



# PRAKRITI SANRAKSHAN

## Newsletter

Volume 3, Issue 1, Jan - March, 2020

### ABOUT US

#### Save the Environment (STE)

Save the Environment (STE), founded and registered on 19th November 1990, is a Kolkata based NGO which aims to create awareness, inspire rural communities and works towards a better, sustainable environment-friendly technology. It is lead and run by researchers, social workers, students with a mutual aim to 'Save the Environment'. 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 & Technology (DST), Indian Institute of Management (IIM), Ahmedabad to mitigate the effects of arsenic and provide arsenic-free drinking water. The first step towards this objective was taken in 1977 when an

arsenic removal plant was set up in West Bengal, later 60 community type filters and 5, 000 domestic filters were installed and till date over 1,00,000 people have benefitted from these plants. With the help of DST Arsenic/Iron removal plants were set up in various parts of India, 24 Parganas (N) & Nadia districts in West Bengal, Balia district in Uttar Pradesh, Bhagalpur District in Bihar and Agartala in Tripura. Furthermore, a special clinic (2001) and a vocational training centre (2003) set up for people who already were suffering from the ill-effects of arsenic and a hospital for the same will be coming up soon. Not only this, a step towards conservation of rainwater in rural areas was taken up by STE in 2003. To conclude, STE not only uses the common methods to save what's left of the environment but also STE members use their scientific expertise to convert unusable environment resources to usable ones.



## OUR EVENTS

### Science Festival & National Workshop on Environment and Society: Inter-linkages and Co-existence

Hindu College, University of Delhi in association with Save the Environment (STE) together organized a three-day Science Festival & National Workshop entitled, “Environment and Society: Inter-linkages and Co-existence” from 27-29 February at Hindu College.

#### Day 1

The inauguration of the event began with the National Anthem followed by Saraswati Vandana in gracious presence of distinguished guests and renowned Scientists Dr. S.K. Goyal, Senior Principal Scientist and Head of CSIR – National Environmental Engineering Research Institute, Delhi Zonal Centre; Prof. Alok Dhawan, Indian Institute of Toxicology Research Lucknow, Sh. Sant Sanganerla Ji, Founder and Chairman, Ultra International Limited; Dr. Ricky Kej, Grammy award Winning composer and billboard #1 Artist (USA); Chairperson and Principal, Hindu College, Dr. Anju Srivastava; Co-chair and President, STE, Dr. Kshipra Mishra; Convenor, Dr. Reena Jain.

Dr. Reena Jain, Vice-Principal of the college, delivered the opening remarks and welcomed everyone to the grand event ceremony. This was followed by welcome address by the Principal of Hindu College, Dr. Anju Srivastava, wherein she congratulated and appreciated the sincere efforts of all the faculty members and students from the seven participating departments of the college, for actualizing this dream event into reality within a concise time period. She emphasized on the importance of delicate balance between science, technology, development and society and how inter-disciplinary coordination and cooperation is imperative to maintain it. Dr. Kshipra Misra introduced “Save The Environment” (STE), a registered NGO in Kolkata, West Bengal with a vision to protect present and future generations from various environmental hazards and spread awareness in society about environment, water quality and human health. Shri Sant Sanganerla spoke about his love and dedication to work for the college and highlighted how science and technology is being used for human health and well-being, but at an enormous cost of our environment. Dr. S.K. Goyal motivated the gathering on the use of 'Gyan' for 'Vigyan'.

The keynote address was delivered by Prof. Alok Dhawan who accentuated on understanding the true meaning of 'environment' and celebrating each day as 'Science Day'. It









was a lively session in which the concept of 'sustainability' was exquisitely explained in relation to our Indian culture. The students were encouraged to think, question, experiment and take up science and research, for the well-being of the society. After the inspiring and empathic talks on environment the euphoria continued with the philharmonic words by Dr. Ricky Kej who is a musician and an environmentalist. He made the students aware of the consequences of global climate change through his thought-provoking videos and melodious compositions. His work and accomplishments displayed the power of music in spreading a message for environment protection. Another global issue of climate change was highlighted by his music compiled on the life of people at the Kiribati Islands in Pacific Ocean. His passionate work demonstrated how music can be used as a powerful tool to show how we are collectively responsible for environmental degradation and how it is affecting everyone in the world, sooner or later. In the end, he summed up by saying that it is our collective responsibility to save the environment and that each one of us can be the agent of change in our own way. The entire gathering was inspired by his work that illustrated how to live in harmony with the environment and how each one of us can be the agent of change. The session was ended with the National Anthem.

The gala event had fun-filled as well as Science oriented events like slogan writing, Just a Minute (JAM), paper presentation, poster presentation, Science Quiz (Prelims). The events were a great success with the huge participation and overwhelming response of over 1200 enthusiastic students from different institutions.

### Poster presentation

The Science festival organized an inter-college poster presentation competition. The main objective of this activity was to aware students with different environmental issues and innovative steps taken towards their remediation. For this event twenty teams took participation and they focused on various environment related issues. Posters were judged on the basis of their content, presentation and team coordination. Overall students and faculty members participated actively with zeal and enthusiasm.

### Quiz on Environment and Science

Twenty-two teams from different colleges participated in the preliminary round of quiz. Successfully organized by team of students guided by faculty, the shortlisted teams were eagerly waiting for the final to be held on the second day of the festival.

### Photography Exhibition

The "photography exhibition" had a spectacular display of ravishing photographs taken by the students from various colleges. The event unveiled the creative ability of the students to see the world through the lens.

### Just-a-Minute

Just a Minute was conceived to make heavy issues concerning environmental concerns; witty and relevant to everyone. In this game the participants were asked to talk for sixty seconds on a given subject, "without hesitation, repetition or deviation". The comedy comes from attempts to keep within these rules and the banter among the participants. Just a Minute's success was committed to its "insanely basic" format, stating, "It's so blank that it can be filled by people as diverse as science, humanities and commerce; who no one have to adapt any specific style of humour to the show at all".

The event kick started with a participation of 20 participants and gained momentum with a room full of audiences. The event was not only restricted to an extempore of one minute but was sprinkled with two other fun-filled activities. We witnessed some exemplary orators among our students. The fact that today's generation is well aware of the environment crisis was very heart rendering. Each candidate was given a minute to rack his brain and the other minute to use his oration skills. Last round was a surprise activity where the participants had to put down as many as scientists and their contributions; again, maintaining the namesake "JUST A MINUTE". The organizers and the judges had a ball of time and the event was a grand success.

### Slogan Writing

Beautiful slogans were framed by students on the theme "Environment and Sustainable development". The energy and enthusiasm were overwhelming among the participants and was enough to spread vivacity in the environment.

### Paper Presentation

To encourage the students and to increase awareness about environment friendly practices, paper presentation was conducted on first day of science fest. The concept of the theme varied from hazardous pollutants, e-waste management, effects of radiations to environmental ethics, correlation between science, health and society. The paper presentation enabled students to explore the hidden talent in themselves and to overcome fear of public speaking. Students presented use of principles of green chemistry in





research work, explaining about the asymmetric synthesis taking the example of a drug Pthalidomide and giving the greener approach for the construction of chiral tetra - substitute cyclohexane. One of the students described the integrated management of food waste and agricultural nutrient deficit summarizing that the nutrients from various waste sources like calcium and magnesium from egg shell, potassium and phosphorus from banana peels, calcium from discarded animal bones etc. can be used to make organic fertilizer. A student from Daulat Ram College addressed the e-waste management problems and delivered the 3R concept, cloud computing, fairphones as the solution for the e-waste management. Students presented various topics starting from Green synthesis of magnetic iron oxide using fruit peel, Green synthesis of nanoparticles and their impact to all new smart Hindustan. On closing notes of the event, the chief guests Dr. S. K. Singh and Dr. A. P. Singh, addressed the students guiding them to have more scientific approach and to have a plan of action.

## Day 2

The second day of exhilarating Science festival began with an informative talk entitled “Crop Responses to elevated CO<sub>2</sub>: Research & Technologies – A South Asian Effort” by Dr. D.C. Uprety from Indian Agricultural Research Institute, Delhi (IARI). He discussed about the challenges faced by the environment and its impact on agronomic crops.

The event witnessed another enlightening talk on “Eco-friendly accelerated removal of oil pollution from marine environment” by Dr. Murlidhar J. Mendki, DRDO. He conversed the consequences of the marine oil pollution and its negative impact on marine animals and birds. He discussed about the various conventional methods to clean up the shores. He also made students aware of the innovative processes of bio-augmentation and bio-stimulation that use oil degrading bacteria for cleaning up the marine oil pollution.

The invited talks were captivating and thought provoking. The curious audience interacted with speakers with full enthusiasm.

## Panel Discussion

On second day of the Science Festival 2020 and National Workshop on Environment and Society, the panel discussion was a bold experiment into the emerging domain and methodologies of trans-disciplinary studies. The Panel was composed of the faculty drawn from disciplines of Social Sciences and Humanities. Each of the panelists

brought their disciplinary perspectives on the issues of environment and ecology during the proceedings that was followed by a range of questions from the audience. Approaches rooted in history, ethics, literature, economic behaviour, social practices and political strategies were sought to be coalesced into some kind of a workable methodology that could even be woven into futuristic big history paradigm, where the biotic and abiotic aspects of life are accounted for through single universal theory. The idea negotiated with a robust critique brought by the audience as well.

## Debate Competition

A debate competition was organized with the theme of Science and Technology are not creating environmental problems but solving it”, on the day 2 of the event. Students of various streams from different colleges participated in the competition. Some argued for the motion and some against the motion. The teams were well prepared and used their oratory skills to convince the audience. The event gave students a creative room to express what they think. The audience also gained simply unparalleled knowledge through this event. The winners were awarded with the prizes in valedictory function.

## Essay Writing Competition

A Science based, bilingual essay writing competition was organized to encourage the students to enhance their thinking and writing skill. The students were asked to write on “Is pollution a price of progress?”, “City of future: Imagine, Design, and build a city that showcases the solution” or “Flip side of Industrialisation”. Nine entries were shortlisted by the judges on the basis of views, vocabulary, creativity and presentation. The event was a huge success with the participation of 69 students from various departments of Hindu College and other colleges as well.

## Best out of Waste

The creative event of 'Best out of Waste' was held and included nine teams from different colleges of Delhi University. The participants were actively involved in the event and displayed their talents to utilize the waste in their best possible way. One of the participating teams worked on the making of 'Smoke absorber and air purifier' using cardboard, disposable masks, net, toy fan and plastic bottles. Another team worked on highlighting the effect of plastic waste on the extinction of species in our environment. They made marine organisms using waste plastic bottles, straws, waste tissue paper, etc. to address the problem of global climate change. Rest of the teams worked on the making of



decorative items like chandeliers, newspaper bicycle, multipurpose drawer, foldable house, flower pots, working wall clock, etc., using newspaper, egg carton tray, waste CD's, straws, old bangles, cloth, waste cardboard, etc. The event was judged on the basis of several criteria, viz., theme design, waste materials used, eco-friendly nature, presentation and overall utility. Overall, the event turned out to be a huge success and drew great attention and applause from students as well as faculty alike.

### Quiz (Finals) Competition

The final round of the quiz competition was interesting, informative and loaded with excitement. The Preliminary round was conducted on 27th Feb, 2020. Out of 33 teams from different colleges only 15 teams were successful to compete in the finals. The event comprised of three sets of rounds and was based on audio visual questions pertaining to memory and environmental issues. The students participated with great zeal and excitement in the event. A tough competition among the teams led to selection of only four teams in the final 4th round (tie breaker round) and top three winners were announced on the basis of their performance in all the four rounds. In general, it was very knowledge enriching competition for the participants along with the audience.

### Day 3

The celebrations continued on the third day with same fervor. The enriching invited talks and hands-on training sessions gave students an exposure to the new dimension of knowledge.

The day began with the informative talk by Dr. John P. George, Scientist G, NMRWF, Ministry of Earth Sciences, Govt. of India. Weather is a state of atmosphere and its forecasting is an inter-disciplinary field that involves expertise from various science as well as non-science backgrounds. Weather forecasting is an important field as it helps in forecasting ambient air quality, transporting pollutants, saving life and resources, reducing property damage and other important decisions on daily basis. Nowadays, tremendous progress in weather forecasting abilities has been made with the help of 'Numerical Weather Prediction' (NWP) models based on equations from laws of physics that are integrated forward in time to simulate changes in the atmosphere. Different components of Real Time NWP system like observation, acquisition, processing, quality control of observation, data assimilation, dynamical prediction, etc. were discussed with examples. In the end, Dr. George wonderfully explained that data from

different fields is used as an input for simulation by NWP models for predicting weather and air accuracy with high accuracy. A number of queries were raised by the students and the faculty and the entire gathering was amazed by the extreme hardworks required and resulting output that serves as the privilege to all.

This was followed by another enriching talk on "Biochar as a sustainable solution to biomass stubble burning" by Prof. Dinesh Mohan, School of Environmental Sciences, JNU, Delhi. Managing residual biomass produced, especially from agriculture, has become a major challenge these days. Prof. Mohan reinforced that any technology/solution to this problem must possess characteristics like ability to store carbon in soil, reduce agricultural/municipal/forests waste, generate electricity as well as increase soil productivity. A sustainable solution of this kind is 'Biochar', which is a charred organic matter, produced by the pyrolysis of biomass. It is porous, possesses high surface area, is rich in organic carbon and is largely resistant to decomposition. Various interesting applications were discussed like use of biochar in water remediation, improvement of soil fertility, nutrient retention, carbon sequestration, climate change mitigation, etc. Prof. Mohan showcased his studies on various applications of biochar including the recent focus on oil remediation and 'Nano Biochar' in agriculture. He emphasized on transferring the technology to the farmers so that research can truly benefit the mankind.

### Workshops

Workshops on various themes were organized with the aim of providing students an experience of hands-on learning. The workshop included the exercises from various Science streams.

#### 1) Workshop by Botany Department

The Department of Botany, Hindu College organized a workshop entitled "The Bonsai Workshop: Hands on Training" in collaboration with Indraprastha Horticulture Society and Bonsai Club. The workshop was conducted by resource person Dr. Rachna Jain who is the secretary of Indraprastha Horticulture Society and Bonsai Club. The workshop included presentations which demonstrated about bonsai, preparation for making bonsai, wiring of bonsai and other techniques involved in the making of bonsai. The workshop included hands-on training to make the students to get acquainted with the bonsai making.

#### 2) Workshop by Chemistry Department

A hands-on molecular modeling Chemistry Workshop was



organized on 29th February, 2020 at Hindu College. The aim of the workshop was to introduce molecular modeling to young students who were completely new to the field of Computational Chemistry. The workshop was organized in collaboration with Wavefunction, Inc. USA.

The students were introduced to ODYSSEY, a graphical user interface (developed by Wavefunction, Inc. USA) by Dr. Shyam Kishore (Head, Department of Chemistry, J.V. College, Baraut, U.P.) and Prof. Jurgen Schnitker (pre-recorded video).

Using ODYSSEY molecular explorer, students performed the following molecular lab activities:

- Viewing samples in 3D
- Build new models (organic, inorganic, biomolecules, solids, solutions etc.)
- Running simulations/ geometry optimization
- Calculating electronic properties/generating the electronic cloud
- Measuring properties

### 3) Workshop by Department of Environmental Science

The workshop titled “The Importance of Flora and Fauna Biometrics in Urban Planning” organized by Hindu College was headed by Dr. Chirashree Ghosh, Department of Environmental Science, University of Delhi.

Discussions were held on the issues like urbanization and its impact on the ecosystem. The Techniques such as Bioaerosol monitoring and Sequential Comparison Index were demonstrated to the students to underline the importance of biometrics in assessing the impacts of urbanization. The students were made to perform scientific activities to give them hands-on experience and make them aware of the issues at hand. Overall the workshop received a good response from the students.

### 4) Workshop by Physics Department

The Department of Physics organized the workshop on “Increasing the Life of Desktops/Laptops by at least 10 years using Linux Operating System”. The students were made to get acquainted about LINUX through the following hands-on:

- Partition of the hard disk of laptop using gparted utility in live Knoppix OS in USB drive
- Installation of LINUX OS Knoppix on laptop
- Preparation of UBUNTU Linux bootable live pendrive

- Installation of UBUNTU Linux on laptop – dual boot
- Hands - on training of some powerful, free and open source computational tools like wxmaxima, sci-lab, FORTRAN, R, Octave etc.

### 5) Workshop by Zoology Department

The Department of Zoology organized the Zoological workshop on “Breath and Health: Assessment of Lung Function through Simple Experiments & Introduction to Microscopy: Projectable and Fluorescent Microscope” under Science Festival & National Workshop on Environment and Society: Interlinkages and Co-existence. A total of 99 students from various colleges have registered for the workshop. The registration was done both online as well as offline and received astounding response from participants.

The first workshop focussed on human activities which generate various impurities that get mixed with atmosphere creating huge environmental issues such as air pollution. The Breath and Health workshop emphasized on the basics of how air pollution could affect human physiology. The following experiments were performed by the participants:

- Measurement of Breath holding time and/or conch blowing time.
- Measurement of lung capacity through inflation of balloons.
- Measurement of four key respiratory parameters with the help of portable spirometer.

Simultaneously, workshop on Introduction to Microscopy in collaboration with Voxx laboratory, was conducted to familiarize the students about the technique through PowerPoint explanation followed by demonstration of both projectable and Florescent Microscope.

After the exhilarating and successful two days of the event, the celebration of the Science festival will continue with the events ranging from invited talks, workshops and much more with the same zeal and fervor.

### The Valedictory session

A three-day grand celebration of Science Festival 2020 concluded with the valedictory ceremony on 29th February, 2020. The ceremony was graced by Dr. Sanjay Bajpai, Scientist G/ Head, Technology Mission Division (Energy, Water & all other), DST and Prof. R.K. Sharma, Coordinator, Green Chemistry Centre (GCNC), University of Delhi, Dr. Anju Srivastava, Principal and Chairperson, Dr. Kshipra Misra, President, STE and Co-chair and Dr.



Reena Jain, Vice-Principal and Convenor. All the dignitaries were felicitated with the token of gratitude. The ceremony witnessed the release of e-version of “Substance”, the annual departmental magazine of Chemistry Department.

Later, Dr. Anju Srivastava, Principal Hindu College, addressed the gathering. She appreciated the students for their untiring efforts and overwhelming participation with a huge number to make event a grand success. She also motivated the students for pursuing research and to have divergent thinking to address the various environmental issues. She also congratulated the entire Hindu fraternity for a well-coordinated team work.

After that Prof. R. K. Sharma introduced the students to the concept of Green Chemistry and how Green Chemistry Network Centre (GCNC) is working to promote it in the institutions as well as industries, thereby working positively for the environment. He explained why it is the need of the hour and how it can be used to tackle the various environmental issues. He praised and congratulated the college for the organization of the event of one of its own kind.

Subsequently, Dr. Sanjay Bajpai spoke about “infodemic” and acquainted the students with a thought of importance of the correct information about any issue. He made the students to realize about the importance of their role in controlling the circulation of false information. He advised them to follow their passion. He also motivated them for

pursuing research and to treat the Mother Nature with care. The event continued with the prize distribution ceremony. The winners of paper presentation, poster presentation, Just a Minute (JAM), slogan writing, photography/videography, debate, essay writing, face painting, best out of waste and Science quiz were awarded with certificates and cash prize. The tireless efforts and significant contribution of conveners, organizing secretaries, teacher coordinators and student efforts were also recognized.

To pay respect to the motherland, the gathering stood to the tune of National Anthem.

The students felt extremely glad to be a part of such a major conclave of informative talks, enriching workshops and plethora of excited events and they wished to look for the second edition of Science Festival in the coming years also. The event ended with a vote of thanks by Dr. Anuradha Sharma.

The entire STE team is grateful to Dr. Anju Srivastava, Principal and Dr. Reena Jain, Vice-Principal, Hindu College, University of Delhi & Co-chair and Convener for providing us an opportunity to be a part of the event. The event was well-organized and empowered with knowledge and the current state-of-art in the field of environmental sciences. The event appropriately illustrated the role of multiple science disciplines in conservation and sustained development of the planet.

We are also thankful to all the dignitaries and participants,





## FROM THE EDITORS DESK...

### Dates to Remember!

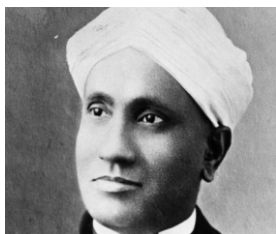
By Ms. Sheeren Bajaj

Assistant Editor, STE

### National Science Day - 28th February

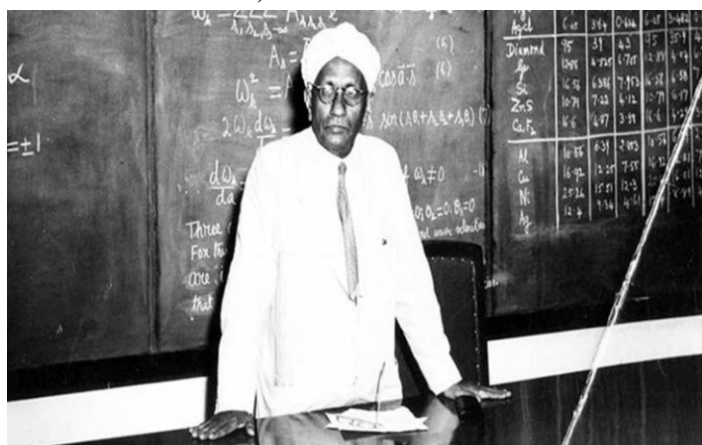
Albert Einstein once said, "The whole of science is nothing more than a refinement of everyday thinking." And hence, the science must go on!

National Science day is celebrated to acknowledge and appreciate the importance of science in our daily life. In 1986, the National Council for Science and Technology Communication (NCSTC) proposed to designate February 28 as National Science Day. NCSTC selected 28th February to commemorate the discovery of Raman Effect by the great Indian physicist Sir Chandrasekhara Venkata Raman. Sir C.V. Raman was awarded Nobel prize in 1930, for the discovery of Raman Effect. He was the second Indian to be awarded Nobel prize and the first Asian to be awarded Nobel prize in the field of science.



**Sir Chandrasekhara Venkata Raman**, Indian physicist (7 November 1888-21 November 1970).

Source-<https://theprint.in/science/remembring-cv-raman-great-physicist-and-nobel-laureate-at-42/146039/>



**Sir C.V. Raman** was awarded the knighthood in the year 1929 and for his amazing discovery, won the Nobel Prize in 1930.

Source <https://www.financialexpress.com/industry/technology/national-science-day-what-is-the-raman-effect-heres-a-look-at-how-sir-cv-raman-won-india-its-first-nobel-for-science/569299/>

On this day Government of India award people for their unprecedented contribution for popularization, promoting and inculcating an inclination towards science. The main aim to celebrate National Science Day is to motivate, inspire and attract students towards science; to keep them updated on current research going on in science and popularize science; to discuss achievements and hurdles in the field of science and importance of science in our daily life.

National Science Day is celebrated throughout the country in schools, colleges, universities and research institutes colleges, and includes various activities such as public speeches, radio, TV, science movies, science exhibitions based on themes and concepts, debates, quiz competitions, lectures, science model exhibitions and many more activities. Sometimes these activities continue for a few days and it is then called a National Science Week or Science Week. The National Council for Science & Technology Communication (NCSTC) and Department of Science and Technology (DST) coordinates National Science Day in various research laboratories, scientific institutions and autonomous scientific institutions associated with the Ministry of Science and Technology.

Since 1999, each year a specific theme is chosen to focus on different areas of science. Themes vary from 'Chemistry in Daily Life' to 'Science for Nation Building'. This year, in 2020, the theme was 'Women in Science'. It was celebrated at Vigyan Bhawan. A total of 21 awards were given out of which five women scientists under two categories – SERB Women excellence awards and National Award for Young Woman Showing Excellence through Application of Technology for Societal Benefits were awarded by Honourable President Shri Ram Nath Kovind.

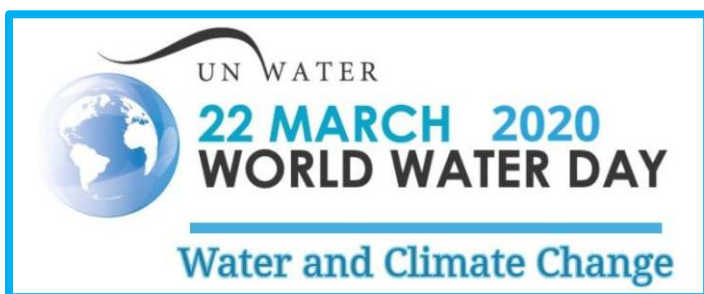
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## World Water Day-22nd March

Benjamin Franklin once said, "When the well's dry, we know the worth of water."

World water day is observed on 22nd March to know the worth of water, to ensure adequate amount of freshwater is available for everyone and to advocate water resources management so that sufficient amount is passed on to the next generation. The idea of world water day was first introduced at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, in June 1992. It was embraced by the United Nations General Assembly on December 22, 1992, declaring March 22 to be the World Day for Water and was first observed in 1993. The key focus of this day is to achieve ensure access to water and sanitation for all by 2030, to educate people about water-related issues and encourage them to act on it. On world water day various events are organised such as campaigns to raise money for access to clean and affordable water, excursions to local rivers, lakes and reservoirs, visual art, theatrical and musical celebrations of water, special broadcasts on television and radio and the Internet. UN-Water along with UN organizations decides the theme for each year.



This year, in 2020, it was 'water and climate change'. It aims to spread a message on how water and climate are intrinsically joined and steps to sustainably use water can help to curtail the effect of climate change. Moreover, to encourage each and every one to do their part to save the environment, and not depend only on policy makers or environmental activists to take actions.

### Facts about World Water Day

- Today, about 1 in 3 people live without drinking safe water.
- According to the reports, by 2050 about 5.7 billion people live in the areas where water becomes insufficient for at least a month or year.

- 90% of the major disaster is caused due to extreme weather.
- Global energy demand could be increased by up to 25% by 2040 and also water demand is expected to increase by more than 50 %.
- Climate-resilient water supply and sanitation could save more than 360,000 infants a year.
- When we restrict global warming to 1.5° C above pre-industrial levels we will reduce water stress caused by climate up to 50%.

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## THE COVID-19 PANDEMIC

### Hawan is one way of Sanitizing Respiratory Tract: may protect from COVID-19

By Dr. Ajay Gupta

Our ancient sages have written many scientific treatises on health. Treatise like Samhitas, Nighantus by many saints in Sanskrit language have very specifically mentioned properties of different herbs and their effects on different body parts. How did they do research, is just a mystery for modern world. To curb coronavirus, there are innumerable herbs in ancient literatures those may be tried against COVID-19. Many medicinal herbs are used in Hawan samagri and have been found to promote respiratory health and fight respiratory infections. There are modern evidences that these herbs lower pro inflammatory cytokines like Tumor Necrosis Factor (TNF) and Interleukin-1 (IL-1) those cause diseases and promote good cytokines like IFN-gamma, critical for innate and adaptive immunity against viral and bacterial infections and IL-4 those promote B-Cells



to produce antibodies to kill foreign bodies and promote T-cells proliferations. There are many more evidences.

In this devastative situation, from days of Navratri, there may be massive Hawan in each and every house, intersection and parks. Such Hawan loaded with magic bullets of medicinal herbs might defeat corona virus and we can prove the world value of our ancient science and *sanskriti*. We can also protect millions of lives of our country men, women and innocent children. As we have no drug, no other options, this trial may be a Hope!! It could be adopted and tried at massive level throughout the country. I am very confident that with God gifted medicinal treasure, we will overcome this dreaded situation before us.

#### Convincing evidences why Hawan is beneficial:

1. The herbs when burnt, come in the air in the form of fumes containing billions of nano-particles of drugs. When we inhale, the fume makes a fine layer on the respiratory system, from nasal area to lowest part of lungs. This makes a barrier for viruses and other germs to penetrate the respiratory membrane. For example, Black Til, is used in many rites, rituals and worships including Hawan anusthans. Til, has ALA, an Omega-3 fatty acid and lignans, a phytoestrogen. These influence immune system by altering membrane phospholipids of the cells and protect cells from infections. These nano-particles also reach to blood.
2. These fumes with innumerable drug particles when released in the houses, get stuck on walls, doors, household items and make same thin film of nano-drug particles on these surfaces. Many of medicinal herbs used in Hawan are of oily in nature, like Til, Tagar,

Kapur, Lobhan, Guggul, Lwang etc. These have volatile oils with germicidal properties. These oily particles trap viruses and other germs and kill. With use of *Albugo candida* fungal spores, it has been found that such medicines do not allow formation of bio-films of microbes. To propagate, bio-film making by germs is very critical.

3. When Hawan anusthans done in large scale, at community levels (in colonies, parks, streets/lanes etc.), such fumes laden with anti-microbial properties act like laser and kill the dreaded viruses, bacteria and other germs in the air. That is why probably, our saints used to perform huge yagna anusthan in open places, specific for specific purposes for well-being of natives.

These are just a few examples.

Hope, readers would like this proposal and may think for a countrywide "Hawan anusthan", in every house by people and at community level by the local administration, to stop community transmission of corona virus. Then, world will follow our footstep, this is what great Hindu saint Swami Vivekanand said to the world!!

Let us take this one and last chance..... Ek Abhinav Prayog Desh Ke Liye....

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## CORONAVIRUS PREVENTION TIPS



WEAR A MASK



WASH YOUR HANDS  
FREQUENTLY



COUGH ETIQUETTE  
Cover Your Mouth  
With Sleeve Or Elbow



DON'T TOUCH EYES,  
NOSE OR MOUTH  
WITH UNWASHED HANDS



AVOID CONTACT WITH  
SICK PEOPLE



CLEAN AND  
DISINFECT

## CREATIVE WRITING...

### Poems on COVID-19

Dr. Navin Bajpai, Assistant Professor at Department of Biotechnology, Graphic Era University (Deemed University), Dehradun-248001. E-mail: navinbajpai@gmail.com, navinkumar.bt@geu.ac.in

सर्व-सनातन विसरा के भौतिकता मै लीन हुआ।  
मानव आज के युग का अति लोलुप् और अधीर हुआ।।

प्रकृति से खिलवाड़ किया और भूस्वामी बन बैठा।  
विसरा बैठा भ्रात भाव स्वार्थ मे अपराध किया।।

महत्तवाकांक्षा के मद मे अवसादों मे डूब गया।  
भूल गया प्राणाधार जल, वायु, भोजन और धरा।

शायद आज चेताने को प्रकृति ने संहार किया।  
पुन-शृंगार की खातिर मानव को विराम दिया।।

याद रहे अतिन्यून है जीवन की आवश्यकता।  
फिर क्यों शोर हर ओर अर्थ, मद और सत्ता का।।

प्रण ले अभी विलम्ब नही, सवारने को सत मानवता।  
सबक ले जन साथ सभी याद रखे ये वक्त सदा।।

मानव आज के युग का अति लोलुप् और अधीर हुआ....

-----नवीन बाजपेई

अति-सूछम कोरोना ने कालचक्र को रोक दिया।  
आहत मानव जाती को ग्रहकारा मै झोंक दिया।।

मंदिर मस्जिद गुरूद्वारे, सब भक्त विहीन हुए।  
विश्व विराम हुआ ऐसा, जीवन ने जन छोड़ दिया।।

चिकित्सालय हाट बने, स्कूल दफतर वीरान हुए।  
जन-जीवन की हानि ने शमशानों को खोल दिया।।

नरेन्द्र की सेना ने सहज सदल संज्ञान लिया।  
सकल जन-मन सेवा को राज निधि अनुदान दिया।।

कुछ मूड़ो ने परिवश होके हालातो से खिलवाड़ किया।  
विश्वरक्षको पे वार कर मानवता को शर्मशार किया।।

नवपरिभाषित कर्मवीर, सिपाही, चिकित्सक, स्वच्छधीर।  
इनको कोटि नमन मेरा, जीवन को जन से जोड़ दिया।।

‘अति-सूछम कोरोना ने कालचक्र को रोक दिया।’ ...

-----नवीन बाजपेई



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**International Journal of  
Environment and Health Sciences**



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Website: [www.stenvironment.org](http://www.stenvironment.org)

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