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**KALINGA
UNIVERSITY**



CONFERENCE PROCEEDINGS

INTERNATIONAL CONFERENCE

ON

CLIMATE CHANGE, SUSTAINABLE DEVELOPMENT & SMART AGRICULTURE (ICSSA-2023)

📅 6th -7th April 2023

Organised by
Department of Zoology
Faculty of Science, Kalinga University

Sponsored by



पृथ्वी विज्ञान मंत्रालय
Ministry of Earth Sciences



***International Conference on Climate Change,
Sustainable Development & Smart Agriculture
(ICSSA-2023)***

06-07 April 2023

Editor's

Dr. Manoj Singh

Dr. Ajay Kumar Harit

Dr. Sohini Bhattacharyya

Kalinga University

Naya Raipur, Chhattisgarh

Organised by

Department of Zoology

Faculty of Science

Kalinga University

Naya Raipur, Chhattisgarh



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**International Conference on Climate Change, Sustainable Development & Smart
Agriculture (ICSSA-2023)**

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Naya Raipur, Chhattisgarh

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CONFERENCE PROCEEDINGS

**International Conference
on
Climate Change, Sustainable Development &
Smart Agriculture
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Organized by
**Department of Zoology
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Sponsored by
**Ministry of Earth Science (New Delhi)
NABARD Chhattisgarh
Chhattisgarh Environment Conservation Board (Raipur)**



Preface

This book reports the Proceedings of the “International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023)” held at Kalinga University, Naya Raipur Chhattisgarh on the 06th & 07th of April – 2023, organized by Department of Zoology, Faculty of Science.

After an initial review of the submitted abstracts, 94 papers were presented at the conference and were accepted for publication in the Conference Proceedings. The topics that are covered in the conference include Climate Change, Sustainable Development, Global Warming effects & causes, Environmental Sustainability, Pollution & its effects, Solid Waste Management, Waste Water Treatment, Renewable Resources, Smart Agriculture practices, Circular Economy, etc.

We would like to thank all the participants for their contributions to the conference and the proceedings. Reviewing papers of the ICSSA 2023 was a challenging process that relies on the goodwill of those people involved in the field. We invited more than 15 researchers from related fields to review papers for the presentation and the publication in the ICSSA 2023 Proceeding. We would like to thank all the reviewers for their time and effort in reviewing the documents.

Finally, we would like to thank all the proceeding team members who with much dedication have given their constant support and priceless time to bring out the proceedings in a grand and successful manner. I am sure this proceeding will be a credit to a large group of people, and each one of us should be proud of its successful outcome...

About Kalinga University

Kalinga University, Raipur has emerged as a centre of excellence of higher education in Central India. Strategically located in the Smart City of New Raipur, this University has started carving a niche for itself in the education domain and is rising as a shining star on the horizon of quality education.

About Raipur - Raipur is the Capital of Chhattisgarh and New Raipur is the New Capital of Chhattisgarh in the making. New Raipur is the fourth planned city of India with wide roads and miles of greenery and is pollution free. It is the first integrated and smart city of the country. A cosmopolitan city which is also the hub of higher education hosts IIM, IIT, IIIT, National Law University, CIPET, NIT and AIIMS. In addition it also hosts most National and International Brands of Food and Retail Outlets.

Establishment - Established in 2013, this University has been able to win the confidence of over 7000 students. Meritorious students from all over the country and various foreign countries like Afghanistan, Angola, Bangladesh, Cameroon, Gambia, Ivory Coast, Kenya, Lesotho, Liberia, Malawi, Namibia, Nepal, Nigeria, Papua New Guinea, South Sudan, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe etc. have chosen this University for their education and career. Schools of Excellence - Currently the University is serving the student community through various schools offering UG and PG programs namely Arts & Humanities, Biotechnology, Commerce & Management, UX Design, Engineering, Fashion Design, Information Technology, Interior Design, Journalism & Mass Communication, Law, Library Science, Pharmacy, Science, Education and Yoga. It also has a centre for Doctoral Research Programmes in various fields.

Academics and Faculty - All schools are headed by senior professors having excellent academic credentials and experience of teaching, publications and research. They are ably supported by the well qualified faculty members who come from top educational institutions and the Industry. Students also get an opportunity to learn from a distinguished panel of experts drawn from various industries, who regularly come for guest lectures.

Infrastructure - Kalinga boasts of World Class Infrastructure and student facilities with student centric approach. Highest attention is paid to hands on learning approach and students are encouraged to come up with innovative ideas for projects and practicals. The University has more than 75 laboratories and workshops, all well equipped with the latest, state of the art apparatus and tools. Special emphasis is given to the development of communication skills through the language lab. More than 1200 computers are available for the use of the students.

The Library has a collection of over 80,000 books and also offers digital content through membership of DELNET, National Digital Library and NPTEL. Various magazines and journals are available for the use of the faculty and students. Infrastructure consists of Student Hostel facilities, Green Acres, Canteen, Food Mess, Gymnasium, Fully Wi-fi Campus, ATM, Mini Market, Student hangout Areas, Sports Complex, Recreation Halls with Indoor Games and Music and recreation activities.

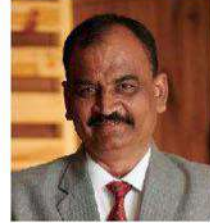
Industry Orientation and Leadership - Industry interaction is an integral part of the curriculum and industrial visits, internships on live projects and mentoring by the Industry leaders are regular

features. The University has developed excellent connections with the top Industries of the region by taking memberships of leading industrial associations like Confederation of Indian Industries, PhD Chamber of Commerce and Industry, Federation of Indian Chamber of Commerce and Industry, Indian Importers Chamber of Commerce and Industry, etc. The University has an active chapter of Young Indians in which students get an opportunity to interact extensively with the Industry leaders and attend various corporate seminars and events.

Life Changing Experience - Kalinga is a Life Changing Experience where the focus is on over all development of students . NCC, NSS and various other clubs and societies offer opportunities to students to showcase their talent and learn under the guidance of experts. Music, Dance and Martial Arts trainers are available for the students. Coaches of different games and sports like Cricket, Football, Basketball, Volleyball and Athletics are also available for sharpening the skills of the students.

Message from Chairman

Dr. Rajiv Kumar
Chairman, Kalinga University



It is an honor for our university to host this prestigious event, which gathers experts and enthusiasts from around the world to deliberate on the critical issues of climate change, sustainable development, and smart agriculture. Climate change is a global challenge that requires immediate and collective action. It affects every aspect of our lives, from the environment to socio-economic well-being. ICSSA-2023 presents an unparalleled opportunity for us to come together, share knowledge, and collaborate on innovative solutions that can mitigate the impacts of climate change and foster sustainability.

Sustainable development and smart agriculture are at the core of our commitment to environmental stewardship and social progress. Through this conference, we aim to explore cutting-edge research, best practices, and technological advancements that can revolutionize agriculture and promote a harmonious balance between development and ecological preservation.

ICSSA-2023 serves as a catalyst for interdisciplinary discussions, sparking creativity and fostering collaborations that can drive meaningful change. Our collective endeavors during this conference will undoubtedly shape the discourse on climate change and sustainable development, inspiring action at the local, national, and global levels.

I am confident that ICSSA-2023 will be a transformative experience, fueling our collective determination to address climate change and make a positive impact on our planet and communities. Thank you for being part of this journey. Together, let us strive to create a world that cherishes both progress and sustainability, leaving a lasting legacy for generations to come.

Message from Chancellor

Dr. Sandeep Arora
Chancellor, Kalinga University



As the Chancellor of this esteemed institution, it brings me great joy and pride to welcome you all to the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). This conference serves as a crucial platform for researchers, policymakers, industry experts, and stakeholders to come together and address the pressing challenges facing by our planet.

Climate change remains one of the most significant threats to our environment and global well-being. It is imperative that we act collectively and responsibly to combat its impacts and preserve our planet for future generations. The ICSSA-2023 conference provides us with an opportunity to share innovative ideas, best practices, and scientific advancements that will aid us in forging a sustainable and resilient future.

Sustainable development is at the heart of our efforts to strike a harmonious balance between economic growth, social equity, and environmental protection. Through collaborative discussions and knowledge exchange, we aim to identify practical solutions that promote sustainable development on both local and global scales.

Smart agriculture plays a pivotal role in ensuring food security while minimizing the environmental footprint of farming practices. By embracing cutting-edge technologies and sustainable farming methods, we can empower farmers and enhance agricultural productivity in a sustainable manner.

Throughout the ICSSA-2023 conference, I encourage all participants to engage in constructive dialogues, share experiences, and foster new partnerships. Let us strive to develop actionable strategies that will shape policies and initiatives addressing climate change, sustainable development, and smart agriculture.

I express my sincere gratitude to the organizing committee, researchers, speakers, sponsors, and volunteers who have worked tirelessly to make this event possible. Your commitment to creating positive change is truly commendable.

I am confident that the outcomes of ICSSA-2023 will lay the groundwork for transformative actions that transcend borders and make a significant impact on the global stage. Together, we can build a more sustainable, prosperous, and resilient world.

Wishing you all a productive and inspiring conference.

Message from Vice Chancellor

Dr. R. Shridhar

Vice Chancellor, Kalinga University



Dear Distinguished Guests, Esteemed Delegates, and Participants,

It is with immense pleasure and honor that I extend a warm welcome to all of you on behalf of our esteemed institution to the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). As the Vice-Chancellor, I am deeply gratified to witness this gathering of brilliant minds and passionate advocates, all committed to addressing the urgent challenges posed by climate change.

The world is currently facing an unprecedented global climate crisis, and it is incumbent upon us, as academics, researchers, policymakers, and industry leaders, to come together and foster solutions for a sustainable and resilient future. This conference serves as a vital platform for us to share knowledge, experiences, and innovative ideas that can drive effective climate action and pave the way for a better world.

I would like to extend my heartfelt gratitude to the organizing committee and all those who have worked tirelessly behind the scenes to make this conference possible. Your efforts have ensured that this event will serve as a milestone in the global fight against climate change.

As we engage in thought-provoking discussions, let us keep in mind the significance of our actions and decisions in shaping the destiny of our planet. I am certain that the knowledge shared, networks forged, and collaborations nurtured during this conference will transcend borders and inspire meaningful action at the local, national, and international levels.

Once again, welcome to the 1st International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). Together, let us rise to the challenges of our time and pave the way for a sustainable and prosperous future for all.

Thank you and best wishes for a successful and impactful conference.

Message from Director General

Dr. Byju John

Director General, Kalinga University



Dear all,

I am glad to extend a warm greeting to all of the professionals and academics from around the world on behalf of the organizing committee for the "1st International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023)," which will take place on April 06th and 07th, 2023.

While there is a lot of encouragement and advancement in the field of science and technology today, it is crucial to comprehend the conference's theme, which is essential for current scenario of environment.

Throughout the conference, we will delve into a myriad of topics, including cutting-edge research on climate science, policy frameworks, adaptation and mitigation strategies, sustainable energy solutions, and the role of technology in combating climate change. By fostering collaboration and knowledge exchange, we can collectively uncover transformative approaches that will shape the future of our planet.

Future sustainable approach must reach worldwide coverage and conform to a variety of regulatory systems tailored to various markets.

As the Director General of Kalinga University, it is my delight and pride to welcome you to the University's great and active campus.

My heartfelt gratitude to the organizing committee for hosting this incredible event.

Message from Registrar

Dr. Sandeep Gandhi
Registrar, Kalinga University



It is with great pleasure that I present to you the proceedings of the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). This document encapsulates the collective wisdom, innovative ideas, and transformative discussions that took place during the conference.

Throughout ICSSA-2023, we witnessed a convergence of brilliant minds, passionate researchers, policymakers, industry leaders, and advocates, all united by a shared commitment to addressing the pressing challenges posed by climate change. The conference provided a platform for fostering multidisciplinary dialogues, knowledge exchange, and collaborative efforts, all of which are essential in our collective journey towards a sustainable and resilient future.

The proceedings comprise a comprehensive compilation of research papers, keynote speeches, panel discussions, and workshop summaries, each shedding light on diverse aspects of climate change, sustainable development, and smart agriculture. These contributions reflect the remarkable dedication and ingenuity of the participants, as they explored cutting-edge solutions to mitigate the impacts of climate change and advance sustainable practices across various sectors.

Message from Chief Guest

Dr Surendra Babu
General Manager
NABARD Chhattisgarh



Dear Participants,

As the General Manager of the National Bank for Agriculture and Rural Development (NABARD), it is my distinct pleasure to welcome you all to the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). NABARD is proud to be associated with this prestigious event, which aims to address the vital issues of climate change, sustainable development, and smart agriculture.

Climate change has emerged as a defining challenge of our time, affecting not only the environment but also the socio-economic fabric of our societies. It is imperative that we act collectively and decisively to mitigate its impact and adapt to the changing climate. ICSSA-2023 serves as a platform for us to come together, share knowledge, and explore innovative strategies that can help us build climate resilience and create a sustainable future for all.

Sustainable development lies at the heart of our mission at NABARD. We firmly believe that agricultural practices, coupled with smart technologies, can play a pivotal role in achieving the twin objectives of food security and environmental conservation. This conference offers a unique opportunity to explore the intersection of agriculture, sustainability, and technology, empowering us to transform our farming practices for the better.

During ICSSA-2023, we will engage in thought-provoking discussions, hear from experts in the field, and learn from each other's experiences. Together, we can identify practical solutions and innovative financing mechanisms to promote sustainable practices in agriculture and rural development.

I extend my heartfelt gratitude to the organizers and participants for making ICSSA-2023 a reality. Your active involvement and dedication demonstrate our shared commitment to addressing the challenges posed by climate change.

I encourage you all to actively participate in the sessions, network with fellow participants, and share your expertise. Let us collaboratively explore opportunities to integrate climate-smart practices into our agricultural systems and accelerate progress toward a sustainable and resilient future.

Thank you for your participation, and I wish you all a rewarding and impactful conference.

Message from Guest of Honor

Mr. Prem Kumar (I.F.S)

Secretary

Department of Forest and Climate Change

Government of Chhattisgarh



Dear Participants and Distinguished Guests,

On behalf of the Forest and Climate Change Department, I extend a warm welcome to all of you to the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). It is an honor to be part of this significant event, which brings together experts, researchers, policymakers, and stakeholders from around the world to collectively address the pressing challenges posed by climate change.

As we gather for ICSSA-2023, we find ourselves at a critical juncture in human history. Climate change presents a global crisis that demands urgent and concerted action. It affects all aspects of our lives, from biodiversity and ecosystems to human health, agriculture, and socio-economic development... The consequences of inaction are far-reaching, and it is incumbent upon us to collaborate and seek innovative solutions to secure a sustainable and resilient future.

Through this conference, we aim to foster dialogue, exchange knowledge, and explore cutting-edge advancements in sustainable practices, smart agriculture, and climate change mitigation and adaptation. By harnessing our collective wisdom and expertise, we can pave the way for transformative change and build a sustainable path forward.

The Forest and Climate Change Department is deeply committed to environmental conservation, sustainable development, and climate resilience. We believe that this conference serves as a vital platform for forging partnerships and engaging in collaborative efforts to safeguard our planet for future generations.

I extend my gratitude to the organizers, sponsors, and all those who have worked tirelessly to make ICSSA-2023 a reality. Your dedication and commitment have made this conference possible, and we are grateful for your support.

Thank you, and I wish you all a fruitful and impactful conference.

Message from Special Guest

Mr. Dilraj Prabhakar (I.F.S.)
Chief Conservator of Forest
Department of Forest and Climate Change
Government of Chhattisgarh



Dear Participants,

I extend my warmest greetings to each one of you at the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). As the Chief Conservator of Forest, I am honored to be a part of this significant event that brings together experts, scholars, and practitioners from diverse fields to address the pressing challenges of our times.

The theme of this conference resonates deeply with the core values of forest conservation and environmental stewardship. Climate change poses a formidable threat to our ecosystems, and its impacts reverberate throughout the planet. ICSSA-2023 provides us with a platform to share insights, exchange knowledge, and deliberate on strategies that can contribute to a more sustainable and resilient world.

Forests, as critical ecosystems, play a pivotal role in mitigating climate change and fostering sustainable development. They are reservoirs of biodiversity and natural resources that are essential for our well-being. Smart agriculture, which emphasizes innovation and efficiency, can coexist harmoniously with these natural environments, offering a pathway to food security while minimizing environmental impact.

I encourage you to immerse yourselves in the conference sessions, share your experiences, and engage in thought-provoking conversations. Your contributions are vital in charting a course towards a more sustainable future.

Let us emerge from ICSSA-2023 with a renewed sense of purpose, armed with knowledge and inspiration to champion the cause of climate action, sustainable development, and responsible agricultural practices. Together, we can be the stewards of change that our planet so desperately needs.

Thank you, and I wish you a productive and impactful conference.

Message from Keynote Speaker

Dr. Edgar J. González

National Autonomous University of Mexico (UNAM)
Mexico



Dear Esteemed Participants,

It is with great pleasure and excitement that I extend my warmest greetings to all of you at the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). As an International keynote speaker at this prestigious event, I feel honored to be part of this gathering of brilliant minds and change-makers.

Climate change is an urgent global challenge that calls for collective action and innovative solutions. ICSSA-2023 serves as a vital platform for researchers, policymakers, industry leaders, and advocates to come together, share knowledge, and foster collaborations that can drive meaningful change.

Sustainable development and smart agriculture play pivotal roles in building a resilient and sustainable future. Through this conference, we have an opportunity to explore the latest research, best practices, and technological advancements that can revolutionize agriculture while preserving our environment.

As a keynote speaker, I am deeply committed to sharing insights and experiences that can inspire transformative action. It is my sincere hope that my contributions will ignite fruitful discussions and inspire all of you to think critically about our roles in shaping a sustainable future.

I extend my gratitude to the organizing committee for their dedication and hard work in putting together this remarkable event. To the participants, I encourage you to actively engage in the conference sessions, ask questions, and share your perspectives. Your active involvement will enrich the discussions and contribute to the collective wisdom of ICSSA-2023.

I am looking forward to engaging with all of you and learning from your experiences during ICSSA-2023. Together, we can be catalysts for positive change and create a better world for future generations.

Thank you, and I wish you all a rewarding and enlightening conference.

Message from Convener

Dr. Manoj Singh
Head, Department of Zoology



Dear Participants and Distinguished Guests,

I am thrilled to welcome you all to the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023) as the Convener of this momentous event. It is an honor and a privilege to host this gathering of brilliant minds, visionaries, and change-makers, all united by a shared commitment to addressing the global challenges of climate change.

Our esteemed speakers, renowned researchers, and esteemed participants have engaged in thought-provoking discussions, sharing their expertise, and enlightening us with their groundbreaking work. The insights shared during ICSSA-2023 will undoubtedly contribute to shaping policies, practices, and actions that address the multifaceted challenges of climate change.

Through ICSSA-2023, we have explored the interconnectedness of climate change, sustainable development, and smart agriculture, recognizing that meaningful progress requires a holistic and collaborative approach. The ideas exchanged and networks formed during this conference will serve as the foundation for transformative change in our respective fields.

As we reflect on the discussions and outcomes of ICSSA-2023, let us be inspired to translate knowledge into action. Each one of us has a vital role to play in the global effort to combat climate change, promote sustainable development, and revolutionize agriculture. By harnessing our collective expertise and dedication, we can create a brighter, more sustainable future for generations to come.

Finally, I encourage you all to carry the spirit of ICSSA-2023 forward in your respective endeavors. Let us continue to collaborate, innovate, and advocate for climate action, sustainable development, and smart agriculture. Together, we have the power to effect positive change and shape a more resilient and thriving world.

Thank you once again for being part of ICSSA-2023, and I wish you all the best in your journey towards a sustainable future.

Message from Organizing Secretary

Dr. Ajay Kumar Harit
Department of Zoology



Dear Esteemed Participants,

I am delighted to extend my warmest welcome to all of you to the International Conference on Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023). As the Organizing Secretary, it is my privilege to be part of this significant event that brings together experts, scholars, and enthusiasts from various fields to address the critical challenges posed by climate change.

ICSSA-2023 is more than just a conference; it is a platform for collective action and collaboration. We have gathered here to share knowledge, engage in meaningful discussions, and explore innovative solutions that will pave the way for a sustainable and prosperous future. Our commitment to addressing climate change, promoting sustainable development, and revolutionizing agriculture is essential in shaping a better world for generations to come.


Over the course of the conference, we will delve into various themes, including the latest advancements in climate science, policy frameworks, sustainable practices, and the role of technology in agriculture. The diversity of perspectives and experiences present here enriches the discourse, helping us better understand the complexities of the challenges we face.

I extend my heartfelt gratitude to all the participants, speakers, and volunteers who have contributed to the success of ICSSA-2023. Your dedication and enthusiasm have made this event possible, and your contributions are invaluable in shaping the outcomes of the conference.

Finally, I want to express my heartfelt gratitude to our sponsors and partners whose support has been instrumental in organizing ICSSA-2023. Your belief in the importance of this conference demonstrates our shared commitment to address the challenges before us.

Thank you for being part of ICSSA-2023. I wish you all a fruitful and enriching conference experience.


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DEPARTMENT OF ZOOLOGY

Conference Schedule

International Conference

on

Climate Change, Sustainable Development & Smart Agriculture (ICSSA-2023)

Date : 6th-7th April 2023

Time : 10:30 am – 5:00 pm

Organized by : Department of Zoology, Faculty of Science, Kalinga University

Venue : Auditorium, Kalinga University, Naya Raipur, Chhattisgarh-492101, India

06-04-2023 (Day 1)	
Activity	Time
Arrival of the guests and participants	9:30 am
Registration and Kit Distribution	9:30 am - 10:30 am
Inauguration Ceremony Welcome of Guests, Lamp Lighting & Saraswati Vandana	10:30 am - 10:45 am
Introduction of the Dignitaries: <ol style="list-style-type: none">1. Shri Prem Kumar (I.F.S), Secretary, Forest and Climate Change Department, Chhattisgarh2. Dr. Surendra Babu, General Manager, NABARD Regional Office, Chhattisgarh3. Dr. P. K. Ghosh, Director, ICAR - National Institute of Biotic Stress Management, Baronda, Raipur4. Dr. Rajeev Kumar, Hon. Chairman, Kalinga University5. Prof. R. Sridhar, Vice Chancellor, Kalinga University6. Shri Dilraj Prabhakar (I.F.S.), Conservator of Forest, Development and Planning, Forest & Climate Change Department, Chhattisgarh7. Dr. Sandeep Gandhi, Registrar, Kalinga University8. Prof. Krishan Kumar, School of Environmental Science, Jawaharlal Nehru University, New Delhi	10:45 am - 11:30 am
Group Photo followed by Tea Break	11:30 am - 11:45 am

Keynote Speaker Prof. Krishan Kumar , School of Environmental Science, Jawaharlal Nehru University, New Delhi	11:45 am – 12:25 pm
Invited Talk Dr. Jamson Masih Department of Chemistry University of Mumbai, Mumbai	12:25 pm - 12:55 pm
Oral presentation Session Chair: Dr. Jamson Masih , University of Mumbai OP-1 to OP-5*	12:55 pm – 1:30 pm
Lunch Break	01:30 pm- 02:30 pm
Invited Talk (Online) Dr. Mohd. Farooq Azam Discipline of Civil Engineering, IIT Indore, Madhya Pradesh	02:30 pm - 03:00 pm
Invited Talk- Dr. Gayatri Vani Kanchibhotla Scientist, Govt. of India, India Meteorological Department, Meteorological Center, Raipur, Chhattisgarh	03:00 pm - 03:15 pm
Oral presentation Session Chair: Dr Bhawana Pandey, Bhilai Mahila Vishwavidyalaya OP-6 to OP-9	03:15 pm- 03.45 pm
Invited Talk (Online) Dr. Vivek Singh Indian Institute of Tropical Meteorology (New Delhi) Ministry of Earth Sciences, Govt. of India, Delhi	03:45 pm – 04:15 pm

Invited Talk Dr Ishwar Kumar Directorate of Industries, Govt. of Chhattisgarh, Raipur Chhattisgarh	04:15 pm- 04:30 pm
Parallel Session- Seminar Hall	
Invited Talk (Online) Dr. Dinesh Kumar Department of Environmental Sciences, Central University of Jammu	03:00 pm- 03.15 pm
Oral presentation Session Chair: Dr. Gayatri Vani Kanchibhotla OOP-1 to OOP-15**	03:15 pm - 04:30 pm
Tea break with Poster presentation (All Posters) Online Poster will be presented virtually with the provided google meet link.	4:30 pm - 05:00 pm
End of the day -01	

07-04-2023 (Day 2)	
Invited Talk (Online) Dr. Edgar J. González National Autonomous University of Mexico (UNAM) Mexico	09:45 am - 10:25 am
Invited Talk (Online) Dr. M. Rumman Hossain Department of Biology The University of Akron Ohio, USA	10:25 am – 11:05 am
Invited Talk Dr. S. Gajalakshmi Centre for Pollution Control & Environmental Engineering Pondicherry University, Puducherry	11:05 am – 11:50 am
Tea Break	11:50 am - 12:05 pm
Invited Talk Dr. Alok Kumar Pandey Senior Research Associate Lancaster University Lancaster, UK	12:05 pm – 12:35 pm
Oral presentation Session Chair: Dr Shivesh Berwal, Delhi University OP-10 to OP-15 OOP- 16 to OOP- 20	12:35 pm – 01:30 pm

Parallel Session- Seminar Hall	
Invited Talk Dr. Pawan Kumar Department of Geography Faculty of Earth, Environment and Space Sciences, Chaudhary Bansi Lal University, Bhiwani	11:30 pm – 11:45 pm
Invited Talk Dr. Shipra Sinha Head, Department of Zoology Kalyan College Bhilai Nagar, Chhattisgarh	11:45 pm- 12:00 pm
Oral presentation- Session Chair: Dr. N. S. Masal , Department of Geography, R. B. Madkholkar Mahavidyalaya OOP-21 to OOP-37	12:00 pm – 01:30 pm
Lunch Break	01:30 pm – 02:30 pm
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Invited Talk Mr. Dilsher Khan Vulture Specialist Member Vulture Conservation Board	02:45 pm - 03:00 pm

Bhopal, Madhya Pradesh	
Invited Talk Prof. L.V.K.S. Bhaskar Dean, School of Life Sciences Guru Ghasidas Vishwavidyalaya	03:00 pm - 03:15 pm
Invited Talk Dr. Amol Pandurang Jarag Head, Department of Geography & Environmental Studies Shikshanmaharshi Dr. Bapuji Salunkhe College, Miraj, Sangli Maharashtra	03:15 pm - 03:30 pm
Oral presentation Session Chair: Prof. L.V.K.S. Bhaskar OOP-37 to OOP-45	03:30 pm – 04:15 pm
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Invited Talk (Online) Dr. Ulman Yashmita Nitin Department of Agroforestry ANDUAT, Ayodhya, U.P.	03:15 pm - 03:30 pm
Oral presentation Session Chair: Dr. Amol Pandurang Jarag , Department of Geography & Environmental Studies	03:30 pm - 04:15 pm

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Valedictory function & Prize Distribution Prof. R. Sridhar Vice Chancellor, Kalinga University Shri. Kapil Dev Deepak Joint Director Agriculture and Joint CEO CG State Watershed Management, Chhattisgarh Dr Sandeep Gandhi Registrar, Kalinga University	04:15 pm - 04:30 pm
Vote of Thanks	04:30 pm - 04:35 pm
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* OP – Oral Presentation Offline

**OOP- Online Oral Presentation

Organizing Committee

ICSSA 2023

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