



PRAKRITI SANRAKSHAN

Newsletter

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ABOUT US

Save the Environment (STE)

SAVE THE ENVIRONMENT (STE) is the organization that aims to spread awareness to the society about environment, health and water. It was founded and registered on 19th November 1990. STE has collaborated with various organizations in the past 33 years such as All India Institute of Hygiene & Public Health, AIIH&PH and India Canada Environment Facility, DRDO, Ministry of Defence, Department of Science and Technology (DST),

Indian Institute of Management (IIM), Ahmedabad to mitigate the effects of arsenic and provide arsenic-free drinking water.

The vision of the society is to protect present and future generations from various Environmental Hazards. The NGO has been actively organizing various interactive sessions such as conferences (National and International), workshops, seminars and awareness programs including poster competitions, quiz competitions, science exhibitions and webinars among the future generations.

HUMBLE APPEAL for CSR FUNDS

To continue your Kind support for clean water supply and sanitation facility project at the STE adopted village Bankanali, Block Puncha, Distt. Purulia

Save The Environment (STE) extends its gratitude and thankfulness for your benevolent support which has made possible the installation of a drinking-cum-wash water unit at the cost of about Rs four and a half lakh (Rs. 4.5 Lakh only) in the first phase of the subject project at STE adopted village Bankanali, Puncha Block, Distt. Purulia, West Bengal. Many households, in dire need of proper water facilities, are somewhat benefitting from the same.



However, a long path remains ahead of us in order to complete the pursuit undertaken. In this endeavour, we plan to provide various water supply units in adjoining areas, rejuvenate and restore the available ponds, create the rain water harvesting systems, reuse of waste water, plantation, Electrification in the village using Solar energy and also to install toilets in the school and other places to be used by people. Looking forward for your kind support to complete the above project.

In this regard, we at STE, earnestly request all the citizens, corporates, life members of STE and patrons to kindly come forward and support for this noble cause. Your generous donation will be a pillar for us and will certainly enable us to bring a smile to several underprivileged persons.

Details of the proposed project are :

ACTIVITIES

- Restoration of ponds
- Installation of Rain Water Harvesting Systems
- Solar Electrification in the Houses and roads
- Distribution of drinking water by pipe line in the village
- Constructions of toilets in school, houses and other public places and plantation etc.

Looking forward to receiving your generous support.

Contact details:

Phone: 9871372350; 9830779260 Email: info@stenvironment.org

Account details for donating funds:

ONLINE PAYMENT:

Name of the Account: **SAVE THE ENVIRONMENT**
 Account Number: **38041963371**
 Bank and Branch: **State Bank of India, Lake Town, Kolkata**
 IFSC Code: **SBIN0001506** OR
 GOOGLE PAY to: **Mrs. Chhanda Basu; Mobile 9830779260**

पक्षी प्रकृति का एक उपहार हैं

Saikat Kumar Basu

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पक्षी गर्म रक्त वाले कशेरुकी हैं जो एवेस वर्ग से संबंधित हैं। वे पंख, बिना दांतों वाली चोंच और हल्के, अक्सर खोखले कंकाल संरचना की विशेषता रखते हैं जो कई प्रजातियों के लिए उड़ान भरने में सहायता करते हैं। पक्षी अत्यधिक विविध हैं, जो पृथ्वी पर लगभग हर पारिस्थितिकी तंत्र में निवास करते हैं, जंगलों और रेगिस्तानों से लेकर आर्द्रभूमि और तटीय क्षेत्रों तक।

पक्षी पारिस्थितिकी तंत्र में आवश्यक भूमिका निभाते हैं:

परागण और बीज फैलाव: कई पक्षी, जैसे कि हमिंगबर्ड और कुछ तोते की प्रजातियाँ, अमृत पर भोजन करते हुए पौधों को परागित करते हैं। फल खाने वाले पक्षी बड़े क्षेत्रों में बीज फैलाते हैं, जिससे पौधों की प्रजातियों को नए स्थानों पर बढ़ने में मदद मिलती है और वन पुनर्जनन में सहायता मिलती है।

कीट नियंत्रण: निगल और कठफोड़वा जैसे कीटभक्षी पक्षी कीटों को खाकर कीटों की आबादी को नियंत्रित करते हैं जो अन्यथा पौधों, फसलों और जंगलों को नुकसान पहुँचा सकते हैं।

पोषक चक्रण: पक्षी अपने मल (गुआनो) के माध्यम से पोषक चक्रण में योगदान करते हैं, जो मिट्टी और समुद्री वातावरण को आवश्यक पोषक तत्वों से समृद्ध करता है, पौधों की वृद्धि को बढ़ावा देता है और विविध जीवन रूपों का समर्थन करता है।

खाद्य जाल की भूमिका: पक्षी खाद्य श्रृंखला के विभिन्न स्तरों पर रहते हैं, शिकारियों (जैसे बाज) से लेकर अन्य जानवरों के शिकार तक। यह संतुलन पारिस्थितिकी तंत्र के भीतर आबादी को विनियमित करने में मदद करता है, जैव विविधता को बढ़ावा देता है।

पर्यावरण संकेतक: क्योंकि वे पर्यावरणीय परिवर्तनों के प्रति संवेदनशील होते हैं, पक्षी पारिस्थितिकी तंत्र के स्वास्थ्य के संकेतक के रूप में कार्य करते हैं। कुछ पक्षियों की आबादी में गिरावट अक्सर पर्यावरणीय मुद्दों का संकेत देती है, जिससे संरक्षण प्रयासों को बढ़ावा मिलता है।

पक्षियों की उपस्थिति कई तरह की पारिस्थितिक प्रक्रियाओं का समर्थन करती है जो जैव विविधता को बनाए रखने में मदद करती हैं, जो अंततः मनुष्यों सहित अनगिनत प्रजातियों के लिए जीवन को बनाए रखती हैं।

पक्षी परागण में महत्वपूर्ण भूमिका निभाते हैं, खासकर उन पारिस्थितिकी तंत्रों में जहाँ कीट कम सक्रिय होते हैं। जब परागण में योगदान देने वाली पक्षी प्रजातियाँ विलुप्त होने का सामना करती हैं, तो यह इस प्राकृतिक प्रक्रिया को बाधित करता है और कई पौधों की प्रजातियों के अस्तित्व को खतरे में डालता है। यहाँ बताया गया है कि पक्षी परागण से कैसे जुड़े हैं और उनकी कमी से पौधों की जैव विविधता पर क्या प्रभाव पड़ता है:

1. पक्षी परागणकर्ता और पौधों पर निर्भरता

कुछ पक्षी, जैसे कि हमिंगबर्ड, सनबर्ड और हनीईटर, विशिष्ट पौधों के लिए विशेष परागणकर्ता हैं, खासकर उन क्षेत्रों में जहाँ अन्य परागणकर्ता दुर्लभ हैं। इन पक्षियों ने फूलों में अमृत तक पहुँचने के लिए लंबी चोंच जैसे अनोखे अनुकूलन विकसित किए हैं, जो पक्षियों के परागण के लिए डिजाइन किए गए हैं।

उदाहरण के लिए, हमिंगबर्ड ट्यूबलर आकार वाले फूलों के परागण के लिए आवश्यक हैं, जैसे कि अमेरिका में ट्रम्पेट क्रीपर्स और फ्यूशिया। हमिंगबर्ड के बिना, इन पौधों को प्रजनन करने में संघर्ष करना पड़ेगा।

2. परागण नेटवर्क और जैव विविधता

कई पौधे सफल परागण सुनिश्चित करने के लिए पक्षियों सहित परागणकर्ताओं के नेटवर्क पर निर्भर करते हैं। जब पक्षी प्रजातियाँ घटती हैं, तो इन नेटवर्क की लचीलापन कमजोर हो जाती है।

उदाहरण के लिए, न्यूजीलैंड में, न्यूजीलैंड बेलबर्ड जैसी कुछ देशी पक्षी प्रजातियों के विलुप्त होने को कुछ देशी पौधों में गिरावट से जोड़ा गया है जो परागण के लिए पक्षियों पर निर्भर हैं। यह जैव विविधता और

समग्र पारिस्थितिकी तंत्र को कमजोर करता है।

3. आवास की हानि और जलवायु परिवर्तन का प्रभाव

आवास विनाश, जलवायु परिवर्तन और आक्रामक प्रजातियों का प्रवेश पक्षियों के विलुप्त होने के प्रमुख कारण हैं। जैसे-जैसे पक्षियों की आबादी घटती है, उन पर निर्भर पौधों का भी यही हश्र होता है।

उदाहरण के लिए, दक्षिण अफ्रीका में केप शुगरबर्ड प्रोटिया पौधे के लिए एक प्रमुख परागणकर्ता है। आवास के नुकसान के कारण शुगरबर्ड आबादी में कमी, प्रोटिया पौधों को प्रभावित करती है, जिससे पूरा पारिस्थितिकी तंत्र प्रभावित होता है।

पक्षियों के विलुप्त होने का पौधों की जैव विविधता और उनके रहने वाले पारिस्थितिकी तंत्र पर व्यापक प्रभाव पड़ता है, जो अक्सर संपूर्ण खाद्य श्रृंखलाओं को बाधित करता है।

हमारी स्थिर शिक्षा प्रणाली को बढ़ावा देने के लिए नए इंटरैक्टिव दृष्टिकोणों की आवश्यकता है

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देश भर में हमारी माध्यमिक और तृतीयक शिक्षा प्रणाली स्थिर, प्रतिगामी और पुरातन और औपनिवेशिक मानसिकता वाली 'कमिट एंड वाइट' रणनीति पर आधारित रही है। यह किसी व्यक्ति को सफल और जिम्मेदार नागरिक बनने के लिए तैयार करने में मदद नहीं करती है। हमारी शिक्षा प्रणाली मशीनीकृत रोबोट बनाने की ओर उन्मुख है लेकिन, आवश्यक जीवन और पेशेवर कौशल के साथ एक मानवतावादी व्यक्ति को विकसित करने की ओर नहीं। विभिन्न सरकारी और गैर-लाभकारी, गैर-सरकारी संगठनों द्वारा माध्यमिक और उच्चतर माध्यमिक विद्यालयों, डिग्री और डिप्लोमा कॉलेजों और विश्वविद्यालयों में व्यापक सेमिनार, संगोष्ठी, संगोष्ठी, कार्यशालाओं के रूप में विभिन्न इंटरैक्टिव कार्यक्रम चलाए जा सकते हैं।

दर्शकों में केवल लक्षित छात्र ही शामिल नहीं होने चाहिए बल्कि, शिक्षा के बेहतर प्रसार और कुशल जागरूकता उद्देश्यों के लिए उनके अभिभावकों और अध्यापकों और संकाय सदस्यों (कुछ मामलों में) को भी शामिल किया जाना चाहिए, ताकि प्रतिभागियों के बीच सफलतापूर्वक संचार हो सके जैसे कि:

1) वित्तीय प्रबंधन के बुनियादी पहलुओं पर कार्यशालाएँ, बैंकों, डाकघरों, स्थानीय पुलिस स्टेशनों, जिला और सिविल न्यायालयों, पंचायतों, निगमों और नगर पालिकाओं की बुनियादी संचालन प्रक्रिया और उद्देश्यों को पढ़ाना।



2) पंजीकरण, प्रवेश, दावे या शिकायत दर्ज करने, स्थानीय पौधों और जानवरों की पहचान, जैव विविधता संरक्षण, प्राकृतिक परागणकों और स्थानीय औषधीय पौधों के संरक्षण के महत्व और आवश्यकता, प्रकृति अन्वेषण के लिए लघु सर्वेक्षण और क्षेत्र भ्रमण के प्रयोजनों के लिए औपचारिक आवेदनपत्र कैसे लिखें और फॉर्म कैसे भरें।

3) स्कूल और कॉलेज परिसरों के भीतर किचन गार्डन, छत पर गार्डन या परागणकर्ता गार्डन कैसे स्थापित करें, यौन शिक्षा, सामान्य और जननांग स्वच्छता, मधुमेह, मोटापा, थैलेसीमिया, थायरॉयड समस्याओं, यौन संचारित रोगों (एसटीडी), सांप के काटने के उपचार के बारे में ज्ञान पर लघु शैक्षिक वृत्तचित्र फिल्में और अध्यापक इंटरैक्टिव व्याख्यान चलाएं।

4) स्थानीय अंधविश्वासों, वर्जनाओं, वैज्ञानिक जागरूकता, अच्छे स्पर्श और बुरे स्पर्श के बारे में संवेदनशीलता, कार्यस्थल पर छेड़छाड़ और उत्पीड़न, प्राथमिक चिकित्सा, अप्रत्याशित चिकित्सा आपात स्थितियों के बारे में तैयारी, भोजन और पोषण, संतुलित आहार, स्वस्थ, टिकाऊ और जिम्मेदार जीवन शैली के अभ्यास, धूम्रपान, शराब, नशीली दवाओं के दुरुपयोग से निपटना।

5) मोबाइल फोन और सोशल मीडिया प्लेटफॉर्म का अनुचित उपयोग, बच्चों, लड़कियों और महिलाओं की सुरक्षा के लिए कानूनों के बारे में जागरूकता, प्रासंगिक सामाजिक, सांस्कृतिक, शैक्षणिक और पर्यावरणीय मुद्दों पर रचनात्मक लेखन, निबंध, पोस्टर या नारा प्रतियोगिताओं को प्रोत्साहित करना।

6) छात्रों की प्रेरणा और प्रोत्साहन के लिए महान समाज सुधारकों, स्वतंत्रता सेनानियों, राजनेताओं, वैज्ञानिकों, संगीतकारों, नर्तकों,



कलाकारों, लेखकों, कवि, फिल्म निर्माताओं, डॉक्टरों और इंजीनियरों, अकादमियों, पत्रकारों, खेल कर्मियों और उनके संघर्षों और उपलब्धियों के स्मारकीय जीवन को बढ़ावा देना, छात्रों के लिए बेहतर जुड़ाव, संचार, सुनने और लिखने के कौशल को बढ़ावा देना।



कार्यशाला के विषयों का चयन ग्रामीण और शहरी छात्रों और अध्यापक प्रतिभागियों की विशिष्ट आवश्यकताओं और भावनाओं के आधार पर किया जाना चाहिए। कार्यशालाओं के आयोजन के लिए उपयुक्त स्थानों का पता लगाने के लिए निजी और सरकारी दोनों संस्थानों की जांच की जानी चाहिए, ताकि अच्छे सहयोग और समर्थन के साथ-साथ संचालन की भी व्यवस्था हो सके।

SAVE OUR BEES

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Bees are very important to nature. There are about 20,000 species of bees in the world. Bees or honeybees or honeybees and honey-gathering insects closely related to ants. Famous for honey and wax production and flower pollination. There are about twenty thousand bee species in the world under 9 recognized genera, although most are undescribed and the actual number may be much higher. Wherever there are insect-pollinated flowering plants, there are bees on every continent on Earth except Antarctica.

Four types of bees are commonly seen in the country. Rocky Mountain Bee, Little Bee, Indian Bee and European Bee. Apart from these, another species known as stingless bee is found in Kerala. They are not stingless at all, in fact their stingers are not fully developed. But they are very good pollinators. They produce 300-400 grams of honey annually. Wherever there are flowering plants, there will



be bees. They are very efficient and intelligent. Because bees and other insects cause flowers and fruits to grow on trees. If there were no insects like bees, there would be no flowers and no fruits on the trees. Bees live in colonies in groups. Bees live in a large family or society in each hive. There are three types of bees in a colony. Queen bee, worker bee and male bee. The queen bee is the leader of the



group and is large in size. Bees are best known for their honey. But this honey is not made for us by the bees.

Rather, they collect honey for themselves in winter. They produce 2-3 times more honey than required. And understanding the opportunity, we take that extra honey. Researchers believe that not only honey production, but also the venom collected from bee stings can cure diseases. In recent times, it is heard that bees can play an important role in protecting the borders of the army. For which beekeeping is being done on the border.

Bee conservation is crucial for several reasons:

Pollination: Bees are among the most important pollinators in the world. They pollinate about 75% of the leading global food crops, including fruits, vegetables, nuts, and seeds. Without bees, many of these crops would fail, leading to a significant reduction in food diversity and availability.

Biodiversity: Bees contribute to the pollination of wild plants, helping to maintain biodiversity. These plants form the basis of many ecosystems, providing food and habitat for a wide range of other species. The decline of bee populations can lead to the collapse of these ecosystems.

Economic Impact: The agricultural industry heavily relies on bees for pollination, contributing billions of dollars annually to the global economy. The loss of bees would lead to higher costs for farmers and consumers, as alternative pollination methods would need to be implemented.

Environmental Health: Bees are indicators of environmental health. Their decline often signals broader issues within ecosystems, such as pesticide overuse, habitat loss, and climate change. Protecting bees means addressing these larger environmental concerns.

Food Security: A significant portion of the world's diet relies on bee-pollinated plants. The decline of bee

populations could lead to a decrease in food production, potentially causing food shortages and higher prices, impacting global food security.

Protecting bees is not just about saving a single species but about preserving the delicate balance of our ecosystems, supporting agriculture, and ensuring a sustainable future for all.

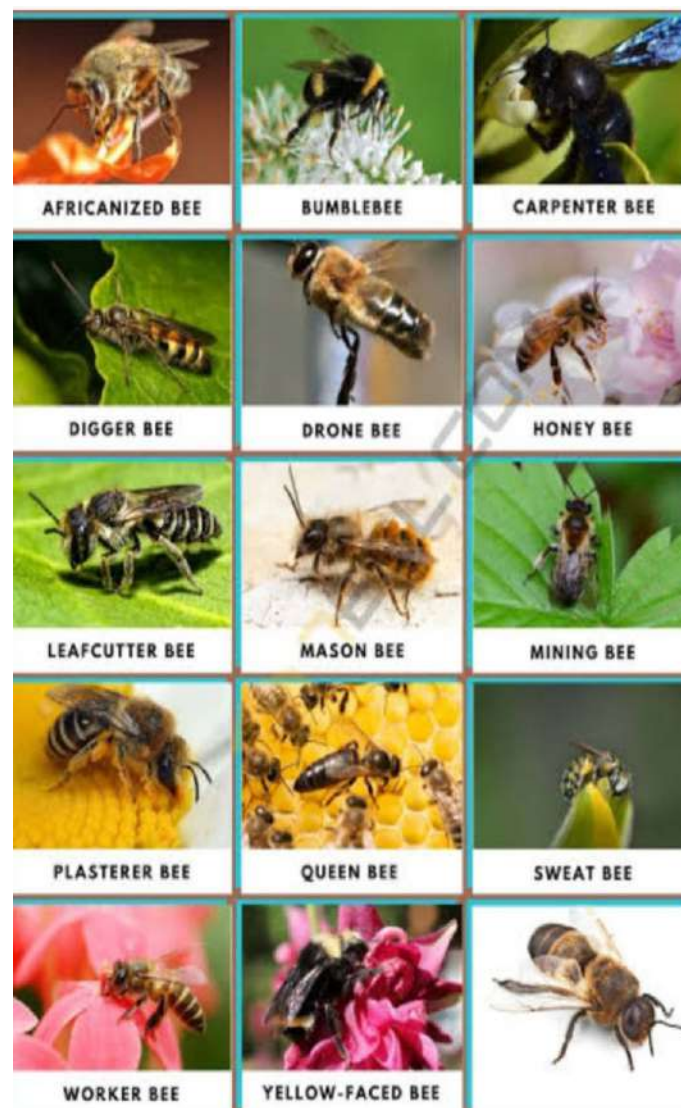


Photo credit: Saikat Kumar Basu

Report on the Program: National Conference on EWASH-2024

The National Conference on **Environment, Water, Agriculture, Sustainability, and Health (EWASH-2024)** was successfully conducted on **13th-14th December, 2024**, under the theme "*Integrated Indigenous Technological Advancement for Atmanirbhar Bharat*".

The conference was organized by Department of Applied Sciences, Visvesvaraya Technological University, Muddenahalli, Chikkaballapur in association with Save the Environment (STE), a Society for Research Awareness and Social Development, Gurugram/Kolkata and Damodar Academy of Scientific & Educational Research, New Delhi.

Inauguration Highlights:

The event was inaugurated by **Dr. Raghupathi A. R.**, Dean and Director (Medical Education), **Sri Madhusudan Sai Institute of Medical Sciences and Research, Sathya Sai Grama**, Muddenahalli, Chikkaballapur, Karnataka.

The ceremony was presided over by **Prof. G. S. Venkatesh**, Coordinator, Visvesvaraya Technological University, Muddenahalli.

Distinguished Guests:

- ❖ **Dr. Kshipra Misra**, President of Save The Environment and former Additional Director, DIPAS (DRDO), Delhi.
- ❖ **Dr. Sushil Kumar Singh**, Scientist "F", Acoustic Sensor Division, Solid State Physics Laboratory, Timarpur, Delhi.

Venue and Schedule:

- Date: **13th December 2024**
- Time: **10:00 AM**
- Venue: Seminar Hall, 5th Floor, D1 Block, Visvesvaraya Technological University, Muddenahalli, Chikkaballapur, Karnataka.

Program Features:

The event featured the STE Award Ceremony, honoring contributors to environmental sustainability and technological advancements.

The organizing team, led by **Dr. Dinesh Rangappa** (Organizing Chair) and **Dr. Prasanna D. Shivaramu** (Organizing Secretary), ensured a well-coordinated and impactful conference.

The program emphasized innovative solutions to pressing global challenges through indigenous technology, aligning with the vision of Atmanirbhar Bharat.

The event was warmly attended by delegates, academicians, researchers, and industry professionals, fostering collaborative discussions and actionable insights.



DAY 1: 13th DECEMBER, 2024

The inaugural program started at 10:00 AM with a lamp-lighting ceremony, followed by STE award Ceremony.

Inauguration and Opening Ceremony with Lighting Lamp

The event was inaugurated by **Dr. Raghupathi A. R.**, Dean and Director (Medical Education), Sri Madhusudan Sai Institute of Medical Sciences and Research, Sathya Sai Grama, Muddenahalli, Chikkaballapur, Karnataka.

The ceremony was presided over by **Prof. G. S. Venkatesh**, Coordinator, Visvesvaraya Technological University, Muddenahalli.

Dr. Kshipra Misra, President of Save The Environment and former Additional Director, DIPAS (DRDO), Delhi and **Dr. Sushil Kumar Singh**, Scientist "F", Acoustic Sensor Division, Solid State Physics Laboratory, Timarpur, Delhi addressed the gathering as guests.

Dr. Prasanna D. Shivaramu, Organizing Secretary, EWASH-2024 delivered welcome address and **Dr. Dinesh Rangappa**, Organizing Chair, **EWASH-2024** presented the Conference Overview and VTU.

The following prestigious awards were conferred during the EWASH-2024 National Conference:



STE Award Ceremony 2024
 STE Fellowship Award, STE Water Award,
 STE Women Excellence Award,
 STE Meritorious Award, STE Innovative Award,
 STE Young Researcher Award, and
 STE Student Award 2024.





Dr. Sushil K. Singh, Scientist "F", DRDO-Acoustic Sensor Division, Solid State Physics Laboratory, Lucknow Road, Timarpur, Delhi-110054



First keynote address delivered by **Dr. Paromita Chakraborty**, Professor & Head, Centre for Research in Environment, Sustainability Advocacy and Climate Change Directorate of Research, SRM Institute of Science Technology, Kattankulathur-603203, Tamil Nadu,

She delivered the keynote address on, "*Interlinkages between plastics and*

endocrine-disrupting chemicals: Risk Assessment and Sustainable Technologies."



Invited Talks:

Topics included indigenous acoustic emission technology for disaster early warning systems, sustainable production of kojic acid, artificial intelligence for environmental applications, and supercritical carbon dioxide-assisted eco-friendly textile dyeing.



Invited Talk – 1: "*Indigenous acoustic emission technology for real time early warning system for natural disasters*"



Invited Talk – 2: "*Sustainable production of kojic acid using renewable resources*" **Dr. Saurabh Jyoti Sarma**, Associate Professor & Interim Head,

Department of Biotechnology, Bennett University (Times of India Group) Cabin No. 160, M-Block, First Floor Plot No. 8-11, TechZone-II, Greater Noida.



Invited Talk – 3: "Artificial Intelligence for environment, water and agriculture". **Dr. Mallikarjun Kodabagi**, Nagarjuna College of Engineering and

Technology, Devanahalli



Invited Talk – 4: "*Supercritical carbon dioxide assisted ecofriendly dyeing of textiles: Future*"



perspectives”, **Dr. M. Yogendra Kumar**, Scientist, Defence Bio-Engineering and Electromedical Laboratory, Defence Research and Development Organisation,



Technology, Devanahalli.

Presentation by



Ministry of Defence, C V Raman Nagar, Bengaluru.
Invited Talk – 5: “Semiconducting Nanostructures for Sensor and Catalytic Dye Degradation applications”, **Dr. H. C. Ananda Murthy**, School of Applied Sciences, Papua New Guinea University of Technology, Lae, Morobe

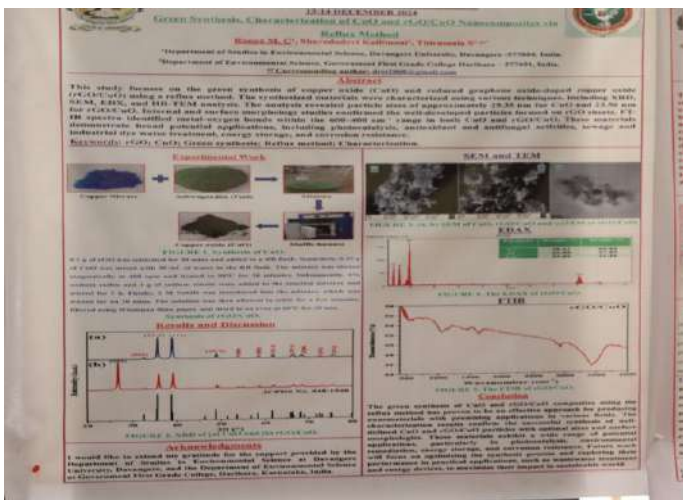
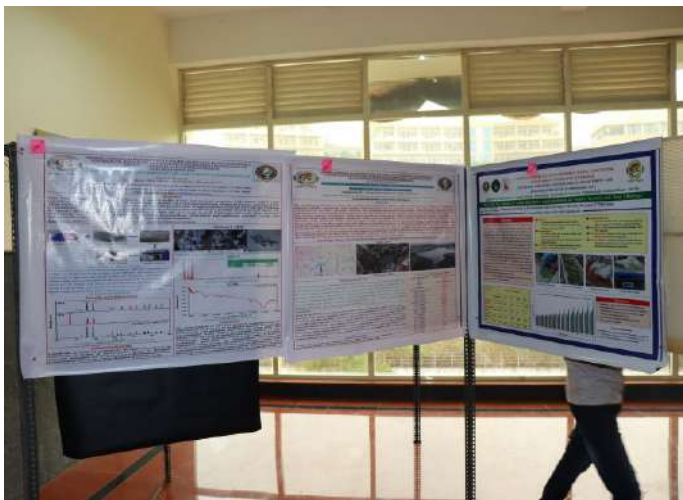
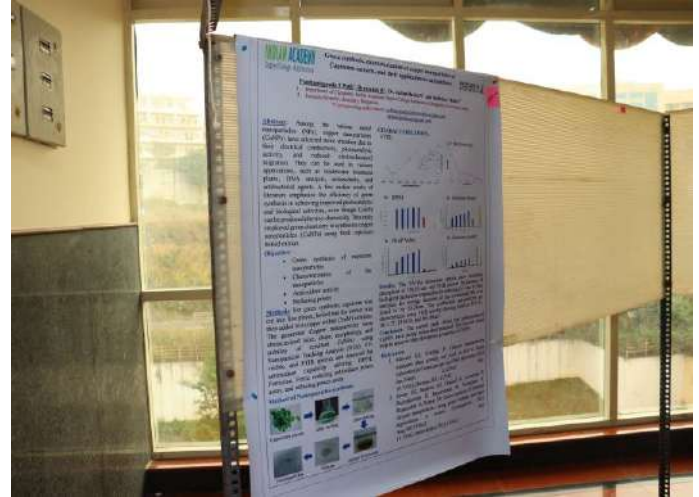


Province, Papua New Guinea.
Invited Talk – 6: “Nanomaterials in health care”, **Dr. Navya Rani M, Nagarjuna**, College of Engineering and

Industry Representatives: Canopus; Metrohm POSTER SESSION – DAY 1

The conference featured interactive poster sessions and oral presentations, showcasing cutting-edge research and

practical innovations by scholars and industry experts. Topics ranged from nanomaterials for healthcare to the valorisation of industrial waste for environmental applications.



DAY 2: 14th DECEMBER, 2024

ORAL PRESENTATION – DAY 2

Invited Talks: Speakers covered diverse topics such as recycling molybdenum from industrial wastewater, nano iron-pyrite seed stimulants for sustainable agriculture, climate change impacts, and advanced metal-based phosphates for water management.

Invited Talk – 8: “Nano Iron-pyrite Seed Stimulant for Sustainable Agriculture” **Dr. Kalpana Bhargava**, Scientist G, Technology Director, Advanced Technology High Energy Material Research Lab (HEMRL), Defence Research and Development Organization (DRDO), Ministry of Defence, Government of India, Sutar wadi, Pashan, Pune, Maharashtra.



Invited Talk – 9: “Valorisation of process waste for the removal of organic dyes from water”, **Dr. Suraj K. Tripathy**, Associate Dean, School of Chemical Engineering, Associate Professor, School of Biotechnology Kalinga Institute of Industrial Technology, Bhubaneswar Odisha, India.

Invited Talk – 10: “Impact of Climate Change on Precipitation and Stream Flow” **Dr. Nagraj S. Patil**, Visvesvaraya Technological University, Belagavi.
 Invited Talk – 11: “Valorization Metal-Based Phosphates for Sustainable Water Management: Advancing SDG 6 Goals”, **Dr. Amita Somya**, Amity University, Bengaluru.



TEA BREAK AND POSTER SESSION – DAY 2





VALEDICTORY AND AWARD CEREMONY

The conference concluded with a valedictory session and award distribution, acknowledging the best contributions across various categories. The EWASH 2024 National Conference served as a significant platform for sharing knowledge, fostering collaborations, and inspiring future innovations in sustainability, health, and environmental science.

STE Dr. Praloy O. Basu Lifetime Achievement Award – 2024 Dr. Vidyashankar S.



The organizing committee expressed gratitude to all participants, sponsors, and volunteers for their efforts in making EWASH 2024 a resounding success.

BEST POSTER PRESENTATION AWARDS



BEST ORAL PRESENTATION AWARDS



GROUP PHOTOS



SUSTAINABILITY WORKSHOPS CONDUCTED BY STE MEMBER

Dr. Indu Tucker Sidhwani of our STE family is a retired associate professor at Gargi College, university of Delhi. Dr. Sidhwani is involved in the “greening” of chemistry education and improving the existing experiments while also designing new Green chemistry experiments for undergraduate and post graduate students. She regularly delivers talks and conduct workshops for students as well as teachers of various schools, colleges and universities. Here are some of the recent invited talks and workshop conducted by her.

1. She was invited to the centre of excellence in Unani Medicine at Jamia Hamdard University, Delhi in an industrial training programme (June 10 to July 18, 2024) for students of pharmacognosy and pharmacology on June 14, 2024. This was to introduce students to Green chemistry and the Twelve Principles of green chemistry with the objective to use green methodologies in pharmaceutical industry. There is an escalating concern over the impact of industry in the global environment and the main contributor is the pharmaceutical industry. Demands for the drugs are increasing which is leading to



2. UGC-MMTTC, Malaviya Mission Teacher training centre at SGTB Khalsa College, University of Delhi conducted an online refresher course for teachers of various universities from 21st September to 5th October 2024. The topic of the course was, Chemistry: Future of Chemistry Education.

Dr. Sidhwani who was invited as a resource person on October 5, 2024, explained how Green Chemistry has emerged as an essential building block for sustainable development. As education is forerunner for implementation she apprised the teachers to the Twelve Principles of green chemistry and explained some in detail such as waste minimization, atom economy and less hazardous chemical synthesis by citing various examples

the generation of huge amount of waste during bulk synthesis of the product of importance. 1 Kg of API generates about 50-100 Kg of waste in the form of byproducts, unreacted starting material, spent catalyst, air and water pollution in addition to the persistence of drugs in the environment. It becomes very expensive for the industry to manage waste which may be hazardous and toxic. Sometimes companies have to hire lawyers to fight environmental based issues.

She explained by citing examples of some drugs in which redesigning of synthesis is done by using atom economy. Fewer byproducts are obtained thus minimizing storage and disposable cost. Green methodology replaces hazardous chemicals and solvents with renewable green solvents and feed stocks, reduction in energy consumption by using catalysts. Now with advent of green chemistry various companies are spending money on research and innovation rather than paying for environmental laws.

She concluded by saying that it is a win win situation for both the pharmaceutical companies practicing green chemistry and the environment. Green chemistry has emerged as an important tool for achieving environmental, societal and economical goals.



is a chemical synthesis. Green chemistry is a powerful tool in education as it teaches problem solving skills and critical thinking which are valuable skills to innovate as it is principle based. It also infuses enthusiasm into the classroom towards chemistry and inspires students to pursue chemistry as a career. Green chemistry advances work towards sustainable future as it seeks to reduce waste especially toxic waste, reduce energy consumption, reduce consumption of resources by using renewable sources. Materials are recycled at the end of their use if not biodegradable. It also means preventing pollution before it happens, rather than cleaning the mess later. She also discussed about green methodologies in a chemistry laboratory to make the lab safer and healthier for our students.



Green Chemistry resonated very much with the theme of the refresher course as quoted by Dr. Sidhwani “All this is still only the beginning. Knowledge of green chemistry and conviction of its urgency needs to spread in greater magnitude till a time would come, hopefully in the near future when the prefix green becomes redundant because the word Chemistry will be quintessentially green anyway.”

Women, University of Delhi conducted two days (October 21-22, 2024) hands on workshop for faculty members teaching Skill Enhancement course on Green Methods in Chemistry. She was invited to conduct the last technical session and also to preside over valedictory functions to distribute undergraduate certificates.

2. Shaheed Raj Guru College of Applied Sciences for

First Experiment performed and explained was extraction of D-limonene from orange peel using liquid CO₂ using dry ice.



This particular experiment was designed by her in 2007 and put in the syllabus of this SEC course. Theme and syllabus of this course Green Methods in Chemistry was framed by her in 2014. scCO_2 is a very good solvent to extract various natural products. Since especially designed equipment is very expensive and intricate, an effective yet affordable alternative in chemistry labs of schools and colleges is liquid CO_2 in place of organic solvents. It is a useful green solvent as it provides environmental and safety advantages.

The other experiment was preparations and evaluation of biodiesel from waste cooking oil. Diesel fuel is made from depleting fossil fuel. By using a technique called transesterification chemists can now turn oils from various crops e.g. canola and soya in to a viable diesel substitute called biodiesel. Biodiesel can be used in diesel engine without much modification. This particular experiment was also an outcome of a project done by her undergraduate students and published in a journal. It was emphasized to teachers that it is very important to use the glycerol which is obtained as a waste in the synthesis of biodiesel. So the utility of synthesis of biodiesel from waste cooking oil is two fold.

Firstly as oil is heated for more than three times it is converted into products which should not be consumed for cooking as it is injurious to health instead waste cooking oil should be used for conversion into biodiesel making the synthesis economical. Secondly student should find ways to convert glycerol into useful product such as hand wash, soaps etc., and this experiment is good example.

4. Chemfranza, the chemical society of Sri Aurobindo College initiated "Insight" a dynamic and forward thriving lecture series. This is designed to address some of the most pressing and relevant topics of our time. In a rapidly

changing world, interdisciplinary knowledge and diverse perspectives are more critical than ever. Some of the lectures were nanotechnology for sustainable circular economy and future challenges, skills to employability, cyber security in current time, green computing and green chemistry.

Dr. Indu Tucker Sidhwani to the Insight series on October 23, 2024 to introduce students to green chemistry. This was to go beyond the traditional boundaries of chemistry to engage broader issues that resonate with current societal, technological and environmental needs. Green chemistry creates awareness and encourages young minds to practice chemistry in a safer and healthier manner. She started her presentation by highlighting some industrial disasters which led to the enactment of various stringent environmental laws to curb the pollution caused by various chemicals in air, water and soil. Pollution Prevention Act of 1990 of EPA was the first act which focused on the prevention of pollution at the source itself. This led to the emergence of green chemistry. Traditional chemistry training teaches one to make products efficiently using less costing resources or chemicals, sometimes toxic and hazardous starting materials along with the products, use of volatile solvents and energy using fossil fuels which are depleting. There is no concern about the adverse effect of these chemicals on the human health and the environment. This is not intentional and is often due to lack of awareness. She briefly explained green chemistry is not a new branch of chemistry but the way chemistry should be practiced. The twelve principles of green chemistry were discussed along with examples to equip students to redesign a synthesis which is ecofriendly. She also describes inherent safer design for safety of a process to prevent accident with examples of Bhopal gas tragedy and Flixborough accident. She also introduced to the terms bio mimicry and MSDS values of chemicals (material safety data sheet) to the students



From the Editor's Desk

Dear Readers

I welcome you to **Volume 5, Issue 4** of the **PRAKRITI SANRAKSHAN** quarterly newsletter of STE.

The important days observed from October-December 2024 are also included in this issue.

I express my sincere thanks to all the people who have contributed informative and inspirational articles to make this newsletter successful. I want to express my profound gratitude to the President of STE, Dr. Kshipra Misra, the editorial team, and Mr. Gian Kashyap for designing this issue of **PRAKRITI SANRAKSHAN** and giving it the desired shape.

Dr. Vaishali Mishra

Editor STE

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We are pleased to announce that the DOI prefix for International Journal of Environment and Health Sciences is now available from Crossref, the official Digital Object Identifier (DOI). **The journal is now indexed in International Scientific Indexing (ISI).**



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STE Annual Awards 2024

(NOMINATION AND APPLICATIONS ARE INVITED)

LAST DATE 30th September, 2024

STE confers Annual Awards in following categories to recognize the significant contributions made by a person or institution.

1. STE Dr. APJ Abdul Kalam Award

This award is conferred every year to the senior scientist of DRDO/ ISRO (working or retired) who has significantly contributed towards science and technology in India. Nominations will be from STE.

2. STE Dr. Praloy O. Basu Lifetime Achievement Award

This award is conferred every year to any citizen of India, who has made a difference to the society by his/her contributions in terms of education/ policies/ S & T/ Social Service and others. Nominations will be from STE.

3. STE Green Excellence Award

This award is constituted to honor those Indian citizens who have excelled in safeguarding and protecting the environment utilizing green technologies.

4. STE Fellowship Awards

STE Fellowship award is conferred to the Indian senior scientists /Academics for their outstanding achievements in various fields of Science & Technology and Education.

5. STE Meritorious Award for Excellence in Academics and Research

6. STE Women Excellence Award

This award is constituted to recognize the Indian women scientists/ Academics for their contributions in the field of science and environment.

7. STE Water Awards

The awards are conferred to the Indian nationals who have made a difference in the area of water by their efforts.

8. STE Award for Best Innovation in the field of Science & Technology

9. STE Best School Principal Award

10. STE Best Teacher Award

11. STE International Achiever Awards

12. STE Young Researcher Awards (Age limit: Faculty/ researchers between 25 to 40 years can apply.)

13. STE Humanitarian Award for NGO

14. STE Green Campus Award

15. STE Student Award A. School Level B. College Level

Eligibility: One must be life member of STE and also register for the Annual conference 2024.

For more information, please log on to our website
www.stenvironment.org/ste-awards/

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Awards/ recognition received for DART

- Silver Medal for Innovative Technology in Anveshan Competition on 29th June, 2003 at IIM, Ahmedabad
- WATI (Women and Technology Innovation) National Award by Bhartiya Stree Shakti for innovative Technology -2004
- DRDO Spin-off Technology Award- 2007
- NRDC, GOI –Social Innovation Award-2012

Our Collaborators

- ◆ DRDO, Govt. of India
- ◆ DST, Govt. of India
- ◆ AIIHPH, Kolkata
- ◆ Hindu College, University of Delhi
- ◆ Royal Society of Chemistry (London)-North India section
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- ◆ Fight Cancer,
- ◆ Amra Sabai Happy Club,
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- ◆ Swami Rama Himalayan University (SRHU), Dehradun, Uttarakhand
- ◆ Visvesvaraya Technological University, Center for Post Graduate Studies (CPGS),
Visvesvaraya Institute of Advanced Technology (VIAT), Muddenahalli, Chikkaballapura, Karnataka

STE is pleased to announce that the STE State chapter of Uttarakhand has been opened and is ready to start activities there. It is requested that those who want to do any programme/ seminar / conference / symposia or any other related activity under the mandate of STE are welcome to come forward and take off for the new journey of STE in the mountains.



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