flooding problems. **Waste Management and Cleanliness:** Implement and enforce robust solid waste management systems to prevent the blocking of stormwater drains. Regular cleaning of streets, removal of debris, and proper disposal of waste can significantly reduce the risk of waterlogging during the monsoon season. **Community Awareness and Participation:** Engage the community in awareness campaigns regarding the importance of proper waste disposal and maintenance of public spaces. Encourage citizens to take an active role in keeping their surroundings clean and report any issues related to drainage or waste management. **Heritage Impact Assessments:** Integrate heritage impact assessments into development projects. Assess the potential impact of infrastructure projects on heritage structures and implement measures to mitigate any adverse effects. This could involve coordination between urban planning and heritage conservation departments. **Smart Infrastructure Solutions:** Explore the use of smart technologies and infrastructure solutions to monitor and manage stormwater drainage systems. Real-time data and analytics can help identify and address issues promptly. **Green Infrastructure:** Integrate green infrastructure elements such as permeable pavements, green roofs, and urban green spaces. These features can absorb rainwater, reduce surface runoff, and contribute to overall environmental sustainability. **Policy Coordination:** Ensure coordination between different municipal departments, such as urban development, heritage conservation, and disaster management, to develop and implement cohesive policies addressing flooding and heritage preservation. **Regular Monitoring and Evaluation:** Establish a system for regular monitoring and evaluation of the implemented policies to assess their effectiveness. This can help identify areas for improvement and ensure that the city's resilience to flooding is continually enhanced.

To obtain the most recent and accurate information on the current situation in Ahmedabad, I recommend checking local news sources, government reports, or contacting relevant authorities involved in heritage preservation and disaster management. Additionally, community organizations and heritage conservation groups may provide insights into ongoing efforts to protect heritage structures from flooding in the region. Implementing these policy-based solutions requires collaboration among government bodies, local communities, and other stakeholders. It's essential to strike a balance between urban development and heritage preservation to ensure the long-term sustainability and resilience of Ahmedabad as a World Heritage city.

Keywords: Structural Damage, Heritage Impact Assessments, Integrated Urban Planning, Restoration Challenges, Green Infrastructure

MAPPING THE ECONOMIC COST FOR BIODIVERSITY CONSERVATION

Rohit Kumar Singh¹, Kavita Singh Chaudhary² and Mohd. Salman Karim³

^{1&3}Department of Chemistry, Pt. J. N. College, Banda, Uttar Pradesh

²Department of Microbiology, Govt. P. G. College, Noida, Uttar Pradesh

Investments in biodiversity conservation must be strategically allocated, because resources are severely limited. As a result, approaches for designing conservation plans that systematically represent a region's biodiversity have proliferated and become ever more sophisticated. Although the biological aspects of these approaches have advanced rapidly, relatively little attention has been paid to the economic side of conservation planning (i.e., the science of systematically prioritizing conservation interventions), even though planning invariably involves both costs and benefits. Understanding costs—including land prices, management costs, and opportunity costs (i.e., foregone alternatives)—will help us to allocate scarce dollars most efficiently. And understanding benefits—“ecosystem services” such as flood control from wetlands and carbon sequestration from —will help us to estimate the economic value of lands identified for conservation and to identify who may be willing to pay for these services.

Conservation biologists have been slow to incorporate these cost-benefit approaches into their work, but some recent studies demonstrate the potential power of to inform conservation decisions. On the costs side, economists have shown that conservation plans that incorporate costs can represent equal or greater levels of biodiversity with dramatically fewer resources than plans that do not consider costs. Global-scale analyses have illustrated that the costs needed to establish and manage protected areas vary enormously among countries. Recent calls for more work on the costs of conservation indicate that these findings are slowly penetrating the planning literature. On the benefits side, there has been an increased awareness of the economic value of ecosystem services provided by natural systems. Quantifying these values, however, remains complex and has become a major area of research in both environmental and . New techniques have led to a much greater ability to quantify economic values associated with natural in a wide variety of contexts. Paralleling this research on valuation has been an increased interest in developing mechanisms that compensate landowners for the ecosystem services their lands provide.

Keywords: biodiversity, Mapping, ecosystem

TRIBES OF EASTERN MADHYA PRADESH

Uma Singh¹, Radha Singh² and Ramakant Pandey³

^{1&2} Department of Botany, Pt. S. N. Shukla University, Shahdol, Madhya Pradesh

³Department of Biochemistry, Patna University, Patna, Bihar

Eastern Madhya Pradesh is a completely tribal belt. Forest cover is more or less 20 to 25 %. Literacy rate is very low in existing condition. Due to hill, valley and dense forest transportation & communication services completely dependent upon the climatic conditions. The rate of development could not arrive yet in this area, only due to communication services & education facilities. Though the tribal people living according to their traditional way of life style so far but many very good things they adapted in their day to day life, which were imbibed by natural resources since very beginning. Their customs, tradition, rituals & festivals are natural and endemic, just like a sacred groove. Observed facts, survey reports and estimation of the developments are telling a different story of Jangal me Mangal, only due to the diversity in living beings through the natural way. There should be a urgent need of comprehensive study for establishing as well as maintaining the sustainable diversity with developed human life style.

Keywords: endemic diversity, natural resource.

EVALUATING SURFACTANTS AND THEIR ENVIRONMENTAL IMPLICATIONS FOR SUSTAINABLE SOLUTIONS

Rita Dixit

Department of Chemistry, M.G.P.G. College, Firozabad, Uttar Pradesh

Email: reetadixit.chemistry@gmail.com

The use of surfactants in industrial, household, and personal care applications has prompted a critical examination of their environmental ramifications. This study offers a thorough evaluation of surfactants and investigates their impact on environmental sustainability. The study encompasses a detailed analysis of surfactant classes, exploring their physicochemical properties, applications, and persistence in natural ecosystems. The research scrutinizes the fate and transport of surfactants in various environmental compartments, shedding light on issues such as biodegradability, bioaccumulation, and potential ecotoxicity. A focus is placed on the influence of surfactants on aquatic ecosystems, soil health, and broader ecological dynamics. The paper also assesses the existing regulatory frameworks governing surfactant usage and their effectiveness in mitigating environmental risks. In pursuit of sustainable solutions, the study critically examines alternative surfactants with reduced environmental impact, emphasizing their potential to address ecological concerns. The findings contribute to a nuanced understanding of the intricate interplay between surfactants and the environment, guiding the formulation of sustainable practices and policies. This research aims to inform stakeholders, policymakers, and industries about the environmental implications of surfactants and advance the development of strategies that foster a harmonious balance between technological advancements and environmental sustainability.

Keywords: surfactants, Environmental implications, Sustainable solution

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KRISHI AND MAWESHI

Radha Singh¹, Uma Singh² and Ramakant Pandey³

^{1&2}Department of Botany, Pt. S. N. Shukla University, Shahdol, Madhya Pradesh

³Department of Biochemistry, Patna University, Patna, Bihar

Agriculture & animal husbandry are the conjoint collateral systems for the better prospectus of healthy & wealthy human life. Due to the degradation of this super natural association, the whole agricultural system is going down drastically. There is a very simple logic lies behind the life is feeding & breeding. Agriculture & animal husbandry is needed only due to feeding & breeding. A broad survey report and massive observation explains that the wastage of agricultural products is easily utilized by pet animals where as the animal waste are used up as organic manure or organic fertilizers in farm yards. These mutually beneficial reciprocal activities are key to the healthy & wealthy human life. Which may maintain the diversity and entire environment as well as sustainable developmental activities. It needs a massive survey and scientific observations report to the funding agencies for future planning for the betterments of future generations.

Keywords : Agriculture & animal husbandry, funding agencies.

IMPACT OF CLIMATE CHANGE ON FOREST ECOSYSTEMS

Ajeet Kumar Sharma* and Ankita Kumawat

Department of Botany, St. Wilfred’s College for Girls, Jaipur, Rajasthan

*E-mail: dr.aksbotany001@gmail.com

Climate change poses a profound threat to global forest ecosystems, with far-reaching consequences for biodiversity, ecological processes, and human well-being. This abstract succinctly outlines the key impacts of climate change on forests. Rising temperatures and altered precipitation patterns directly influence forest composition, distribution, and structure, leading to shifts in species abundance and the potential proliferation of invasive species. Increased frequency and intensity of droughts contribute to water stress in trees, impacting their growth and making forests more susceptible to pests and diseases. Conversely, extreme precipitation events lead to soil erosion and nutrient leaching, further influencing forest health and resilience. The escalation of wildfires, fueled by prolonged periods of drought and elevated temperatures, poses a direct threat to forest ecosystems, causing habitat loss and releasing significant carbon stores into the atmosphere.

Beyond ecological impacts, these changes affect forest-dependent communities, impacting livelihoods and cultural practices. Adapting to these changes requires sustainable forest management practices, reforestation efforts, and global cooperation to mitigate the root causes of climate change. This abstract emphasizes the urgency of understanding and addressing climate change impacts on forest ecosystems to ensure the preservation of their vital ecological functions and the myriad services they provide to humanity.

Keywords: Precipitation, Invasive species, Nutrient leaching, Wildfires, Reforestation, Mitigation.

ROLE OF HUMAN INTERVENTION IN CLIMATE CHANGE

Ankita Kumawat and Ajeet Kumar Sharma
Department of Botany, St. Wilfred’s College for Girls, Jaipur, Rajasthan
E-mail: botanistak01@gmail.com

The impact of human activities on climate change is a pressing concern with wide-ranging implications for the planet's environmental equilibrium. This abstract delves into the primary mechanisms through which human intervention contributes to climate change. The burning of fossil fuels, driven by industrialization and energy consumption, releases substantial quantities of greenhouse gases, particularly carbon dioxide, into the atmosphere. This intensified greenhouse effect traps heat, resulting in global warming and disrupting established climate patterns. Deforestation, another significant human-driven factor, reduces the Earth's ability to absorb carbon dioxide, as trees act as vital carbon sinks. Land-use changes, such as urbanization and agricultural expansion, further exacerbate climate change by altering surface properties and regional climate dynamics. Industrial processes also emit methane and nitrous oxide, potent greenhouse gases that contribute to the overall warming trend. Understanding the role of human intervention in climate change is essential for formulating effective mitigation strategies. Transitioning towards sustainable energy sources, reforestation efforts, and adopting eco-friendly practices are critical steps. This paper emphasizes the urgent need for global cooperation to address the root causes of climate change, fostering a collective commitment to sustainable practices for the well-being of the planet and future generations.

Keywords: Deforestation, Mitigation, Sustainable, Climate Change.

DELTAMETHRIN IMPACT ON *BARYTELPHUSA CUNICULARIS*: TOXICITY AND CONSIDERATION FOR EFFECTIVE MANAGEMENT.

Rohan Yadav and Nitin G. Shinde
Department of Zoology, K. J. Somaiya College of Arts, Commerce and Science, Kopergaon, Ahmednagar, Maharashtra
Email: rohanyadav0398@gmail.com

This study investigates the ecotoxicological impact of deltamethrin, a widely used synthetic pyrethroid insecticide in agricultural and public health, specifically targeting the freshwater crab *Barytelphusa cunicularis*. The research delves into the insecticide's mechanism of action and acute toxicity on the crab species. With the persistent presence of deltamethrin in soil disrupting microbial activity and water contamination posing threats to aquatic ecosystems, the investigation aimed to determine the lethal toxicity concentration. The experiment reveals LC50 values at 24, 48, 72, and 96 hours, indicating concentrations of 0.0132 ppm, 0.0082 ppm, 0.005 ppm, and 0.0039 ppm, respectively. The findings demonstrate a correlation between increased pesticide concentration and exposure period with a rise in percentage mortality. Adverse effects observed on *Barytelphusa cunicularis* populations underscore the need to comprehend deltamethrin's impact on non-target organisms. This research contributes significant insights into deltamethrin's ecotoxicology, offering valuable information for informed decision-making in promoting sustainable pest management practices.

Keywords: Deltamethrin, Ecotoxicology, Acute toxicity, Environmental footprint.

PRODUCTIVITY ENHANCEMENT OF KODO MILLETS THROUGH IMPROVED FARMING PRACTICES FOR VINDHYA REGION

Smita Singh*, Arpita Shrivastava**, K. S. Baghel*, Akhilesh Kumar*, Manju Shukla* and B. K. Tiwari*

*Krishi Vigyan Kendra, Rewa, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur, MP

**Krishi Vigyan Kendra, Katni, Jawaharlal Nehru Krishi Vishwavidyalaya, Jabalpur, MP

Email: sapnapuat@gmail.com

The study was carried out during Kharif seasons of 2023-24 in five village viz; Jokiha, Marilla, Ajarha, Khokham and Godha village of Rewa districts of Madhya Pradesh under front line demonstration conducted by Krishi Vigyan Kendra, Rewa on yield and economics of Kodo millet production. The data were collected from 10 farmers. The findings of the study results revealed that improved technology recorded a mean yield of (9.7 q/ha) which was 55 per cent higher than obtained by farmers practices (6.25 q/ha). The higher net returns (Rs. 37288/ha) and benefit: cost ratio of (2.34) was obtained with improved farming practices in comparison to farmer's practices.

Keywords: Kodo millet, Front line demonstration

CLIMATE CHANGE IMPACT ON HORTICULTURAL CROPS

Manju Shukla, Smita Singh, A. K.Patel, K. S.Baghel, Akhilesh Kumar and A. K. Pandey

JNKVV-Krishi Vigyan Kendra, CoA, Rewa, Madhya Pradesh

Email-shuklamanju732@gmail.com

Climate can be defined as an average weather condition over a long period .Change in the climate that persists for decades or longer, arising from either natural causes or human activity is referred to as climate change. The impact of global warming is now visible in many parts of the India. The horticultural crops are also sensitive towards changing climate. Availability of water is a major constraint for horticultural crops, particularly in drought like situations. Storms and hail storms induce damages in horticultural crops during flowering and fruit bearing stage. Horticultural crops occupy nearly 3.25% of the total cropped area of the Madhya Pradesh. Agriculture has a two way relationship with Climate Change. Climate change such as temperature, and has been affected all cultural crop and results greater impact on productivity and quality of horticultural crops. Hence, to maintain the sustainability of crops need to minimize the effect of climate on horticultural crops by various hi-tech horticulture and management method. The productivity and quality besides aggravate the environmental stresses such as increasing temperature, reduced irrigation water availability; flooding and salinity are effects on horticultural crops by climate change variability. Due to irregularity of climate change variability the commercial varieties of fruits, vegetables and flowers will perform poorly in an unpredictable manner. Some horticultural crops like Spongy tissue of mango, fruit cracking of litchi, flower and fruit abscission in solanaceous fruit vegetables will be more pronounced in physiological disorder and declined in yields of several horticultural crops due to high temperature and air pollutions.

Keywords: Climate change, Growing period, Horticultural crops, Physiological disorder

POPULATION DYNAMICS OF MEGALUROTHRIPS USITATUS AND MELANAGROMYZA OBTUSA IN PIGEONPEA

Jaspreet Singh, Akhilesh Kumar, Smita Singh¹, B. K. Tiwari¹, A. K. Panday² and S. B. Das²
JNKVV-College of Agriculture, Rewa, Madhya Pradesh

¹JNKVV-Krishi Vigyan Kendra, CoA, Rewa, Madhya Pradesh

²JNKVV-College of Agriculture, Jabalpur, Madhya Pradesh

E-mail akhiliivr@gmail.com

Pigeonpea (*Cajanus cajan* (L.) Millsp.), is a tropical and subtropical grain legume. It is also known as *tur*, *arhar* and redgram. The pigeonpea has high protein content (22.3%), which meets a major portion of the country's vegetarian population's protein demands, it is an essential component in increasing food security and nutrition for many poor home. Insect pests likes pigeon pea just as much as people do. In India, it has been seen being attacked by more than 150 different insect species at different stages of crop growth. Even though India accounts for more than 90% of worldwide pigeon pea production, productivity has always been a cause for concern. Due to a number of factors, both abiotic and biotic, including low productivity of pigeon pea throughout the nation. Infestations of insects are the main biotic variables that impact this crop's output. The population of flower thrips recorded ranged between 0.5 to 4.6 (per flower) during October to February month of 2022-23. Weekly observation on the population dynamics of *Megalurothrips usitatus* revealed that the infestation of flower thrips was first time observed during 4th week of October (44th SMW) *i.e.*, 1 (per flower) when the crop was at reproductive stage (131 days) with max. and min. temperature were 31.08 °C and 14.4 °C respectively, RH was 72.28 % and 40.71% during morning and evening hours respectively. From the correlation study, it was inferred that mean population of flower thrips had negative correlation ($r = -0.608$) (Fig. 4) with max. temperature. The population of maggots of pod fly recorded ranged between 0.2 to 1.6 (per pod) during October to February month. Weekly observation on the population dynamics of *Melanagromyza obtusa* revealed that the infestation of pod fly was first time observed during 4th week of October (44th SMW) *i.e.*, 0.5 per pod when the crop was at reproductive stage (131 days) with max. and min. temperature were 31.08 °C and 14.4 °C respectively, RH was 72.28% and 40.71% during morning and evening hours respectively. From the correlation study, it was inferred that mean population of maggots of pod fly had negative significant correlation ($r = -0.694$) (Fig. 5) with max. Temperature and negative significant correlation ($r = -0.603$) (Fig. 6) with min. temperature.

IMPACT OF DICHLORVOS (DDVP) ON THE KIDNEYS OF A CARP FISH, CYPRINUS CARPIO: A HISTOPATHOLOGICAL STUDY

Ashok Kumar Singh and Ranjan Kumar

Department of Zoology, R. K. College, Madhubani, Bihar

Dichlorvos is a widely used pesticide. The impact of dichlorvos on kidney of *Cyprinus carpio* was studied with light microscopy. The result showed dangerous histopathological damages to kidney. The proximal convoluted tubule exhibited clumped erythrocytes; diminished lumen, nuclei concentrated to lumen with lower toxicity (2.5 ppm), necrosis in distal convoluted tubule with higher doses (4.5ppm), nuclei become enlarged, extensive necrosis in proximal convoluted, shrinkage of glomerulus that augmented with time (20 days).

Keywords: Dichlorvos, necrosis, shrinkage, pesticide

VULTURES (ACCIPITRIFORMES: ACCIPITRIDAE) OF MADHYA PRADESH, INDIA WITH THEIR CONSERVATION STATUS

Akhlaq Husain and Ashwani Kumar Dubey
(Zoological Survey of India, former Scientist-E), 41, Hari Vihar, Vijay Park; Chakrata Road, Dehradun, Uttarakhand
Department of Zoology, Government College, Piprai, District Ashoknagar, Madhya Pradesh
Email: drakhlaqhusain@gmail.com

The present communication deals with the vultures (Accipitriformes: Accipitridae) of Madhya Pradesh, India. In all seven species have been recorded from the state. These belong to four genera viz. *Aegyptius*, *Gyps*, *Neophron* and *Sarcogyps*. Their conservation status has also been provided.

Keywords: Vultures, Madhya Pradesh.

PERFORMANCE OF IPM MODULES FOR THE MANAGEMENT OF BROWN PLANT HOPPER IN RICE

Akhilesh Kumar, Smita Singh, K. C. Singh, A. K. Patel, C. J. Singh, Sanjay Singh, Sandeep Sharma and M. K. Mishra
JNKVV-Krishi Vigyan Kendra, CoA, Rewa, Madhya Pradesh
E-mail: akhiliivr@gmail.com

The brown plant hopper (BPH), *Nilaparvata lugens* (Stål) (Hemiptera: Delphacidae) is a plant hopper species that feeds on Rice plants (*Oryza sativa* L.). These insects are among the most important pests of rice, which is the major staple crop for about half the world's population. The BPH is distributed throughout Australia, Bangladesh, Bhutan, Burma (Myanmar), Cambodia, China, Fiji, India, Indonesia, Japan, North and South Korea, Laos, Malaysia, India, Nepal, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Taiwan, Thailand, and Vietnam. They damage rice directly through feeding and also by transmitting two viruses, rice ragged stunt virus and rice grassy stunt virus. Up to 55-60% yield loss is common in susceptible rice cultivars attacked by the insect. In order to evaluate the performance of technology in Rice crop under irrigated condition assess the efficacy of deep summer ploughing, alley planting with 30 cm gap after 2.5 to 3 meter planting with spacing of 20 x 15 cm, application of Chlorantraniliprole 0.3G @10kg/ha in nursery 5-7 days before uprooting of seedlings, Need based application of insecticides Fipronil 5 SC spay @ 1000ml/ha after based on ETL (RP) in different location of Rewa (MP) on 10 famers' field with two treatments in 2023 to 2024. To evaluate the performance of recommended practice and compared with farmers practices (FP) was found more infestation of BPH than recommended practice (RP). Economics and benefit cost ratio of both FP and RP plots were worked out. The no. of insect/hill in Rice was recorded lowest in RP (7.15), while 23.60 no. of insect/hill was recorded in FP. Rs. 66755.00/ha was recorded net profit under RP while in FP it was Rs. 41953.00/ha was recorded. Benefit cost ratio was 2.96 under RP, while 2.45 was in FP. The technology of recommended practice is found most suitable for reduced BPH population and most economic for the management of BPH losses in Rice in comparison with farmer's practices. The IPM modules for management of BPH in Rice were profitable to farmers along with health concerned and eco-friendly to environment.

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ANALYSIS OF SURFACE WATER DYNAMICS IN LADAKH: A WATER DEFICIT COLD -DESERT IN THE HIMALAYAS

Maneesh Yadav, Suresh Ramanan S., A. K. Handa and A. Arunachalam
ICAR-Central Agroforestry Research Institute, Jhansi, Uttar Pradesh

Ladakh is the highest plateau extending from the Himalayan to the Kunlun ranges, including the upper Indus River valley. It is known for being extremely dry and having severe moisture deficient all year round which is in contrast with other regions of Himalayas. It receives very little precipitation (less than 150 mm annually), and due to western disturbances, the majority of this precipitation is in the form of winter snowfall. With scarce water resources, Ladakh is highly sensitive and vulnerable to climate change. The primary objective of this work is to assess the dynamics of surface water changes in the Ladakh. For the analysis Global Surface Water (GSW) dataset showing the location and temporal distribution of surface water from 1984-2021 including the details on the size and evolution of water surface areas was used. The result indicated that the 24.061 sq. km. (1.07%) of permanent water surface area was lost and few were converted into seasonal water areas (83.415 sq. km. (3.71%)) compared to 1984. In some regions, excess glacier melting has led to development of new seasonal water surfaces (294.088 sq. km (13.10%)) and new permanent surface water areas (181.7 sq. km. (8.09%)). With increasing population of 33.26%, and more than 70% are rural residents who primarily rely on glacier melt for irrigation, livestock's, and daily needs. There is a need for inclusive water management strategy wherein traditional and modern methods have to be deployed to suit varying needs in the cold-desert landscape.

Keywords: Surface Water Dynamics, Change Detection, Himalayas, Glacier Melting, water scarcity

SEASONAL STUDY OF HELMINTH INFECTION IN FRESH WATER FISH FROM PAHUJ RIVER DISTRICT JHANSI OF BUNDELKHAND REGION OF (U.P.) INDIA

Aditya Narayan¹, Shweta Lohia² and Sonika³

¹Parasitological Lab., Department of Zoology, Bundelkhand University, Jhansi (U.P.) India

²Parasitologist Hemera, Lohas Park, Hong Kong

³Department of Biosciences Division Zoology, Career Point University Hamirpur (H.P.) India

E-mail: dr.adityanarayan41@gmail.com

Parasites show a high degree of specialization and reproduce at a faster rate than their hosts. The parasitic worms form the major portion of biodiversity on earth. Fish harbor a variety of helminth parasites viz. Cestode and Trematode. In the present study, we collected fresh water fish of species, *Channa punctatus* from Pahuj river of district Jhansi Bundelkhand region of U.P. during summer, monsoon and winter season respectively. During the 4 Feb.2023 to January 2024, we observed high helminthes parasitic infection in host fish during winter season as compared to the monsoon and summer season.

Keywords: Seasonal study, helminth infection, fish.

EFFECT OF HELMINTH PARASITE, DIPLOSTOMULUM INFECTION ON FRESH WATER FISH *HETEROPNEUSTES FOSSILIS* IN BIHAR

M. M. Alam* and S. B. Shashi

*P.G. Deptt. of Zoology, R. K. College, (L. N. Mithila University, Darbhanga), Madhubani, Bihar

Deptt. of Zoology, M. K. S. College, Trimuhan, Chandauna, Bihar

Fish is the master of aquatic life, which serve as hosts to a range of parasites that are taxonomically diverse and that exhibit a wide variety of life cycle strategies. Many of these parasites are passed directly between ultimate host whereas other need a series of intermediate hosts. Parasites thrive primarily in a dynamic equilibrium with their host(s) and they are often overlooked in fish health assessments. The damage associated with the fish host is relative to the intensity of infection and severity of infection of parasite. Infection with parasite *Diplostomulum metacercaria* can lead to severe skin and other tissue pathology and change the haematological and biochemical parameters of *Heteropneustes fossilis* which may result in host mortality.

Keywords : *Diplostomulum*, *Heteropneustes fossilis*, Haematology, Biochemistry, Skin.

ZOLEDRONIC ACID : HETEROCYCLIC NITROGEN CONTAINING BIPHOSPHONATE

Amit Gupta,* Jaya Gupta** and Aseem Gupta

Department of Chemistry, Institute of Basic Sciences, Dr. Bhimrao Ambedkar University, Khandari Campus, Agra, Uttar Pradesh

*Department of Chemistry, Agra College, Agra, Uttar Pradesh

**S N Medical College Agra, Uttar Pradesh

E-mail: gamit8205@gmail.com, jayagupta6250@gmail.com, aseem10850@gmail.com

Zoledronic acid is an imidazole compound. Its other name is Zoledronate and trade name is reconst, zometa. It is a nitrogenous bisphosphonate having chemical composition $C_5H_{10}N_2O_7P_2$. It is third generation bisphosphonate drug share common phosphorus-carbon-phosphorus “backbone”. Zoledronic acid lowers high blood calcium levels by reducing the amount of calcium released from bones into blood. It works by slowing the breakdown of bones by cancer to prevent bone fractures. Zoledronic acid is used to treat osteoporosis (loss of bone density) and hypercalcemia, a condition resulting in high blood calcium levels due to cancer and delay bone complications resulting from multiple myeloma and bone metastases. Zoledronic acid is given by injection into a vein. It is used in the treatment of Paget’s disease and Duchene Muscular Dystrophy (DMD).

Keywords: Zoledronic acid, bisphosphonate, imidazole compound, Paget’s disease and Duchene Muscular Dystrophy (DMD).

IMPACT OF CLIMATE CHANGE ON QUAILS – AN INTRODUCTION AND ITS LIFE CYCLE BEHAVIOUR

Rashmi Tripathi

Department of Zoology, Brahmanad Degree College, Kanpur, Uttar Pradesh

The Indian quail is the common name for a species of quail found primarily along the South East Asia. It is California State Bird. It is a medium-sized bird, about 25 cm. or about 10 inches from beak to tail. The male is mostly gray-brown on top and gray below with a rusty cap, a white and black face, and a prominent head plume. The females plumage is light brown and she has a smaller head plume. Quail are sensitive to operative temperatures >38.7 C, which commonly occur under natural conditions in different latitudes. Based on different studies which suggested that the laying season for quail may be reduced by as much as 60 days because of high temperatures. Although global warming could be associated with an accelerated rate of quail decline in some areas, its importance relative to other potential problems remains unknown. The Indian quail is classified as *Callipepla* and belongs to the pheasant family, Phasianidae, in the order Galliformes. It is also known as the Indain Valley Quail or Valley Quail. It is a small bird in the quail family, and prefers to dwell on the ground surface. If the quails are startled they explode into short fast flights, but given a choice, they normally escape on foot. The Indian quail Bird is found in Southern part of India, in the edges of woodlands, and in suburbs with permanent sources of water. The male courts the female with a dance that includes fluffing his feathers and dropping his head. The female constructs a very sparse nest on the ground and lays 12-16 cream-buff to ivory-yellow eggs. The female incubates, or warms, the eggs by sitting on them for about two weeks. The newly hatched Indian quail Bird are precocious, which means that their eyes are open and they are able to walk on their own and feed themselves. Both parents stay with the young teaching them how to forage for seeds and insects, and how to avoid enemies. Indian quail can be seen feeding at the sides of roads and their diet consists mainly of seeds and leaves, but they also eat some particular berries and insects. One of the daily activities of the Indian quail Bird is taking dust baths. A covey of quails selects a soft sunny ground using their underbellies, and then burrows downward into the soil some 1-2 inches. Then the quails wriggle about, flapping their wings and ruffling their feathers, causing dust to rise in the air. Ornithologists can detect the presence of quail in an area by spotting the 7-15 cm. circular indentations left behind in the soft dirt. With the steady increase in human populations the Indian quail Bird is declining in some areas.

Keywords: Quail, Greenhouse Gases, Human, Tempearture, Climate Change

ARSENIC INDUCED HISTOPATHOLOGICAL CHANGES IN GILL AND LIVER OF FISHES

Madhuri Sharma* and Priti Mishra
College of Fishery Science, NDVSU, Jabalpur , Madhya Pradesh
*E-mail: drmadhurig8@yahoo.co.in

The present study was aimed to examine the toxic effects of Arsenic (Sodium arsenite, NaAsO₂) in Zebra fish. For Cytotoxic effect of Arsenic on Gill and Liver by histopathological study. Fifty four fishes were divided in 9 groups, with each group consisted of six fishes. Group 1 (Normal Group) which served as control, was not administered with Arsenic (tested drug). However, groups 2 to 5 (Drug Toxicity Groups) were administered with Arsenic @140 mg/L, 160 mg/L, 180 mg/L, 200 mg/L, respectively for 30 days (4 week) and the same doses were administered to the fishes of groups 6, 7, 8 and 9, respectively for 60 days (8 week). After the end of the experiments, all the fishes were sacrificed and the histopathology of gill and liver tissues were performed. At the 5th week (groups 2-5) Sections of the gill of fishes showed vascular degeneration and necrosis of epithelial cells of secondary lamellae. On the 9th week H & E stained sections of gill of fishes of groups 6 to 9 showed significant swelling at the tip of secondary gill lamellae and clubbing of lamellae. On the 5th week sections of the liver of fishes of groups 2 to 5 showed congestion, vascular degeneration and mild sinusoidal congestion. On the 9th week liver sections of groups 6 to 9 showed congestion, vascular degeneration and mild sinusoidal congestion. The results indicate that the toxicity of Arsenic is dose and time dependent, suggesting that Arsenic at higher dose for prolonged period causes more toxicity.

Keywords: Arsenic, Zebra fish, Gill, Liver, histopathological, toxicity

SUSTAINABLE ECOTOURISM IN FOREST AND WILDLIFE

Pallavi Jamwal
Government College For Women Parade Ground Jammu, Jammu
Email: pallavijamwal108@gmail.com

Forests and wildlife are elements of nature and inseparable parts of the environment. Because of the intricate nature of interface between nature and human beings, nature conservation entails interactions with people as a central concept. Such interaction includes not only the forest fringe dwellers but also those who are living away from the forests for the purpose of creating experience for the visitors. Eco-tourism may be developed in and around designated sites in forest and wildlife rich areas and ex-situ conservation areas, and such designated sites may include sites of biological, geographical, geo-physical and eco-heritage importance such as mangroves, sacred groves, mudflats, beaches, streams, wetlands, waterfalls, rivers, hills, caves, etc. Eco-tourism has the potential to create significant opportunities for building public awareness and mass movement towards conservation of nature and natural resources while expanding overall returns to the economy, improving skill base, creating new knowledge and green jobs, and improving the livelihoods of the local communities. On the other hand, ecotourism if not practiced in a science-based manner may adversely affect nature on a permanent basis. The Eco-tourism site shall be developed only in ecotourism zone and in eco-friendly manner. While developing support infrastructure for ecotourism it shall be ensured that the natural profile and ecological integrity of the ecotourism site including its biodiversity value is maintained. Any ecotourism facility or structure on forest lands shall be subject to the provisions of the Forest (Conservation) Act 1980. There shall be regular monitoring by the State Governments and Union Territories on the implementation of the guidelines spelt out in the Guidelines for Sustainable Ecotourism in forest and wildlife areas-2021.

Keywords: Ecotourism, Ecological integrity, Monitoring

Environmental Sciences & Climate change

Environmental Ethic, Environmental Legislation, Environmental Impact Assessment, Environmental Management, Environmental Policies, Environmental Pollution, Natural Resources Conservation.

ESG AND THE PLASTIC INDUSTRY HOW DO WE GO FROM HERE

Sameer Joshi and Sharang Ambadkar
FeelGood EcoNature LLP, Bombay, Maharashtra
E-mail: joshisameera@gmail.com

Addressing plastic pollution is no longer an option for companies seeking to be ESG-friendly. The imperative to tackle this environmental crisis is increasingly shaping consumer preferences, investor decisions, and regulatory frameworks. By taking concrete steps to reduce plastic waste, companies can enhance their reputation, reduce risks, and unlock innovation opportunities.

Embracing sustainable practices and actively working towards a plastic-free future will not only benefit the environment but also contribute to long-term business success in the evolving ESG landscape.

Keywords: FeelGood EcoNature, Bombay, Maharashtra, Concrete, Plastic

FUNGAL DETERIORATION OF WOODEN LOGS IN SAWMILLS AND WOODEN OBJECTS IN MUSEUMS OF VADODARA

Arun Arya, P. K. Nagadesi* and Chitra Arya
Department of Environmental Studies, Sir C.V. Raman Building, Faculty of Science, The Maharaja Sayajirao University of Vadodara, India
*Department of Botany, School of Life Science, St. Joseph's University, Lalbagh Road, Bengaluru, Karnataka, India
E-mail: nagadesipraveenkumar@yahoo.com

During heavy moisture concentration wood is decomposed by a variety of biological agents, most commonly by fungi. Soft rot, brown rot and heart rot diseases are caused by Microbes. Bacteria. Brown-rot fungi, which degrade primarily the polysaccharide Lignin by a battery of wood deteriorating enzymes. White-rot fungi may degrade all cell wall components. The rate and extent of lignin, cellulose, and hemicelluloses removal varies among species of white-rot fungi. Soft-rot fungi erode the secondary wall or form discrete cavities within the cell wall. Each type of decay has many forms and can be classified by microscopic and ultrastructural characteristics. Bacteria can directly attack wood to cause erosion, cavitation, and tunneling patterns of deterioration. Bacteria may have a synergistic or antagonistic effect on other microorganisms that inhabit wood. This chapter reviews the morphological and chemical changes that occur in wood after degradation by different fungi and provides information that will help identify the types of deterioration found in wood of heritage objects. Wood in storage and saw mills faces severe losses if not properly managed. During heavy moisture concentration wood is decomposed by a variety of biological agents, most commonly by fungi. Soft rot, brown rot and heart rot diseases are caused by Microbes. Bacteria. Brown-rot fungi, which degrade primarily the polysaccharide Lignin by a battery of wood deteriorating enzymes. White-rot fungi may degrade all cell wall components. The rate and extent of lignin, cellulose, and hemicelluloses removal varies among species of white-rot fungi. Soft-rot fungi erode the secondary wall or form discrete cavities within the cell wall. Each type of decay has many forms and can be classified by microscopic and ultrastructural characteristics. The chemical changes that occur in wood after degradation by different fungal organisms provides information that will help identify the types of deterioration found in wood of great economic value. The wooden heritage objects placed in Baroda museum and picture gallery were damaged by *Aspergillus ustus* and *A. nidulance*. Palm leaf manuscript was damaged by black pigment producing *Nigrospora sphaerica*.

Keywords: Fungal Deterioration, Wooden logs, Sawmills, Ultrastructure, Wooden objects, Museums, Vadodara, *Aspergillus ustus*

**AN INVESTIGATION OF PLANT DIVERSITY IN AND AROUND OPENCAST
MINING AREAS OF BUNDELKHAND REGION OF UTTAR PRADESH, INDIA**

Priyanka Singh^{1*}, Rajeev K. Niranjana² and Amit Pal¹

¹Institute of Environment and Development Studies, Bundelkhand University, Jhansi,
Uttar Pradesh

²Nehru P. G. College, Lalitpur, Bundelkhand University, Jhansi, Uttar Pradesh

*Email: spriyanka680@gmail.com

Open cast mining and allied activities contributing significant infrastructure development and raising the living standards of mankind. However, Mining and Stone crushing industries has caused potentially adverse impacts on natural environment, society and cultural heritage, health of workers and communities in close proximity to operations. The forest of Bundelkhand region is Tropical Dry Deciduous in nature are under tremendous pressure of biotic interferences, climate change and vast experiences of open cast granite mining activities. Present studies have been carried out to evaluate the existing flora in Four opencast mining areas and their adjacent villages of Jhansi and Lalitpur district of Bundelkhand region of Uttar Pradesh. On the basis of our extensive survey out of four selected sites highest numbers of species (53) have been found at Bundela Bandhu site in Lalitpur district and lowest number of species has been observed at Karari site at Jhansi district. In present investigation and our periodical field observations out of 53 plant species on the basis of their abundance in existing severe environmental conditions following species may be recommended as 1st choice for greenbelt design in an around opencast mining areas of Bundelkhand region. The species are as follows: *Acacia nilotica*, *Bambusa vulgaris*, *Butea monosperma*, *Calotropis procera*, *Cynodon dactylon*, *Eucalyptus globulus*, *Jatropha curcas*, *Lantana camera*, *Ocimum gratissimum*, *Ziziphus mauritiana*, *Dalbergia sisoo*, *Vachellia nilotica*, *Adhatoda vasica*, *Allianthus excelsa*, *Datura metel*, *Nerium oleander*, *Tecoma stans*.

Keyword: Bundelkhand region; Opencast Mining, Stone crushing, Vegetation.

**A STUDY ON FACTORS AFFECTING ECOSYSTEM AND CLIMATE CHANGE
WITH A REFERENCE TO HUMAN ACTIVITIES**

Shahina Kalim^{1*}, Manish Kumar¹, Sandeep Arya², Anju Singh³ and Nirmala Devi⁴

¹Department of Biochemistry, Bundelkhand University, Jhansi, Uttar Pradesh

²Institute of Environment and Development Studies, Bundelkhand University, Jhansi, Uttar Pradesh

³Department of Chemistry, Bundelkhand University, Jhansi, Uttar Pradesh

⁴Institute of Pharmacy, Bundelkhand University, Jhansi, Uttar Pradesh

Email: shahinatariq88@gmail.com

Climate change, the long-term alteration of temperature and typical weather patterns, is a pressing global issue with far-reaching consequences. Understanding the factors that drive this complex phenomenon is crucial for mitigating its impacts and adapting to its realities. The Earth's delicate balance between ecosystems and climate is facing unprecedented challenges, primarily driven by human activities. The burning of fossil fuels like coal, oil, and gas releases large amounts of greenhouse gases, primarily carbon dioxide (CO₂), into the atmosphere. These gases trap heat, leading to global warming and a cascade of ecological consequences. Forests play a vital role in regulating climate by absorbing CO₂. However, deforestation for agriculture, logging, and development is rapidly diminishing these vital carbon sinks, further exacerbating climate change. Intensive agricultural practices like monoculture farming, excessive use of fertilizers and pesticides, and large-scale livestock production contribute to greenhouse gas emissions, soil degradation, and water pollution, impacting both climate and ecosystem health. Overfishing disrupts marine ecosystems, while pollution from plastics, chemicals, and agricultural runoff contaminates water bodies, harming aquatic life and disrupting food webs. These factors impact both climate and ecosystems, with consequences for ocean health and coastal communities. Global warming disrupts weather patterns, leading to more frequent and intense heat waves, droughts, floods, and wildfires. These extreme events further degrade ecosystems and threaten human livelihoods. Loss of forests weakens the natural buffer against climate change, as trees absorb and store carbon dioxide. Deforestation also alters regional weather patterns, contributing to increased rainfall variability and droughts.

Keywords: Deforestation, Pollution, Carbon, Climate, Ecosystem

IMPACT OF AIR POLLUTION ON INDIAN MONUMENTS WITH SPECIAL REFERENCE TO LAL QILA

S. P. Singh

Former Director Conservation, National Museum Janpath, New Delhi

Air pollution, a ubiquitous and growing environmental concern, poses a significant threat to the preservation of cultural heritage, particularly historical monuments. This research paper investigates the impact of air pollution on Indian monuments, focusing on the iconic Lal Qila (Red Fort) in Delhi. By evaluating the relationship between air pollutants and their adverse effects on architectural structures and aesthetic elements, this study aims to shed light on the broader issue of safeguarding heritage sites from the detrimental consequences of urban pollution. The research employs a mixed-method approach, combining air quality monitoring, material analysis, and historical documentation to comprehensively assess the degradation caused by air pollution. It also reviews the existing literature on the subject, revealing the global extent of this challenge and the urgent need for conservation measures. Through an in-depth examination of Lal Qila's historical significance and architectural attributes, the paper emphasizes the cultural importance of preserving such monuments for future generations.

Analyzing air pollution levels in Delhi, the study presents empirical data that underscores the severity of the issue and its specific impact on Lal Qila. The findings highlight the visible signs of degradation, including surface discoloration, erosion, and material decay, linked to the city's deteriorating air quality. Moreover, the research discusses ongoing conservation initiatives undertaken to counteract these effects and emphasizes the importance of a multidisciplinary approach involving government agencies, conservation bodies, and public awareness campaigns.

In conclusion, this research underscores the urgent need for a coordinated response to the complex interplay between air pollution and heritage conservation. It underscores the importance of integrating scientific analysis, public engagement, and policy interventions to ensure the protection of cultural landmarks like Lal Qila. The lessons drawn from this case study offer valuable insights into addressing the broader challenge of preserving India's rich historical legacy amidst the modern-day urban environmental threats. This research contributes to the broader discourse on sustainable urban development and heritage conservation, serving as a call to action for policymakers, researchers, and concerned citizens to collectively safeguard the invaluable cultural heritage that holds a mirror to the nation's past and shapes its future.

Keywords: Air pollution, Heritage preservation, Asthetic Degradation, Conservation, Preservation strategies, Air quality monitoring

BIO-DETERIORATION OF ANCIENT MONUMENTS: CAUSES AND REMEDIAL MEASURES

Sanjay Prasad Gupta

National Research Laboratory for Conservation of Cultural Property, Ministry of Culture, Government of India, E/3, Aliganj, Lucknow, Uttar Pradesh

Cultural heritage objects are damaged by various agents like atmospheric agents, condensation or capillary humidity, temperature range, human action and microorganisms. A wide variety of organisms like Bacteria, Fungi, Algae and Plants etc. have been reported in the degradation of monuments. Microbes are more important than other agents. The intensity of damage is determined by the type and dimension of the microorganism involved the kind of material used and level of pollution. Deteriorating agents can modify the composition and structure of stone, wood and metal used in artifact. In situ deterioration process is influenced by vital activity of living organisms. Although biodeterioration is an essential process in environmental cycling of matter but this may lead to loss of valuable cultural property. The monument alteration by living organisms is usually indicative of an advanced state of deterioration predetermined by chemical and physical processes, which lead to increased surface area by formation of fissures that provide area for colonization of living organism. The growth process and vegetative development of organisms have a direct consequence on the growth of the microorganism. To control biodeterioration problems, three factors must be considered i.e., the organism, environment and the surface to be treated. The alteration of any one of these can impact the growth of biodeteriogens and thereby biodeterioration. The knowledge of type species and their activity is valuable for adequate establishment of conservation strategy. The degree with which these organisms are involved in the stone decay process must be clarified. Conservative interventions can be used to control the biodeterioration process. The methodologies and products are to be selected according to substrate conditions and species to be treated; it will not cause negative interference with materials and with low environmental effect. In order to eradicate the biological growth, strategies are needed to evaluate the treatment of vital importance so that damaged monuments will be effectively and economically conserved.

Keywords: Bio-deterioration, Ancient monuments, Causes, Remedial measures

Health Management in Recirculating Aquaculture System

Sangeeta Mashi and Vandana Ram

Department of Zoology, Pandit S. N. Shukla University, Shahdol, Madhya Pradesh

Department of Fisheries, S. N. Shukla University, Shahdol, Madhya Pradesh

Now a days land-based aquaculture has grown tremendously, so that recirculating aquaculture systems become more numerous and more complex. The complexity of the system raises a number of health management issues as the water quality of the production system has a direct impact on the health of the fish. In addition, the challenges of using RAS in saltwater environments pose unique health and water chemistry issues. Fish health management in RAS is largely dependent on input water quality to control known obligate fish pathogens. However, groups of opportunistic pathogens, including *Flavobacteria* spp. and *Saprolegnia* spp. can pose significant challenges as conventional chemotherapy can have a negative impact biofilters and subsequently disrupt water quality.

BIODETERIORATION OF HISTORICAL SANGEET SHALA IN VADODARA

Chitra Arya and Niharika Nema Bajjal

Department of Environmental Studies, Sir C.V. Raman Building, Faculty of Science, The Maharaja Sayajirao University of Vadodara, Gujarat

Department of Life Science, AHF & RSS, RB & HSD, Bhabha Atomic Research Centre, Mumbai, Maharashtra

A large percentage of the world's tangible cultural heritage is made from stone and bricks. Different stones differ in their hardness, porosity and alkalinity properties that affect their susceptibility to biodeterioration. Microbial colonization generally initiates in a wide variety by cyanobacteria and algae. Microorganisms are able to utilize different elements by bio-solubilization of building materials like stone, brick or plastered surface. Recent researches have revealed that fungi can utilize elements from airborne organic compounds too and inorganic particulate matter settled on stone surfaces. They mainly arise from incomplete combustion of fossil fuels and dusts. It is reported that heteromorphous organisms act as first colonizers in the area with high level of organic pollutants. High degraded building surfaces with subsequent alteration of the physical conditions for the germination of reproductive structures from higher organisms like cryptogams such as mosses and higher plants.

Maharaja Sayajirao started sangeet shala opposite sur sagar in Vadodara in 1886. In a survey conducted in 2015 a large number of bryophytes and 14 different types of flowering plants were recorded damaging the heritage building. Some of these were *Ficus* spp., *Achyranthes aspera*, *Amaranthus viridis*, *Indigofera*, *Lindenbergia* etc.

Keywords: Fungal Deterioration, Bryophyte, flowering plants, Sangeet shala, Heritage building, Music college, Vadodara

RITUALS BEHIND CONSERVATION OF ENVIRONMENT.

Shradha Suman¹, Radha Singh², Uma Singh³, Richa Ranjan⁴, shruti Kaushik⁵, Anupam Sinha⁶, Khushboo Kumari⁷, Shivani jaiswal⁸ and Ramakant Pandey⁹.

^{1,5,7&8}Department of Botany, Patna University, Patna, Bihar

^{2&3}Department of Botany, Pt. S. N. S. U. Shahdol, Madhya Pradesh

⁴Department of Botany Nalanda Open University Patna, Bihar.

⁶Department of Botany Y. N. College. Dighwara (Saran) J. P. U. Chhapara, Bihar

⁹Department of Biochemistry Patna University, Patna, Bihar

1.6 million years ago the first human (primates) left out its arboreal habit and step down to the ground for their food. During this journey they learnt many techniques and developed countless skills. They gathered many tools, techniques and their handling skills and further put it into their memory by various ways. Gradually forwarded themselves, left out evils and adapted favorable behaviors which were fruitful to the others, well acceptable manners and spiritual aptitudes. After that they developed worship skills to the favorable entities, according to their ability & climatic conditions for their livelihood. They adapted rituals, which were followed by successive generations. According to the time factor some rectifications were also observed. The aims & objectives of rituals were eco-centric. The rituals moving around air, water, earth and finally to the ultimate source of energy sun as the supreme power of the god in the form of chhath-puja, especially in Bihar. This worship of Sun culminated into a custom & ritual in the form of traditional festival for the preservation of natural diversity and conservation of environment, not only in the favor of human race but also to the all creatures in totality. for favoring of the great mantra basudhauw kutumbakum and sarbe bhawantu sukhinah sarbe santu niramaya.

Keywords: rituals, eco-centric, diversity, environment.

HUMAN ACTIVITIES AND THEIR IMPACT ON CLIMATE CHANGE: A COMPREHENSIVE

Padala Thirupathi

Department of Botany, Government Degree College for Women, Jagtial, Telangana

Climate change is a pressing global challenge with far-reaching consequences for the environment, ecosystems, and human societies. This abstract explores the intricate relationship between human activities and the exacerbation of climate change. Anthropogenic factors, including the burning of fossil fuels, deforestation, industrial processes, and agricultural practices, contribute significantly to the accumulation of greenhouse gases in the atmosphere. The combustion of fossil fuels remains a primary driver of climate change, releasing substantial amounts of carbon dioxide (CO₂) and other greenhouse gases into the atmosphere. The resultant increase in greenhouse gas concentrations leads to the intensification of the greenhouse effect, trapping heat and causing a rise in global temperatures. This temperature increase has cascading effects on weather patterns, sea levels, and the frequency and intensity of extreme weather events. Deforestation, driven by urbanization, agriculture, and logging, further compounds the climate crisis. Trees play a crucial role in sequestering carbon dioxide through photosynthesis, and their removal contributes to elevated atmospheric CO₂ levels. Additionally, deforestation disrupts ecosystems, affecting biodiversity and amplifying the vulnerability of various species to changing climatic conditions. Industrial processes, particularly those associated with the production of cement and certain chemicals, release not only CO₂ but also other potent greenhouse gases such as methane and nitrous oxide. These emissions, often produced in significant quantities, contribute to the overall radiative forcing of the climate system. Agriculture, a fundamental human activity for sustenance, is also a significant contributor to climate change. Practices such as enteric fermentation in livestock, rice cultivation, and the use of synthetic fertilizers release methane and nitrous oxide, both potent greenhouse gases. Moreover, changes in land use and the expansion of agriculture contribute to habitat loss and alter regional climate patterns. Addressing the complex interplay between human activities and climate change requires a multifaceted approach. Mitigation strategies involve transitioning to renewable energy sources, enhancing energy efficiency, promoting sustainable land use practices, and fostering international cooperation. Additionally, adaptation measures must be implemented to cope with the inevitable impacts of climate change, such as rising sea levels and changing precipitation patterns. Understanding and mitigating the impact of human activities on climate change are imperative for the well-being of the planet and future generations. This abstract provides a comprehensive overview of the various ways in which human activities influence climate change, emphasizing the urgent need for concerted global efforts to achieve sustainability and resilience in the face of this critical environmental challenge.

Keywords: Climate Change, Green house effect, Deforestation, Urbanization, Sustainability, Environmental Challenge, Anthropogenic factors

EFFECT OF NOISE POLLUTION ON FISH

Syed Wahid Hasan

Department of Zoology, Magadh University, Bodhgaya, Bihar

E-mail: wahidhasan00786@gmail.com

Anthropogenic noise is a pervasive global pollutant that has been detected in every major habitat on the planet. Detrimental impacts of noise pollution on physiology, immunology and behaviour have been shown in terrestrial vertebrates and invertebrates. Equivalent research on aquatic organisms has until recently been stunted by the misnomer of a silent underwater world. In fish, however, noise pollution can lead to stress, hearing loss, behavioural changes and impacted immunity. But, the functional effects of this impacted immunity on disease resistance due to noise exposure have remained neglected. Parasites that cause transmissible disease are key drivers of ecosystem biodiversity and a significant factor limiting the sustainable expansion of the animal trade. Therefore, understanding how a pervasive stressor is impacting host–parasite interactions will have far-reaching implications for global animal health. Here, we investigated the impact of acute and chronic noise on vertebrate susceptibility to parasitic infections, using a model host–parasite system (guppy–*Gyrodactylus turnbulli*). Hosts experiencing acute noise suffered significantly increased parasite burden compared with those in no noise treatments. By contrast, fish experiencing chronic noise had the lowest parasite burden. However, these hosts died significantly earlier compared with those exposed to acute and no noise treatments. By revealing the detrimental impacts of acute and chronic noise on host–parasite interactions, we add to the growing body of evidence demonstrating a link between noise pollution and reduced animal health.

Keywords: noise pollution, parasitic disease, host–parasite dynamics, animal welfare

ENVIRONMENTAL IMPACT AND ASSESSMENT

Baban Seyke

Department of English

Swami Vivekanand Government College, Berasia, Madhya Pradesh

Environmental Impact Assessment is the assessment of the environmental consequences of a plan, policy, program or actual projects prior to the decision to move forward with the proposed action. Environmental assessments maybe governed by rules of administrative procedure regarding public participation and documentation of decision making and may be subject to judicial review.

The purpose of assessment is to ensure that decision - makers consider the environmental impacts when deciding whether or not to proceed with a project. Environmental Impact Assessments concerned commenced in the 1960s, as part of increasing environmental awareness. An environmental impact assessment is prepared to estimate the effects of a proposed development or construction project.

Environmental impact assessments provide technical evaluations that are intended to contribute to more objective decision making.

The main aim of Environmental impact Assessment is to conserve the environment and bring out the best combination of economic and environmental costs and benefits.

Keywords: Judicial, Environment

ASSESSMENT OF SOME PHYSIOCHEMICAL PARAMETERS OF NARMADA RIVER AND TEMAR AT JABALPUR

Mahendra Singh¹ Madhuri Sharma¹ Santosh Kumar² and Priti Mishra³

¹Department of Fisheries Resource Management, College of Fishery Science, Jabalpur, MP

²Santosh Kumar, Scientist, NBFGR, Lucknow, Uttar Pradesh

³Department of Fish Processing Tech., College of Fishery Science, Jabalpur, Madhya Pradesh

*Email: mahendrasinghsurywanshi@gmail.com

This is the preliminary study to know presence of Mahseer in different sites of Jabalpur, Madhya Pradesh. Physicochemical parameters of three different sites Viz. Bhedaghat (Site-A), Lamhetaghat (Site-B) of Narmada River Jabalpur and Temar River near Bargi, Jabalpur (Site-C) tributary of The Narmada River were analyzed. Physico-chemical parameters like Temperature, Transparency, pH, dissolved oxygen (DO) and total alkalinity were studied during (June 2023 to November 2023). Results of present study showed normal range of temperature in all three experimental sites. Transparency of water of Site C is more than site A and B. Results of chemical parameter of the present study showed normal range during study period. However physiochemical parameter of site C is more suitable for Spawning of Mahseer species as compared to Site B and site C. The water quality of Narmada River is decreasing down and the pollution is increasing as the length of time is increasing. It was also visually observed that Narmada River water is getting polluted due to anthropogenic activities of the human beings, such as bathing, cleaning clothes, religious wastes dumped into the River, vehicles washing, used pesticides containers nearby River and sewage wastes mixed with River water. Results of the physicochemical parameters of present study indicated that Poor water quality of Bhedaghat and Lamhetaghat as compared to Temar site due to different anthropogenic activities.

Keywords: Mahseer, Jabalpur, Physicochemical, Bhedaghat, Lamhetaghat, Narmada River, Temperature, Transparency, pH, Dissolved Oxygen, Alkalinity

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ANALYZING LEGAL PERSPECTIVE ON THE EXECUTION OF ENVIRONMENTAL NORMS FOLLOWING ORDERS FROM JUDICIAL BODIES ON WASTE WATER MANAGEMENT, ENVIRONMENTAL CONSENTS, AND GROUND WATER PERMISSIONS

Ramesh Sharma

Open Eye News and Prop Open Eye Research Forum, Bhopal

Email: rameshsharma1258@gmail.com

Clean air, clean drinking water and healthy ecosystems are among the most basic structure blocks of human health and must be guaranteed by the state. The quality of life is resolute by the environment and when the ecosystem is exaggerated, the future of all living beings is jeopardized. Hence a person's right to live in a clean and healthy environment is a Fundamental right. The Indian judiciary has broadened the scope of Article 21 of the constitution's fundamental right to life and personal liberty holding the right to a clean and healthy environment and the right to a pollution free environment is enshrined in the country's basic jurisprudence. At the international level, the United Nations General Assembly declared that “Everyone on the planet has a right to a Healthy Environment”. The clean air and clean drinking water with healthy ecosystem can only be well thought-out when the air is cleaned, water is free from the contamination and our natural resources are preserved. To provide clean water, the waste water management is mandatory and to control the depletion and contamination of our natural resources i.e. Ground Water, the implementation of Environmental legislation is compulsory.

This paper is aimed to review the legal perspectives on the on waste water management, environmental consents and Ground water permissions as per the orders from Honourable Supreme Court of India and followed by Honourable National Green Tribunal under its various orders passed on establishment and functioning of requisite treatment plants and Guidelines for control of pollution and Enforcement of environment norms at individual establishments and the Area/cluster of Restaurants/hotels/motels/Banquets etc vide orders No. 593/2017, 400/2017, 158/2016 etc.

Although, many papers have been reported on wastewater studies but this paper is aimed to analyze the executions of above judicial orders by the concerning government departments constituted under the Environmental Protection Act 1986 and functioning in the states of MP and CG.

Keywords: Clean Ecosystem, fundamental rights, Waste water management, status of the Execution of orders, ground water.

Sustainable Development

Nutritional and Food Security, Biodiversity conservation, Promotion and conservation of indigenous species, Strategic and advocacy for nature conservation, Scientific approach of native species conservation, Scientific temper to protect and restore the nature, Livelihood

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SUSTAINABLE NATURE MANAGEMENT: A BALANCE BETWEEN THE NEEDS OF HUMANITY AND THE PRESERVATION OF NATURE

Esha Yadav

Department of Zoology, Brahmanand College, Kanpur, Uttar Pradesh

Email: esha1880@gmail.com

The modern world is facing many ecological issues like an increase in population, energy crisis, environmental pollution, deforestation, soil erosion and other environmental degradations due to human activities. Anthropogenic impact on the environment is the impact that human activity has on natural ecosystems, leading to their change and degradation. The history of such an impact has been conducted since the appearance of man on Earth, but in the modern world, the level of anthropogenic impact on the environment has increased significantly, which has become a global problem. Anthropogenic impact on the environment leads to many problems that can have serious consequences for humanity and ecosystems as a whole. Some of these issues include pollution of water, air and soil, climate change, land use change, destruction of natural habitats and loss of biodiversity. Sustainable nature management is a concept of using natural resources, which involves ensuring that the needs of the current generation are met without disrupting the ability to meet the needs of future generations. Preservation of biodiversity and ecological functions of natural ecosystems is an important principle of sustainable nature management, as it allows to maintain ecosystems in their natural state and ensure their productivity in the long term. This helps to reduce the negative impact of human activity on natural ecosystems and ensure their sustainable functioning. The problems associated with anthropogenic activities and sustainable environmental management are discussed here.

Keywords: Sustainable Nature Management, Anthropogenic Activities, Environmental Degradation.

PREPARATION OF IMMUNE BOOSTER DRINK FROM COW URINE

Aparna Jha

MATS University, Raipur, Chhattisgarh

Go-mutra therapy provides an especially rich and provocative research topic. The ancient scriptures of ayurveda consider cow urine to be the elixir of life. Cow urine is one of the five contents of Panchagavya which obtain from cow (urine, milk, ghee, curd and dung). Cow based treatment is called as Panchagavya Chikitsa (Cowpathy). Cow urine is a divine medicine and is used for treatment of diabetes, blood pressure, asthma, psoriasis, eczema, heart attack, blockage in arteries, fits, cancer, AIDS, piles, prostrate, arthritis, migraine, thyroid, ulcer, acidity, constipation, gynaecological problems. Cow urine contains all substances, which are naturally present in the human body. Thus, consumption of cow urine maintains the balance of these substances and this helps cure incurable diseases like cancer, AIDS, autoimmune disorders better benefits in case of antibiotic resistance infectious diseases.

Keywords: Ayurveda, Cow, Diabetes, Blood pressure, Asthma, Psoriasis, Eczema, Heart attack, Cancer, AIDS, Piles, Prostrate, Arthritis, Migraine, Thyroid, Ulcer, Acidity, Constipation

**IMPACT OF LEAD NITRATE ON THE HISTOPATHOLOGY OF OVARY IN
*LEPIDOCEPHALICHTHYS GUNTEA***

Namrata Mishra, Pooja Gour and Ankit Shukla
Department of Zoology, Pandit S.N.Shukla University, Shahdol (M.P)

Study on Impact of Lead Nitrate on the Histopathology of Gonad female Fish *Lepidocephalichthys guntea* were studied during one year. Fish samples were collected from murna river of Shahdol Town. The experiments were conducted from January 2023 to July 2023. After dissecting, gonads were preserved in 10 % formalin. Results showed that *Lepidocephalichthys guntea* is a unisexual fish. Gonads were fully developed during the month of July and August when the Impact of Lead Nitrate were the highest.

EFFECT OF PESTICIDES ON AQUATIC ENVIRONMENT AND FISHES

Ankit Kumar Shukla*, Pooja Gour* and Vandana Ram**
*Department of Zoology Pandit. S. N. Shukla University, Shahdol (MP)
**Department of Fisheries Sciences Pandit. S. N. Shukla University, Shahdol (MP)

Among the strong chemical pollutants found in aquatic environments are pesticides. Numerous man-made and natural processes lead these chemicals into the aquatic environment. In the last thirty years, the agricultural sector has used approximately forty times more modern organic synthetic pesticides in an attempt to increase crop yield with minimal labor and effort. The extensive use of pesticides in agriculture, including insecticides, herbicides, fungicides, and others, has resulted in a host of health issues. By surface run-off, pesticide residues enter the aquatic environment and pose a risk to aquatic flora and fauna, with fish being one of the most vulnerable species. The ecological balance and biodiversity of the natural world are threatened by these residues, which enter non-targeted animals through the food chain. Long-term pesticide exposure results in immunosuppression, hormone disruption, abnormalities in reproduction, histo-pathological damages, haematological alterations, biochemical changes, and cancer. Fish are crucial bio-indicators of aquatic contamination, providing accurate and dependable bio-system monitoring to identify and forecast the potentially harmful effects of pollutants. The toxicity of pesticides causes significant histo-pathological changes in a number of aquatic organisms' tissues, including fish, and has a deleterious impact on growth, physiology, immunity, and hemo-biochemical profile. Pesticides are a major global concern because they have the ability to bio-accumulate into various fish tissues, raising serious health concerns for consumers. Consequently, it's critical to look for safe, suitable, and environmentally friendly pesticide substitutes in order to safeguard aquatic ecosystems and the wellbeing of many aquatic species, particularly fish.

Keywords: Pesticide toxicity, Agriculture, biochemical, physiological, fishes.

**PHYSICAL AND CHEMICAL STUDY OF COAL-FLYASH IN AMARKANTAK
THERMAL POWER PLANT CHACHAI (M.P)**

Pooja Gour, Ankit Shukla and Sangeeta Mashi
Department of Zoology, Pandit. S. N. Shukla University, Shahdol, Madhya Pradesh

In the twenty first century, interest in metals as environmental pollutants has intense following the increased exposure of living organisms to metal contamination as a results of progressive industrialization. Pollution is the cost of advanced technological progress and the cost of all human activities being casualties within the name of progress. Today we are facing a dilemma, we need industrialization to meet the basic needs of our existence and therefore the resultant industrial pollution puts life itself at stake. Ironically, all of those developments have resulted in accumulated use of natural resources and the production of thousands of products in the form of waste. India is currently in search of new energy-resources. It's clear that India needs energy for its fast development in all sectors (Desai, 2008). Consequently, the country gets 70% of its electricity from coal utilized in thermal plants (Kumar, 2003; Mishra, 2004; Saravanan et.al in 2008). In this research, it has been seen that the coal fly ash extracted from Amarkantak thermal power plant contains heavy metal present which is harmful for water & aquatic animals and along with this it also causes air pollution.

Keyword : Coal Fly Ash, Chemical composition, Amarkantak Thermal Power Plant

**RECORD OF NEW INDIAN ADDITION *LYGAEUS KALMI* STAL, 1874
(HEMIPTERA: HETEROPTERA: LYGAEIDAE) FIRST TIME FROM ORIENTAL
REGION**

Sandeep Kushwaha^{1*}, Sonam Jahan² and Debashree Dam
^{1&2}Zoological Survey of India, Central Zone Regional Center, Madhya Pradesh
Government Science College, Jabalpur, Madhya Pradesh
*Email: sandeepkusha_17@yahoo.com

Lygaeus kalmi Stal, 1874 a Lygaeidae bug first was described in 1874 a long ago from United state of America and now found in Himalyan region state Uttarakhand in the year 2017. First time form Oriental region. This is a new addition to Indian fauna and True Bugs of India. The new distribution record from USA to Uttarakhand, India shows the long range extension of the species.

Keywords: *Lygaeus kalmi* Stal, 1874, range extension, Oriental region, new to India.

A CRITICAL STUDY OF ECOLOGICAL AQUATIC PLANTS IN CHAMBAL RIVER AND RAMPURA GNAT OF GHANDHI SAGAR DAM, MADHYA PRADESH.

Mathuaa Ahirwar
Department of Botany,
Government Post Graduate College, Rampura, District Neemuch, Madhya Pradesh
E-mail: mathuaa961755@gmail.com

The present study was conducted to understand the physical-chemical characteristics of Chambal River, in National Chambal sanctuary in Madhya Pradesh. The Chambal River is located in West central India and flows through three Indian states; Madhya Pradesh, Rajasthan and Uttar Pradesh. Water quality data of year 2003-2012 indicates that the Chambal river water in the sanctuary area is pollution free and can serve as a good habitat for many aquatic flora and fauna including endangered species. Hydrophytes plants like Hydrilla, Water Hyacinth, Lotus ceratophyllum species were seen in Chambal Mata and Rampura Ghats.

Keywords: Aquatic plant, Chambal santuary, Chambal River

अथर्ववेद में पर्यावरण संरक्षण : प्राचीन ज्ञान और आधुनिक परिप्रेक्ष्य

वन्दना द्विवेदी

सह आचार्य संस्कृत

नवयुग कन्या महाविद्यालय, राजेन्द्र नगर, लखनऊ, उत्तर प्रदेश

प्राचीन भारतीय ग्रंथों में पर्यावरण के प्रति समर्पण और संरक्षण के महत्वपूर्ण विचार मिलते हैं। इनमें से अथर्ववेद, वैदिक साहित्य का एक महत्वपूर्ण अंग, अपने आप में पर्यावरण संरक्षण के विचारों का एक विशाल भंडार है। यह शोध पत्र अथर्ववेद में उल्लिखित पर्यावरण संरक्षण के सिद्धांतों और शिक्षाओं का अन्वेषण करता है, जो वर्तमान पर्यावरणीय संकटों के समाधान के लिए प्रासंगिक हो सकते हैं।

इस शोध पत्र में, हम अथर्ववेद के विभिन्न मंत्रों और ऋचाओं का विश्लेषण करते हैं, जो प्राकृतिक तत्वों जैसे जल, वायु, वनस्पतियों और भूमि के प्रति सम्मान और संरक्षण की भावना प्रकट करते हैं। इस विश्लेषण के माध्यम से, हम उन सिद्धांतों की पहचान करते हैं जो आज के समय में पर्यावरणीय संतुलन और सतत विकास के लिए महत्वपूर्ण हो सकते हैं। इस पत्र का उद्देश्य न केवल प्राचीन ग्रंथों में निहित पर्यावरणीय ज्ञान को सामने लाना है, बल्कि यह भी दिखाना है कि कैसे यह ज्ञान आधुनिक समय में स्थायी विकास और पारिस्थितिकीय संतुलन के समाधान के लिए पुनर्व्याख्यायित किया जा सकता है। यह शोध विभिन्न अनुशासनों जैसे पर्यावरण विज्ञान, दर्शन, और धार्मिक अध्ययनों के बीच एक संवाद स्थापित करने का प्रयास करता है, जिससे एक बहुआयामी और समग्र पर्यावरण संरक्षण दृष्टिकोण की नींव रखी जा सके।

मुख्य शब्द: पर्यावरण संरक्षण, अथर्ववेद, जैव विविधता, पारिस्थितिकीय संतुलन, वैदिक साहित्य, प्राकृतिक संसाधन

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Mr. Munna Singh, Nahdora
Ashiq, Rajnagar
Mr. Tulsidas Soni, Khajuraho

ESW XI Annual National Research Conference
“Impact of human activities on Ecosystem and Climate change” January 28 to 29, 2024

Guidelines of Fellow of Environment and Social Welfare (FESW) award

The Executive Board of the ESW Society, Khajuraho India has approved a Fellow of Environment and Social Welfare (FESW) award to recognize members of the FESW for distinguished contributions to the field of Environment and Social Science, and for promoting and sustaining the professional stature of the field.

A **fellow** is a member of a group of people who work together in a **fellowship** pursuing mutual knowledge or practice. A **fellowship** is a monetary award connected to a specific field. Usually given to scientist, professor, assistant professor and researcher.

Such accomplishments will have advanced the Education, Environment, Art and science & technology, as evidenced by:

- Sustained service and performance in the advancement of science and technology
- Publication of papers, articles, books, and standards which enhance the knowledge of Science
- Innovative development of new technology
- National and international service contributions
- Professional recognition

Requirements and Conditions will

- Candidates will have a minimum of one year’s active participation in ESW.
- Candidates will be nominated by their national delegation of FES Fellow. Each delegation may nominate at maximum of two (2) candidates per year.
- Nominations shall be submitted on the official form available from the ESW Secretariat.
- Nominations must be submitted to the ESW Secretariat no later than December 31 of the year prior to that in which the individual is recognized as Fellow.
- Nominations will remain valid for three years.
- All information on nominees will be held in strict confidence.
- Fellows will be selected by the Executive board based on the Performance of Applicant.

Number of Fellows

- Maximum of 06 Fellows will be selected each year, as determined by the Executive committee.

The Award

- The ESW Chair will present the Fellow of FESW Award at the ESW Conference of the ESW Society or Annual assembly.

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Letter for ESW Membership

ENVIRONMENT & SOCIAL WELFARE SOCIETY, KHAJURAHO

Dedicated to Environment, Education, and Science & Technology entire India since Bi-millennium
Under Government of M.P., Firms & Society Act 1973
Accredited by JAP Govt. of MP & NITI Aayog, Govt. of India

Dear,

Applications are invited from the Eminent Scientist, Professor, Academic Institutes, University, Their affiliated Colleges, Deemed Universities, Autonomous Research Institution, and Industrial R & D Units for Member of Environment & Social Welfare Society, Khajuraho India. Membership form may be downloaded from Website <http://www.godavariacademy.com>.

An application filled dully sign by you in all respects should be submitted to President of ESWSociety. Payments are accepted only through Bank or NEFT online transfer in the account.

Name of Beneficiary: Environment and Social Welfare Society

Account Number: 77352200000561

IFS code: CNRB0017735

Name of Bank: Canara Bank, Chhatarpur, Madhya Pradesh, India

MICR Code: 471015002; SWIFT code: CNRBINBBFD

Please mail us complete membership form dully signed by you along with fee. Please inform us when you transfer payment to ESWSociety account so that we can track your payment (mail scan copy as proof to eswsociety320@gmail.com).

Membership Fee

A. Patron member Rs 10,000/- or more; **B. Life member** (10 years) Rs.5000/- or more;

C. Annual member Rs. 600/- per year; **D. Honorary member**

Board of Directors may offer honorary membership time to time the eminent scientist and distinguished persons. You will receive attractive certificate from ESWSociety, you can display on your office wall.

Only selected Life Members are privileged to write the abbreviation **F.E.S.W.** (Fellow of the Environment & Social Welfare Society) with their names.

With Regards.

All correspondence to:

Executive Director

Environment and Social Welfare Society (ESWSociety)

Head Office: Vidhyadahr Colony, Khajuraho Madhya Pradesh, India

Regional Office: Godavaripuram, Bajrangnagar, Ward No.31, Chhatarpur-471001, India

Email: eswsociety320@gmail.com, Mobile: +91-9425143654

Website: <http://www.godavariacademy.com>

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MEMBERSHIP FORM

Regd. No.SC2707-2K

ENVIRONMENT & SOCIAL WELFARE SOCIETY, KHAJURAHO

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Website: <http://www.godavariacademy.com> **Mobile:** 9425143654 **Email:** eswsociety320@gmail.com

To
The President/Secretary
Environment and Social Welfare Society
Regional Office, Chhatarpur 471001

Photo

Dear,

I wish to be a Petron member/ Life member /General member of ENVIRONMENT & SOCIAL WELFARE (ESW) SOCIETY, Khajuraho, India and agree to abide by your rules and regulations. (For details see Letter call for Membership)

1. Name Dr.....
2. Designation.....
3. Date of birth.....
4. Address
Office.....
-
- Mailing.....
-
5. Mobile /Telephone:.....
6. Email:.....
7. Academic Qualification:.....
Graduation (Year/Subject).....
Post Graduation (Year/ Subject)
- Ph. D. (Year/ Subject).....
- Others.....
8. Field of specialization:
(1).....
(2).....
(3).....

Signature of applicant

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DR. ASHWANI KUMAR DUBEY (FESW, FIASc., FSLSc.) is a Environmentalist & Leading Scientist in the of 21st century in India. He is serving as Assistant Professor (Guest Faculty) of Zoology, Government College Piprai, District Ashoknagar, Madhya Pradesh. Also serving as Executive Director, Environment and Social Welfare Society, Khajuraho, Madhya Pradesh, India. *He has devoted his life in Academic and Scientific research because of not having fulltime employment.* He is graduate in 1989 & Post Graduate in Zoology in 1991 of Government Maharaja College now known as Maharaja Chhatrasal Bundelkhand University, Chhatarpur and obtained his Ph. D. Degree in 1995 at School of Studies in Zoology, Vikram University, Ujjain Madhya Pradesh, India.

Served as Scientist (R&D) Rank Industries Ltd., Nellore, Andhra Pradesh (1995-97). Assistant Professor of Zoology at RBS College, Rajnagar, MP (1997-2004). Guest Lecturer of Zoology, in Higher Education Department, Govt. of MP (2004-17). Officer, Information Technology, Maharaja Chhatrasal Bundelkhand University, Chhatarpur, MP (2017-18). Professor of Zoology in Shri Krishna University, Chhatarpur, MP. (2018-2022).

Serving Honorary as Co-ordinator, DNA Club, DBTs Natural Resources Awareness Club, The National Academy of Sciences, India (2006 to present). **Casual Announcer**, All India Radio, Chhatarpur. (2014-2016). **Mentor (Trustworthy Advisor)** Chitrakoot Gramodaya University, Chitrakoot, Madhya Pradesh (2015 to 2017). **Academic Counselor**, (Honorary) Environmental Sciences, Indira Gandhi National Open University (IGNOU), New Delhi, CES Programme, Chhatarpur, MP (2016-present). **Volunteer** Science Portal India, New Delhi (2017-present). **Volunteer Educate**: Earth Day, Washington, DC, US (2020- Present). **Volunteer** World Wide Fund, Switzerland. **Active Member** of International Union for Conservation of Nature, Commission on Education and Communication, Switzerland (2017 - present), Empanelled with Centre for Entrepreneurship Development Madhya Pradesh (CEDMAP) Bhopal MP as **Resource Person**. **Member Advisory Committee** for Rejuvenation of Lakes in India, AICTE, Ministry of Education, GoI.

Research field: Zoology, Ichthyology, Biochemistry, Free Radical Biology, Toxicology and Stress Monitoring. Aquaculture Pathology, Water Quality Assurance, Biodiversity, Environmental Impact Assessment and Bio-Resources Conservation.

Thirty five Research papers have been published in International, National Journals, Proceeding and Chapters in *Book*. Fifteen reference and text **Book** published by reputed publisher from India & Germany for higher education; **Research abstract published** in Souvenir/Abstract book. **Interdisciplinary** academic articles published in Standard Magazine, **Scientific talk broadcasted** by *All India Radio*. **More than hundred Lectures presented/ delivered** in *International and National Conferences/ Seminar/ Symposium/Webinar as Invitee lecture, Resource person and Delegates*. Also organized several Academic & Cultural events at National & International Levels.

Dr. Ashwani is widely regarded as one of India’s foremost experts on Zoology & Environmental sciences. He **awarded** many prestigious awards by National and International institution. He is Member of many reputed scientific organization including Indian Science Congress. He is in editorial board member of Research Journals in India, America, United Kingdom, Egypt, France, Syria, Nepal, Iraq, Sudan, Malaysia, Romania, Japan and Advisor of Research Board of America, USA and Editor-in-Chief of Int. J. Glob. Sci. Res.

Research output: Proposed peroxidative theory of mucous secretion in *Heteropneustes fossilis*

His personal interests in Reading, Writing, Traveling and Photography.

Currently: Honored for **International Pride of Educationist Award 2022 in Dubai, UAE**

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EXECUTIVE MEMBERS OF ENVIRONMENT & SOCIAL WELFARE SOCIETY

Honorable Members

Dr. Mordhwaj Singh Parihar, President, BIOEXONS LLC Washington, USA
Er. Sandeep Mehta, Computer Science, Maryland, USA
Mr Rajendra Dwivedi, Computer Science, Munich, Germany
Honourable Pushpraj Singh (Brand Ambassador), Former Education Minister, Govt. of MP
Mr. Ashok Kumar Singh, IFS, Conservator Forest, Tikamgarh, MP
Dr. Jawaharlal Kaul, Vice Chancellor, H.N.B. Garhwal Central Uni. Srinagar, Uttarakhand
Prof. B. B. Kaliwal, Former Vice Chancellor, Davangere University, Shivagangothri, Davangere.
Prof. N. C. Gautam, Former Vice-chancellor, MGCG Vishwavidyalaya, Chitrakoot
Dr. A. K. Bhattacharya, MD, National Green Highways Mission, Government of India
Prof. K. N. Singh Yadava, Vice-Chancellor, Rani Durgavati University, Jabalpur, MP
Prof. Prakash Singh Bisen, Former Vice Chancellor, Jiwaji University, Gwalior, MP.
Prof. Ramesh C. Gupta, Former Vice Chancellor, Radha Govind University India
Dr. Kanhaiya Tripathi, Former OSD to the President of India, Govt. of India.
Prof. R. K. Day, Vice Chancellor, Central University of Jharkhand, Ranchi, Jharkhand

Honorable Fellow

Dr. U. C. Shrivastava, (NAGMA-2014). Professor of Zoology, University of Allahabad, UP
Dr. S. N. Pandey, (NAGMA-2015). Pro Chancellor, The Global Open University Nagaland
Prof. K. K. Sharma, (NAGMA-2016). Former Vice Chancellor, MDS University, Ajmer
Dr. Priyavrat Shukl, (NAGMA-2017). Former Vice Chancellor, Maharaja Chhatrasal
Bundelkhand University, Chhatarpur, Madhya Pradesh
Prof. P. K. Verma, (NAGMA-2018). Former Vice Chancellor, Barkatullah University Bhopal
Cdr. Dr. Bhushan Dewan, (NAGMA-2019). Indian Navy, India
Prof. H. S. Sharma, (NAGMA-2020). Former Prof. of Geography, University of Rajasthan,
Jaipur.
Prof. Asha Shukla, (NAGMA-2021). Former Vice Chancellor, Dr. B. R. Ambedkar
University, MHOW
Dr. Kunal Kumar Das, Scientist (Retd.), IIRS, Indian Space Research Organization,
Dehradun, Uttarakhand
Prof. Kubaer Ram Mourya, Former Vice Chancellor, Rajendra Agricultural Uni., Pusa, Bihar
Prof. Premendu Prakash Mathur, Vice-Chancellor, KIIT University, Bhubaneswar, Odisha

Patron Member

Dr. Ashwani Kumar Dubey (FIASc; FESW; FSLSc.) Guest Professor of Zoology,
Department of Higher Education, Govt. of MP
Dr. Arti Rani Dubey, Science Teacher, Govt. School, Basari, Madhya Pradesh
Dr. K. K. Dubey, (FESW) Former Professor of Zoology, Government Model Science
College, Jabalpur, Madhya Pradesh
Prof. J. K. Pauranic, Former Principal, Govt. Maharaja College, Chhatarpur, Madhya Pradesh
Dr. Kailash Chandra, Scientist ‘G’, Former Director, Zoological Survey of India, Ministry of
Environment, Forest and Climate Change. Govt. of India, New Alipore, Kolkata, WB
Dr. Shobha Shouche (Aug. 2021), Associate Professor of Zoology, Govt. Madhav Science
College, Ujjain, Madhya Pradesh.
Dr. Shuchita Majoomdar Chandorkar (Aug. 2021), Assistant Professor of Zoology, Govt.
College Kaytha, District Ujjain, Madhya Pradesh.
Dr. Sudha Shrivastav (Aug. 2021), Prof. of Zoology, Govt. Kalidas Girls College, Ujjain, MP

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Dr. Leena Lakhani (Aug. 2021), Professor of Zoology, Govt. Girls College, Ujjain, MP
Dr. Amita Shrivastav (Aug. 2021), Asst. Professor of Zoology, Dayanand PG College, Kanpur, Uttar Pradesh

Life Members

Mrs. Vandana Dubey (Jul. 2013), Managing Director, Godavari Academy of Science & Technology, Chhatarpur, Madhya Pradesh
Dr. Prahlad Dubey (Aug. 2013) (FZSI; FISES; FSLSc; FICC; FESW.) Former Professor of Zoology, Government College, Kota, Rajasthan
Dr. Archana Chauhan (Sep. 2013), Professor of Zoology, Govt. Maharaja College, Chhatarpur, Madhya Pradesh
Dr. Amita Arjariya (Sep. 2013), Professor of Botany, Government College, Chhatarpur, MP
Dr. Devendra N. Pandey (Oct. 2013) (FESW), Former Professor of Zoology, Govt. S.K.N. Post Graduate College, Mauganj, Madhya Pradesh
Dr. Shaket Anand Saxena (Oct. 2013), Campbellton, Canada
Dr. Anil Kumar Singh (Oct. 2013), Scientific Officer, DNA Finger Printing Lab, Forensic Science, Sagar, Madhya Pradesh
Dr. Ravi Mishra (Oct. 2013), Scientist, National Centre for Antarctic & Ocean Research, Ministry of Earth Sciences, Government of India, Goa
Dr. Magansingh Awasya (Oct. 2013), Former Registrar, Rani Durgavati Uni., Jabalpur, MP
Dr. Hemlata Verma (Oct. 2013), Professor of Zoology, Govt. Dr. Shyama Prasad Mukherjee Science and Commerce College, Bhopal, Madhya Pradesh
Miss. Abha Shrivastava (Oct. 2013), Principal, Govt. Girls High School, Alipura, MP
Dr. Prabha Sharma (Oct. 2013), Mining Inspector, Govt. of Madhya Pradesh, Indore, MP
Dr. Bibhu Snatosh Behera (Oct. 2013) (FESW) College of Agriculture, OUAT, Bhubaneswar, Odisha
Dr. Pramod Pathak (Dec. 2013), Professor of Hindi, Govt. Girls College, Chhatarpur, MP
Dr. Deepak Mishra (Dec. 2013) (FESW) Associate Professor of Biotechnology, AKS University, Satna, Madhya Pradesh
Dr. Mohd. Abdullah (Dec. 2013), 146, Sastannagar, Faizabad Road, Gonda, Uttar Pradesh
Dr. Arvind Prasad Dwivedi (Dec. 2013), (FESW), Guest Lecturer, Government Sanjay Gandhi Smriti College, Sidhi, Madhya Pradesh
Dr. Dinesh Kumar Shadangi (Oct. 2014), Ex. Scientist, TFRI, Naya Ganj, Raigarh, CG
Dr. A. K. Pandey (Oct. 2014), (FESW), Former Principal Scientist, National Bureau of Fish Genetic Resources (ICAR) Lucknow, Uttar Pradesh
Mrs. Sadhana Gupta (Nov. 2014), Near Panjab National Bank, Chhatarpur, MP
Dr. Jagdeesh Prasad Rawat (Nov. 2014), Former Assist. Conservator Forest, Tikamgarh, MP
Dr. Safiya Khan (Nov. 2014), Aligarh Muslim University, Aligarh, Uttar Pradesh
Dr. Usha Pancholi (Jan. 2015), Lecturer of Mathematics, Govt. College, Kota, Rajasthan
Mrs. Meena Saxena (Jan. 2015), Nowgong, Madhya Pradesh
Dr. Aditya Narayan (Jan. 2015), Dept. of Zoology, Bundelkhand University, Jhansi, UP
Mrs. Shivani Chaurasia (Jan. 2015), Ward No. 28, Chhatarpur, Madhya Pradesh
Dr. Peyush Punia (Jan. 2015), Principal Scientist, National Bureau of Fish Genetic Resources (ICAR) Lucknow, Uttar Pradesh
Dr. Shivesh P. Singh (Feb. 2015), (FESW), Prof. of Zoology, Govt. PG College, Satna, MP
Dr. Praveen Ojha (Feb. 2015), (FESW), Assistant Professor of Zoology, Kishori Raman PG College, Mathura, Uttar Pradesh
Dr. Govind Singh (Feb. 2015), Former Vice Chancellor, Shri Krishna Uni., Chhatarpur, MP

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- Dr. Karruna S. Pardeshi (Aug. 2015) (FESW), Professor of Zoology, Abasaheb Garware College, Pune, Maharashtra
- Mrs. Renu Jain (Aug. 2015), Infront of Collector Bonglaw, Chhatarpur, Madhya Pradesh
- Mr. Rachakonda Satyanarayan (Sep. 2015), Assistant Manager Operations, Jindal Steel & Power Limited, Kharsia Road, Raigarh, Chhattisgarh
- Dr. Atul Kumar Mishra (Jan. 2016), Assoc., Professor of Zoology, DAV College Kanpur, UP
- Dr. Praveen Kumar (FESW) (Jan. 2016), Assistant Professor of Zoology, Agrawal College, Gangapur City, District Sawai Madhopur, Rajasthan
- Dr. Deepali Jat (Jan. 2016), Assistant Professor of Zoology, Dr. Hari Singh Gour Central University, Sagar, Madhya Pradesh
- Dr. Arjun Shukla (May 2016) (FESW) Dept. of Zoology, Govt. Model Science College, Jabalpur, MP
- Dr.. Shivani Rai (May. 2016), Department of Zoology, Government M. H. College of Home Science and Science for Women, Jabalpur, Madhya Pradesh
- Dr. Mukta Dubey (May. 2016), Guest Lecturer of Political Science, Government College, Rampura, Madhya Pradesh
- Mr. Shachindra Kumar Dubey (Jun. 2016), RS, Department of Computer Science & Engineering, Government Engineering College, Gokalpur, Jabalpur, Madhya Pradesh
- Dr. Narendra V. Harney (Sep. 2016), (FESW) Assistant Professor of Zoology, Nilkanthrao Shinde Science and Arts College, Bhadravati-442902
- Dr. Ashwani (Jan. 2017), (FESW) Bhagini Nivadita College, University of Delhi, Delhi.
- Prof. Anama Charan Behera (Jan. 2017), (FESW) Prof. of Economics, D. B. College, Turumunga
- Mr. Rahul Dev Behera (Jan. 2017) , (FESW) Orissa University of Agriculture and Technology (OUAT), Bhubneswar, Odisha
- Mr. Debashish Sahu (Jan. 2017), (FESW) Orissa University of Agriculture and Technology (OUAT), Bhubneswar, Odisha
- Mr. Rabindra Nath Padhi (Jan. 2017), Ex. Deputy Director General, Geological Survey of India, Bhubneswar, Odisha
- Dr. Sandeep Kushwaha (Feb. 2017), Assistant Zoologist, Zoological Survey of India, ‘M’ Block, New Alipore, Kolkata, West Bengal
- Dr. Pragya Khanna (Feb. 2017), Principal, Govt. Girdari Lal Dogra Memorial College, Hiranagar, Jammu & Kashmir, India
- Dr. Parvinder Kumar (Feb. 2017), Sr. Assistant Professor of Zoology, University of Jammu, Jammu & Kashmir
- Dr. Esha Yadav (March. 2017), Assistant Professor of Zoology, Janta College, Bakewar
- Dr. Hemlata Pant (Jul. 2017), Nematologist, Society of Biological Sciences & Rural Development, Allahabad, Uttar Pradesh
- Er. Priyansha Kushwaha (Jul. 2017) United College of Engineering and Research, Allahabad,
- Dr. Shivam Dubey (Aug. 2017), RS, Central Ordnance Depot, Jabalpur, Madhya Pradesh
- Dr. Achuta Nand Shukla (Aug. 2017), Scientist B, Botanical survey of India, Allahabad, UP
- Er. Saurabh Kushwaha (Sep. 2017), Mechanical Engineer, In front of Transformer Raiganj, Gorakhpur, Uttar Pradesh
- Dr. S. K. Bhatnagar (Sep. 2017), Director, Biomedical Research Centre, Delhi NCR
- Dr. Sanjay Tiwari (Nov. 2017), Former Registrar, Maharaja Chhatrasal Bundelkhand University, Chhatarpur, Madhya Pradesh
- Mr. Bhoopendra Kumar Ahirwar (Nov. 2017), RS, Department of Zoology, Government Science College, Jabalpur, Madhya Pradesh

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- Dr. Krishna Pateria (Nov. 2017), Professor of Zoology, Government M. H. College of Home Science, Jabalpur, Madhya Pradesh
- Dr. Ashwani Kumar Awasthi (Dec. 2017), Mahatma Gandhi Chitrakoot Gramodaya Vishwavidyalaya, Chitrakoot, Madhya Pradesh
- Dr. Sangeeta Mashi (Jan. 2018), Prof. of Zoology, Pt. S. N. Shukla, University, Shahdol, MP
- Dr. Sajjad ul Akbar Wani (Jan. 2018), (FESW) Assist., Prof. of Zoology, I. K. College, Indore, MP
- Dr. Devendra Swaroop (Jan. 2018), (FESW), Assistant Professor, Krishi Vigyan Kendra, Thariaon, Fatehabad, UP
- Dr. Amita Pandey (Jan. 2018), (FESW), Assistant Professor of Botany, C. M. P. Degree College, Allahabad, Uttar Pradesh
- Dr. Manoj Kumar Singh (Jan. 2018), Department of Horticulture Kulbhaskar Ashram P G College, Allahabad, Uttar Pradesh
- Dr. Ayyandar Arunachalam (Mar. 2018), Director, ICAR-Central Agroforestry Research Institute, Jhansi, Uttar Pradesh
- Dr. Mohammad Mubashir Kachroo (Jul. 2018), Sher-e-Kashmir University of Agricultural Sciences and technology, Kashmir
- Dr. Shamim Ahmad Banday (Jul. 2018), Assistant Professor of Zoology, Government Degree College, Poomch, Jammu & Kashmir
- Dr. Khursheed Ahmad Dar (Jul. 2018), College of Temperate Sericulture, SKUAST-Kashmir, Jammu & Kashmir
- Dr. Arti Maheshbhai Joshi (Jul. 2018), ICAR, Central Institute of Fisheries Technology, Matshya Bhavan, Bhidiya, Veraval, Gujrat
- Dr. Sujata Magdum (Dec. 18) Asst Prof of Zoology, KTHM College, Nashik, Maharashtra
- Dr. Shri Prakash (Dec. 18) Assistant Professor of Zoology, K.A.P.G. College, Prayagraj, UP
- Dr. A. K. Verma, (Dec. 18), Prof. of Zoology, Govt. P.G. College, Saidabad, Prayagraj, UP
- Dr. S. B. Shashi, (Jan. 19), Dept. of Zoology, R.B. Jalan College, Bela, Darbhanga, Bihar
- Dr. Md. Mansoor Alam, (Jan. 19), Department of Zoology, L. N. Mithila University, Darbhanga, Bihar
- Dr. Smita Singh (Jan. 19) Scientist in Agronomy, K.V.K., Rewa, Madhya Pradesh
- Dr. Chandra Shekhar Dwivedi (Dec. 19) Department of Geoinformatics, Central University of Jharkhand, Ranchi, Jharkhand
- Mr. Umesh Kumar Mishra (Dec. 19) Research Scholar, Department of Zoology, Bipin Bihari (PG) College, Jhansi, Uttar Pradesh
- Dr. Vandana Ram (Dec. 19) Assistant Professor, Department of Zoology, Pandit SN Shukla University, Shahdol, Madhya Pradesh
- Dr. Neerja Khare (Jan. 2K20) (FESW), Prof. of Zoology, Govt. P.G. College, Satna, MP
- Dr. Bhawna Srivastava (Jan. 2K20), Asst. Prof of Zoology, D.A.V. College, Kanpur, UP
- Dr. Pranay Punj Pankaj (Jan. 2K20) Asst. Prof of Zoology, Fish Biology & Fisheries Lab, Department of Zoology, Nagaland University, Lumami, Nagaland
- Ms. Annie Durrant, (Jan. 2K20) Psychologist, 5, Tan Lan, Llanfrothen, Penrhyndeudraeth, Gwynedd, LL48 6SG, Wales, UK.
- Dr. Parveen Kumar (Jan. 2K20) Scientist, Krishi Vigyan Kendra, Leh, SKUAST-K
- Dr. S. G. Syeddain Zaidi (Jan. 2K20) Former Senior Scientist Aquaculture, Indian Council of Agricultural Research, Central Education of Fisheries Education Bombay, Directorate of Cold water Fisheries Research, Bhimtal, India.
- Dr. Rashmi Tripathi (Jan. 2K20), Assistant Professor Zoology, Bramhanand P.G. College, Kanpur, Uttar Pradesh.

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Dr. Roshni Pandey (May, 2K20) Assistant Professor Zoology, Government College, Badwara, Katni, Madhya Pradesh

Dr. Amit Pal (May, 2K20) (FESW), Professor, Institute of Environment & Development Studies, Bundelkhand University, Jhansi, Uttar Pradesh.

Dr. Sarada Prasad Mohapatra, (FESW), (Aug. 2K20) Associate Professor of Botany, Narasingh Choudhary College, Jajpur, Odisha

Dr. Shobha Thakur (Oct. 2K20) Assistant Professor, Department of Chemistry, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh.

Dr. Niraj Kumar (Oct., 2K20) Department of Zoology, L.N.D. College, Motihari, Bihar

Dr. Shiv Ji Malviya, (Dec., 2K20) Deputy Secretary, Uttar Pradesh Higher Education Service Commission, Prayagraj, Uttar Pradesh

Dr. Alok Sagar Gautam (Jan., 2K21), (FESW), Asst. Professor of Physics, Hemvati Nandan Bahuguna Garhwal University, Srinagar, Uttarakhand

Dr. Neetu Mishra (Jan., 2K21) Associate Professor of Home Science, University of Allahabad, Uttar Pradesh

Dr. Pratibha Tripathi (Jan., 2K21) Asst. Prof. Zoology, D.A.V. College, Kanpur, UP

Dr. Ajay Kumar Singh (Jan., 2K21) Principal Scientist, A.G. Biosystems Pvt., Ltd., Telangana

Dr. Awanish Kumar Singh, (Jan. 2021) Asst. Prof of Botany, SGN Govt. PG College, Muhammadabad, Mau, Uttar Pradesh

Dr. Ranjana Verma (Feb., 2K21) Asst. Prof of Zoology, Bherulal Patidar Govt. P. G. College, Mhow, Madhya Pradesh

Dr. Varsha Aglawe (Feb., 2021) Professor of Zoology and Biotechnology, Govt. Science College, Jabalpur, Madhya Pradesh

Dr. Parminder Singh (Feb., 2021), Zoologist, Punjab, Haryana.

Dr. Santosh Kumar Kushwaha (Feb., 2021), Guest Lecturer of Zoology, Govt. Dr. Shyama Prasad Mukharjee Science & Commerce College, Bhopal, Madhya Pradesh.

Dr. Sameer Arun Joshi (May, 2021) CEO, KNOESIS, Pune, Maharashtra

Dr. Mohd Ashfaq Siddiqui (July, 2021) Associate Professor of Management, Infinity Management and Engineering College, Sagar, Madhya Pradesh

Dr. Pallavi Jamwal (July, 2021) Assistant Professor of Zoology, Govt. College for Women, Parade Ground, Jammu, Jammu & Kashmir.

Dr. Popiha Bordoloi (July, 2021) Subject Matter Specialist (Soil Science), KVK Ri-Bhoi, ICAR (RC) NEH Region, Umiam, Meghalaya

Dr. Harendra Nath Sharma (Aug. 2021) Assistant Professor of Zoology, Dr Bheem Rao Ambedkar University, Agra, Uttar Pradesh

Dr. Pratibha Akhand (Aug.2021), Assist., Prof. of Zoology, Govt. Girls P.G. College, Ujjain

Dr. Archana Akhand (Aug.2021), Assistant Professor of Zoology, BKSNGovt. College, Shajapur, Madhya Pradesh

Dr. Kanhiya Mahour (Dec. 2021), Associate Professor, R. P. P. G. College, Kamalganj, Farrukhabad, Uttar Pradesh

Dr. P. K. Bajpai (Dec. 2021), Former Professor of Zoology, DAV College, Kanpur, UP

Dr. Eshita Pandey (Dec. 2021), Assistant Professor of Zoology, Dayanand Girls PG College, Kanpur, Uttar Pradesh

Dr. Anjali Srivastava (Dec. 2021), Associate Professor of Zoology, Dayanand Girls PG College, Kanpur, Uttar Pradesh

Dr. Rajesh Kumar Pandey (Dec. 2021) Assistant Professor of Botany, Bundelkhand University, Jhansi, Uttar Pradesh

Prof. Vandana Rai (Dec.2021) Department of Biotechnology, V B S Purvanchal University, Jaunpur, Uttar Pradesh

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Dr. Sandeep Arya (Dec. 2021) Assistant Professor, Institute of Environment and Development Studies, Bundelkhand University, Jhansi, UP

Dr. Jyoti Sharma (Dec. 2021), Kota, Rajasthan

Dr. Mohd. Shamsul Haque (Jan. 2022), Assistant Professor of Zoology, Government Indira Gandhi Home Science Girls PG College, Shahdol, Madhya Pradesh

Dr. Neeshma Jaiswal (Jan. 2022), Assistant Professor of Zoology, School of Life Sciences, Babasaheb Bhimrao Ambedkar University, Lucknow, Uttar Pradesh

Dr. Lakavath Ramsingh (Jan. 2022) Associate Professor of Veterinary Gynaecology & Obstetrics, College of Veterinary Science, Rajendranagar, Hyderabad

Amita Yadav (Jan. 2022) Guest Lecturer, School of Studies in Environmental Science, Jiwaji University, Gwalior, Madhya Pradesh.

Dr. Pradeep Kumar (Jan. 2022), Assistant Professor of Zoology, Govt. Degree College, Sukrauli, Kushinagar, Uttar Pradesh

Mr. Barun Kumar Prahbat (Jan. 2022), Assistant Professor of Zoology, J. N. College, Madhubani, Darbhanga

Prof. Mahendra Singh (Jan. 2022), Principal, KK PG College, Etawah, Uttar Pradesh

Mr. Vagh Sarman Naranbhai (April, 2022) College of Fisheries Science, Junagarh Agricultural University, Veraval, Gujrat.

Mr. Lal Singh (April, 2022) Assist Prof. of Law (April, 2022) Shri Varshney College, Aligarh, UP.

Mr. Sharang Ambadkar (April 2022) FeelGood EcoNature LLP Mumbai, Maharashtra.

Dr. Santeshwar Kumar Mishra (April 2022) Assistant Professor of Sociology, Nehru Gram Bharti Deemed to be University Prayagraj, Uttar Pradesh.

Dr. Keshava Chandra K. (April 2022), Assistant Professor of Botany, Alva's College, Sundari Anand Alva Campus, Vidyagiri, Moodubidre, Karnataka.

Dr. Gaurav Sharma (Oct. 2022) Associate Professor of Floriculture & Landscaping, Rani Laxmi Bai Central Agriculture University, Jhansi, Uttar Pradesh

Dr. Sangeeta Chaurasia (Nov. 2022) Guest Faculty of Zoology, Specialization in Ichthyology, Swami Vivekanand Government College, Berasia, Madhya Pradesh.

Dr. Baban Seyke (Nov. 2022) Assistant Professor of English, Specialization in Indian Novel, Swami Vivekanand Government College, Berasia, Madhya Pradesh.

Dr. Chandrakanta Ahirwar (Nov. 2022) Assistant Professor of Physics, Specialization in Digital Electronics, Swami Vivekanand Government College, Berasia, Madhya Pradesh.

Dr. Richa Sharma (Dec. 2022) Assistant Professor of Biological Science, SHUATS, Prayagraj, Uttar Pradesh. Specialization in Noise Pollution, Water pollution, Air Pollution, Climate Change, Global warming, Plant Science, sustainable Agriculture.

Dr. Saroj Gupta (Dec. 2022) Professor Department of Hindi, Pandit Deendayal Upadhyay Government Arts and Commerce College, Sagar, Madhya Pradesh,

Dr. Rakesh Rahul Jadhav (Dec. 2022) Assistant Professor of Fisheries Engineering, Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth (Agricultural University), Dapoli, India. Specialization in Fisheries Science, Food Engineering and Bioprocess Technology.

Ms. Priyanka Singh (Dec. 2022) Research Scholar, Department of Environmental Science, Bundelkhand University, Jhansi, Uttar Pradesh. Specialization in Environmental pollution.

Dr. Phool Gend Kumar (Dec. 2022) Assistant Professor of Zoology, Bramhanand College, Kanpur, Uttar Pradesh. Specialization in Entomology and Toxicology.

Dr. Kusum Arunachalam (Jan. 2022) Professor, School of Environment and Natural Resources, Doon University, Dehradun, Uttarakhand. Specialization in Microbiol ecology, Productivity & Mountain ecosystem and development.

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- Dr. Kusum Kashyap (Jan. 2022) Assistant Professor of Botany, Raja Bhoj Govt College Mandideep, Bhopal. Specialization in Plant Pathology.
- Dr. Shalini Misra (Jan. 2023) Associate Professor of Psychology, J.D.V.M., Post Graduate College, Kanpur, Uttar Pradesh, Specialization in Clinical Psychology.
- Dr. Arjun Lal Ola (Jan. 2023) Assistant Professor of Vegetable Science, College of Horticulture, Rani Lakshmi Bai Central Agricultural University, Jhansi, Uttar Pradesh. Specialization in Vegetable crop improvement & Vegetable Production Technology.
- Dr. Ajeet Kumar Sharma, Associate Professor of Botany, St. Wilfred College for Girls Mansarovar Jaipur, Rajasthan. Affiliated with University of Rajasthan Jaipur. Specialization in Physico-Ecology, toxicology and Ethnobotany.
- Dr. Kavita Singh Chaudhary (Jan. 2023) Assistant Professor of Microbiology, Govt. P. G. College, Noida, U.P
- Dr. Rohit Kumar Singh (Jan. 2023) Associate Professor of Chemistry, Pt. J. N. Post Graduate College, Banda, Uttar Pradesh
- Dr. Rajeev Kumar Niranjana (Jan. 2023) Assistant Professor of Environmental Science, Nehru College, Lalitpur, Uttar Pradesh. Specialization in Organic Farming, Environmental Pollution, Vermicomposting.
- Dr. Rahul Kait (Jan. 2023) Associate Professor of Zoology, GGM Science College, Jammu, Jammu & Kashmir. Specialization in Wildlife Conservation Biology.
- Mrs. Vimala Bind (Feb. 2023) Assistant Professor of Zoology, Navyug Kanya Mahavidyalaya Rajendra Nagar Lucknow, University of Lucknow, Uttar Pradesh.
- Dr. Dushyant Mahavadiya (Feb. 2023) Assistant professor of Fisheries Science, Department of Department of Aquaculture, College of Fisheries Science, Kamdhenu University, Veraval, Gujarat.
- Dr. Ulrich Berk (Feb. 2023) German Association of Homa Therapy, Germany
- Dr. Vinay Kumar Dwivedi (May 2023) General Manager, Research and Development, Reliance Industries Limited Gagva Jamnagar, Gujarat.
- Dr. Kavita Sharma (Aug. 2023) Assistant Professor of Zoology, Government Post Graduate College Jalesar, Etah, Uttar Pradesh.
- Dr. Anupama Panigrahi (August 2023) Assistant Professor of Mathematics, Faculty of Mathematical Sciences University of Delhi, Delhi. Area of Specialization is DNA Cryptography.
- Dr. Smita Lenka (August 2023) Assistant Chief Technical Officer, ICAR-National Bureau of Plant Genetic Resources, Pusa Campus, New Delhi.
- Dr. Shahina Kalim (Nov. 2023) Assistant Professor of Biochemistry, Department of Biochemistry, J. C. Bose Institute of Life Sciences, Bundelkhand University, Jhansi, Uttar Pradesh. Area of Specialization is Plant Biochemistry.
- Dr. Archana Bahuguna (Nov. 2023) Scientist E, Zoological Survey of India, Dehradun. Area of Specialization is Wildlife forensic (Trichotaxonomy, Molecular), Herpetofauna.
- Dr. Ranjan Kumar (Dec. 2023) Assistant Professor of Zoology, R. K. College, Madhubani, Bihar.
- Dr. Renu Rajesh (Dec. 2023) Professor of Botany, Government Nehru PG College Ashoknagar, Madhya Pradesh. Area of Specialization in Plant physiology, Environment and Ethnobotany.
- Dr. Ashok Kumar Singh (Dec. 2023) Assistant Professor of Zoology, R. K. College, Madhubani, Bihar.
- Dr. Madhuri Sharma, (Jan. 2024) Associate Professor of Zoology, Department of Fisheries Resources Management, College of Fishery Science, NDVSU, Jabalpur, Madhya Pradesh. Area of Specialization in Fisheries, Aquatic Toxicology, Aquatic Health Management.

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General Members (Annual membership)

- Mrs. Anupama Bhargava, Assistant Teacher of English, P.S. Samadua, Jhansi, Uttar Pradesh
Mr. Vipin Kumar Soni, Former Guest Lecturer of Chemistry, Govt. Maharaja College, Chhatarpur, Madhya Pradesh
Dr. Satyandra Prajapati, Former Assist., Prof. History, Babu Degree College, Nowgong, MP
Dr. Sandeep Kumar Shukla, Guest Lecturer of Zoology, Govt. College, Seoni, MP
Mr. Arvind Kumar Dubey, Guest Lecturer of English, Godavari Academy of Science and Technology, Chhatarpur, Madhya Pradesh
Mrs. Sudha Pauranic, Former Lecturer, Govt. School, Chhatarpur-471001
Dr. H. N. Khare (Oct.-13 to Sep. 14) Prof. of Zoology, Govt. Maharaja College, Chhatarpur, MP
Dr. Umesh Patel (Oct.-13 to Sep. 14), GF of Zoology, Govt. Maharaja College Chhatarpur, MP
Dr. Pushpa Singh (Oct.-13 to Sep. 14), Asst. Professor of Zoology, Govt. Vivekanand College, Maihar, Madhya Pradesh
Dr. Manju Jain (Oct.-13 to Sep. 14), Former Prof. of Botany, Govt. Girls College, Vidisha, MP
Dr. Vaheedun Nisha (June-13 to May-15) Guest Lecturer of Zoology, Govt. Maharaja College Chhatarpur, MP
Dr. Vidushi Sharma (Dec.-17 to Nov. 18) General Secretary, International Human Rights Organization, New Delhi
Dr. Malik Asif Aziz, (July-18 to June 19) Assistant Professor, Division of Basic Science & Humanities, Faculty of Agriculture, Wadia, SKUAST-Kashmir
Dr. J. Thilak (Jan.-19 to Dec. 20) Scientist E, Southern Regional Centre, Zoological Survey of India, 130 Santhome High Road, Chennai.
Mr. Vagh Sarman Naranbhai (Jan. 20 to Dec. 20) College of Fisheries Science, Junagarh Agricultural University, Veraval, Gujrat.
Mr. Gaurav Swaroop Nigam, (Jan.-20 to Dec. 20) Department of Botany, Atarra P. G. College, Atarra, Banda, Uttar Pradesh
Dr. Mathua Ahirwar (March-20 to Feb. 21) Assistant Professor of Botany, Govt. P. G. College, Rampura, Dist. Neemuch, Madhya Pradesh.
Ms. Mahima Tamta (Jan.-21 to Dec. 21) RS, Govind Ballabh Pant University, Pantnagar, Uttrakhand.
Dr. Shrikant N. Chimma (Jan.-21 to Dec. 21) Guest Lecturer, Institute of Dr. Bheem Rao Ambedkar Studies and Research, Gulbarga University, Kalaburagi
Dr. Pramod Kumar Fatehpuriya (Nov.-22 to Oct.-23) College of Agriculture, Gwalior, MP
Dr. Adesh Kumar (Nov.-22 to Oct.-23) Assistant Professor of Zoology, School of Science, JECRC University, Ramchandrapura Industrial Area, Vidhani, Jaipur, Rajasthan.
Dr. Arun Arya (Nov.-22 to Oct.-23) Former Professor of Environmental studies, M S University, Lucknow, Uttar Pradesh.
Dr. A. Raj Shekhar, Professor of Geography, Kalinga University, Raipur, Chhattisgarh, India. Specialization in Urban And Environment Geography.
Mrs. Chitra Arya (Feb. 2023 to Jan. 2025) Gujarat.
Dr. Virendra Nath, (Feb. 2024 to Jan. 2025) NBRI, Lucknow

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Brief schedule

| Date | Event | Time |
|-------------------|-----------------------------------------------------|-----------------------------|
| 28/01/2024 | Spot registration & Breakfast | 08:00 am to 09:00 am |
| | Inaugural Session | 09:30 am to 11:30 am |
| | Tea Break | 11:30 am to 11:45 am |
| | TECHNICAL SESSION I (ORAL PRESENTATION) | 11:45 am to 12:45 pm |
| | TECHNICAL SESSION II (ORAL PRESENTATION) | 12:45 pm to 01:45 pm |
| | Lunch | 01:45 pm to 02:45 pm |
| | TECHNICAL SESSION III (ORAL PRESENTATION) | 03:00 pm to 04:00 pm |
| | President Meet with ESW Members | 06:00 pm to 07:00 pm |
| | Cultural Programme | 07:00 pm to 09:00 pm |
| | Dinner | 09:00 pm to 10:30 pm |
| 29/01/2024 | Break Fast | 07:00 am to 07:50 am |
| | TECHNICAL SESSION IV (ORAL PRESENTATION) | 08:00 am to 09:30 pm |
| | TECHNICAL SESSION V (ORAL PRESENTATION) | 09:30 am to 10:30 am |
| | TECHNICAL SESSION VI (POSTER PRESENTATION) | 10:30 am to 11:00 am |
| | High Tea | 11:00 am to 11:10 am |
| | Valedictory Session & Award ceremony | 11:20 am to 01:30 pm |