



PRAKRITI SANRAKSHAN

Newsletter

Volume 3, Issue 4, Oct. - Dec., 2020

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 29 years such as All India Institute of Hygiene & Public Health, AIHH&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.



OUR EVENTS



SAVE THE ENVIRONMENT

A Society for Research Awareness and Social Development

Weekly Webinar Series

Save The Environment (STE) as a society for research, awareness and social development has continued its efforts for conducting the weekly webinar series, which was initiated in August, 2020 and was concluded in the month of November, 2020. These webinars have undoubtedly enabled STE to realize its aim of providing interactive educational platform to educate enthusiasts, especially the students about the environment and human health concerns and serve society.

TALK 07#Interdisciplinary Science Research

In continuation, the team STE conducted another webinar on 2nd October, 2020 on the occasion of birthday of our beloved “Father of the Nation”, Mahatma Gandhi. The talk was delivered by

Prof. Boyina Rupini who is Director at School of Inter-Disciplinary and Trans-Disciplinary Studies (SOITS) and is working as an associate professor in Environmental Studies at Indira Gandhi National Open University (IGNOU), New Delhi.

The session began with an introductory presentation about the progress and efforts of STE so far and was presented by **Ms. Jigni Mishra**, who is member STE management and currently working as Project Associate at Indian Agricultural Research Institute (IARI), Pusa, New Delhi. Following this, **Dr. Kshipra Misra**, President, STE briefly introduced the speaker of the day, Prof. Boyina Rupini.

Talk 07

Interdisciplinary Science Research

Our Speaker



DR. BOYINA RUPINI

Associate Professor,
Environmental Studies,
IGNOU, New Delhi



Dr. B. Rupini completed B.Ed, M.Sc., and PhD (Chemistry) from Kakatiya University, Warangal, Telangana and PG diploma in Cheminformatics from the University of Jamia Hamdard, New Delhi. She is also the Programme Coordinator for PhD (Environmental Science) (PHDEV), Post Graduate Diploma in Environmental and Occupational Health (PGDEOH) and Masters and in Environmental

Science. She is an organic chemist by training who taught in different conventional universities including Delhi University for 24 years and published many research papers/articles including book chapters, in national and international journals and publishers. She has successfully completed three projects funded by UGC, DST-SERB, and DST-INDO PORTUGAL, under University Grants Commission, Ministry of



Science and Technology. Her area of research includes synthesis and characterization of environmentally benign ionic liquids, biologically active metal complexes and their applications in the synthesis of functionalized chiral amines and Nano anti-malarials and Green Chemistry.

She introduced the concept of interdisciplinary science research. She proposed that Indians are usually focused to a particular area of their study, rather than being interdisciplinary in their attitude. However, interdisciplinary approaches often bring together different domains or academic cultures such as social science, science, commerce, etc. together. For instance, the real-world problem such as climate change and COVID-19 pandemic are common issues for different disciplines. She also explained that for sustainable development social, economic and environmental growth is essential. Furthermore, for the sustainable development of interdisciplinary science research four approaches, namely, high dose of innovation, nimbleness, multiple perspectives and team work are required. She emphasized on the fact that the government has to bring together academic and

research institutions with the industries for not only developing technologies but also to disseminate and make the technology available to the society. Dr. Rupini stated that owing to the inherent complexity of real-world concerns which innately involve different sections and cultures of the society, interdisciplinary science research is important. She concluded that interdisciplinary science research approach will result in the generation of novel and innovative thoughts encompassing different subjects with their origin from variable subjects or disciplines and hence, better technology for a sustainable development of our society.

The webinar talk was meticulously designed and presented in the best possible way. It was a descriptive, comprehensive and informative talk. The response of the participants was astounding and appreciable. There was a question and answer session also, which was interactive and demonstrated enthusiasm and keen interest of the participants. The session was concluded with a vote of thanks by Ms. Jigni Mishra. The team STE, is whole-heartedly thankful to Prof. Boyina Rupini for enlightening us with her talk.

TALK 08#Impact of Human Activities on River Health & Vice Versa: A study on Haora River, Tripura

The preceding talk was delivered by **Prof. Sunil Kumar De**, on 10th October, 2020 and was entitled as “Impact of Human Activities on River Health & Vice versa: A study on Haora River, Tripura”. **Ms. Jigni Mishra**, who is member STE management and currently working as Project Associate at Indian Agricultural Research Institute (IARI), Pusa, New Delhi began the event with a brief introductory presentation about the progress and efforts made by STE. Succeeding this, **Dr. Kshipra Misra**, President, STE introduced the speaker of the day, Prof. Sunil Kumar De.

Prof. Sunil Kumar De is the present Head of the Department of Geography, North Eastern Hill University, Shillong, India. He obtained his Ph.D. from the University of Calcutta in 1999. In his career he has

published more than 60 research papers in different national and internationally reputed journals and book chapters, edited two books, co-authored a book on 'River Health' (Springer) and completed five research projects. He has served as the Vice President (2017-2018) of the Indian Institute of Geomorphologists (IGI) and presently is the Vice President of the International Association of Geomorphologists (IAG) for the period 2017-2021. His major fields of interest are geomorphological hazards, fluvial dynamics, river health and human impact on the environment.

Prof. Sunil Kumar De familiarized the audience with the term “River Health” and defined it as the condition of anatomy and physiology of the river. He illustrated that anthropogenic activities can drastically alter the anatomy and geo-physiology of a river thereby affecting its overall health. This in turn can produce ill-effects on human health. He presented his work in context to the river Haora in Tripura and detailed the factors such as the garbage disposal sites; formation of

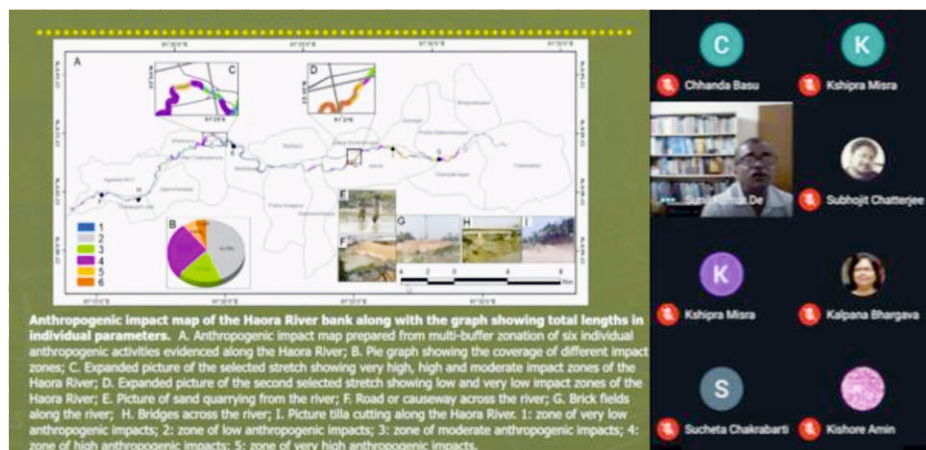
Talk 08# Impact of Human Activities on River Health and Vice Versa: A Study on Haora River, Tripura

Our Speaker



Prof. Sunil Kumar De

Professor, Department of Geography,
North Eastern Hill University, Shillong
& Vice President, International Association of
Geomorphologists



laterite pockets formed as a result of brick fields near the waterbody and; washing of vehicles. He highlighted the fact that it is utmost important to organize awareness camps to educate people for stopping activities which might pollute the water bodies, besides, providing them with sanitation facilities and making sure that the effluent from them is not discharged into the rivers or their tributaries. Consequently, to achieve these requirements it is the need of the hour that sociologists, geologists, NGO and civic bodies must come forward and work together

towards improving the river health and hence, human health.

The talk provided an interactive platform for discussing the plausible ways to tackle the deteriorating river health as a result of anthropogenic activities and prompted several participants to ask questions. The audience appreciated our speaker, Prof. Sunil Kumar De for an informative and eye-opening presentation. The team STE is also grateful to him for delivering the talk and supporting us in our efforts.

TALK 09# Sustainable Technology: An Inspiration from Nature

Dr. Sushil Kumar Singh, on 17th October, 2020 delivered a stimulating and brainstorming talk on the topic "Sustainable Technology: An Inspiration from

Nature". The session was coordinated by **Dr. Anuja Bhardwaj**, member STE and **Dr. Kshipra Misra**, President, STE briefly introduced Dr. Sushil Kumar Singh, our speaker for the ninth talk of the weekly webinar series, 2020.

Talk 09# Sustainable Technology: An Inspiration from Nature

Our Speaker



DR. SUSHIL KUMAR SINGH

Additional Director/ Scientist-F,
Solid State Physics Laboratory (SSPL),
Defence Research & Development Organization, Delhi



Dr. Sushil Kumar Singh is presently working as Scientist 'F' in Silicon Carbide Division at Solid State Physics Laboratory, DRDO, Delhi. He has been awarded Commonwealth Teacher Fellowship in 2001. He has been engaged in R&D projects such as SiC bulk single crystal growth, MEMS based adaptive mirrors, multifunction thin films and CeO₂ nanoparticles for defence application. He is author of around 100 research publications in peer review international journals and has contributed two book chapters.

His talk inspired to think what all nature has to offer us for a sustainable development. Dr. Singh by illustrating his work on cocoon and sericin, highlighted the fact as stated by him that “Silk cocoon: is a smart structure in nature”. He elaborated his work on thermoregulation, thermoelectric and other major properties of a silk

cocoon and how it can be harnessed to design a nitrogen doped graphene supercapacitor, natural solar cell, as a source for fluorophores. He also proposed the idea of mimicking silk cocoon membrane which then could be used for developing green energy, thus, saving housing material. Also, natural architectural control of gas and temperature regulation as observed in the experimental studies conducted by his lab could be helpful in developing gas filters. The talk presented by Dr. Singh has definitely exemplified that the nature has several potential eco-friendly sources which can be utilized for the betterment of society in a sustainable manner. We, the entire STE team, is grateful to Dr. Sushil Kumar Singh for sharing his research work and expertise on the platform and stimulating young minds for innovation from natural sources.


TALK 10#Water Quality Issues in Indian Perspective

The tenth talk of the weekly webinar series, 2020 was presented by **Dr. M. K. Sharma**, on 30th October, 2020 on the topic entitled “Water Quality Issues in Indian Perspective”. The session was coordinated by **Ms.**

Jigni Mishra, member STE management and is currently Project Associate at Indian Agricultural Research Institute (IARI), Pusa, New Delhi. She began the session with a brief introductory presentation about STE's journey till date. Later, **Dr. Kshipra Misra**, President, STE briefly introduced the speaker of the day, Dr. M. K. Sharma.

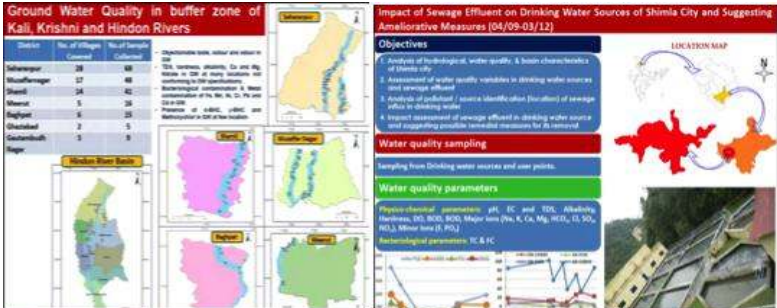
Talk 10#






Our Speaker



Dr. M. K. Sharma
Scientist E & OIC (Water Quality Lab)
Environmental Hydrology Division
National Institute of Hydrology
(Dept. of WR, RD & GR, Ministry of Jal Shakti)
Roorkee, Uttarakhand, INDIA

Water Quality Issues in India



Dr. M. K. Sharma is working in the field of Environmental Hydrology since last 24 years. He has worked at different position viz; Scientist Incharge, Senior Administrative Officer, Finance Officer in National Institute of Hydrology (NIH), Roorkee, Uttarakhand, India, Dept. of Water Resources, River

Development & Ganga Rejuvenation, Ministry of Jal Shakti, Government of India. Presently he is working as Scientist E in Environmental Hydrology Division at NIH, Roorkee. His area of research interest are various aspects of environmental hydrology including adsorption kinetics, ground and surface water quality

assessment, pollution assessment through aquatic sediment, contaminant transport modeling, lake water quality, natural contamination in water bodies, statistical processing of water quality data, meltwater chemistry etc. He has published more than 100 research papers in International and National Journals viz; Journal of Hydrology, Hazardous Materials, Water, Air, and Soil Pollution, Environmental Monitoring and Assessment, Science of Total Environment etc. He has worked in many committees constituted by Ministry of Jal Shakti, Govt. of India for investigating pollution problems of India. Dr. Sharma has completed many sponsored/consultancy research projects as PIs and Co-PIs and currently is leading two research projects in the field of Water Quality.

Dr. M. K. Sharma delivered a very powerful talk encompassing vital points about water quality and the

major pollutants inclusive of metal contaminants. The obvious detrimental health effects were also discussed. He cited the importance of developing modern monitoring strategies and tools in order to check the level of water pollutants. Dr. Mukesh gave special focus to the topic of 'emerging contaminants' which certainly was of much interest to all the students present in the virtual gathering. Application of modeling techniques to manage pollutants in water bodies of especially the urban areas was also a main theme.

The session was interactive with lots of questions asked by the participants and many of them shared their views and suggestions for the technologies mentioned. The STE fraternity is grateful to Dr. Mukesh Singh for familiarizing us with an important environmental issue of water contaminants and what are the plausible technologies to tackle this concern.

Talk 11# Platelet Activation Induces Ryanodine-receptor-2 Mediated Inflammation, Stellate Cell Activation and Hepatic Fibrosis

Our Speaker



Dr. Jaswinder Singh Maras
Assistant Professor (INSPIRE Faculty)
Department of Molecular & Cellular Medicine
Institute of Liver and Biliary Science,
New Delhi, India.



Save the Environment organized its last (eleventh) talk of its webinar series in collaboration with **ISPOR, Bharati Vidyapeeth University (BVDU)**, Pune on 8th November, 2020. The organizing committee members of ISPOR included **Dr. Prasanna Deshpande** (Faculty Advisor), **Ms. Ritika Danole** (President), **Ms. Samrudhi Joshi** (Secretary), **Mr. Karan Gupta** (Treasure) and **Ms. Angelina Eliza Titus** who is Head of Social work and Environment Cell at ISPOR, BVDU. **Dr. Kshipra Misra**, President STE and Former Additional Director, DIPAS, DRDO, Delhi;

Dr. Anuja Bhardwaj, Research Associate at STE and **Ms. Jigni Mishra**, who is member STE management were organizing members from STE. The webinar was coordinated by Ms. Jigni Mishra, Ms. Angelina Eliza Titus and Dr. Anuja Bhardwaj. Our Speaker of the event was **Dr. Jaswinder Singh Maras** who delivered a talk on "Platelet Activation Induces Ryanodine-Receptor-2 Mediated Inflammation, Stellate Cell Activation and Hepatic Fibrosis.". Dr. Kshipra Misra took the privilege of introducing him to the audience.



Dr. Jaswinder holds a Ph.D. in Medical sciences with specialization in Proteomics and Metabolomics. He was awarded the prestigious Inspire Faculty Award from the Department of Science and Technologies Government of India (2015) working as Assistant Professor (Inspire Faculty) at ILBS. He undertook joint postdoctoral training (1 year) at INSERM (CEA saclay) France and ILBS, New Delhi. He has proven ability to manage and execute mass spectrometry-based research studies in clinical samples, animal models as well as in cell culture. He is trained in specialized subjects including proteomics and metabolomics and lipidomics analysis. Moreover, he is also trained in carrying out NGS based experiments and data analysis. He is also the author of many publications in esteemed international journals.

Dr. Jaswinder Singh Maras began his talk by introducing the fact that “Liver Fibrosis” is a physiological mechanism whereby it can provide stability to the liver architecture and hence is beneficial; or it can lead to a fatal condition, i.e., liver cirrhosis if it is uncontrolled and thus, is detrimental. He shared his research work detailing the fact that administration of aspirin, which is an anti-platelet drug results in reduced risk of liver fibrosis progression. The work done by him clearly demonstrated that gene expression of ryanodine receptor 2 (RYR 2; calcium release regulator in endoplasmic reticulum of cardiomyocytes), ALOX-5 and ARG-1 are decreased by aspirin in a CCl₄-induced hepatic mice model resulting in decreased or diminished liver cirrhosis. He explained through his experimental findings that immune cells are down regulated by aspirin administration during liver cirrhosis. His research also highlighted a very critical finding that the microbes in liver environment undergo alterations and thus, they

can be used as marker for differentiating a cirrhotic liver and a healthy liver. The study conducted by Dr. Singh encompassed a global analysis which included proteome, metabolome and metaproteome approaches and has definitely accentuated his expertise in these fields. His research work is appreciable as efforts towards management of hepatic pathophysiological conditions arising due to environmental (air) pollution, unhealthy lifestyle and microbial infections encroaching almost, the entire biosphere and hence, are common concerns for most nations. The entire STE fraternity is grateful to Dr. Jaswinder Singh Maras for enlightening and sharing his research expertise with us, enabling the team STE to accomplish one of its aims i.e., social awareness about the human health and advanced research in its context. We are also thankful to the entire organizing committee members of ISPOR, BVDU, Pune especially, Dr. Prasanna Deshpande for collaborating with us and making it a successful event. We equally appreciate the efforts of Ms. Angelina Eliza Titus, Ms. Ritika Danole, Ms. Samrudhi Joshi and Mr. Karan Gupta for their kind support in organizing and conducting the event.

The team STE is extremely appreciative of all the participants of its Weekly Webinar Series, 2020 who supported us by regularly participating throughout this event and helped in realizing STE's aim of conducting interactive awareness virtual program amidst COVID-19 pandemic; when social distancing is a pre-requisite or mandatory measure to protect ourselves from this infection. In future, we will continue to provide the best information pertaining to environmental and health issues by means of such interactive platforms for discussions crucial for saving the environment.

STE FREE EYE CHECK-UP CAMP

Save the Environment (STE) owes its origin to the devoted and tenacious efforts of the great soul Late Dr. Praloy O. Basu, the Founder Secretary of STE.

In loving memory of our beloved Founder Secretary, Lt. Dr. Praloy O. Basu, a Free Eye Testing Camp was organized on the occasion of his birthday celebrations at Banalata Shiksha Niketan, Gosaba, Ragabalia, South

24 Parganas, West Bengal on 6th December, 2020. Mrs. Chhanda Basu, wife of Lt. Dr. Praloy O Basu and General Secretary of STE along with Mr. Sanjit Mitra, Treasurer, STE took the initiative on behalf of the STE team. The camp was also organized in the memory of Ms. Gouri Bhattasali and Ms. Rita Bhattasali. Free spectacles were also distributed to about 50 beneficiaries, in the memory of Late Mr. Dhiraj Kumar Dutta. We are grateful to the physicians, Dr. Pijush

Kumar Nayak and Dr. Sukrita Samanta who volunteered for the eye camp and enabled us to actualize the endeavor. There were about 80 beneficiaries who were tested for eye related medical complications.

A sum of INR 5000/-was also donated to Banalata Shiksha Niketan for local thalassemia patients. We are thankful to school owner Mr. Rama Pada Mondal and his wife, Mrs. Pratima Mondal and the school staff for

providing the venue and assistance in successfully organizing the camp. The camp would not have been accomplished without the kind efforts of our volunteers, Mr. Shib Sankar Roy, Mrs. Suma Biswas, Mr. Indrajit Halder, Mr. Raju Sarkar, Mr. Kaushik Chowdhury, Mr. Pradip Bhattasali and Mr. Sankar Dey. The entire STE team is thankful to all of them in organizing and conducting the camp even during the COVID-19 pandemic. During the camp all requisite measures were taken considering the pandemic.



International Conference on Environment, Water, Agriculture, Sustainability and Health (EWASH-2020): Expanding our vision post COVID-19 held online from 19-20 December, 2020 & STE 2nd Annual Meet

Year 2020 witnessed all countries across the world, united in their battle against the worst pandemic of the century i.e., COVID-19. As the deadly disease continued its wrath, we slowly and steadily rose from

the repercussions of the much needed lockdowns and accustomed ourselves to the 'new normal' life. Staying indoors for several months has given us the time to retrospect and realize that now, more than ever before,

Let's all meet and contemplate Online
in
INTERNATIONAL CONFERENCE
on
**ENVIRONMENT, WATER, AGRICULTURE, SUSTAINABILITY
AND HEALTH (EWASH-2020): EXPANDING OUR VISION POST COVID-19**
&
2nd Annual Meet of STE
Organized by

SAVE THE ENVIRONMENT
A Society for Research Awareness and Social Development
19 to 20 December, 2020

Invited Dignitaries

<p>Chief Guest</p> <p>Padma Shri Prof. Bimal K. Roy Chairperson, National Statistical Commission</p>	<p>Guest of Honour</p> <p>Mr. Vijaypal Baghel Eminent Environmentalist Renowned 'Green Man of India'</p>	<p>Chief Guest - Valedictory</p> <p>Shri Sanjeev K Varshney Head, International Cooperation (Bilateral) Department of Science and Technology Technology Bhawan, New Mehrauli Road New Delhi</p>
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Co-organised by

CSIR-NEERI Delhi Zonal Laboratory (DZL)	The Royal Society of Chemistry North India	Environment and Social Development Association (ESDA) , Delhi	Hindu College University of Delhi, Delhi
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Sponsored by

NABARD	GAUR SURGICALS
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KEYNOTE SPEAKERS IN EWASH 2020

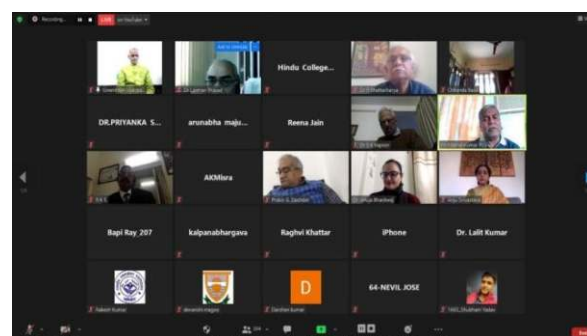
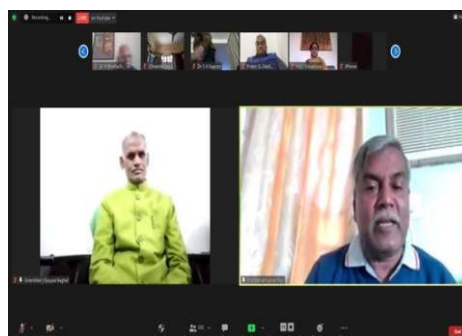
<p>Prof. Arunabha Majumdar Patron, STE, Chairman, Indian Water Works Association (IWWA) Emeritus Professor, School of Water Resource Engineering, Jadavpur University Ex Director, Professor & Head, Department of Sanitary Engineering, ARII & IIT, Kolkata.</p>	<p>Dr. Manoranjan Patri Outstanding Scientist Scientist 'W' & Director, NBRI, (DRDO), Anikarnath</p>		
<p>Dr. Rakesh Kumar Director, CSIR-NEERI Nagpur</p>	<p>Mrs. Manimozhi Theodore Scientist 'W' & Director, NBRI (DRDO) Bangalore</p>	<p>Dr. Alok Adholeya Senior Director, Sustainable Agriculture, TERI Burgom</p>	<p>Dr. Rakeshwar Bandichhor Head, Chemistry - IIT - Prerona R&D at Dr. Bhabha's Laboratories Vice-Chair, ACS-India Chapter (South India)</p>
<p>Prof. Raghunath Bhattacharyya Visiting Faculty, IIST, Shikhar Emeritus Scientist (Retd.), IIT, New Delhi</p>	<p>Prof. Rajinder Chauhan Dean (Res & Consultancy), Head Dept. of Biotechnology, Bennett University, Greater Noida</p>		

KEYNOTE SPEAKERS INTERNATIONAL

<p>Dr. Surampalli Y. Rao President, CEO and Chief Technology Officer, Global Institute for Energy, Environment and Sustainability, Kansas, USA and Former Engineer, Director US Environmental Protection Agency (USEPA)</p>	<p>Prof. Irena Choma Head, Dept. of Chromatographic Methods Marie-Curie-Skłodowska University, Lublin, Poland</p>	<p>Prof. Satinder K. Brar Lect. Chair in Environmental Engineering Lamont School of Engineering York University, Toronto, Canada</p>
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we need to focus on our environment and ecosystem for creating a sustainable future. In this perspective, year 2021 is optimistically being termed as the 'year of healing' of environment and humanity, as a whole.

In relevance to this context, the **International Conference on Environment, Water, Agriculture, Sustainability and Health (EWASH-2020): Expanding our vision post COVID-19** was organized by **Save The Environment** in association with **CSIR-NEERI**, **Royal Society of Chemistry North India** section, **Hindu College, University of Delhi** and **ESDA, Delhi**, with gracious support from **NABARD** and **Gaur Surgicals**. The major objective of EWASH-2020 was to discuss the currently needed strategies and policies for environment protection, water management for agricultural and industrial purposes and overall health improvement, in a post COVID-19 scenario. The two day virtual conference was an intellectual amalgamation of eminent scientists,



academicians, policy makers, industrialists, social activists and budding young researchers who proficiently contemplated in one screen for strategizing a sustainable environment.

Padma Shri Prof. Bimal Kumar Roy graced the inaugural session of EWASH-2020 as The Honorable Chief Guest. Prof. Roy reflected upon the implementation of surveys and accurate data interpretation that will aid in getting the exact picture of how the environment and people have been affected in the past years, so as to facilitate required solutions. **Shri Vijaypal Baghel**, renowned environmentalist and social activist, popularly known as 'The Green Man of India' was The Honorable Guest of Honor in inaugural session. Shri Baghel was kind enough to share his



expert views on the importance of conducting awareness programs, especially in the rural and semi-urban communities, on topics related to conservation of green cover, rural development and mitigation of issues being faced by agriculturists. This was followed by two days of extensively informative and enlightening keynote addresses and invited lectures by eminent scientists, professors and researchers. There were several innovative ideas shared by young researchers and students in the form of oral and poster presentations. The two day program of EWASH-2020 was concluded with an august valedictory session, that **Shri Sanjeev K. Varshney**, Head, International Cooperation, DST, Govt. of India graced as The Chief Guest. Shri Varshney stressed upon the need of water management for agro-industrial purposes and introduced us to current reforms that have been proposed by the DST, Govt. of India.

Overall, EWASH-2020 culminated with several deliberations that have to be implemented meticulously for creating a bluer and greener Earth. Contemporary policies that need to be undertaken in agriculture and water sectors for meeting the demands of global produce

were elaborately discussed. Improvement of human health by maintenance of personal hygiene as well as that of our environment to prevent contagion was a key topic.

The major action points/ outcomes of **EWASH 2020** are listed below:

1. Amendments required in existing policies to ensure better environment management in the wake of pandemic were discussed.
2. Strategies for repurposing water sources to meet agricultural and industrial demands were proposed.
3. A brainstorming session was conducted pertaining to the results of numerous studies carried out in 2020 for assessment of risk factors on public health.
4. Application of interdisciplinary and trans-disciplinary approaches for fulfilling the aforesaid objectives were duly chalked out.
5. Extensive awareness programs in rural and semi-urban regions for fast tracking social development were proposed that will be undertaken in the near future.

LIST OF STE ANNUAL AWARDEE 2020

SL No	Name of Award	Recipient Name, Designation and Affiliation
1	STE Dr. APJ Abdul Kalam Award	Dr. P. C. Deb , Former Director, Distinguished Scientist & Scientist 'H', Naval Materials Research Laboratory, DRDO, Ambarnath, Maharashtra.
2	STE Dr. Praloy O. Basu Life Time Achievement Award	Dr. Arunabha Majumder , Patron, STE, Chairman, Indian Water Works Association (IWWA), Emeritus Professor, Jadavpur University, Kolkata and Former Director, AIHHPH, Kolkata.
3	STE Green Excellence Award	Prof. R. K. Sharma , Coordinator, Green Chemistry Network Center (GCNC), Department of Chemistry, University of Delhi & Fellow, Royal Society of Chemistry (RSC) & Honorary Secretary, RSC London (North India Section). Prof. S. K. Mehta , Professor, Dept. of Chemistry and CAS Coordinator, Coordinator CRIKC, Ex-Honorary Director, SAIF, PU Ex-Chairman, Dept. of Chemistry PU, Adjunct Professor, Shoolini University, Solan (H.P.)
4	STE Fellowship Awards	Dr. Manoranjan Patri , Outstanding Scientist, Scientist 'H' & Director, NMRL (DRDO), Ambarnath, India. Dr. P. G. Dastidar , Scientist 'G' & Adviser, Ministry of Earth Sciences, Govt. of India, Lodhi Colony, New Delhi.
5	STE International Achiever Award	Prof. Surampalli Y. Rao , President, CEO and Chief Technology Officer, Global Institute for Energy, Environment and Sustainability (GIEES), Kansas, USA.



		<p>Prof. Basudeb Saha, Associate Director, Delaware Energy Institute, Adjunct Faculty, University of Delaware, USA.</p> <p>Prof. D. Sakthi Kumar, Deputy Director, Bio Nano Electronics Research Center & Professor, Graduate School of Interdisciplinary New Science, Toyo University, Saitama, Japan.</p> <p>Prof. Gausal A. Khan, Professor, Department of Physiology, Fiji School of Medicine, Suva, Fiji.</p>
6	STE International Young Achiever Award	Dr. Manjulata Singh , Post-doctoral Research Associate Landry Lab, Department of Human and Molecular Genetics, Virginia Commonwealth University, Richmond, VA, USA.
7	STE Meritorious Award [For Excellence in Academics and Research]	<p>Prof. (Dr.) Boyina Rupini, Former Director (SOITS) IGNOU, Professor, Environmental Studies, Indira Gandhi National Open University, New Delhi.</p> <p>Dr. Nupur Bahadur, Fellow & Senior Scientist, The Energy and Resources Institute (TERI), New Delhi.</p> <p>Prof. Navin Kumar Bajpai, Professor & HOD, Department of Biotechnology, Graphic Era Deemed to be University, Dehradun.</p> <p>Mr. Mahidhara Davangere V., Founder & Managing Director, Pramatha Analytics Pvt. Ltd.</p> <p>Dr. Saurabh Jyoti Sharma, Assistant Professor, School of Engineering & Applied Sciences, Department of Biotechnology, Bennett University, G.NOIDA</p>
8	STE Water Awards	<p>Dr. Rama Dubey, Scientist E, DRL, Tezpur, DRDO.</p> <p>Dr. Jitendra Nagar, General Secretary, ESDA, New Delhi.</p>
9	STE Women Excellence Awards	<p>Dr. Reena Jain, Vice Principal & Associate Professor, Department of Chemistry, Hindu College, University of Delhi.</p> <p>Dr. Rakhi Dey Sharma, Assistant Professor, Dept. of Physiology, Belda College, Vidyasagar University.</p> <p>Dr. Sandhya Mishra, Associate Professor, CCS University, Meerut, NREC College, Khurja.</p> <p>Dr. Sonali Paul Mazumdar, Senior Scientist, ICAR-CRIJAF, Barrackpore, Kolkata.</p>
10	STE Innovation Awards	<p>Prof. Kaushik Pal, Professor, Dept. of Mechanical and Industrial Engg, IIT Roorkee</p> <p>Mr. Niranjana Karagi, Founder, NirNal, Vardappa Galli, Khasbag, Vadagoan, Belgaum, Karnataka.</p> <p>Ms. Adit Bedi, PGT (Chemistry), Saint Marks Sr. Sec. Public School, Meera Bagh, New Delhi.</p>
11.	STE Best School Principal Award	Ms. Archana Adhikary , Principal, St. Peter's School, Durgapur, West Bengal.
12.	STE Best Teacher Award	Sister Kiran AC , Teacher, Maryhill Convent, Near Mt. Carmel School, Mary Hill, Konchady Post, Mangalore, Karnataka.

		<p>Ms. Harit Bagga, Formerly, PGT (Sr.) Biology, S. S. Mota Singh Sr. Sec. School, Janakpuri.</p> <p>Ms. Ashita Puri, PGT Biotechnology, Vasant Valley School, Vasant Kunj, New Delhi.</p>
13.	STE Humanitarian Award for NGOs	<p>Dr. Rajlakshmi Mallik, Research Professional & Director, C-DRASTA. Centre for Development Research, Sustainability and Technical Advancement (C-DRASTA), Kolkata.</p>
14	STE Young Researcher Awards (Faculty Category)	<p>Dr. Devanshi Magoo, Assistant Professor, Dept. of Chemistry, University of Delhi</p> <p>Dr. Geetanjali Sageena, Assistant Professor, Keshav Mahavidyalaya, Univ. of Delhi.</p>
15	STE Young Researcher Awards	<p>Ms. Madhulika Esther Prasad, DST Woman Scientist-A (WOS-A) Project Principal Investigator (PI), Graphic Era, Dehradun</p> <p>Ms. Aola Supong, Research Scholar, Department of Chemistry, Nagaland University.</p> <p>Ms. Pallabi Banerjee, Research Scholar, Laboratory of Hormone Biology & Cancer Genetics, School of Biotechnology, Gautam Buddha University, G. NOIDA</p> <p>Mr. Anuj Kumar, Senior Research Fellow, Dept. of Chemistry, University of Delhi</p> <p>Mr. Sumit Sharma, Ph.D. Scholar, Biotechnology, Bennett University, G. NOIDA</p> <p>Ms. Swati Singh, PhD Scholar, Environmental Science, Graphic Era University, Dehradun.</p> <p>Dr. Ankita Verma, Research Associate, IARI, New Delhi.</p> <p>Er. Mehebab Alam, Executive Engineer, Damodar Valley Corporation, Durgapur.</p>

THE ARTICLES...!

Making History - Rewriting the Code of life

[#]By **Ms. Adit Kaur**, M.Sc. Chemistry, M.Ed.

History was made on October 7, 2020 when the first women-only team was awarded the “Nobel Prize in Chemistry.” Emmanuelle Charpentier and Jennifer A. Doudna were awarded for their work on the development of Crispr-Cas9, a method for genome editing.

It is a well-known fact that nomination to the Nobel Prizes in Chemistry is by invitation only. The Nobel Committee's selection of Emmanuelle Charpentier, now at the Max Planck Unit for the Science of Pathogens in Berlin and Jennifer A. Doudna, presently at the University of California, Berkeley, finally put an end to years of speculation about who would be recognized for their work developing the Crispr-Cas9 gene editing tools.



Image 1: Emmanuelle Charpentier, left, and Jennifer A. Doudna in Oviedo, Spain, in 2015. (Source: Miguel Riopa/Agence France-Presse — Getty images <https://www.nytimes.com/article/2020-nobel-prize-winners.html>).

Although Doudna and Charpentier did critical early work in 2010s with their colleagues about characterizing the system but several other researchers have also been cited and recognized in other high-profile awards as key contributors in the development of CRISPR. Feng Zhang at the Broad Institute of MIT and Harvard in Cambridge, Massachusetts and George Church at Harvard Medical School in Boston, Massachusetts, are two of the many such scientists.



Image 2: An artist's impression of Crispr (Source: <https://www.nature.com/news/crispr-the-disruptor-1.17673>).

What is CRISPR?

CRISPR is the short form for clustered regularly interspaced short palindromic repeats. It is a microbial 'immune system' in which the prokaryotes like bacteria and archaea prevent infection caused by viruses called phages. In simple terms, the CRISPR system provides prokaryotes the ability to recognize

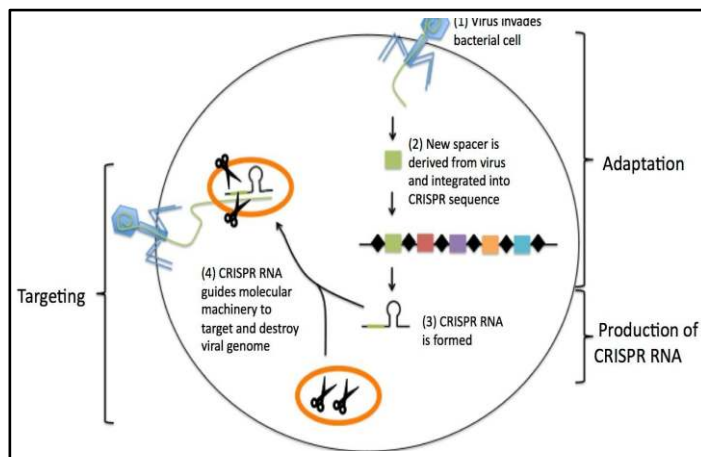


Image 3: The steps involved in the process of gene editing system (Source: <https://i2.wp.com/sitn.hms.harvard.edu/wp-content/uploads/2014/07/Pak-Fig1.jpg?resize=1447%2C768>).

specific genetic sequences that match a phage or other invader. Now, the prokaryotes can target these sequences and cause their destruction using specialized enzymes.

In the year 2011, Charpentier reported the discovery and struck up a collaboration with Doudna. In a landmark 2012 paper in *Science*, the duo not only isolated the components of the CRISPR–Cas9 system and adapted them to function in the test tube but showed that the system could be programmed to cut specific sites in isolated DNA.

Future of CRISPR: the revolution and its applications

At the 2020 Nobel Prize announcement, Pernilla Wittung Stafshede, a biophysical chemist and member of the Nobel chemistry committee, rightly remarked “The ability to cut DNA where you want has revolutionized the life sciences. The 'genetic scissors' were discovered just eight years ago, but have already benefitted humankind greatly.”

CRISPR–Cas9 is a powerful new tool to control which genes get expressed not only in plants and animals, but also in human beings as it allows precise edits to the genome. It has provided the scientists with the ability to delete undesirable traits and potentially, add desirable traits with more precision than ever before.

Till date, scientists all over the world have been working with various applications of this path breaking

technology. Some scientists have used it to edit bone marrow cells in mice to treat sickle-cell anemia while others have employed it to reduce the severity of genetic deafness in mice, suggesting it could one day be used to treat the same type of hearing loss in human beings. A section of researchers has created mushrooms that don't brown easily.

Around the globe, researchers hope to use it to make life better, simpler and healthier. Scientists are hopeful that it can be used to alter human genes to eliminate diseases and even wipe out pathogens and more. In future, CRISPR might help mankind develop drought-tolerant crops and even create powerful new antibiotics. Who knows if CRISPR could one day even allow the scientist to eradicate from globe an entire species of harmful, disease causing organisms?

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Pandemic & its Effect on the Social Emotional Well-being of Children

#By Ms. Harit Bagga, M.Ed Prac

Introduction

Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) or more commonly known as COVID-19 has created a havoc worldwide over. It is going to be a year when its first case was reported and it is still spreading amid its high mortality rate. World Health organization (WHO) announced COVID-19 outbreak as pandemic on March 11, 2020. On the initial guidelines issued by WHO, 188 countries imposed either partial or full countrywide lockdowns to mitigate

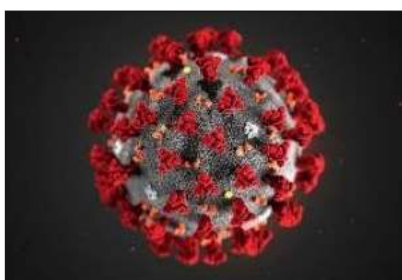


Image 1: The ultrastructure of the Covid- 19 virus (**Source:** Illustration of the ultrastructure of the Covid- 19 virus CDC / SCIENCE PHOTO LIBRARY; <https://www.newscientist.com/term/covid-19/>).

the effect of dreadful virus.

According to the data collated from website statsita.com, around 3200 million people of 13 countries were confined to their homes during the lockdowns. UNICEF data suggest that a whopping 1.6 billion school going children of various age groups were impacted due to countrywide school closures. In a haphazard manner, the governments across the world announced an immediate switch from physical learning environment to virtual learning mode. At least 31% of school going children worldwide cannot be reached by digital or broadcast remote learning programs. Apart from loss of academic progress, children being most

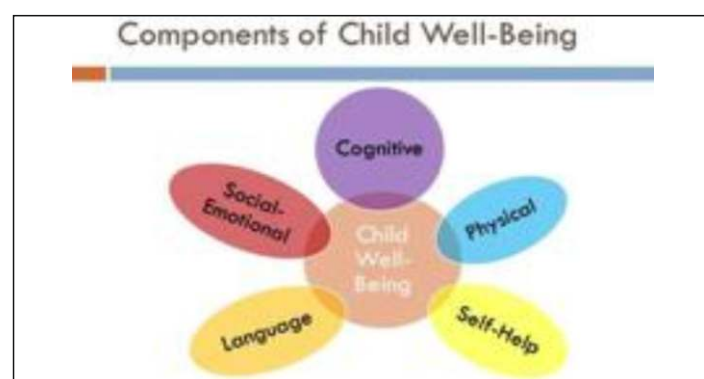


Image 2: The Components of child well-being. (**Source:** <https://images.slideplayer.com/35/10430405/slides/slide1.jpg>)

vulnerable to stress and tensions, faced demons which effected their social emotional well-being.

Social & emotional learning

Weissberg & Cascarino (2013) define Social & Emotional Learning (SEL) as a series of processes through which children and adults acquire and effectively apply the knowledge, attitudes and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions.

The Collaborative for Academic, Social, and Emotional Learning (CASEL) discusses 5 sets of cognitive, affective and behavioural competencies which form the heart of SEL

- **Self-Awareness** - The ability to accurately recognize one's emotions and thoughts and their influence on behaviour.
- **Self-Management** - The ability to regulate one's emotions, thoughts and behaviours effectively in different situations.
- **Social-Awareness** - The ability to take the perspective of and empathize with others from diverse backgrounds and cultures.
- **Relationship skills** - The ability to establish and maintain healthy and rewarding relationships with diverse individuals and groups.
- **Responsible decision making** - The ability to make constructive and respectful choices.

Cohen (2006) emphasizes on the usage of term SEEAE (Social, Emotional, Ethical & Academic Education) and he enlists following attributes as essential skills.

- Ability to listen to our self and others
- Ability to be critically reflective
- Ability to be flexible problem solver and decision maker
- Being able to participate in discussions and argue thoughtfully
- Learning to collaborate and work towards common goal

UNESCO MGIEP created a new SEL framework - EMC² which focused on building four SEL competencies – Empathy, Mindfulness, Compassion and Critical Inquiry. Delhi government's Happiness curriculum is loosely based on UNESCO's fundamental pillars of learning.

- Learning to know
- Learning to do
- Learning to be
- Learning to live together

These four above mentioned principles lay enough stress on social emotional well-being of a child. As it is often observed that self-aware, sensitive and emotionally mature children are able to manage stress, anxiety and relationships with friends and family effectively.

Factors effecting social and emotional well being

The aforementioned thoughts accentuate on significance of SEL in children's lives. Even short disruptions in children's schooling can have negative effects due to lack of structured approach. This sudden closure of schools and confinement to limited physical places have severely affected children's welfare. The medium they used in leisure and as a getaway from their academic pursuits has suddenly became their medium of learning and were forced to follow a rigid schedule. All these created a whirlpool in which the children got entwined.

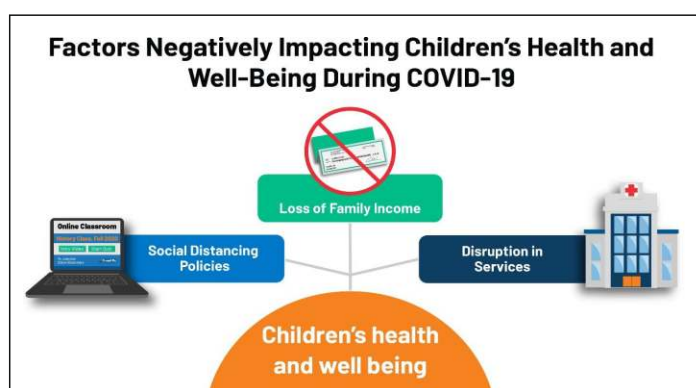


Image 3: Factors negatively impacting children's health and well-being during COVID-19. (Source: <https://www.kff.org/coronavirus-covid-19/issue-brief/childrens-health-and-well-being-during-the-coronavirus-pandemic/>)

Centre for Disease Control and Prevention, USA enlists various factors which have fragmented the emotional growth of children. These are as follows:

- Changes in their routines (e.g., having to physically distance from family, friends, worship community)
- Breaks in continuity of learning (e.g., virtual learning environments, technology access and connectivity issues)
- Breaks in continuity of health care (e.g., missed well-child and immunization visits, limited access to mental, speech, and occupational health services)
- Missed significant life events (e.g., grief of missing celebrations, vacation plans, and/or milestone life events)
- Lost security and safety (e.g., housing and food insecurity, increased exposure to violence and online harms, threat of physical illness and stress of catching disease)

Conclusion

We as parents and educators need to acknowledge the anxiety, our children are going through and should try to resolve the trauma in an effective manner. We can devise our own effective methods like daily family conversation time, book reading time and playing time. The key idea is to provide our children with quality time as being holed up together under one roof necessarily does not mean that we as family are spending quality time!



Image 4: Various facial expressions depicting different emotions
(Source: montereycoe.org).

We can help our children by introducing coping strategies which help them to sail through difficult waters. Some of the simple coping strategies include:

Reading - Invest in books for your child and set living examples by indulging in reading. Reading will open up a wonderful world to your child and help him/her to drown their anxious feelings. As they say, books are man's best friend!

Breathing exercises & Yoga - Gift your family dedicated time for physical exercises. Long hours of sitting and mundane routine slower down the metabolism. Which may attribute to weakness and general tiredness in little ones.

Pursuing a hobby – Develop and pursue a hobby especially a soft skill like art/ music/ singing. Indulgence in hobbies is known stress busters.

Label the feeling – Help your little ones to identify and write the feelings they are going through. This will help two folds, will improve their writing skills and also help them to acknowledge their feelings.

We can also take help from various sources present around us which may include resource materials/ activities/ games from internationally acclaimed organizations in the field for example, 6 seconds.

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POEMS

We are Our Own Light

Let's acknowledge this situation
 Embrace it without any hesitation.
 It's time to reflect,
 It's time to introspect.
 The lockdown, let's utilise -
 Not money, not trophies
 But self-satisfaction shall be our prize.
 Sit back and relax,
 Draw, paint and take a nap,
 Enjoy the sunset,
 Enjoy the moonlight,
 Keep the hope and have faith
 For
 We are Our Own Light
 The future will surely be bright!

By **Gurleen Kaur**, Class X,
Nirmal Bhartia School, Delhi.



SAVE THE ENVIRONMENT

A Society for Research Awareness and Social Development

**ARTICLES ARE INVITED FOR THE
 JANUARY TO MARCH ISSUE 2021**



पेड़ हमारे साथी

जब हम 'पर्यावरण संरक्षण' की चर्चा करते हैं तो मेरे ध्यान में सब से पहले पंच महाभूत तत्वों का विचार आता है, जिससे हमारा मानव शरीर निर्मित है। यदि संसार में हमारा अस्तित्व है तो ही पर्यावरण है। पर्यावरण है तो, हमारे जीवन में वृक्षों की कितनी उपयोगिता है? यह हम सभी जानते हैं।

वेदान्त दर्शन की मान्यता है कि पेड़ हमारे जीवन का प्रतीक हैं। श्रीमद् भगवत गीता के मूलभूत सिद्धान्त त्याग का भी वृक्ष एक आदर्श उदाहरण है। जीवित रहने के लिए हमें साँस लेना जरूरी है और पेड़ ही हमें प्राणवायु के लिए भरपूर ऑक्सीजन देते हैं। गर्मी के दिनों में असहनीय धूप से बचाकर हमें छाया प्रदान करते हैं। उनके नीचे बैठकर ही हम अपनी थकान भी दूर कर पाते हैं।

अत्यधिक सर्दी के मौसम में पेड़ों की लकड़ी जलाकर हमें गरमाहट मिलती है। गाँव में आज भी भोजन पकाने के लिए पेड़ की टहनियों, सूखे पत्तों का ही प्रयोग किया जाता है। वर्षा के दिनों में पानी की ठंडी फुहार से और पत्तों की हरियाली से चारों ओर वातावरण प्रफुलित हो जाता है। सड़कों के किनारों पर व बगीचों में वृक्ष अपने फूलों की सुगंध व सुंदरता से हम सबको आकर्षित तथा मंत्रमुग्ध कर देते हैं। हमारे देश भारत में सभी छह ऋतुओं का स्वरूप पेड़ों में देखा जाता है। यही कारण है कि हम वृक्षों को देवता और आराध्य रूप में पूजते भी हैं।

नीचे लिखे श्लोकों में पेड़ों के उपकार और त्याग का वर्णन किया गया है –

पत्र-पुष्प-फलछाया-मूल-वल्कलदारुभिः।

गन्ध-निर्यास-भस्मास्थितोक्मैः कामान्वितन्वते ॥

अर्थात् वृक्ष पत्ते, फूल, फल, छाया, जड़ें, छाल से बने कपड़े, लकड़ियाँ, सुगंध, गोंद, भस्म, तना, छाल आदि देकर सभी इच्छाओं को पूरा करते हैं।

धत्ते भरं कुसुमपत्रफलवालीनां
घर्मव्यथा वहति शीतभवां रुजं च।
यो देहमर्पयति चान्यसुखस्य हेतोः
तस्मै वदान्यगुरवे तरवे नमोस्तु ॥

अर्थात् जो फलों-फूलों-पत्तों को पंक्तियों के भार को उठाता है। गर्मी और सर्दी के कष्ट को सहन करता है, जो दूसरों के सुख के लिए अपना शरीर अर्पित कर देता है उस महान दानी वृक्ष को नमस्कार!

पक्षी पेड़ों की डालों पर घोंसले बनाते हैं। उनके शिखरों पर बंदर कूदते हैं। भँवरे उनके फूलों का रस पीते हैं। पेड़ों की छाल, पत्ते, फल, जड़, शाखाओं, लकड़ियों, आदि के विभिन्न उपयोग मानवों के कल्याण के लिए ही हैं। वृक्ष प्राणी मात्र के लिए अत्यंत उपयोगी हैं इसलिए हमें पेड़ों को उगाने, बढ़ाने और उनकी रक्षा करने में तत्पर रहना चाहिए। क्रमशः

पेड़ लगाएँ! धरती बचाएँ!!

प्रव्रत्ताचार हेतुः

श्रीमति तृप्ति श्रीवास्तवा

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चित्र: अन्तर्जाल सौजन्य से

कोरोनावायरस

दुनिया भर में इस समय कोरोना वायरस को लेकर चल रही है। आम लोगो में इस बीमारी को लेकर एक प्रकार का भय भी बना हुआ है। ऐसा माना जा रहा है कि सब से पहले यह वायरस चीन में आया। सब से पहले यह जानना जरूरी है किस मनुष्य को यह हो रहा है और इसका क्या कारण हो सकता है।



कोरोना वायरस के बारे में धारणाएं:-

कोरोना वायरस के बारे में आम धारणा यह है कि यह वायरस जानवर से शुरू होकर इंसान तक आया है। एक बार यदि कोई व्यक्ति इस वायरस से संक्रमित हो गया तो इंसान से इंसान को भी यह संक्रमित करता है।

कोरोना वायरस के कारण:-

मुख्य रूप से यह वायरस हवा के द्वारा तथा स्पर्श के द्वारा फैलता है

कोरोना वायरस के लक्षण:-

1. खांसी होना, छींक आना तथा सांस लेने में दिक्कत होना
2. इसके अतिरिक्त इस वायरस के गंभीर रूप धारण करने पर शरीर में आक्सीजन की कमी होना तथा फेफड़ों पर
3. सफेद धब्बा उभरना जैसा कि निमोनिया में होता है।



(क) कोरोना वायरस के मनुष्य पर प्रभाव:-

जिस मनुष्य की बीमारी से लड़ने की प्रतिरोधक क्षमता अच्छी है और ऐसे इंसान में यदि यह वायरस आता है तो इसे आसानी से नियंत्रण किया जा सकता है। इसके विपरीत यदि किसी व्यक्ति की प्रतिरोधक क्षमता अच्छी नहीं है और उसे यदि दिल, यकृत और गुर्दे की बीमारी है और ऐसे इंसान में यह वायरस आता है तो इसे नियंत्रित करना कठिन है। गर्भवती महिलाओं के लिए भी यह वायरस घातक है।

(ख) कोरोना वायरस से बचाव हेतु भारत सरकार द्वारा उठाए गए कदम:-

1. कोरोना वायरस से बचाव हेतु भारत सरकार द्वारा सराहनीय कदम उठाए गए हैं। भारत सरकार की ओर से थर्मल स्कैनर लगाए गए हैं।
2. जो भी मनुष्य बाहर से आ रहे हैं उन्हें स्कैन किया जा रहा है कि वे इस वायरस से पीड़ित तो नहीं हैं। इसके अतिरिक्त भारत सरकार ने सभी राज्यों में उचित दिशा निर्देश दिए हैं कि वाहन चलाते समय मास्क का प्रयोग न करने पर जुर्माना लगाया जाएगा ताकि लोग मास्क का अधिक से अधिक प्रयोग कर इस बीमारी से बच सकें।

(ग) समाज के लोगों को जागरूक करना:-

इस वायरस से बचाव के लिए समाज के लोगों को भी जागरूक करना चाहिए कि उनकी स्वयं के प्रति भी जिम्मेदारी बनती है कि भीड़ वाले स्थान पर न जाएं। परस्पर दूरी बनाकर रखें। मास्क का प्रयोग करें। सैनेटाईजर से हाथ साफ करें। खान-पान संबंधी स्वस्थ आदतें अपनाएं। समाज के लोगों को इस बात से भी अवगत कराएं कि यह वायरस भारत में नया आया है। अभी तक इसकी कोई वैक्सीन तैयार नहीं हुई है। ऐसी स्थिति में स्वयं सावधानी अपना कर स्वयं को सुरक्षित रखें।

(घ) सन्दर्भ:-

- क. बीबीसी.कॉम
- ख. इंटरनेट
- ग. विकिपीडिया
- घ. दैनिक भास्कर समाचार-पत्र

जय हिन्द जय भारत

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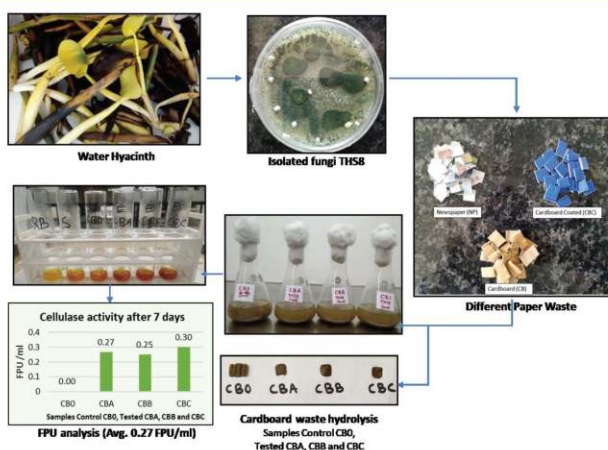
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