

मैं प्रकृति हूँ



World Environment Day 2024 - Special

World Environment Day is the biggest international day for the environment. Led by the United Nations Environment Programme (UNEP), and held annually since 1973, it has grown to be the largest global platform for environmental outreach.



2nd Issue

Head Office Building Shimla

A Quarterly newsletter – Himachal Pradesh State Pollution Control Board

June, 2024

ecologic update

WED 2024 SPECIAL



“ReclaimEarth” Ideation Hackathon 2024 – celebrating the second consecutive year

The Himachal Pradesh State Pollution Control Board organized the second State Level “ReclaimEarth Ideation Hackathon 2024” to commemorate the occasion of World Environment Day and awards were bestowed upon the deserving winners on June 5th, 2024.



“ Environmental regulation should embrace a human-centric approach, prioritizing proactive measures that safeguard both the planet and the well-being of its inhabitants.

Shri Onkar Chand Sharma (IAS),
Chairman,
HP State Pollution Control Board

Shri Prabodh Saxena (IAS), Chief Secretary to the Govt. of Himachal Pradesh was the Chief Guest on the occasion. The State level event was jointly organized by Department of Environment, Science, Technology, Environment and Climate Change, Himachal Pradesh Council for Science, Technology and Environment (HIMCOSTE) & Himachal Pradesh State Pollution Control Board. The event was inaugurated by lighting the lamp by the Hon’ble Chief Secretary to the GoHP at Gaiety Theatre, the Mall Shimla. Shri Anil Joshi (IFS), Member Secretary, Himachal Pradesh State Pollution Control Board along-with Shri D.C. Rana, (IAS), Director, Department of Environment, Science, Technology, Environment and Climate Change and Member Secretary,



Himachal Pradesh Council for Science, Technology and Environment (HIMCOSTE) and Shri Pradeep Sangwan, Healing Himalayas remained present on the occasion. The “ReclaimEarth Ideation Hackathon 2024” was conducted under the aegis of Mission LiFE campaign, which focuses on environmental conservation. (Contd. on page-2)





bestowed upon Shri Rajat Sharma, representing a start-up. Ms. Shubha Tiwari & Ms. Divya Negi from Healing Himalayas Foundation secured the third award, accompanied by a cash prize of Rs. 20,000/-. Shri Rajat Kumar and Pratibha Thakur from Govt. Hydro Engineering College Bilaspur were presented with the fourth award along with a consolation prize of Rs. 10,000/-. Dr. Dushyant Kumar and Dr. Kumari Shivani from College of Horticulture and Forestry, Hamirpur, received the fifth award, comprising a cash prize of Rs. 10,000/-. Additionally, all top-ranked teams were honoured with trophies and certificates in recognition of their exceptional contributions.

The Chief Secretary GoHP gave away state environment leadership awards

On this occasion, the Chief Secretary of Himachal Pradesh presented the State Environment Leadership Awards, initiated by DEST. These awards recognize various innovative actions and initiatives by individuals, institutions, and organizations active in different fields of the state's economy, under twelve categories. Additionally, five schools from Himachal Pradesh were awarded the 2023-24 Chief Minister's Rolling Trophies for their 'green' initiatives in the state. These trophies are presented annually by Centre for Science and Environment's (CSE), one of South Asia's leading environmental research bodies, in collaboration with HIMCOSTE.

(Contd. from page-1)

The month-long hackathon commenced with registration and submission on May 10th, 2024, concluding on May 20th 2024. Following the submissions, an internal committee of experts shortlisted 11 candidates on May 22nd, 2024. These finalists presented their innovative ideas through physical PowerPoint presentations on May 27th, 2024, before a distinguished panel comprising of both external and internal experts. The top five finalists emerged as winners in the competition. Ms. Nishtha Verma and Ms. Anisha Kumari, students of St. Bede's College, clinched the first prize, receiving a cash award of Rs. 50,000/- along with a winner's trophy and certificate. The second award, including a cash prize of Rs. 30,000/-, trophy, and certificate, was



Quarterly recap



In this edition of "Ecologic Update," we recap the celebrations of two important occasions: World Earth Day (April 22, 2024) and World Environment Day (June 5, 2024), both suitably organized by our field offices (Regional Offices and Laboratories). It was heartening to see the array of awareness activities conducted by each office. This year, we proudly hosted the "ReclaimEarth" Ideation Hackathon – 2024, a platform for innovative ideas to reclaim and restore polluted lands and waterbodies, to commemorate World Environment Day. This edition also includes contributions from the top three winners of the Ideation Hackathon, showcasing their innovative ideas in the domain of environmental conservation and pollution control. I hope this special issue makes an interesting reading for all our readers. You may email your feedback at newsletter.hppcb@gmail.com. Wishing you a fun-filled & trouble-free rainy season ahead!

Shashi Shekhar, Scientific Officer

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Recap - World Environment Day 2024



**Shri Prabodh Saxena (IAS),
Chief Secretary to
the Govt. of
Himachal Pradesh**



On the special issue of this newsletter on World Environment Day 2024, it gives me immense pleasure to extend my heartfelt congratulations to winners of the ReclaimEarth Ideation Hackathon 2024. This year's theme, focused on land restoration, halting desertification, and building drought resilience, was both timely and crucial as we face the growing challenges of climate change and environmental degradation.

The ReclaimEarth Ideation Hackathon was an exemplary initiative that brought together bright minds from various fields to devise creative and practical solutions to these pressing environmental challenges. By fostering collaboration among researchers, innovators, students, and start-ups, this hackathon embodied the spirit of collective action and shared responsibility.

As we celebrated World Environment Day on 5th June 2024, let us reaffirm our commitment to environmental stewardship and sustainable development. I am confident that the innovative ideas and solutions emerging from this hackathon will significantly contribute to our efforts in reclaiming and restoring our lands. Let us work together to build a more resilient and sustainable future for Himachal Pradesh and the world at large.

This year's celebration was special as the World Environment Day 2024 was jointly organized with three key entities: the Department of Environment, Science, Technology, and Climate Change; the State Pollution Control Board; and HIMCOSTE. Once again, my congratulations to the winners. I am sure the winning ideas and innovations would certainly pave the way for a greener and more sustainable planet.



**Shri Onkar Chand Sharma (IAS),
Chairman
H. P. State Pollution
Control Board**



This year's theme of Ideation Hackathon, "ReclaimEarth," underscores our collective responsibility towards land restoration, halting desertification, and building drought resilience. Addressing the said theme, the State Board decided to organize the ReclaimEarth Ideation Hackathon to gather innovative ideas from the young generation who advocate for cutting-edge technologies to achieve the goal of sustainable development.

Approximately 152 participants, including students, NGOs, start-ups, and scholars/professionals, took part in the ReclaimEarth Ideation Hackathon 2024.

The level of engagement and the quality of proposals submitted to the State Pollution Control Board were truly remarkable.

We received an impressive array of proposals that were not only high in quality but also highly relevant to our environmental challenges. This made the task of our expert panel exceptionally challenging, as they had to shortlist and select only five proposals from a pool of outstanding submissions. The proposals showcased a wide range of innovative approaches, from cutting-edge technologies aimed at reclaiming polluted lands and water bodies, to strategies for making these efforts economically viable, technologically advanced, and socially acceptable.

We are deeply committed to supporting these visionary researchers and students. The State Board is dedicated to assisting the winning teams in every possible way to develop their ideas and bring their solutions to fruition. Together, we can make a significant difference in our fight against environmental degradation.



**Shri Anil Joshi (IFS), Member
Secretary,
H. P. State Pollution
Control Board**



Organizing the ReclaimEarth Ideation Hackathon was a truly challenging & learning experience, given the short timeframe and the Model Code of Conduct due to the Lok Sabha elections 2024. Despite the above, the team at the Himachal Pradesh State Pollution Control Board (HPSPCB) rose to the occasion, demonstrating unparalleled dedication and efficiency.

In a brief period, we managed to reach out to a diverse group of potential participants, including students, NGOs, start-ups, and scholars of various educational institutions. Leveraging social media platforms, we successfully amplified our call for proposals, ensuring widespread awareness and engagement. Additionally, the creation of an event website and journey videos played a crucial role in mobilizing and informing our audience.

The response was overwhelming. We received numerous high-quality proposals, reflecting innovative solutions to pressing environmental challenges. The enthusiasm and creativity displayed by the participants were truly inspiring, and the expert panel faced a difficult task in shortlisting and selecting the top five proposals.

This hackathon not only highlighted the innovative spirit within our organization but also fulfilled our obligations to the Central Pollution Control Board. It emphasized the importance of circular economy principles, encouraging the reuse and repurposing of materials in addition to solutions on reclaiming polluted lands and waterbodies.

I extend my heartfelt gratitude to everyone involved in making the ReclaimEarth Ideation Hackathon a resounding success.

HPSPCB commemorates World Environment Day 2024 with state-wide initiatives

WED special >>>

The Himachal Pradesh State Pollution Control Board (HPSPCB) marked World Environment Day 2024 with a series of impactful activities across its regional offices and laboratories, emphasizing environmental conservation and public participation.

Regional Office Paonta Sahib:

HPSPCB Regional Office Paonta Sahib organized the 4th Miyawaki Plantation drive at M/s Sun Pharmaceuticals Industries Ltd., Paonta Sahib. Other activities conducted were Wall Murals on walls of industrial units & Capacity Building Program for Industrial units' professionals in Kala Amb.

Regional Laboratory Sunder Nagar:

A comprehensive cleanliness drive was conducted in the BBMB Colony, Sunder Nagar, alongside a slogan writing competition, prize distribution, plantation, and lectures at Sr. Sec. School Baggi.

Regional Office Una:

In collaboration with the District Legal Services Authority (DLSA) Una and M/s Nestle India Pvt Ltd., the office held an awareness program at GSSS Gurplah. The event focused on "Land Restoration, Desertification, and Drought Resilience," featuring a rally, awareness lectures, a poster-making and slogan-writing competition, a declamation contest, and a plantation activity.

Regional Office Parwanoo:

Partnering with DLSA, Hotel Association Kasauli, and Industrial Associations Parwanoo and Solan, the RO office organized a cleanliness drive in Solan, Kasauli, and Parwanoo. Teams cleared three hotspots, and waste was disposed of through MC Parwanoo and MC Solan.

Regional Office & Lab Dharamshala:

RO & RL Dharamshala conducted several awareness drives including awareness activities in Govt Schools, Plantation activities, Cleanliness drives at several places including government hospitals.



नारा लेखन में तरुण प्रथम और अमृता द्वितीय

राजकीय वरिष्ठ माध्यमिक पाठशाला बग्गी व ज्योतिद्वन्द्वर स्कूल में भी कार्यक्रम किए आयोजित

बग्गी, 5 जून (वि.स.): राजकीय वरिष्ठ माध्यमिक पाठशाला बग्गी में विश्व पर्यावरण दिवस के तहत पर्यावरण संरक्षण कार्यक्रम आयोजित किया गया। कार्यक्रम में बग्गी के क्षेत्र के वास्तविक निवासियों के साथ-साथ ज्योतिद्वन्द्वर स्कूल के छात्रों का भी सहभाग्य था। कार्यक्रम में पर्यावरण संरक्षण के महत्व के बारे में विद्यार्थियों को प्रशिक्षण दिया गया। कार्यक्रम में बग्गी के क्षेत्र के वास्तविक निवासियों के साथ-साथ ज्योतिद्वन्द्वर स्कूल के छात्रों का भी सहभाग्य था। कार्यक्रम में पर्यावरण संरक्षण के महत्व के बारे में विद्यार्थियों को प्रशिक्षण दिया गया।

ज्योतिद्वन्द्वर (अमिता): ज्योतिद्वन्द्वर स्कूल में बग्गी के क्षेत्र के वास्तविक निवासियों के साथ-साथ ज्योतिद्वन्द्वर स्कूल के छात्रों का भी सहभाग्य था। कार्यक्रम में पर्यावरण संरक्षण के महत्व के बारे में विद्यार्थियों को प्रशिक्षण दिया गया।

तस्खियों पर नारे, आओ मिलकर

विश्व पर्यावरण दिवस पर गुरपलाह स्कूल में कार्यक्रम, सिविल सीनियर

काशीय संकटदाता-टाहलीवाल

राजकीय उच्च माध्यमिक विद्यालय गुरपलाह में विश्व पर्यावरण दिवस के उपलक्ष्य पर विशेष कार्यक्रम का आयोजन किया गया। यह कार्यक्रम नेस्ले लिमिटेड कम्पनी टाहलीवाल, ज्योतिद्वन्द्वर स्कूल बग्गी (उत्तर) जून पूर्व पर्यावरण दिवस माध्यमिक विद्यालय गुरपलाह के ईको क्लब के संयुक्त तत्वाधान में आयोजित किया गया। पर्यावरण संरक्षण पर आधारित इस कार्यक्रम में गुरपलाह के रूप में जिला जून की संविदा, सिविल जून अतिरिक्त रूप में शिरकात की ज्योतिद्वन्द्वर अतिरिक्त के रूप में नेस्ले इंडिया लिमिटेड टाहलीवाल के कोर्पोरेट अफेयर्स मैनेजर, ज्योतिद्वन्द्वर स्कूल बग्गी के संयुक्त तत्वाधान में आयोजित किया गया। कार्यक्रम में पर्यावरण संरक्षण के महत्व के बारे में विद्यार्थियों को प्रशिक्षण दिया गया।

उना - गुरपलाह स्कूल में पर्यावरण दिवस पर मौजूद गणमान्य

उना - मालती कालेज में पर्यावरण दिवस पर मौजूद एनसीसी कैडेट्स

उना - डीएवी धरकल स्कूल में पर्यावरण दिवस पर मौजूद छात्रों का

बग्गी : बग्गी स्कूल में आयोजित कार्यक्रम के दौरान मुख्यातिथि, स्टाफ व स्कुली बच्चे । (वि.स.)

Regional Office Bilaspur:

Celebrations at Shiv Shakti International School, Ghumarwin included a quiz, painting competition, skit, awareness rally, and plantation. Despite extreme heat, 100 plants were planted, with plans for more in the upcoming monsoon season. An educational visit to NTPC Kol Dam's Sewage Treatment Plant was conducted on June 6, 2024.

Central Laboratory Parwanoo:

In collaboration with Solan Homeopathic Medical College & Hospital, various activities were organized, including declamation, Rangoli and poster-making competitions, a plantation drive, and an environmental awareness rally.

Regional Office Rampur:

A cleanliness-cum-awareness drive at GSSS Sangla, Kinnaur, involved 150 participants. The event included a plantation drive with JSW Hydro Pvt. Ltd. and the Forest Department.

Regional Office Baddi:

Focused on "Land Restoration, Desertification, and Drought Resilience," the office organized awareness, plantation, and cleanliness drives in collaboration with several industries. Approximately 2850 saplings were planted, with additional activities planned for the monsoon season.

Regional Office Kullu:

An awareness program at G.S.S.School Tharas started with a cleanliness drive collecting 60 kg of waste. Subsequent activities included slogan and drawing competitions and a declamation contest.

Regional Office Chamba:

Several awareness activities were conducted (explained separately) by RO Chamba.

Regional Laboratory Paonta:

The RL Paonta conducted many activities separately as well as with RO Paonta.

Regional Office Shimla:

A cleanliness-cum-awareness drive was held in Tutikandi area in collaboration with various organizations, collecting approximately 350 kg of solid waste, which was sent to the waste processing facility at MC Shimla, Bhariyal.

प्लास्टिक छोड़ कपड़े के थैले का यूज करो

स्टाफ रिपोर्ट- सुंदरनगर

हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड की क्षेत्रीय प्रयोगशाला सुंदरनगर में विश्व पर्यावरण दिवसके उपलक्ष्य पर विभिन्न प्रकार की गतिविधियों का आयोजन किया गया। विश्व पर्यावरण दिवस की थीम लैंड रेस्टोरेशन एडेसर्टिफिकेशन एंड ड्रोट रेसिलिएन्स के तहत विभिन्न प्रकार की गतिविधियों द्वारा राजकीय उच्च विद्यालय बग्गी के विद्यार्थियों के माध्यम से लोगों को जागरूक किया गया। मिशन लाइफ अर्थात पर्यावरण के अनुकूल जीवनशैली जिससे पर्यावरण संरक्षण हो तथा हर एक इंसान अपनी जिम्मेदारी समझे। मिशन



लाइफ के सात बिंदु है। ऊर्जा को बचत, पानी को बचत, एकल उपयोग प्लास्टिक को ना कहें, ई-वेस्ट को कम करना, ठोस अपशिष्ट को कम करना सतत खाद्य प्रणालियों को अपनाना और स्वस्थ जीवन शैली को अपनाना। प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड द्वारा प्रयास किया गया कि लोग

छोटे काम से लेकर बड़े बड़े कामों को पर्यावरण को ध्यान में रखते हुए करें। उदाहरण के लिए अगर प्लास्टिक छोड़ हम कपड़े के थैले का इस्तेमाल करें तो बड़े स्तर पर पर्यावरण का प्लास्टिक प्रदूषण से बचाया सकता है। इस अवसर पर प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड की क्षेत्रीय प्रयोगशाला सुंदरनगर

द्वारा जागरूकता अभियान चलाया गया जिसका मुख्य उद्देश्य लोगों को पर्यावरण के अनुकूल जीवनशैली को अपनाना तथा विभिन्न प्रकार के प्रदूषण के दुष्प्रभावों के बारे में जागरूक करवाना था। क्षेत्रीय प्रयोगशाला सुंदरनगर के अधिकारियों द्वारा विश्व पर्यावरण दिवस, 2024 के उपलक्ष्य पर बुधवार को राजकीय उच्च विद्यालय बग्गी में जागरूकता अभियान एवं स्वच्छता अभियान एवं पौधा रोपण किया गया तथा लोगों को जागरूक करने के लिए रैली भी निकाली गई। इस अवसर पर क्षेत्रीय प्रयोगशाला सुंदरनगर के प्रभारी चमन ठाकुर, वैज्ञानिक अधिकारी द्वारा संगोष्ठी का आयोजन किया गया।



पीसीबी नें विश्व पर्यावरण दिवस पर कई संस्थाओं व औद्योगिक इकाइयों के संग मिलकर की सफाई

अमित ठाकुर | परवाणु
(05-06-2024)

परवाणु प्रदूषण नियंत्रण बोर्ड द्वारा विश्व पर्यावरण दिवस पर जिला कानूनी सेवा प्राधिकरण, होटल एसोसिएशन कसौली और औद्योगिक एसोसिएशन परवाणु व कई औद्योगिक इकाइयों के सहयोग से सोलन, कसौली और परवाणु में सफाई अभियान चलाया। विषय पर्यावरण दिवस पर चलाये जा रहे स्वच्छता अभियान के दौरान विभाग द्वारा कसौली व सोलन के दो हॉट स्पॉट चुने गए जहाँ सफाई अभियान चलाकर सफाई व्यवस्था दुरुस्त की। इसी कड़ी में प्रदूषण नियंत्रण बोर्ड परवाणु द्वारा परवाणु औद्योगिक संघ व कई औद्योगिक के साथ मिलकर परवाणु के कई क्षेत्रों में स्वच्छता की मुहिम चलाई। विश्व पर्यावरण दिवस पर हुए इस कार्यक्रम के दौरान इस सब को 13 टीमों में बाँटा गया जिनमें मुख्य रूप से परवाणु की कई औद्योगिक इकाइयों ने अपना पूरा सहयोग दिया। सभी 13 टीमों को साफ सफाई करने के लिए परवाणु के अलग अलग क्षेत्र आवंटित किए गए जहाँ कंपनी वालंटियर्स ने पूर्ण योगदान देकर शहर को स्वच्छ बनाया। वहीं प्रदूषण नियंत्रण विभाग तथा सभी कंपनी वालंटियर्स ने जनता को स्वच्छता बारे भी जागरूक किया। इस दौरान लगभग 300 लोगों ने इस अभियान में भाग लिया। जिसके लिए बुधवार को चलाया गया स्वच्छता अभियान

परवाणु नगर परिषद नें एकत्रित किए गए गावेज के निपटारे पर दिया किया बहुमूल्य योगदान



फोटो : पर्यावरण दिवस पर सफाई करते पीसीबी, सहयोगी संस्था एवं औद्योगिक इकाई के वालंटियर्स

भविष्य में राम बाग का भी कार्य कर सकता है। वहीं कसौली क्षेत्र से 10 टन सालिड वेस्ट, सोलन से 6 टन और परवाणु औद्योगिक क्षेत्र से 3 टन सालिड वेस्ट एकत्र किया गया। इस सब में परवाणु नगर परिषद ने महत्वपूर्ण योगदान देते हुए एकत्र किए गए कचरे का पूरी तरह से निपटारा किया। बता दें जैसे परवाणु में डायरिया फैला हुआ है और आने वाले दिनों में डेंगू का भी खतरा बना हुआ है उसके लिए परवाणु में सफाई व्यवस्था दुरुस्त रखने की बहुत आवश्यकता है। वहीं इन दिनों स्वच्छता ना होने के कारण परवाणु का पानी भी दूषित हुआ है

उधर, विश्व पर्यावरण दिवस पर परवाणु प्रदूषण नियंत्रण विभाग के एसडीओ अनिल राव ने विश्व पर्यावरण दिवस की बधाई देते हुए बताया की परवाणु, कसौली एवं सोलन में हमारे प्रदूषण विभाग के अधिकारियों ने एक स्वच्छता की मुहिम चलाई जो पूरी तरह सफल रही। अनिल राव ने परवाणु उद्योग संघ एवं परवाणु की औद्योगिक इकाइयों को स्वच्छता को लेकर चलाई गई मुहिम को सफल बनाने को लेकर आभार प्रकट किया। पीसीबी एसडीओ अनिल राव ने परवाणु की जनता से भी अपने अपने क्षेत्र को स्वच्छ बनाये रखने की अपील की।



Wall murals in Kala Amb, cleanliness drives & other awareness campaigns conducted by our field offices



Activities by Parwanoo, Kullu and Dharamshala



Use of advanced technologies for decentralized treatment & disposal of bio-medical waste in hilly regions

Contributed by: **Dr. Manoj Chauhan, Chief Scientific Officer, HPSPCB**

The author advocates for decentralized disposal methods for managing biomedical waste in hilly and remote regions. These methods reduce transportation needs and costs, enhance safety and hygiene, and meet regulatory requirements.

The management of biomedical waste (BMW) in hilly and remote regions presents considerable challenges due to difficult terrain, limited infrastructure, and isolation from common treatment & disposal facilities. Decentralized disposal methods, which involve treating and disposing of waste on-site or near the point of generation, offer significant advantages for hilly regions by reducing transportation needs as well as cost, enhancing safety, hygiene and prevent environmental pollution through proper waste management. The State has an inventory of 9365 healthcare institutions, which falls under the ambit of Biomedical Waste Management Rules, 2016. Although presently about 95 % of the waste generated (i.e. 3612 kg/day) by 4747 HCFs are disposed of through common facilities and approx. 5% of the waste generated (i.e. 204 kg/day) by 4618 HCFs are being disposed of through captive disposal facilities (i.e. deep burial), which is certainly not a preferential mode of disposal. These are mostly small health care institutions located in far flung areas of the State and require decentralized cost-effective solution for treatment and disposal of bio-medical waste. Emerging technologies such as portable autoclaves, microwave disinfection units, chemical disinfection and encapsulation, solar-powered incinerators, and plasma pyrolysis

provide practical solutions for local waste treatment. Portable autoclaves and sterilization units powered by renewable energy sources like solar panels, enable effective on-site sterilization.

Microwave disinfection units offer compact and efficient treatment by using microwave radiation to generate heat within the waste material. Chemical disinfection and encapsulation methods use non-toxic, biodegradable chemicals to neutralize waste, which can then be safely encapsulated. Solar-powered incinerators utilize solar energy to achieve the high temperatures necessary for waste combustion, reducing waste volume and eliminating pathogens. Plasma pyrolysis decomposes biomedical waste into syngas and slag, providing a sustainable waste management solution by reducing waste volume and generating energy. It is safe, eco-friendly, has energy recovery and negligible harmful emissions of dioxins and furans, but involve relatively large initial capital cost. These technologies promote sustainability by minimizing contamination, environmental pollution, reducing carbon emissions, and enabling resource recovery. Besides, align with the circular economy principles by converting waste into valuable by products, such as energy, metals, and reusable materials. Advancing decentralized biomedical waste disposal technologies can significantly improve waste management efficiency in hilly regions, fostering public health protection and environmental sustainability. Implementing these innovations is vital for creating resilient waste management systems that support the goals of a circular economy, particularly in challenging terrains.

The Chief Secretary reviews the performance of STPs



A meeting was held on May 20, 2024, under the chairmanship of Shri Prabodh Saxena (IAS), Chief Secretary to the Government of Himachal Pradesh (GoHP), to review the performance of Sewage treatment plants (STPs).

Shri Onkar Chand Sharma (IAS), Chairman, and Shri Anil Joshi (IFS), Member Secretary of the H.P. State Pollution Control Board, along with other representatives from various other departments, were present.

In the said meeting it was apprised that Hon'ble NGT in the matter of "OA No-735/2023 – News Item dated 04.12.2023: Ashwani Khad Most Polluted River in HP" has taken serious note on status of the polluted river stretches in the State of Himachal Pradesh and has directed to ensure compliance of all STPs in the catchment of polluted river stretches.

There are 80 operational STPs in the State. The Member Secretary informed the chairman that parameters prescribed for STPs are stringent as per Hon'ble NGT directions than MOEF notification dated 01.01.2016. The Chief Secretary directed the concerned department's i.e. Jal Shakti Vibhag and M/s SJPNL, to ensure that the discharge from the STPs shall meet the desired norms stipulated under Environment Protection Rules, 1986 and also as per norms prescribed by Hon'ble NGT.

The chairman further instructed the Engineer-in-Chief (ENC) of Jal Shakti Vibhag and M/s SJPNL, to ensure that all STPs shall obtain the necessary Consent to Operate under Water (prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981 before operating, and asked the State Pollution Control Board to expedite the such applications on priority.

Satellites record higher fire incidences in apple-producing regions of Himachal Pradesh

Contributed by: Shri Shashi Shekhar, Scientific Officer, HPSPCB

Burning apple twigs and horticultural residues after winter pruning in Himachal Pradesh raises environmental concerns, akin to the infamous Parali burning in North India, impacting air quality in parts of the apple-growing areas of Himachal Pradesh. District-wise data from NASA/NOAA satellites highlight the human-made nature of the issue. Despite frequent fire incidents, air pollution levels monitored through Sentinel 5P are not alarming. However, the situation still warrants early attention.

Background

In the picturesque apple-growing regions of Himachal Pradesh, the practice of burning apple twigs and other horticultural residues after winter pruning sparks environmental concerns each passing year. Similar to the infamous Parali burning in the North Indian plains and this practice is tarnishing the otherwise pristine air quality of Himachal Pradesh, with traces of smoke blanketing the upper areas of apple belts in Shimla, Kullu, Mandi, Chamba, Kinnaur and other apple-growing areas during winter. In fact, apples are grown in all districts of Himachal Pradesh except for the lower districts such as Una, Hamirpur, and Bilaspur. This issue is particularly prevalent in upper Shimla, where 32 percent of fire incidents were recorded in the apple belt, followed by the Kullu region with 24 percent fire occurrences of the State. As winter approaches, farmers start burning dry leaves and twigs in orchards, lowering air pollution levels.

District-wise data on fire incidents, captured by the Visible Infrared Imaging Radiometer Suite

(VIIRS) 375m thermal sensor aboard the joint NASA/NOAA Suomi National Polar-orbiting Partnership (Suomi NPP) and NOAA-20 satellites, indicate the burning of horticultural waste during winter. The district-wise breakdown of fire incidents as depicted in Graph-1 underscores the human-made nature of the issue in the upper regions.

As per the Economic Survey of Himachal Pradesh for the year 2022-23, horticulture crops hold substantial importance in the state's agriculture, with fruits being a key component. Among these fruits, apples stand out as the predominant crop, contributing significantly to the horticulture sector, accounting for about three fourth share in the year 2021-22. This underscores the pivotal role of apple cultivation in shaping the state's economy and agricultural sector.

Forest fire or biomass burning?

Analysis of fire data from the Collection 6 Terra and Aqua Moderate Resolution Imaging Spectroradiometer (MODIS) revealed 240 fires detected in 2023, whereas over 2343 fire cases recorded by VIIRS sensor fire products in Himachal Pradesh. There seem to have some gaps in acquisition date of fire data making it difficult to arrive at exact percent of forest fires.

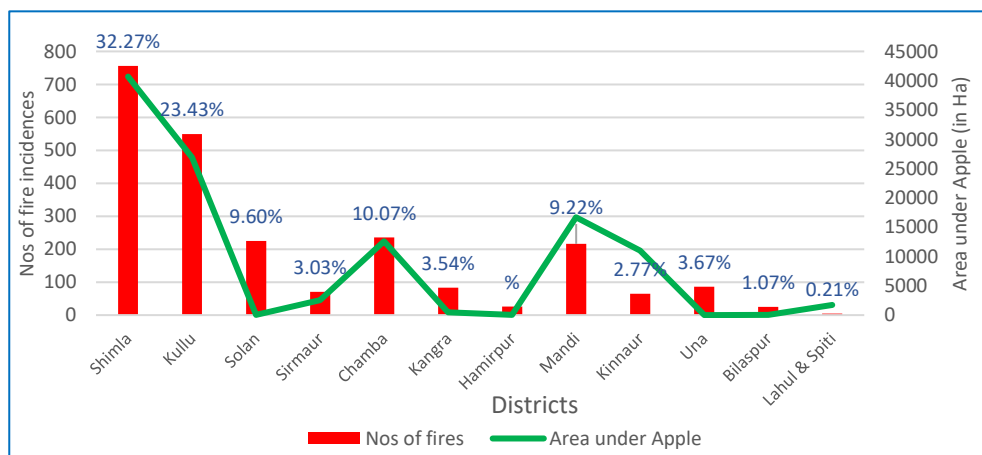
Nevertheless, it can be vaguely suggested about 25-30 percent of fires originated in forest areas, occurred during summer.

MODIS Collection 6.1 incorporates advancements in calibration, correction algorithms, and data processing techniques, leading to enhanced data quality with minimized uncertainties and improved accuracy. Typically, MODIS land products offer spatial resolutions of 250 meters (bands 1-7) and 500 meters (bands 8-36) at nadir, with some products reaching 1-kilometer spatial resolution. The revisit time varies depending on the specific product and satellite platform (Terra or Aqua), ranging from once every 1 to 2 days for land products to multiple times per day for certain atmospheric products. Fire locations of MODIS have been superimposed on forest density map of Forest Survey of India, which depicts that three fourth of fires occur in non-forest lands remaining one fifth occurs in open and dense forests (Refer Graph-2). Three-fourths of fire incidents can be directly linked to the burning of agricultural and horticultural and other waste, a practice predominantly carried out by humans. Hence, the increased frequency of these fires during the winter season in the upper regions of Shimla, Kullu, Mandi, and other districts can unequivocally be attributed to the burning of horticultural waste.

Prominently winter fire

The analysis of MODIS data reveals a significant prevalence of winter fires across orchards. Graph-3 illustrates that approx. 70-75 percent of fires were recorded during the winter season, from November 2023 to March 2024, which is well illustrated by Graph-3.

Graph -1: District-wise occurrences of fire incidences during 2023 & area under apple production



This indicates that the majority of these fires are man-made, likely stemming from the burning of apple twigs or horticultural waste or other wastes. Furthermore, these fires are predominantly distributed in the upper regions of Shimla, Mandi, Kullu, and Chamba, aligning closely with the apple belt. Spatial dispersal map has been displayed at Map-1. Approximately 25 to 30 percent of fires can be attributed to the ignition of dry pine needles or forest fires.

The smoke emanating from the higher reaches of Himachal Pradesh is clearly visible in Image-1.

Dispersion of smoke

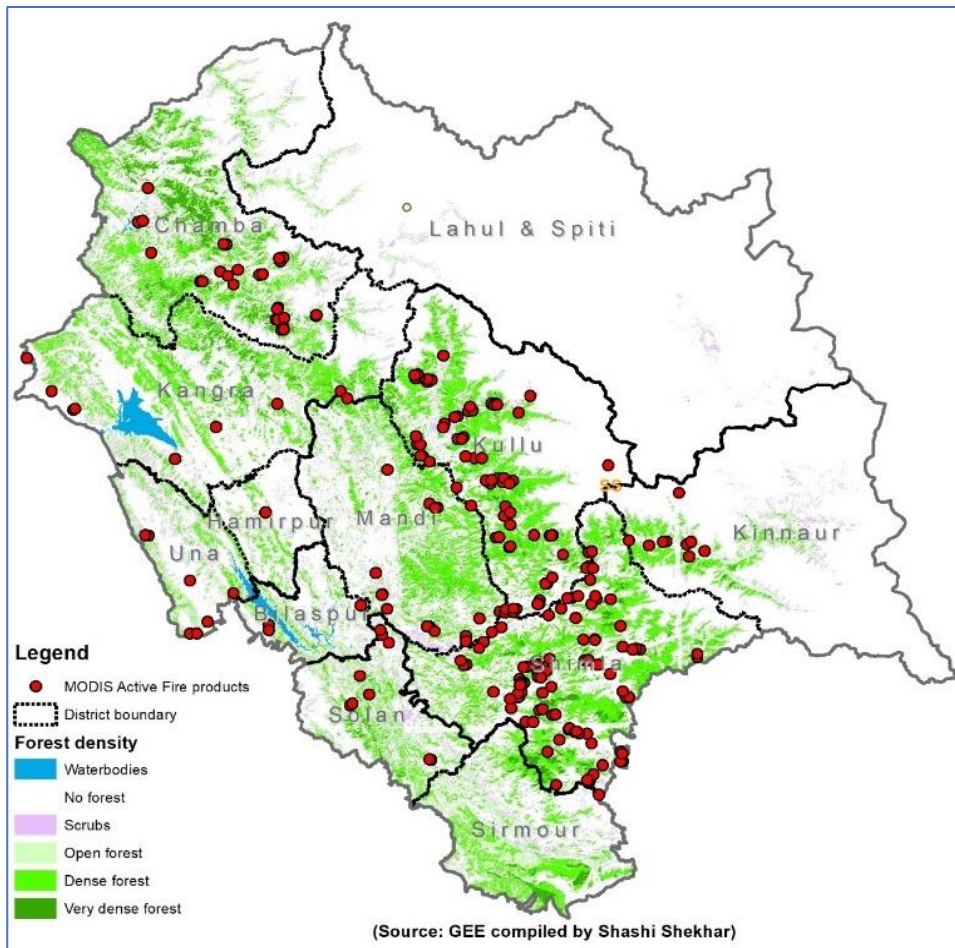
As winter pruning of apple plants intensifies, orchard fires are increasingly becoming a contributor to air pollution, with smoke billowing from several parts of the apple belt. Despite bans imposed by respective district administrations on burning pruning waste, the practice seems continuing. This situation mirrors the scenario in other apple-producing areas, where individuals not only burn pruning waste but also set haystacks ablaze. From time to time, the administration has been urging farmers to refrain from burning twigs and instead encouraged their utilization in composting for the production of manure.

Past practices of burning of apple twigs

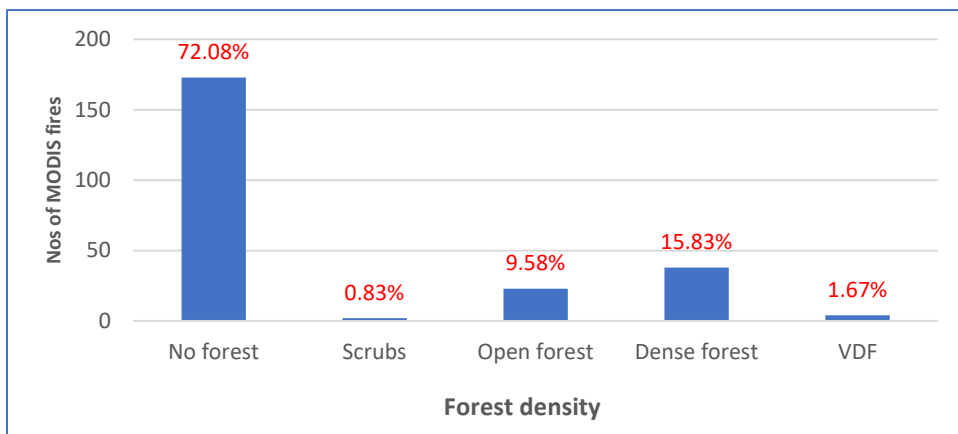
The burning of horticulture waste can be compared to the infamous stubble burning in the plains. However, due to the partial density of orchards compared to the continuous wheat fields of the plains, the magnitude and spread of smoke are localized. Furthermore, the State Pollution Control Board continually monitors the air quality of various activities and projects and has not reported alarming levels of air pollution in these areas. This practice reportedly originated in the 1980s when scab, a harmful fungal disease, emerged in the state for the first time. Growers were advised by experts to burn all waste to prevent the disease from recurring the following year. Initially, the environmental impact of this burning was minimal as the number of orchards was significantly lower compared to the present.

NGT References on waste/biomass burning

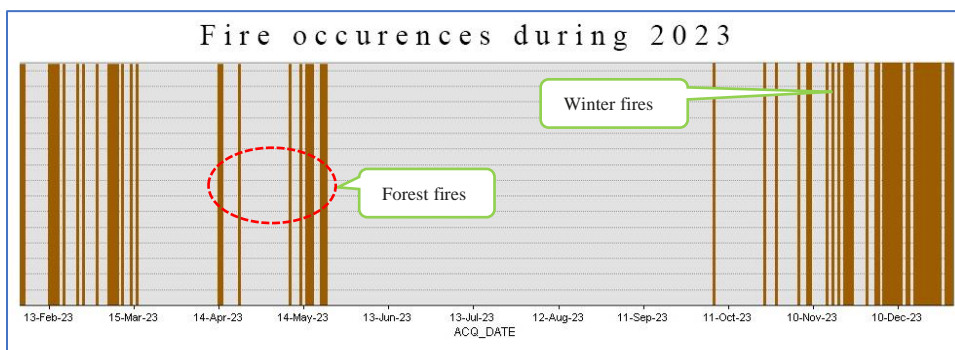
In compliance with orders of Hon'ble National Green Tribunal (NGT), the H. P. State Pollution



Map-1 MODIS Active fire locations during the year 2023



Graph-2: Location of fires in forest density types



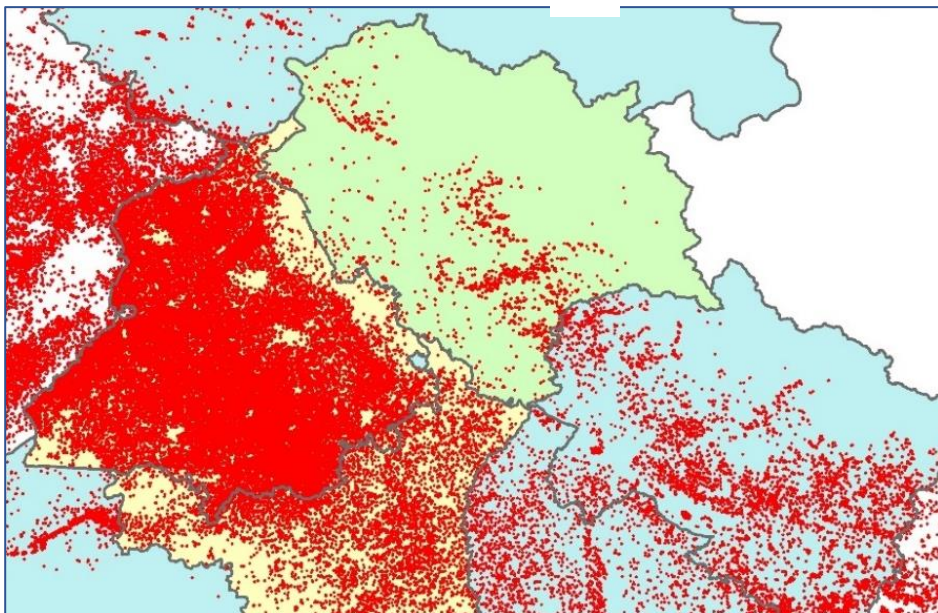
Graph-3 Concentration of most of the fires during winter (January to March)

Control Board keep vigil on such occurrences and has submitted a draft fuel policy to the State Government to utilize such wastes particularly pine-based.

Draft policy stipulates “Biomass as fuel (like Pine Needles, Briquettes/Pellets of Pine Needles and other Biomass (including Lantana etc.): Cement Industries which are using Pet-Coke and Coal as a fuel will meet at least 0.1 % of their annual fuel consumption from forest-based biomass like Pine Needles, Briquettes/Pellets of Pine Needles and other Biomass including Lantana etc. whether in briquette form or otherwise. This has also been stipulated in the Department of Environment, Science & Technology, Government of Himachal Pradesh Letter No. HPSPCB/EIA Notification (Consent Branch)/2018-14399-14433, dated-01-09-2018.”



Image-1: courtesy <https://www.tribuneindia.com/news/himachal/burning-of-orchard-waste>



Map-2: Incidences of fires during 2023 in North-western states (Source: NASA-VIIRS)

Furthermore, some of the incidences of burning of household waste cannot be ruled out. Action plan for municipal solid waste management Himachal Pradesh prepared by Department of Urban Development also recommended enforcement of complete prohibition of open burning of waste of all types. In compliance ULBs were directed to take necessary steps to train their staff and educate people for not to burn the garbage in open in view of the NGT order dated 22nd Dec, 2016.

Satellite based fire monitoring

The Visible Infrared Imaging Radiometer Suite (VIIRS) 375 m thermal anomalies / active fire

product provides data from the VIIRS sensor aboard the joint NASA/NOAA Suomi National Polar-orbiting Partnership (Suomi NPP) and NOAA-20 satellites. They both show good agreement in hotspot detection but the improved spatial resolution of the 375 m data provides a greater response over fires of relatively small areas and provides improved mapping of large fire perimeters. The 375 m data also has improved night-time performance. Consequently, these data are well suited for use in support of fire management (e.g., near real-time alert systems), as well as other science applications requiring improved fire mapping fidelity.

This product provides data on actively burning fires globally, with a spatial resolution of 375 meters. It detects fires by observing the thermal radiation emitted by the fires in the mid-infrared spectrum.

Key details about the VIIRS 375 m Active Fire Product

1. Detection Method: The VIIRS instrument detects active fires by measuring the brightness temperature of the Earth's surface in the mid-infrared spectrum. Pixels exhibiting temperatures higher than the background temperature are flagged as active fire detections.
2. Spatial Resolution: The VIIRS 375 m Active Fire Product provides fire detections at a spatial resolution of 375 meters, allowing for detailed mapping of fire locations and extents.
3. Temporal Resolution: The VIIRS instrument provides global coverage multiple times per day, allowing for near real-time monitoring of active fires on a global scale.
4. Applications: The data provided by the VIIRS 375 m Active Fire Product is used for a variety of applications, including wildfire monitoring and management, air quality assessment, carbon emissions estimation, and ecological research globally. It is valuable for both operational fire management agencies and scientific research institutions.

5. Data Accessibility: The VIIRS 375 m Active Fire Product data is freely accessible to the public through various data portals and platforms provided by NOAA, NASA, and other agencies. These platforms often offer tools for visualization, analysis, and download of the fire data.

Overall, the VIIRS 375 m Active Fire Product plays a crucial role in global fire monitoring efforts, providing valuable information for understanding and managing wildfires and their impacts on the environment and society.

Environment and health implication

Forest fires and biomass/horti-waste (apple twig) burning can have significant implications for air quality and environmental pollution.

Burning such wastes release emissions, which are on rise:

1) Emission of Pollutants: Forest fires and biomass burning release a variety of pollutants into the atmosphere, including particulate matter (PM), carbon monoxide (CO), nitrogen oxides (NO_x), volatile organic compounds (VOCs), and hazardous air pollutants (HAPs). These pollutants can have adverse effects on air quality and human health.

i) Particulate Matter: Smoke from forest fires contains high concentrations of fine particulate matter (PM_{2.5} and PM₁₀), which can penetrate deep into the lungs and cause respiratory problems, cardiovascular issues, and exacerbate existing health conditions.

ii) Carbon Monoxide: Biomass burning emits carbon monoxide (CO), a colorless and odorless gas that is harmful when inhaled in high concentrations. CO can impair oxygen transport in the bloodstream, leading to symptoms such as headaches, dizziness, and even death in severe cases.

iii) Greenhouse Gas Emissions: Forest fires and biomass burning release large amounts of carbon dioxide (CO₂) and other greenhouse gases into the atmosphere, contributing to climate change and global warming.

2) Air Quality Impacts: The pollutants emitted from forest fires and biomass burning can degrade air quality, leading to haze, reduced visibility, and smog formation. Prolonged exposure to poor air quality can have adverse effects on both human health and ecosystems.

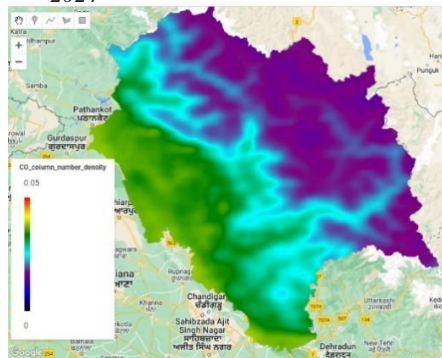
3) Regional and Global Transport: Smoke and pollutants from forest fires and biomass burning can be transported over long distances, affecting air quality and visibility in regions far from the source of the fire. Delhi is one such glaring example. This can have implications for air quality management and regulatory efforts on both regional and global scales.

4) Environmental Damage: In addition to air pollution, forest fires and biomass burning can cause extensive damage to ecosystems, including loss of biodiversity, soil degradation, and destruction of wildlife habitats.

Overall, forest fires and biomass burning are significant sources of air pollution and can have wide-ranging impacts on human health, the environment, and climate change. Effective management strategies, including fire prevention, early detection, and mitigation efforts, are essential for minimizing the adverse effects of these events. Additionally, monitoring and research efforts are crucial for understanding the complex interactions between forest fires, air quality, and environmental pollution.



Map-3: Location of fire incidences during 27th October 2023 to 30th March 2024



Map-5: CO (CO_{column_number_density}) concentration during 27th October 2023 to 30th March 2024

Satellite based air quality assessment other than NASA

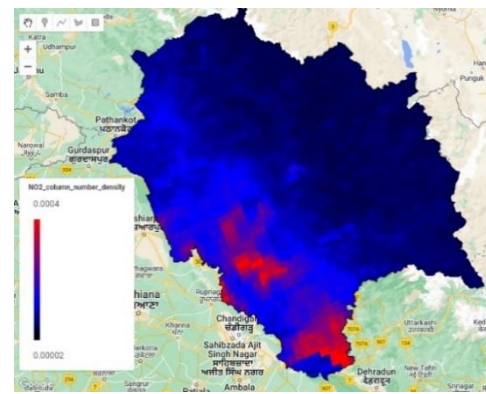
• Sentinel-5P (Sentinel-5 Precursor) is a satellite mission developed by the European Space Agency (ESA) as part of the Copernicus program. Sentinel-5P carries the Tropospheric Monitoring Instrument (TROPOMI), which is designed to monitor atmospheric composition with high spatial resolution and accuracy.

Here's how Sentinel-5P products help in the estimation of air pollution:

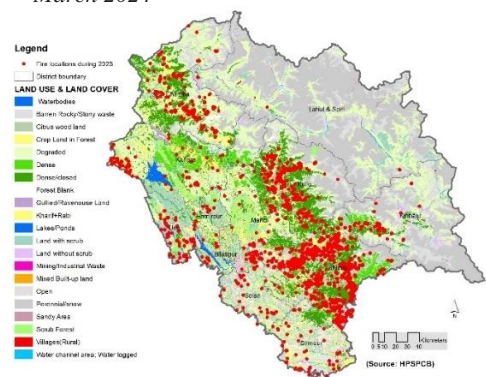
Measurement of Pollutants:

• TROPOMI onboard Sentinel-5P measures a range of atmospheric pollutants, including nitrogen dioxide (NO₂), ozone (O₃), sulfur dioxide (SO₂), formaldehyde (HCHO), carbon monoxide (CO), methane (CH₄), and aerosols. These pollutants are key indicators of air quality and are associated with various sources, including industrial activities, transportation, and biomass burning.

• Sentinel-5P provides high spatial resolution observations, allowing for detailed mapping of pollutant concentrations at a local and regional scale.



Map-4: NO₂ (NO_{2_column_number_density}) concentration during 27th October 2023 to 30th March 2024



Map-6: Land use and Land cover of Himachal Pradesh

This spatial resolution is particularly useful for identifying hotspots of pollution and assessing the distribution of pollutants in urban areas and other densely populated regions.

- Sentinel-5P data can help identify sources of pollution and track the transport of pollutants across regions. By analyzing the spatial distribution and temporal evolution of pollutant concentrations, it is possible to attribute pollution events to specific sources, such as industrial emissions, traffic emissions, wildfires, or agricultural activities.
- In summary, Sentinel-5P products play a crucial role in the estimation of air pollution by providing detailed observations of atmospheric composition, high spatial resolution mapping of pollutant concentrations, and regular monitoring of air quality on a global scale.

• Air pollution of Himachal Pradesh has been mapped in *Maps 3,4&5* indicating traces of such gases in Himachal Pradesh. However, the concentration is negligible or much lesser than plains of Punjab and Haryana.

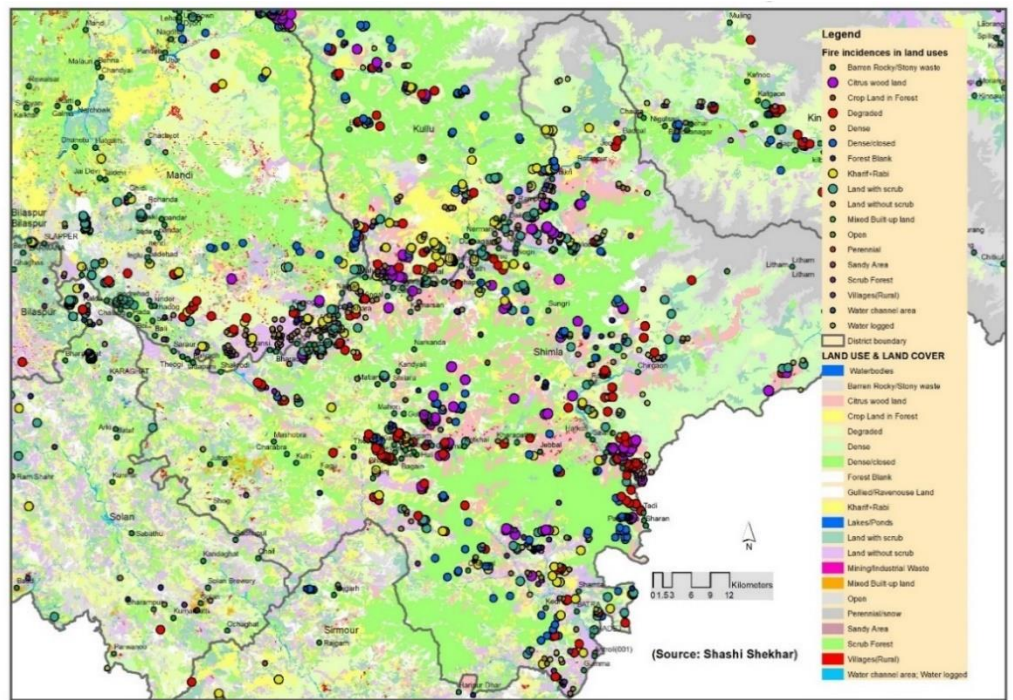
Fire Incidences and NO2 Concentration

• This Sentinel 5P dataset provides near real-time high-resolution imagery of NO2 concentrations. Nitrogen oxides (NO2 and NO) are important trace gases in the Earth's atmosphere, present in both the troposphere and the stratosphere. They enter the atmosphere as a result of anthropogenic activities (notably fossil fuel combustion and biomass burning) and natural processes (wildfires, lightning, and microbiological processes in soils).

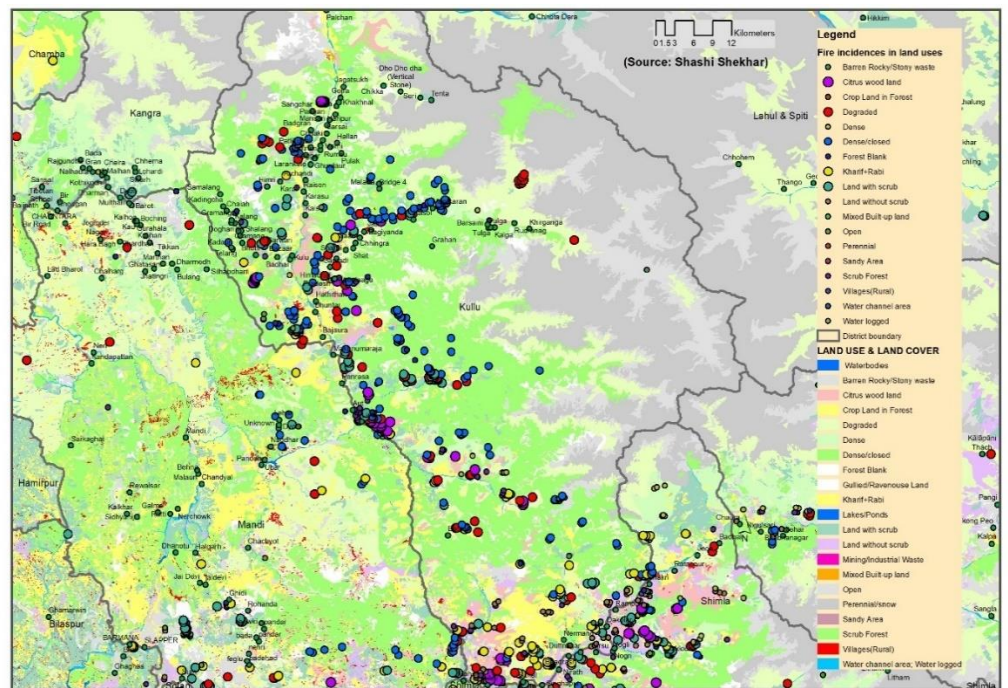
Here, NO2 is used to represent concentrations of collective nitrogen oxides because during daytime, i.e. in the presence of sunlight, a photochemical cycle involving ozone (O3) converts NO into NO2 and vice versa on a timescale of minutes.

Correlation between fire incidences and land-use & vegetation types

• There is a discernible correlation between land use, vegetation types, and fire incidents. The maps and graphs illustrate that areas classified as scrubs, agricultural lands, orchards, pine vegetative areas and pine mixed recorded more fire incidences.



Map-7: Shimla – the highest fire affected district



Map-8: Kullu – the second most affected district of the State

Thus, occurrence of forest fires excluding the summer may be attributed to forest fires.

• From google earth verification, scrubs seem to refer to areas containing orchards and various types of horticultural plants. While it wasn't feasible to analyze apple areas at this scale, it's reasonable to infer that many scrub areas correspond to the apple belt.

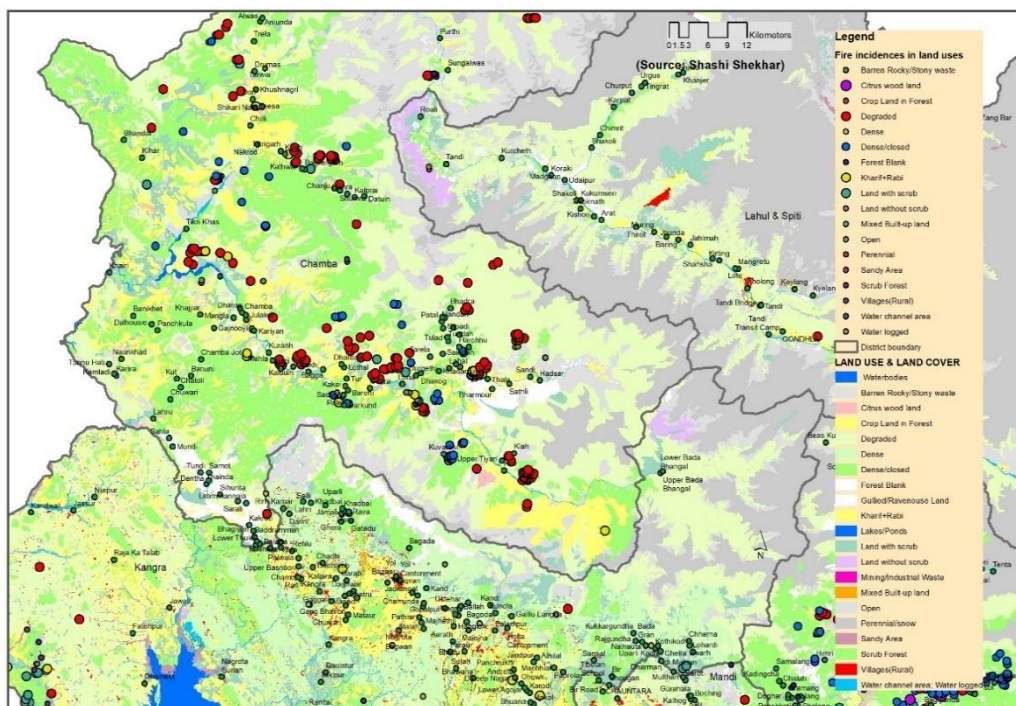
Pine forests are typically located in forest lands.

• Upon closer examination of the Shimla and Kullu areas, it becomes apparent that cropped areas, citrus woodlands, open lands in forests, degraded forest lands, and areas with or without scrubs consistently recorded higher incidences of fire. The absence of an orchard database, which could have been combined with the fire dataset, hinders my ability to draw clear conclusions.

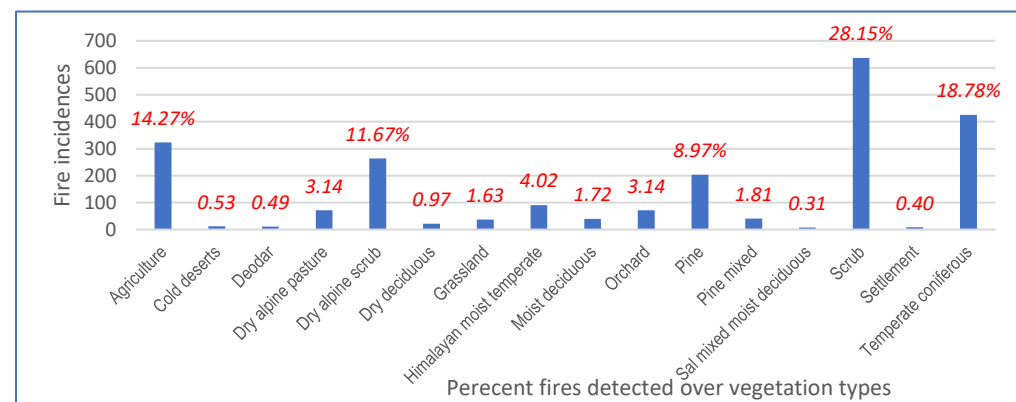
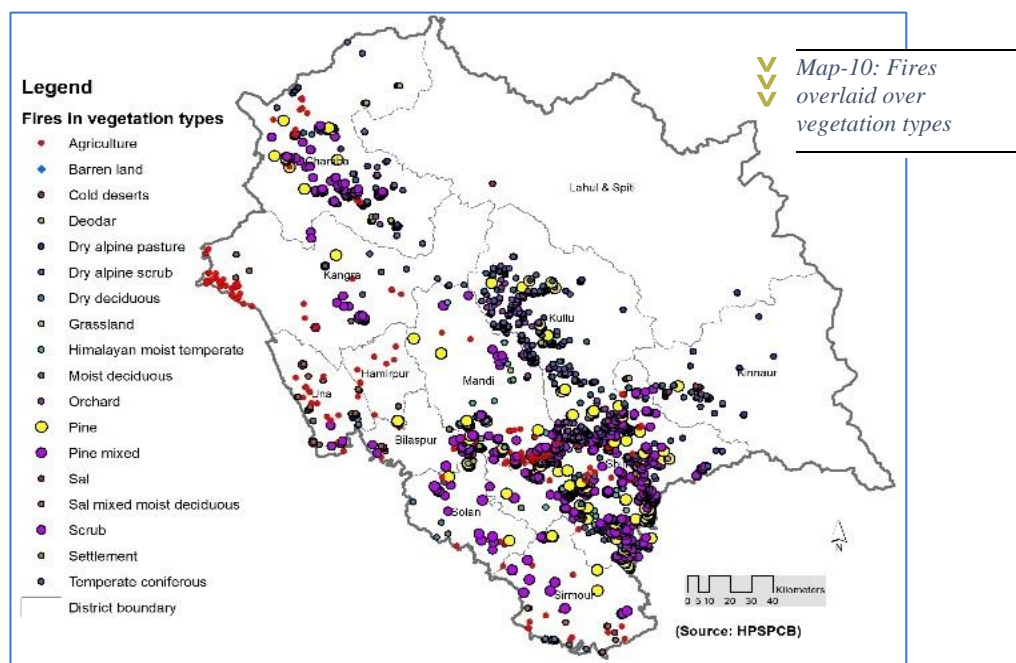
This emphatically underscores that the apple belt and higher elevations experienced heightened burning activities.

Summary

- In summary, fire incidences in Himachal Pradesh during the year 2023 are recorded very high. A significant share of fires are observed in the land use types (*Map-10*) of Pine Mixed indicating a huge contribution from forest fire. Nevertheless, forest fire and the burning of horticultural waste pose a significant challenge for environmental regulators and presents health risks to both the environment and people. The majority of these fires appear to be of human origin.
- Just as stubble burning is deemed unacceptable, so too is the burning of apple twigs. It is imperative to raise awareness and educate the public about this harmful practice, while also implementing measures to control it.
- It is important to understand that those engaged in this practice jeopardize their health for minimal financial gain, while the public bears the brunt of increased pollution levels.
- The burning of horticulture waste can partially be compared to the infamous stubble burning in the plains (*Map-2*). However, the intensity of pollution caused by this burning is significantly lower, more sporadic, and spread in pockets in Himachal Pradesh. *Map -2* indicates the number of fire incidents (2023) in northwest India, with Himachal Pradesh showing a negligible number of incidents in comparison.
- The magnitude and spread of the smoke are localized, yet this still poses a serious challenge to regulators and decision-makers. The State Pollution Control Board frequently conducts awareness activities through various means to educate people about this issue. This matter requires continued attention from the concerned agencies.
- The above conclusion is supported by pollution levels assessed through Sentinel5P, which indicate that several parameters are well within limits. While this does not present an alarming situation, it still deserves early attention.



Map-9: Chamba: one of the most affected districts of the State



Graph-4: Fire incidences in different vegetation types

Gaps in liquid waste management in Health Care Facilities in District Kangra, HP

Contributed by: *Smt. Satvinder Kaur, Scientific Officer, Dr Ajay Verma, Jr. Scientific Officer, Smt Pooja Kaundal, Jr. Scientific Officer, H. P. State Pollution Control Board Regional Laboratory Dharamshala.*

Efficient management of biomedical waste is essential to mitigate its adverse effects on the environment, such as water and air pollution & on human health. Despite holding responsibility for biomedical waste management of the region, the authors conduct an independent analysis of its effectiveness, particularly in light of the ongoing expansion of healthcare facilities in Himachal Pradesh.

Introduction

Biomedical waste management is very important, if not managed properly, it can have severe effects on environment, resulting water pollution, water borne disease, infection to the handlers, air pollution etc. The expired medicines generated from the health care facilities and its improper disposal in environment can also lead to water pollution especially development of drug resistance, serious impact on flora and fauna. Since, the inception of Ayushman Health Care Scheme, Him Care Health Scheme, CGHS by the Centre and well as by the State Government, there has been rise in the registration of health care facilities in Districts covered for the study, some health care facilities have increased their bed strength to pass the benefit of the Government schemes to the society, the Healthcare facilities are expanding in the State in terms of different type of services offered so that the patients get complete treatment under one roof. On the other side, quantum of biomedical waste as well as liquid waste generated from the health care facilities is increasing. Regular sampling and analysis of surface water bodies throughout the State of Himachal Pradesh including in District Kangra indicates presence of Total coliform as well as Fecal coliform in surface water bodies.

The analysis results of the samples of the final outlet of Common Sewage Treatment Plant installed by Jal Shakti Vibhag (JSV) also indicates presence of Fecal Coliform in the treated water. The liquid waste generated from the hospitals is required to be treated and discharged after meeting the discharge standard to prevent water borne disease.

Requirement of liquid waste management in health care facilities as per rules

In view of provisions contained in Water Act, 1974 as well as in Biomedical Waste Management Rules 2016, the Health Care Facilities (HCFs) are required to treat the liquid waste as per norms prescribed under Biomedical Waste Management Rules, 2016. Health Care Facilities generates Chemical Liquid Waste as well as sewage and termed as liquid waste. As per schedule-I of the Biomedical Waste Management Rules, 2016, Chemical Liquid Waste falls under category yellow (f) which includes liquid generated due to use of chemicals in production of biological and used or discarded disinfectants, silver X-ray film developing liquid, discarded formalin, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, housekeeping and disinfecting activities etc.

In order to pre-treat the chemical liquid waste, a separate collection system is required leading to Effluent Treatment system. In addition, all the bedded health care facilities having 10 or more beds which not connected to sewer network of JSV having terminal STP are required to provide Sewage Treatment Plant (STP) for the treatment of sewage generated from their health care facilities. In case the bedded health care facility is connected to the sewer network having terminal treatment facility, there is no need to provide separate Sewage Treatment Plant.

The State Board vide office order No HPSPCB (12)/Board Meeting (BMW)/- 2719-53 dated 18.2.2020 decided that the bedded Health Care Facilities having less than 10 beds are allowed to dispose off the liquid waste through conventional treatment method i.e. septic tank with the condition that no liquid waste shall be discharged in open. Further, undertaking from the health care facilities is obtained that in case of exhausted septic tank capacity they shall dispose off septage to the nearest Sewage Treatment Plant (STP) of Jal Shakti Vibhag (JSV).

Present issues in installation of liquid waste treatment system

a) Sewage Treatment Plant (STP): Bedded HCFs having 10 or more beds which are not connected with STP of JSV at terminal point through sewer network have to provide their own Sewage Treatment Plant (STP). The private HCFs having 10 or more beds and not connected to terminal sewer network of JSV have provided ETP cum STP or STP. Bedded Government HCFs in District Kangra is still in the process of installing and making STP operational. The awareness level related to treatment of liquid waste is very poor in HCFs falling in Government sector as well as in private sector. The awareness about functioning and operation of STP is not more than 25 -30 % among the hospital staff. There is total lack of knowledge about the operation and functioning of STP. The management of the hospital is even unaware of the components of the STP, it is the time to immediately act and leave lethargic approaches towards the liquid waste management. This article aims at emphasizing the increased need for liquid waste treatment facilities, increasing awareness among the health care professionals about health hazards of liquid waste which contain harmful pathogens. The doctors being non-technical person depends entirely on his staff who has taken demonstration of STP/ETP cum STP during installation by the supplier.

The person who has taken demonstration of the STP only know how to switch on and switch off the system and no other technical terminology. The supplier of the STP took advantage of the ignorance of technical knowledge of occupier of HCF and did not provide complete STP system with all features for its smooth operation, monitoring including operational manual and training to the hospital staff. As a result, there is no system in place with HCFs from where the inspecting officer could establish proper and regular functioning of STP. No Standard Operating Procedure/Operational manual of STP available with hospitals.

Following shortcomings noticed:

- i) There are about 41 STP/ETP cum STP installed by in Govt./Private HCFs falling in District Kangra.
- ii) The STP installed supplied by the suppliers of STPs to HCFs have not provided any water meter at inlet as well as outlet of STP/ETP cum STP to establish its running condition. Some of the HCFs have installed water meter in the inlet to STPs point only.
- iii) No sludge generation/disposal reported from the STPs installed in Government Hospitals nor there is any record of disposal of sludge generated in past, the suppliers of STPs have not trained/informed HCFs on regular removal of sludge from the settling tanks/clarifiers etc. to improve the functioning of STP.
- iv) Treatment of waste water from STP/ETP cum STPs even after secondary treatment is not good and all load of waste water treatment is on sand filter and activated carbon filters. Till the time these filter function properly, the analysis results of the sample of treatment system are confirming to the discharge standards and as and when the filters gets exhausted, the analysis results of the sample from outlet of waste water treatment system is not confirming.
- v) No SOPs/manual of operation of STP/ETP cum STP provided by the supplier of STPs who installed the STP/ETP cum STP in Govt./Private HCFs including recording the parameters of operation of STP.
- vi) Sludge beds were not provided/constructed by the supplier of STPs in HCFs for the collection of sludge generated from

STP/ETP cum STP installed in Govt. HCFs and even a few private STPs.

- vii) No safety of the installed STP and machinery. Some plant and machinery is lying in open without shed /covers to prevent it damaging from rain/theft.
- viii) Proper training has not been provided by the supplier of STP/ETP cum STP to the hospital staff.
- ix) Treatment of liquid waste is least priorities in HCF may be due to budget constrain/cost cutting.
- x) Some HCFs have still not installed STP and are disposing off the liquid waste through septic tank, the building of the HCF is too old, so is the condition of Septic tank, there are instance when inspecting officers of PCB noticed leakages from septic tank. It cannot be ruled out where the septic tank is too old, the liquid waste may be seeping into the ground from the damaged chambers, bottom of septic tanks. However, as per Rules it is the duty of the occupier to 'take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment.

As per Indian Standard Code of basic requirements for water supply, drainage and sanitation, the water requirement for hospital building is as under:

Sr. No	Type of building	Consumption per day
1	Hospital including laundry a) Number of beds not exceeding 100 b) Number of beds exceeding 100	340 liter per head 450 liter per head
2	Nurses home and medical quarters	135 liter per head
3	Office	45 liter per head

80 % of the water supplied converted to sewage. The above table is used for estimating waste water generation from the hospital. As per Guidelines of Central Public Health & Environmental Engineering Organization (CPHEEO), Chapter 5, Design and construction of sewage treatment facilities, the contribution of human waste for some of the parameter in gram per capita per day is mentioned below:

Sr. No	Parameter	Range gram/capita/day or mg/l
1	BOD	27 g/c/d or 250 mg/l
2	COD	45.6 g/c/d or 425 mg/l
3.	Total solids	40.5 g/c/d or 375 mg/l
4	Total Nitrogen -N	5.4 g/c/d or 50 mg/l
4	Total Bacteria	10 ⁹ —10 ¹⁰ in 100 ml of sewage
5	Coliforms	10 ⁹ —10 ¹⁰ in 100 ml of sewage

The data mentioned above is used for designing of a waste water treatment system, assessment of BOD load in a treatment system, sludge generation etc. The pathogens present in the waste water are required to be killed/made inactive using proper doze of disinfectant. The STP has to meet the discharge standards prescribed in Biomedical Waste Management Rules, 2016 is as under:

S. No	Parameter	Permissible Limits for discharge
1	pH	6.5—9.0
2.	Suspended solids	100 mg/l
3.	Oil and Grease	10 mg/l
4.	BOD	30 mg/l
5.	COD	250 mg/l
6.	Bio-assay test	90% survival of fish after 96 hours in 100 % effluent

In case the treated waste water do not meet the above-mentioned discharged standards and discharges water with pollutants in excess, it can affect aquatic life, flora and fauna. The discharged water meets the surface water which is generally used for irrigation, as well drinking water supplies.

b) Pre-Treatment System: The HCF falling under private sector as well as under State Government have installed a system which contains a plastic bucket generally of 20-liter capacity under the sinks for collection of chemical liquid waste at the point of generation, some HCFs have placed drums outside the hospitals generally varying from 40 to 100-liter capacity for collection of chemical liquid waste. This system was first developed in Karnataka State and known as “Karnataka Model “. The other type of pre-treatment system in use is automatic pre-treatment unit.

The Government bedded hospital have installed an automatic pre-treatment system made of stainless steel of 75 liter and 150-liter capacity having brand name as “HypoClean”. This system consumes 1 part of sodium hypochlorite for 3 parts of chemical liquid waste. As per inspections of hospital and inspection of said automatic pre-treatment system, it was noticed almost 90 % of the said system are defunct. Prior to purchase of such system, the HCF had installed pre-treatment system of “Karnataka model” and thereafter removed the same. The HCFs where the automatic pre-treatment system namely hypoclean installed is out of order. The authorities have taken no steps to get the pre-treatment system repaired/rectified. Only a few staff could explain the functioning of the automatic pre-treatment system. The staff is also unaware of the amount of sodium hypochlorite to be added in the pre-treatment system. The non -functioning of the automatic pre-treatment system. The liquid waste require special treatment as many new viruses and infections are making news. It is also questionable whether the hospital is adding hypochlorite in the pre-treatment system regularly as generally during the inspection, the valve of the storage containers are found mostly open. It is generally informed that class IV staff is preparing and adding hypochlorite in evening in the container for disinfection. Following shortcomings noticed:

- i) Hospitals where the bed strength is 100 or more and patient load in high, the pre-treatment is not effective and is not being carried at all as the system placed under sink are not operated and no disinfectant added.
- ii) Automatic pre-treatment system namely “Hypoclean” installed in Government hospital are out of order, pH button and other functions of microprocessor controller not working, leakage from the “Hypoclean” system noticed. The supplier not taken any interest to rectify the faults. Staff is not properly trained for operation of hypoclean system, addition of correct amount of hypochlorite for pre-treatment as a result addition of excess of sodium hypochlorite in the pre-treatment system and release of



chlorine could have damaged the internal wiring, microprocessor and other parts resulting defunct unit.

- iii) HCFs do not have proper knowledge for preparing 1% sodium hypochlorite from the different strength of stock solution. HCFs prepare 1% sodium chlorite 1-2 days ago, which is not Sodium Chlorite to sodium hypochlorite as it is required to be prepared fresh before use. The preparation of sodium hypochlorite is left to class IV employee who has less knowledge about the stock strength and its effectiveness. The staff of HCF has been told by their occupier or by their department to prepare 1 liter of sodium hypochlorite by taking 100 ml or 200 ml of sodium hypochlorite in 900 ml or 800 ml of water without knowing actual concentration of stock solution and they prepare 1 liter of solution without knowing actual requirement and resulting into wastage of excess disinfectant. There are instances where only 50-100 ml is required for disinfection very small quantity of needle or slides etc.
- iv) There is no system available with any of the HCF to demonstrate Log 4 disinfection in chemical liquid waste using 1% -2 % sodium hypochlorite.
- v) Insufficient information about the procedure for disinfection of chemical liquid waste in Biomedical Waste Management, Rules 2016 regarding the optimum doze of disinfectants so as to achieve Log 6 or Log 4 disinfection. Even the staff working in Govt/private hospitals are also unaware of the optimum doze of 1% sodium hypochlorite to be added in waste water. No laboratory in HCF capable of testing Log 6 or Log 4 disinfection nor any efforts made.

- vi) Lack of knowledge in the staff related to adverse impact of microorganism/pathogens on environment.
- vii) Small HCF have installed pre-treatment system and most of the time the valves of storage containers is found open, operating it effectively and adding sodium hypochlorite from time to time is also questionable as it cannot be verified regularly nor any proper system for verification is in place. It could be possible that HCF are avoiding use of sodium hypochlorite due to save money. HCFs do not have enough stock of sodium hypochlorite and or want to save money by not using appropriate quantity of sodium hypochlorite.
- viii) Automatic Pre-treatment system after installation is kept aside and not used.

EFFORT BY REGIONAL LABORATORY DHARAMSHALA

- a) Show Cause notices were got issued to the non-complying HCFs.
- b) Frequent inspections of STPs of HCF and Pre-treatment system.
- c) Cross verification of purchase and consumption of sodium hypochlorite from the stock registers conducted in medical college and larger HCFs.
- d) Direction issued to HCFs to install water meter at inlet as well as outlet of ETP/ETP cum STP, provide sludge beds and to install/provide disinfection system before final discharge of treated water.
- e) Private HCFs have started providing water meters in inlet as well as outlet of STP/ETP cum STP, although the water meter (magneto meter) to be installed in outlet of STP /ETP cum STP is costly.



- f) Directed the HCF to provide hypochlorite dozing system before final outlet of STP/ETP cum STP to kill pathogens and to take care of foul smell.



g) Ozonator has been got installed in Civil Hospital, Palampur to kill pathogens and to save the chemicals/disinfectant in one of the sections of the hospital.



h) In view of in-effective pre-treatment of chemical liquid waste generated from Dr. RPGMC and Hospital, Tanda, they were directed to install ETP for treatment of chemical liquid waste and the process of installation and laying of pipelines from all the chemical liquid waste generating section of the hospital is under process.

i) Training to HCFs being provided to use hypochlorite as and when required and to prepare the hypochlorite as and when required and prepare by diluting stock solution in ratio as required.

j) Format for maintaining record of generation of Biomedical Waste along with generation of chemical liquid waste has been provided to HCFs.

STEPS TO BE TAKEN TO RESOLVE THE ISSUES IN LIQUID WASTE TREATMENT SYSTEM

In order to resolve the ongoing issues in the liquid waste treatment in view of lack of guidelines and instruction and awareness, following steps is required to be taken:

- a) Water meter at all the intake point of raw/drinking water lines whether Govt supply or ground water or any other source to the hospital is required to be provided to access the exact quantity of water supplied and waste water/sewage generation.
- b) HCF having 10 or more beds having OT, labour room, laboratory, laundry etc. needs to have ETP cum STP or separate ETP and separate STP in which all the chemical liquid waste from the hospital after collection is treated.
- c) In order to have effective monitoring of operation of STP/ETP cum STP, water meter at inlet and out let is required.
- d) Sludge generation is nil in STP of the hospitals, sludge beds are required in some HCFs.
- e) Sewage contain 10^9 - 10^{12} coliform in 100 ml of sewage, affective disinfection of sewage after treatment is required with proper hypochlorite dosing or by UV radiation at the outlet of STP /ETP cum STP before discharge.
- f) Audit of purchase and consumption of sodium hypochlorite or any other equivalent disinfectant used by HCF.
- g) Proper training on operation of pre-treatment system and STP to the staff of HCFs required.
- h) HCF to get create facility for testing Log 4 disinfection and Log 6 disinfection for the chemical liquid waste after disinfection.
- i) Strict imposition of Environment Compensation by State Board as per Hon'ble NGT directions.



Note: This paper was written under the supervision of Sanjeev Sharma, Senior Scientific Officer and In-charge Regional Laboratories Dharamshala.

Study Report on prevailing insanitation in Banikhet area – a report by RO Chamba

As increasing of tourism activities in the Dalhousie area also bring economic benefits to Banikhet (basically a Panchayat area) which is about 5 KM from the Dalhousie town. There is rapid urbanization and increase in the number of hotels & restaurants in Banikhet area which is directly contributing to waste generation, and unscientific waste handling which would cause health hazards in future. If it is not managed properly then solid waste management & sewage waste management will become a mammoth task in the Banikhet area.

Hence, in view of above HPSPCB Chamba has prepared a study report on prevailing conditions in Banikhet area by conducting the inspection of the area and, it was observed solid waste was found dumped in the adjoining nallahs or along the hill side of the Banikhet. The practice of source segregation is unknown to the local residents hence all the mixed waste is being dumped along the hillslopes or in the nallahs. Many households have constructed their septic tanks in the nallah. In some places, it was even found that multiple households are connected to one septic tank for the disposal of domestic sewage. It was also observed that constructed septic tanks are not adequate for the proper treatment of domestic sewage and absorb the sewage load. The constructed septic tanks were found in the poor condition, cracks and fissures could be seen in those septic tanks and sewage was found leaking through them. Therefore, due to this overload of domestic sewage, the practice of flushing out the septic tanks in the nallah during the nights and the rainy season is quite common in that area. The nallahs adjoining to the Banikhet area are the tributaries of River Ravi and use them as medium to discharge for untreated waste water would deteriorate the water quality of the nallah as well as the water sources depends upon it.

Use of sludge from Sewage Treatment Plants for bio remediation of cultivated land

Contributed by: **Ms. Nishtha Verma*** and **Ms. Anisha Kumari***, 1st Prize Winner at the “ReclaimEarth Ideation Hackathon” of H. P. State Pollution Control Board



The authors propose promoting the use of bio-fertilizers in agriculture and horticulture to restore the natural fertility of the soil. Bio-fertilizers are produced through the controlled biological degradation of organic materials, such as sludge. The authors conducted field studies and analyzed various parameters in recognized laboratories to support their ideas.

Our proposed solution

Agriculture and its allied activities are integral to the lives and livelihoods of most of the people in the State. Besides the fact that the sector helps in ensuring food security, it also provides livelihoods to more than half of the state’s workforce i.e. 58.71 per cent (Source: Economic Survey of HP 2023-24). Also, Govt. of Himachal Pradesh has introduced various schemes to encourage organic farming. One such scheme is “Prakritik Kheti Khushal Kisan Yojana”. Under the scheme “Prakritik Kheti Khushal Kisan Yojana” & till date 1,78,643 farmers in the state have opted for natural farming, spanning an area of 24,210 hectares. An extra 50,000 bigha of land will be covered in FY 2023-24 (Source: Economic Survey of HP 2023-24).

Now, in organic farming, farmers will be shifting from chemical based fertilizers to bio fertilizers and our product is a perfect candidate to help the farmers in their mission of shifting towards organic farming.

Scalability of proposed solution

58% population in HP alone is dependent on farming. Whole of our apple belt uses tons of fertilizers every year. In 2023-24 alone 58,000 MT of fertilizers have been used in HP. So scopes for this product are unlimited.

Ideas for future

Government of HP has introduced “PRAKTIK KHETI KHUSHAL KISAN YOJANA “to promote organic farming. STP are facing challenges in scientifically managing the sludge.

Through this proposal, we are proposing solution to farmers for adopting organic farming and STP in disposing their sludge of Sewage treatment plant Summerhill

• Reports

IS STANDARDS FOR VERMI –COMPOSTING (IS 16702:2018)

Sl No. (1)	Characteristic (2)	Requirement (3)
i)	pH	6.5-7.5
ii)	Moisture, per cent by weight	15.0-25.0
iii)	Bulk density (g/cm ³)	0.7 -0.9
iv)	Conductivity (as dSm ⁻¹), Max	4.0
v)	Total organic carbon, per cent by weight, Min	18.0
vi)	Total Nitrogen (as N), per cent by weight, Min	1.0
vii)	C:N ratio, Max	20:1
viii)	Total phosphorus(as P ₂ O ₅), percent by mass of total dry mass, Min	0.8
ix)	Total potassium (as K ₂ O), per cent by weight, Min	0.8
x)	Cadmium (as Cd), mg/kg on dry mass basis, Max	5.0
xi)	Copper (as Cu), mg/kg on dry mass basis, Max	300.00
xii)	Chromium (as Cr), mg/kg on dry mass basis, Max	50.00
xiii)	Lead (as Pb), mg/kg on dry mass basis, Max	100.00
xiv)	Nickel (as Ni), mg/kg on dry weight basis, Max	50.00
xv)	Mercury (as Hg), mg/kg on dry mass basis, Max	0.15
xvi)	Arsenic (as As ₂ O ₃), mg/kg on dry mass basis, Max	10.00

Chemical Composition of STP Summer Hill Sludge before composting

Sr.No.	Parameter	Desired Limit	Observed Value
1	pH	6.5-7.5	7.1
2	Moisture, per cent by weight	15-25.0	21.25
3	Total organic carbon, per cent by weight, Min	18.0	32
4	Conductivity (as dSm), Max	4.0	1.4
5	Total Nitrogen (as N), per cent by weight, Min	1.0	2.9
6	C:N ratio, Max	20:1	12:1
7	Total phosphorus(as P ₂ O ₅), percent by mass of total dry mass, Min	0.8	1.8
8	Total potassium (as K ₂ O), per cent by weight, Min	0.8	1.7
9	Cadmium (as Cd), mg/kg on dry mass basis, Max	5.0	ND
10	Copper (as Cu), mg/kg on dry mass basis, Max	300.0	0.2
11	Chromium (as Cr), mg/kg on dry mass basis	50.0	ND
12	Lead (as Pb), mg/kg on dry mass basis, Max	100.0	ND
13	Nickel (as Ni), mg/kg on dry weight basis, Max	50.0	ND
14	Mercury (as Hg), mg/kg on dry mass basis, Max	0.15	0.05
15	Arsenic (as As), mg/kg on dry mass basis, Max	10.0	ND

Chemical Composition of STP Summer Hill Sludge After composting

Sr.No.	Parameter	Desired Limit	Observed Value
1	pH	6.5-7.5	7.2
2	Moisture, per cent by weight	15-25.0	18.75
3	Total organic carbon, per cent by weight, Min	18.0	28
4	Conductivity (as dSm), Max	4.0	1.9
5	Total Nitrogen (as N), per cent by weight, Min	1.0	2.4
6	C:N ratio, Max	20:1	14:1
7	Total phosphorus(as P ₂ O ₅), percent by mass of total dry mass, Min	0.8	1.2
8	Total potassium (as K ₂ O), per cent by weight, Min	0.8	1.6
9	Cadmium (as Cd), mg/kg on dry mass basis, Max	5.0	ND
10	Copper (as Cu), mg/kg on dry mass basis, Max	300.0	0.5
11	Chromium (as Cr), mg/kg on dry mass basis	50.0	ND
12	Lead (as Pb), mg/kg on dry mass basis, Max	100.0	ND
13	Nickel (as Ni), mg/kg on dry weight basis, Max	50.0	ND
14	Mercury (as Hg), mg/kg on dry mass basis, Max	0.15	ND
15	Arsenic (as As), mg/kg on dry mass basis, Max	10.0	ND

Benefit of implementing this solution

Our bio fertilizer is totally organic in nature and doesn’t contain any chemicals. Hence, soil pollution which is caused by chemicals present in synthetic fertilizers will not be there if our product is used. Also, chemical fertilizers cause water pollution due to surface run off during rain; however, our product will not cause any such pollution.

In 2023-24 alone, 58,000 MT of synthetic fertilizers have been used in HP alone. If we tap only 10% of this market, we will be in profit economically besides contributing in Govt.’s mission of shifting its focus towards organic farming, remediating already degrades agriculture and horticulture lands by excessive use of chemical fertilizers and also helping environment in getting rid of sludge of STPs.

Unique about Proposed Solution

There are very few players in the market which are engaged in the production of bio fertilizers.

Additionally, STPs are facing problem in disposing off their sludge. Therefore, we are offering them a viable solution for its disposal. As per economic survey of HP (2023-24), 58.71% population of HP is dependent upon agriculture for its livelihood. Therefore, our target will be all of that population.

“IN NATURE, NOTHING IS CONSIDERED AS WASTE EVERYTHING IS FOOD FOR SOMETHING ELSE”

Note Ms. Nishtha Verma is a student of St. Bede’s College Shimla and Ms. Anisha Kumari is also a student of Himachal Pradesh University.*



Leveraging drone technology for pollution control & other domains

Contributed by: *Shri Rajat Sharma**, 2nd Prize Winner (Runner-up) at the “ReclaimEarth Ideation Hackathon” of H. P. State Pollution Control Board

Background

The Indian state of Himachal Pradesh, renowned for its majestic mountains and pristine natural landscapes, faces unique environmental challenges that require innovative solutions.

This article explores how integrating drone technology can revolutionize the state's environmental monitoring efforts and help address critical issues such as air pollution, forest fires, waste management, land restoration, disaster response, and industrial impacts.

Drones have advanced significantly since their initial military applications decades ago. Today, drones are utilized across various sectors including agriculture, logistics, and environmental monitoring due to their ability to efficiently collect high-resolution data with flexibility and cost-effectiveness that surpasses traditional methods and even satellite imagery in some scenarios.

Wider applications

With vast data collection and storage capabilities, drones enable long-term environmental monitoring and analysis to benefit both current and future generations. Himachal Pradesh's mountainous terrain presents challenges for traditional monitoring approaches. However, drones can easily navigate these landscapes to provide detailed, accurate data. For example, drones

Himachal Pradesh's mountainous terrain poses challenges for traditional monitoring, but drones offer a solution by providing detailed and accurate data for air pollution monitoring, among other applications. “HimParyaDrishti” a start-up won 2nd prize in the recently concluded “ReclaimEarth Ideation Hackathon 2024” proposes a comprehensive policy framework with broad applications, including pollution control.

can help combat air pollution issues through more precise monitoring across broader areas than fixed stations.

They also aid early detection of forest fires, crucial for minimizing damage given the difficult firefighting conditions.

Drones assist disaster relief and search/rescue operations for both tourists and locals in remote, hazardous areas as well.

Additional applications include wildlife monitoring/conservation across vast varied habitats, assessing soil erosion/degradation issues often evaluated slowly via traditional means, drought resilience studies, illegal waste management surveillance, and industrial pollution monitoring affecting both urban and rural communities.

To fully leverage drone technology's potential, “HimParyaDrishti” proposes a comprehensive policy framework integrating drones into all environmental activities for timely, efficient data collection.

The initiative also aims to adopt advanced drone innovations like renewable-powered models for enhanced sustainability and versatility.

Gaining knowledge from international experts who have successfully integrated drone programs in places like China, the U.S., and Israel etc. could help Himachal Pradesh adopt best practices and enhance its monitoring capabilities over the long term.

Comprehensive data management and analysis comparing current insights to historical records will provide valuable guidance for environmental policies benefiting future generations.

Implementation Strategy

Formation of a Central Coordinating Body:

Establish the Himachal Pradesh Drone Environmental Monitoring Organization (HP-DEMO) to oversee the integration and management of drone technology. This body will coordinate with various departments, including forestry, agriculture, pollution control, disaster management, urban planning, smart city initiatives etc.

Development of a Comprehensive Policy Framework:

Create regulatory guidelines for drone usage, ensuring compliance with national aviation regulations and international best practices. Allocate funds for procuring drones and related technologies, and establish partnerships with private companies and academic institutions.

Capacity Building and Training:

Implement training programs for government officials, environmental scientists, and technical staff on drone operations, data collection, and analysis. Offer certification courses in drone technology and environmental monitoring to build a skilled workforce.

Pilot Projects and Demonstrations:

Launch pilot projects in key areas such as forest management, agricultural monitoring, and air pollution measurement. Engage local communities and stakeholders to build awareness and support for drone-based monitoring.

Data Integration and Management:

Establish a centralized data repository for storing and managing drone-collected data. Ensure data accessibility and interoperability across different departments and stakeholders. Use advanced data analysis tools to generate actionable insights.

Scaling Up and Continuous Improvement:

Gradually expand the drone fleet and extend monitoring efforts to cover all critical environmental areas in Himachal Pradesh.

Drones: The Game Changer in Environmental Monitoring

Imagine a world where environmental monitoring isn't limited by satellite blind spots, expensive manned aircraft, or the slow pace of ground surveys.

Drones: Eyes in the Sky, Packed with Tech

Drones aren't just remote-controlled toys. They're equipped with cutting-edge technology like:

Global Navigation Satellite Systems (GNSS):

Think GPS on steroids. GNSS ensures precise positioning and navigation, allowing drones to follow pre-programmed flight paths and capture data efficiently.

Flight Controllers: These onboard brains manage flight stability, autopilot functions, and communication with ground control. Imagine setting a drone loose and letting it autonomously map an entire forest!

High-Resolution Cameras: Capture detailed, visible-light images for tasks like wildlife surveys, habitat mapping, and waste management.

Multispectral Sensors: See beyond the human eye! These sensors collect data in various wavelengths, providing insights into vegetation health, air quality, and land use.

Thermal Cameras: Think heat vision for the environment. These detect heat signatures, crucial for spotting forest fires, monitoring volcanic activity, and identifying pollution sources.

LiDAR (Light Detection and Ranging):

Imagine a laser tape measure on steroids. LiDAR creates highly accurate 3D models of terrain and infrastructure, perfect for surveying and volume analysis.

Software Symphony: Where Drones, GIS, and AI Unite

Drones are the data collectors, but powerful software tools unlock the true potential:

- **Flight Planning Software:** Imagine drawing a flight path on your phone and your drone following it! This software allows for defining flight paths, setting waypoints, and managing autonomous missions.
- **GIS (Geographic Information Systems):** Think of GIS as a digital mapmaker on steroids. Software like ArcGIS and QGIS integrate drone data with existing environmental information, allowing for visualization, analysis, and creation of detailed environmental maps.
- **Remote Sensing Software:** Ever wondered how scientists analyze satellite imagery? Software like ENVI and ERDAS helps process and analyze drone-captured data alongside satellite imagery, enabling tasks like land cover classification and change detection.
- **AI Integration:** Artificial intelligence takes environmental monitoring to the next level. Platforms like TensorFlow and PyTorch allow the development of machine learning algorithms that can analyze drone data (imagery and sensor readings) for automated tasks like:

- Identifying pollution sources in air quality monitoring.
- Detecting early signs of forest fires in thermal imagery.
- Recognizing illegal dumping activities in drone footage.
- Counting wildlife populations and tracking animal movements.

From Old to Bold: How Drones Revolutionize Monitoring

- **Satellite Imagery:** Drones offer higher resolution data at lower altitudes, overcoming cloud cover limitations and capturing finer details.
- They can also be deployed more readily for frequent monitoring needs.
- **Manned Aircraft:** Drones are significantly cheaper to operate and can access difficult-to-reach areas compared to manned aircraft. They also pose a lower safety risk.
- **Ground-based Surveys:** Drones can cover vast areas much faster than ground-based surveys, reducing personnel effort and associated costs. They can also access hazardous or inaccessible landscapes.
- **The Future is Now:** Drones, the Missing Piece
- For decades, we've relied on satellites, remote sensing, and GIS for environmental monitoring. These technologies are powerful, but they have limitations. Drones bridge the gap, offering:
- **Unprecedented Detail and Flexibility:** Capture high-resolution data from hard-to-reach areas, overcoming limitations of traditional methods.
- **Real-time Data Collection:** Get immediate insights into environmental issues, enabling faster response times for emergencies.



Cost-Effective Monitoring: Drones offer a cost-effective solution for frequent environmental monitoring needs.

By integrating drones with existing technologies and AI, we unlock a new era of environmental monitoring. We can now gather real-time, high-resolution data, leading to a deeper understanding of our planet and enabling us to make informed decisions for a sustainable future. So, the next time you see a drone buzzing by, remember - it's not just a toy; it's a powerful tool for safeguarding our environment.

Conclusion

Drones offer a powerful tool for environmental monitoring, particularly in the diverse and challenging terrain of Himachal Pradesh. By leveraging their high resolution, flexibility, cost-effectiveness, and real-time data collection capabilities, drones can significantly enhance the state's ability to manage its natural resources and address environmental challenges. Through a coordinated effort involving government officials, departments, and various stakeholders, Himachal Pradesh can integrate drone technology into its environmental management strategies, leading to more effective and sustainable outcomes.

The vision of HimParyaDrishhti is not just about adopting new technology but ensuring a brighter, greener future for generations to come.



Drones can provide valuable solutions for many of Himachal Pradesh's environmental challenges. By monitoring habitats, tracking wildlife movements and detecting illegal activities, drones can help conservation efforts. They can also help tackle issues like soil degradation, drought resilience and waste management.

however, drones are only part of the solution. They provide data and insights that human experts and policymakers can act on. For true impact, drone technology needs to be combined with effective policies, community outreach programs and on-the-ground conservation work. Drones are a useful tool, but long-term change requires a holistic, multifaceted approach that addresses the human, social and environmental dimensions of the issues at hand.

***Note: Shri Rajat Sharma is the Director at "HimParyaDrishhti" – a start-up and pursued his B. Tech in Mechanical Engineering from HPTU Hamirpur, HP.**

RO Kullu conducts special campaign

- On the occasion of World Environment Day 2024, the HPPCB Regional Office Kullu conducted an awareness program at G.S.S.School Tharas. The program began on June 4, 2024, with a cleanliness drive that collected approximately 60 kg of littered solid waste, which was then handed over to the MRF site of MC Kullu.
- Subsequently, slogan, drawing, and painting competitions were held, with 41 students participating.
- On World Environment Day 2024, the HPSPCB Regional Office Kullu conducted a cleanliness drive on June 7, 2024, in collaboration with the District Legal Service Authority, SAASH NGO, Healing Himalaya NGO, M/s Krich Clean Pvt. Ltd., and Gram Panchayat Koksar at Dimpuk Village (Koksar). Approximately 1000 kg of solid waste was collected and sent to the Waste Processing Plant in Rangree.



हिमाचल प्रदेश में जगह-जगह मनाया गया विश्व पर्यावरण दिवस

राज्य प्रदूषण नियन्त्रण बोर्ड ने विश्व पर्यावरण दिवस के उपलक्ष्य में दूसरा राज्य स्तरीय 'रिवलैन्डअर्थ आइडियेशन हैकॉथॉन 2024' का आयोजन किया

अमरनाथ चव्वा
 हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड ने विश्व पर्यावरण दिवस के उपलक्ष्य में दूसरा राज्य स्तरीय 'रिवलैन्डअर्थ आइडियेशन हैकॉथॉन 2024' का आयोजन किया और 5 जून, 2024 को विजेताओं को प्रमुखता प्रदान किया गया। प्रथम बार हिमाचल प्रदेश में आयोजित होने वाले इस कार्यक्रम का उद्देश्य न केवल पर्यावरण के संरक्षण और प्रदूषण को नियंत्रित करना है, बल्कि नागरिकों को पर्यावरण के प्रति जागरूक बनाना और उनके द्वारा प्रस्तावित सुझावों को कार्यात्मक बनाना है।



इस कार्यक्रम का उद्देश्य न केवल पर्यावरण के संरक्षण और प्रदूषण को नियंत्रित करना है, बल्कि नागरिकों को पर्यावरण के प्रति जागरूक बनाना और उनके द्वारा प्रस्तावित सुझावों को कार्यात्मक बनाना है।

कार्यक्रम में भाग लेने वाले प्रतिभागियों ने अपने-अपने क्षेत्रों में पर्यावरण के प्रति जागरूकता बढ़ाने के लिए अनेक नए-नए तरीके और तकनीकें प्रस्तुत कीं। इनमें से कुछ का चयन किया गया है, जो न केवल पर्यावरण के संरक्षण में मदद करेगी, बल्कि समाज के प्रति जागरूकता बढ़ाने में भी सहायक सिद्ध होगी।

पर्यावरण की बेहतरी के लिए हिमाचल के पाठ स्कूलों को मिला गीन स्कूल अर्थात् ग्रीन स्कूल
 हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड ने ग्रीन स्कूलों को मिला गीन स्कूल अर्थात् ग्रीन स्कूल कार्यक्रम शुरू किया है। यह कार्यक्रम न केवल पर्यावरण के संरक्षण में मदद करेगा, बल्कि छात्रों को पर्यावरण के प्रति जागरूक बनाने में भी सहायक सिद्ध होगा।

An innovative system of decentralized waste collection and processing at MRFs combined with centralized recycling in districts of HP

Contributed by: *Ms. Shubha Tiwari**, 3rd Prize Winner at the “ReclaimEarth Ideation Hackathon” of H. P. State Pollution Control Board

The author advocates for a material recovery facility (MRF) based waste management system in Himachal Pradesh, which serves as an integrated platform for recovering all types of dry and plastic waste, both pre- and post-consumer. She represents the Healing Himalaya Foundation, a reputed non-profit organization dedicated to cleanliness drives and environmental conservation in the Himalayas, particularly in Himachal Pradesh.

About MRF

A material recovery facility (MRF) serves as an integrated platform for recovering all types of dry and plastic pre- and post-consumer waste. In cities, this waste is collected with assistance from City Municipal Corporations (CMCs), Waste Pickers, Kabadiwallahs, Residents and Service Providers (SP) while high-altitude Himalayan villages it's completely different, collection mainly depends on the accessibility to the particular destination.

MRF primarily plays a role of storage, secondary segregation (Primary has to be at the source), baling, shredding and incineration of sanitary waste. In the Himalayan topography the size of the MRF, capacity of the machines vary due to demography and influx of tourism which leads to commercial activities. A recent example can be villages around Atal tunnel where tourism has increased 300 times due to accessibility.

MRF, its size and per day incoming solid waste decides the modus operandi of the MRF - A small scale MRF should be managed by the community such as Mahila Mandal/ Yuvak mandal or Panchayat considering the latest policies supports the idea financially.

The sustainability of such small-scale waste management units depends on the user fees and resale of properly segregated non-biodegradable material. This is a circular model and introduces an opportunity for local entrepreneurs to make a green livelihood through bioeconomy.

Large size MRF in the outskirts of a municipal area (TDC- tourism development council) which is a hub of the booming tourism industry should have both MRF & wet waste management units (Piggery farm). The MRF should be industrial in nature with trained staff for segregated waste collection, segregation at the MRF, machine handling, forward & backward linkage in the supply chain.

Digitalization of the MRFs - Every decentralized facility should have a digital ecosystem for a real time monitoring of incoming & outgoing solid waste. This data is very efficient in taking the calculated next step for EPR, co-processing and recycling

Addressing Gap funding

There is always a gap in operations cost vs revenue generation hence to bridge the gap the money which is being generated through green tax, SADA barriers, EPR should be channelized into decentralized solid waste management.

For the operational efficiency at the MRF special care is taken to full-fill fire and safety norms laid by the law, clean drinking water facility through a cooler, safe sanitation and bathing condition, lockers for keeping clothes are provided to each safaii sathi. Video-cameras are installed to check thefts and keep a record of operations at the MRF.

Daily reports on inwards, processing and outwards are shared to authorities to maintain healthy operations.

Proper Consent to operate and consent to execute is also sourced to full-fill the laws of the land. All in all, the MRF is seen as a resource for waste management.

Let me explain one by one as it promotes circularity with low waste volumes. The requirements are done as per the demand from the buyers – the recyclers. Special care is taken to avoid contamination.

Necessary machines for value addition in the MRFs are Baling & Shredding or grinding machine, air blower or Pahtka machine, Conveyor belt, if the capacity is 2TPD or above, three phase electricity connection, weighing scale or bridge and vehicles to collect & transport material.

Weighbridge and weighing scale

Incoming and outgoing waste is weighed with printed receipts for transparency, and accuracy in reporting, and also to determine the correct weight of the materials for making and receipt of payments. It has a capacity to weigh 30 metric tons in one transaction.

Conveyor Belt

This is a slow-moving wide flat belt. The speed of the belt is controlled as per need. The dry waste is put on the belt through the incline belt; later on both sides of the belt safaii sathis (waste pickers) who are given clear training on what to pick up on the conveyor belt. Six *safaii sathis* are designated at spots on each side of the belt.

Clear directions help create operational efficiency in the segregation of different types of waste. Fractions of materials segregated are respectively put into the bags directly. This acts as a cost-effective segregation and improves efficiency once the people start getting trained; reduces drudgery. The machine is powered by an electric motor of 0.5 Horsepower (hp) on the conveyer and 3 Hp on the incline. It has a capacity of 500 kgs/hr and length of 10 meters.

Baling Machine

Vertical-type single shaft oil-pressing balers are used to compress any materials which require reduction in volumes. We can put all types of plastics, paper, cardboard, cloth for bailing. Later each bale is separately transported to the Recyclers and Cement Factories as the case be. These machines reduce volumes and thus impact cost savings in logistics. The machine is powered by an electric motor of 10 Horse Power (hp). With a capacity of 300 kgs/hr.

Air Blower Machine

A high-pressure machine used to separate dust, contamination from the plastic waste to be recycled. All the collected flexibles, thin and multi-layered packaging plastics are put into the machine for the removal of dust. There is a dust arrester which acts to check the dust to float in the air. This helps to have ambient conditions on air-quality. The machine is powered by an electric motor of 15 Horse Power (HP). With a capacity of 100 kgs/hr.

Plastic Grinding Machine

Also known as a Shredding machine is required to shred the rigid, thin flexible, polyethylene plastic bags, including multi-layered packets to the required sizes. The size of shredding is determined by the buyer. The shredding is done by using different types of blades and always an in-house blade-sharpener is put in place. The machine is powered by an electric motor of 30 Horsepower (HP). With a capacity of 250 kgs/hr.

SOP for Fire Safety of MRF

1. All fire recommendations should be installed inside the MRF
2. Monthly health checks of each fire extinguisher should be done.
3. If found unhealthy, then the fire extinguisher should be sent for refilling and ask the vendor to provide a healthy extinguisher as a supplement in place of unhealthy extinguisher till the refilled extinguisher is not installed.
4. Fire training with the help of the local Fire department should be conducted in each quarter of the year.

Special Note*

There are two sources of revenue -

- a) User fees or service fees from hotels, homestays, restaurants, houses etc.
- b) Resale of the material segregated on a daily basis at the MRF (In the Himalayan context every truck should carry 7-8tones of material to the recycler to keep logistical cost & footprint lesser and the revenue higher).

Another factor in terms of revenue is the speed of daily segregation at the MRF.

This approach aims to promote green livelihood, restore the ecosystem, and manage waste more effectively and sustainably, addressing both environmental concerns and the challenges posed by increased tourism.

About Healing Himalayas Foundation >>>

Healing Himalayas Foundation works to preserve the environment and culture of the Himalayan foothills.

Focusing on solid waste management and plastic pollution in remote villages, we build Material Recovery Facilities (MRF) in rural areas. Working closely with local communities through ground action and education, we involve them in all aspects of waste management in their vicinity, thus enabling them to create efficient and sustainable systems that will serve them and their environment for future years. <https://healinghimalayas.org>

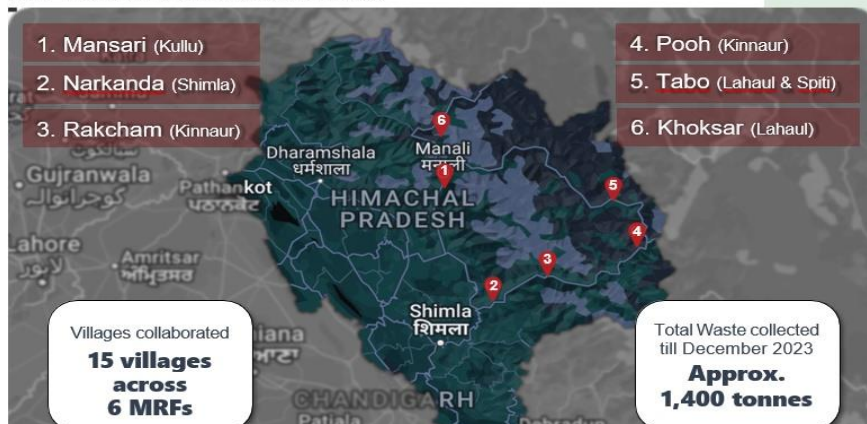
Note*

Ms. Shubha Tiwari has been associated with Healing Himalayas Foundation since October 2020 and has since been contributing in terms of CSR communication for project proposals and implementation.



^ Recognized and appreciated by PM Narendra Modi in "Mann Ki Baat"

HHF BUILT AND OPERATIONAL MRFs



District Legal Service Authority (DLSA) & the State Board collaborate to celebrate World Environment Day, 2024



RO Shimla

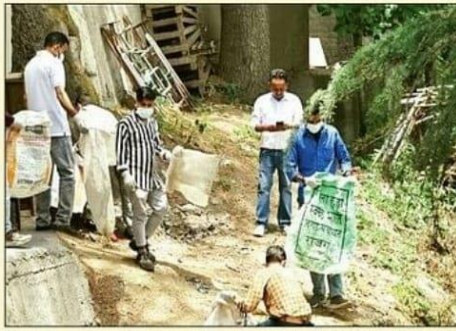


RO Parwanoo



RO Una

टुटीकंडी से उठाया गया 350 किलोग्राम कचरा



शिमला। पर्यावरण दिवस पर प्रदेश प्रदूषण नियंत्रण बोर्ड, नगर निगम और जिला विधिक सेवा प्राधिकरण ने टुटीकंडी में सफाई अभियान चलाया। 60 कर्मचारियों ने टुटीकंडी के जंगलों से करीब 350 किलोग्राम कूड़ा इकट्ठा किया। प्रदूषण नियंत्रण बोर्ड, निगम और विधिक सेवा प्राधिकरण ने शहर में कूड़े के हॉटस्पॉट चिह्नित किए हैं। 30 जून तक इनकी सफाई की जाएगी। सचिव जिला विधिक सेवा प्राधिकरण नेहा शर्मा ने कहा कि स्थानीय निवासियों और पर्यटकों में भी जागरूकता फैलाने की जरूरत है। शिमला का पर्यावरण बहुत संवेदनशील है और इसके संरक्षण के लिए जितना हो सके कम प्लास्टिक का उपयोग किया जाना चाहिए। संवाद

प्रदूषण नियंत्रण बोर्ड ने सोलन, कसौली परवाणू में छेड़ा सफाई अभियान



निजी संवाददाता-परवाणू

परवाणू प्रदूषण नियंत्रण बोर्ड द्वारा विश्व पर्यावरण दिवस पर जिला कानूनी सेवा प्राधिकरण, होटल एसोसिएशन कसौली और औद्योगिक एसोसिएशन परवाणू के सहयोग से सोलन, कसौली और परवाणू में सफाई अभियान चलाया। पर्यावरण दिवस पर चलाए जा रहे स्वच्छता अभियान के दौरान विभाग द्वारा कसौली व सोलन के दो हॉट स्पॉट चुने गए जहाँ सफाई अभियान चलाकर सफाई व्यवस्था दुरुस्त की गई। इसी कड़ी में प्रदूषण नियंत्रण बोर्ड परवाणू द्वारा परवाणू औद्योगिक संघ व कई उद्योगों के साथ मिलकर परवाणू के कई कई क्षेत्रों में स्वच्छता की मुहिम। कार्यक्रम के दौरान इस सब को 13 टीमों में बांटा गया। इस दौरान लगभग 300 लोगों ने इस अभियान में भाग लिया। वहीं कसौली क्षेत्र से 10 टन सॉलिड वेस्ट, सोलन से 6 टन और परवाणू औद्योगिक क्षेत्र से 3 टन सॉलिड वेस्ट एकत्र किया गया।

Introduction

To commemorate World Environment Day on June 5, 2024, District Legal Service Authority (DLSA) in collaboration with the State Board, conducted various awareness activities such as plantation drives, cleanliness initiatives, school level competitions, and webinars across multiple regional offices.

- Parwanoo:** Conducted a cleanliness drive clearing hotspot in Kasauli and Solan, with waste disposed of by MC Parwanoo and MC Solan. RO Parwanoo conducted a large number of activities in association with DLSA spanning over Parwanoo, Solan and Kasauli.
- Una:** Partnered with Nestle India Pvt Ltd. for a program at GSSS Gurplah, featuring a student rally, environmental lectures, competitions, and a plantation activity.
- Shimla:** Organized a drive in Tutikandi, collecting 350 kg of solid waste for scientific disposal, and another along NH-05 with Ananda Hotel.
- Dharamshala:** Held a drive at Sudhed near Dumping site, attended by officials from MC Dharamshala, DLSA, and the State PCB.



RO Shimla



RO Kullu

विश्व पर्यावरण दिवस पर की सफाई नगर परिषद ने एकत्रित किए गए गारबेज का किया निपटारा

भास्कर न्यूज़ | परवाणू

परवाणू प्रदूषण नियंत्रण बोर्ड द्वारा विश्व पर्यावरण दिवस पर जिला कानूनी सेवा प्राधिकरण, होटल एसोसिएशन कसौली और परवाणू औद्योगिक एसोसिएशन के सहयोग से सोलन, कसौली और परवाणू में सफाई अभियान चलाया। पर्यावरण दिवस पर चलाए जा रहे स्वच्छता अभियान के दौरान विभाग द्वारा कसौली व सोलन के दो हॉट स्पॉट चुने गए जहाँ सफाई अभियान चलाकर सफाई व्यवस्था दुरुस्त की गई। इसी कड़ी में प्रदूषण नियंत्रण बोर्ड परवाणू द्वारा परवाणू औद्योगिक संघ व कई उद्योगों के साथ मिलकर परवाणू के कई क्षेत्रों में भी स्वच्छता की मुहिम चलाई। विश्व पर्यावरण दिवस पर हुए इस कार्यक्रम के दौरान इन सब को 13 टीमों में बांटा गया जिनमें मुख्य रूप से परवाणू की कई औद्योगिक इकाइयों ने अपना पूरा सहयोग दिया।

सभी 13 टीमों को साफ सफाई करने के लिए परवाणू के अलग अलग क्षेत्र आवंटित किए गए जहाँ कंपनी वालंटियर्स ने पूर्ण योगदान देकर शहर को स्वच्छ बनाया। प्रदूषण नियंत्रण बोर्ड तथा सभी कंपनी वालंटियर्स ने जनता को स्वच्छता बारे भी जागरूक किया। इस दौरान लगभग 300 लोगों ने इस अभियान में भाग लिया। वहीं, कसौली क्षेत्र से 10 टन सॉलिड वेस्ट, सोलन से 6 टन और परवाणू औद्योगिक क्षेत्र से 3 टन सॉलिड वेस्ट एकत्र किया गया। परवाणू नगर परिषद ने महत्वपूर्ण योगदान देते हुए एकत्र किए गए कचरे का पूरी तरह से निपटारा किया। उधर, विश्व पर्यावरण दिवस पर परवाणू प्रदूषण नियंत्रण बोर्ड के एसडीओ अनिल राव ने बताया की परवाणू, कसौली एवं सोलन में प्रदूषण विभाग के अधिकारियों ने एक स्वच्छता की मुहिम चलाई जो पूरी तरह सफल रही। अनिल राव ने परवाणू उद्योग संघ एवं परवाणू की औद्योगिक इकाइयों का स्वच्छता को लेकर चलाई गई मुहिम को सफल बनाने को लेकर आभार प्रकट किया।

- Bilaspur:** Celebrated at Shiv Shakti International School with competitions, a rally, and a plantation activity; additional plantings are planned for the monsoon season.
- Rampur:** Conducted a drive at GSSS Sangla, including competitions, a plantation drive with JSW Hydro Pvt. Ltd. and the Forest Department.
- Mandi:** Organized events for student and a cleanliness drive identifying 14 hotspots, with ongoing activities for waste disposal.
- Hamirpur:** Hosted events at Dr. Y.S. Parmar College with competitions, awareness sessions, and a plantation drive; collaborated with SJVNL Dhaulasidh for eco-friendly initiatives.
- Chamba:** Conducted a cleanliness and awareness drive from Subhash Chowk to Gandhi Chowk in Dalhousie, collecting 250 kg of plastic waste for scientific disposal.

- Kullu:** Slogan, drawing, and painting competitions were held with 41 student participants. On June 5, 2024, the Regional Office, in collaboration with the District Legal Service Authority and the Municipal Council of Kullu, conducted a cleanliness drive along the Sarwari Nallah, depositing the collected waste at the MRF site of MC Kullu.



RO Una



RO Bilaspur



RO Rampur



RO Hamirpur

एचपीपीसीबी ने जगाया पर्यावरण बचाने का अलख

प्रदूषण कंट्रोल बोर्ड ने निकाली जागरूकता रैली, सरवरी नदी की साफ, टिकाने लगाया कूड़ा

कार्यालय सवाददाता-कुल्लू

विश्व पर्यावरण दिवस पर एचपीपीसीबी क्षेत्रीय कार्यालय कुल्लू ने राजकीय वरिष्ठ माध्यमिक पाठशाला धराम में जागरूकता कार्यक्रम आयोजित किया है। कार्यक्रम की शुरुआत बीते मंगलवार को स्वच्छता अभियान के साथ हुई, जिसमें लगभग 60 किलोग्राम कूड़ा-कचरा एकत्र किया और आगे इसे नगर परिषद कुल्लू की एसआरएफ साइट पर सौंप दिया गया। इसके बाद स्लोगन और ड्राइंग, पोस्टिंग प्रतिभागिता आयोजित की गई। जिससे 41 छात्र-छात्राओं ने भाग लिया। नगर परिषद कुल्लू व उनके सहयोगी के सहयोग से स्वच्छता अभियान सरवरी नाले के किनारे चलाया और एकत्रित ठोस कचरे को आगे के निपटार के लिए नगर परिषद कुल्लू के एसआरएफ साइट पर जमा किया गया। एचपीपीसीबीए कुल्लू द्वारा जागरूकता का कार्यक्रम करवाया और इसके बाद क्षेत्र में स्कूली छात्रों द्वारा एक जागरूकता रैली आयोजित की गई। उपरोक्त के अतिरिक्त भाषण कार्यक्रम भी आयोजित किया गया। जिसकी अध्यक्षता आभा चौहान सचिव जिला विधिक सेवा प्राधिकरण कुल्लू एवं सुनील शर्मा क्षेत्रीय अधिकारी कुल्लू द्वारा कुल्लू द्वारा कार्यक्रम का शुभारंभ किया गया तथा उपरोक्त प्रतिभागिताओं में भाग लेने वाले विजेता छात्र-छात्राओं को उपहार वितरित किए गए। सचिवए डीएलएसएएए कुल्लू और क्षेत्रीय अधिकारी एचपीपीसीबी ने छात्रों से आग्रह किया है कि हम समाधान के हिस्से में आइए किया है कि हम समाधान के हिस्से में आइए प्रबंधन के कु प्रबंधन के प्रभाव पर भी प्रकाश डालें जो हमारी भूमि

और जल निकायों आदि के लिए खतरा पैदा कर सकता है।

लॉर्ड कान्टेट स्कूल में

World Environment Day 2024 - Special

मनाली में प्रदूषण नियंत्रण बोर्ड व विधिक सेवा प्राधिकरण ने चलाया स्वच्छता अभियान

मनाली, 6 जून (सोनू) : विश्व पर्यावरण दिवस के उपलक्ष्य पर वीरवार को प्रदूषण नियंत्रण बोर्ड और विधिक सेवा प्राधिकरण के संयुक्त तत्वावधान में स्वच्छता अभियान चलाया गया। इस अभियान में नगर परिषद मनाली और होटलियर एसोसिएशन के कर्मचारियों ने भाग लिया। इस दौरान बोलने बस स्टैंड में फैली गंदगी को साफ किया गया।

कूड़े के बैग एकत्रित कर कूड़ा संग्रह केंद्र को भेजे गए, साथ ही बोलने बस स्टैंड में बालकों और परिचालकों को स्वच्छता के प्रति जागरूक किया। इसके बाद सोलिंगमाला में भी स्वच्छता अभियान चलाया गया। नगर परिषद के कर्मचारियों और विभिन्न संतानों के स्वयंसेवकों ने सक्रिय रूप से विधिक

सेवा प्राधिकरण कुल्लू एवं ज्वाहीन-स्वीरि की सचिव आभा चौहान ने इस अभियान में मुख्य रूप से भाग लिया। होटलियर एसोसिएशन के अध्यक्ष सुरेश ठाकुर ने बताया कि मनाली में काफी संख्या में पर्यटक पहुंचते हैं। इससे यहां गंदगी भी बढ़ रही है। स्थानीय पर्यटन कारोबारियों को समझ समझ पर इस तरह के अभियानों को सहायता देनी चाहिए। विधिक सेवा प्राधिकरण और प्रदूषण नियंत्रण बोर्ड ने सहायता देना ठाकुर, महासचिव निहाल चंद ठाकुर, एसोसिएशन के अध्यक्ष रमेश ठाकुर, नगर परिषद के कार्यकारी अधिकारी करण परमानीया और प्रदूषण नियंत्रण बोर्ड के अधिकारी मौजूद रहे।



RO Paonta



RO Mandi



RO Bilaspur



RO Bilaspur



RO Parwanoo



RO Mandi



RO Una



RO Hamirpur



RL Paonta



RL Sundernagar

Chamba diary – full of awareness activities

Man Made (Forest) Future

Contributed by: **Shri Atul Parmar, EE cum Regional Officer Paonta Sahib**

Contributed by: **HPSPCB Regional Office, Chamba**



Introduction

Over the past few months, the Regional Office in Chamba has been actively involved in various environmental awareness initiatives. Collaborating with stakeholders and the district administration, they have promoted messages against single-use plastic, conducted plantation drives, organized camps, and led cleanliness campaigns. Highlights include:

- On World Environment Day (5th June, 2024), they organized a cleanliness and awareness drive in Dalhousie, collecting 250kg of plastic waste.
- A plantation drive near Bagga Dam resulted in the planting of 150 trees, with plans to plant 300 more.
- An awareness camp at Govt. High School Rajera educated 125 students on waste management and featured competitions.
- Another cleanliness drive in Dalhousie collected 250kg of waste.
- Efforts to tackle banned single-use plastics in Dalhousie included regular monitoring and awareness campaigns, resulting in 23 fines totaling ₹45,000.



The State Board appoints 11 JSOs
In June 2024, the State Board appointed 11 Junior Scientific Officers (JSOs) based on the recommendations of the HP Public Service Commission. They have been deployed to various laboratories and the headquarter of the State Board.



औद्योगिक क्षेत्र कालाअंब में शुरू होगी मैन मेड फोरेस्ट योजना



दिव्य हिमाचल ख्यूर-नाहन

प्रबंधक सुरजीत मेहता ने बताया कि इस अवसर पर पर्यावरण विभाग से कालिटी हेड प्रवेश राणा के अलावा वन विभाग के रेंज ऑफिसर, बीओ व अन्य अधिकारी व कर्मचारी उपस्थित थे। उन्होंने बताया कि वी-गार्ड उद्योग लगातार समाज सेवा की दिशा में अग्रणी रहता है तथा आसपास के क्षेत्रों के स्कूल व स्वास्थ्य संस्थानों में सामाजिक दायित्व के तहत विशेष सहयोग करता है। इसी कड़ी में हिमाचल प्रदेश पॉल्यूशन कंट्रोल बोर्ड व वी-गार्ड उद्योग कालाअंब के सहयोग से सोमवार को मैन मेड फोरेस्ट योजना का शुभारंभ विश्व पर्यावरण दिवस पांच जून को लेकर किया गया, ताकि औद्योगिक क्षेत्र में भूमि कटाव व भू-स्खलन को रोका जा सके।

The decline of serene Himachal Pradesh: a call for urgent action

Contributed by: *Shri Rahul Bhandari, Editor & Freelance Journalist*
The News Himachal - A Local News Daily

Background

Himachal Pradesh, once celebrated for its pristine beauty and unpolluted air, now finds itself grappling with an escalating pollution crisis. Once synonymous with lush green hills, crystal-clear rivers, and refreshing air, the state is now struggling to maintain its natural charm. The culprits? Increasing vehicle influx, rampant forest fires, twig burning, and a general lack of stringent environmental measures.

The tourism industry in Himachal Pradesh has seen an unprecedented boom. Each year, thousands of visitor's flock to the state to escape the summer heat or to experience the winter snowfall. This influx has been further encouraged by state policies aimed at boosting the economy. Roads have been widened to accommodate the growing number of tourists, but this has led to frequent landslides, particularly during the monsoon season. The year 2023 alone saw losses exceeding Rs. 12,000 crores due to aggressive monsoon-induced landslides, with critical roads like the Kullu-Manali highway suffering severe damage. This increased vehicular traffic has brought with it a surge in air pollution. The once-clear skies of Himachal Pradesh now resemble those of any major polluted city.

Popular destinations such as Manali, Kullu, Shimla, and Dharamshala face severe traffic congestion, with jams lasting several hours. The resultant vehicular emissions have significantly deteriorated air quality, creating a persistent haze over these regions. Forest fires have compounded the problem. Since April 2024, the Himachal Pradesh Fire Department has recorded a staggering 1,640 forest fires,

The author, a Shimla-based Editor and freelance journalist of The News Himachal, asserts that air pollution in the higher reaches of Himachal Pradesh is primarily caused by the burning of apple twigs. He draws a parallel between this practice and the stubble burning in the northeastern plains of India. He further says the pollution control board must take some action and devise policy mechanism to curb this.

devastating approximately 1.72 lakh hectares of forest land. The fires not only destroy vast tracts of forest but also contribute to air pollution. The smoke from these fires hangs heavy in the air, reducing visibility and increasing respiratory issues among the population.

Twig burning in the apple-growing regions of the state is another significant contributor to pollution. Farmers burn pruned apple branches from November to February, releasing large amounts of smoke into the atmosphere. This practice not only deteriorates air quality but also often leads to uncontrolled fires in nearby forests.

Waste management poses another significant challenge. Tourist hotspots are littered with plastic bottles, wrappers, and other refuse, with ineffective waste management systems failing to cope with the influx.

Occasional cleanliness drives by NGOs and government departments provide temporary relief, but a sustained and systematic approach is lacking. Despite the implementation of door-to-door garbage collection in many cities, littering remains rampant, raising questions about public responsibility and enforcement.

Stricter regulations

Addressing this multifaceted crisis requires urgent and decisive action. The government must implement stricter regulations to manage forest fires. One potential solution is the collection and reuse of pine needles, which are highly flammable and contribute to the spread of fires. Rainwater harvesting systems could be developed in fire-prone areas to provide a ready water supply for firefighting efforts. Additionally, planting fire-resistant species in vulnerable areas could help mitigate the risk of future fires.

The issue of twig burning has a straightforward solution: mulching. By chopping the pruned branches into small pieces, they can be used as fertilizer, enriching the soil and reducing the need for chemical fertilizers. Some progressive apple growers have already adopted this practice, demonstrating its feasibility and benefits. Tourists and residents alike must be educated about the importance of maintaining cleanliness and the impact of their actions on the environment.

Finally, policymakers must reconsider the current approach to tourism. Sustainable tourism practices should be prioritized over merely increasing tourist numbers. This includes limiting the number of visitors during peak seasons, promoting eco-friendly accommodations, and ensuring that tourism development does not come at the expense of the environment.

The serene hills and pristine rivers of Himachal Pradesh are at a tipping point. Without immediate and concerted efforts to address pollution and environmental degradation, the state risks losing its natural heritage. It's time for all stakeholders—government, residents, and tourists—to come together and protect the beauty and health of Himachal Pradesh for future generations.

World Earth Day 2024 *earth day special >>>*

celebrations – “Planet vs Plastic”

Earth Day is celebrated worldwide on April 22nd each year to raise awareness about environmental issues and promote environmental protection. The event serves as a reminder of the importance of taking action to safeguard the planet and its natural resources for future generations. Earth Day originated in the United States in 1970, following widespread public concern about pollution, environmental degradation, and the impacts of industrialization on the environment. Since then, Earth Day has grown into a global movement, with millions of people participating in various activities such as tree planting, clean-up campaigns, environmental education programs, and advocacy efforts to address pressing environmental challenges such as climate change, biodiversity loss, deforestation, pollution, and habitat destruction.

Himachal Pradesh State Pollution Control Board Celebrated World Earth Day 2024 with great enthusiasm across our regional offices. On April 22nd, 2024, our regional offices organized a variety of activities to commemorate this important day. Here are some highlights of the celebrations and activities:



RO Chamba celebrates Earth Day with school children

On April 22, 2024, in commemoration of World Earth Day, the Regional Office in Chamba orchestrated an awareness initiative at Govt. Sr. Sec. School Haripur, focusing on Solid Waste Management and Plastic Waste Management. Students received thorough education on prohibited Single-Use Plastic items through comprehensive demonstrations and informative pamphlets. Furthermore, the Regional Office conducted an additional awareness campaign at Chamba Chowgan Market, emphasizing banned Single-Use Plastic items, including Non-woven Carry bags with a thickness of less than 80 GSM.



RO Kullu conducts awareness activity for schools

In commemoration of World Earth Day 2024, the Regional Office Kullu organized an awareness program at Jawahar Navodaya Vidyalaya, Bandrol. Students were educated about the Plastic Waste Management Rules, emphasizing the environmental and health hazards posed by plastic waste. Additionally, awareness sessions were conducted on banned Single-Use Plastic (SUP) items and their alternatives. Furthermore, 27 shopkeepers in Akhara Bazar were briefed about the prohibition on plates coated with non-biodegradable plastic film.



RO Bilaspur sensitise students on plastic pollution

The Regional Office Bilaspur of the State Board organized an awareness program at Govt Senior Secondary School Harnora, located in Tehsil Sadar, Distt. Bilaspur, to commemorate World Earth Day 2024. The program focused on sensitizing students about the ban on Single-Use Plastic items and the Plastic Waste Management Rules, 2016.



RO Una runs awareness drives

On April 22, 2024, in observance of Earth Day, the Regional Office Una of the State Board orchestrated a cleanliness drive targeting littered hotspots in the Mehatpur town area, in collaboration with MC Mehatpur and representatives from Industries of IA

Mehatpur. The collected waste was subsequently handed over to MC Mehatpur for proper disposal. Additionally, an awareness drive was conducted in the market area, promoting the theme of "bring your own bag." Pamphlets were distributed in shops, and inspections were carried out to ensure compliance with the ban on Single-Use Plastic items.



The Regional Office Una conducted extensive awareness activities, including issuing fines for single-use plastic, organizing plantation activities, and leading cleanliness drives along river systems.

Disclaimer: The opinions expressed in the various papers contributed by the authors are their own and do not necessarily reflect the views of the State Board. However, this newsletter aims to present diverse perspectives and opinions with the ultimate goal of environmental conservation and pollution control.

The Member Secretary inaugurates Climate Clock

To increase awareness among students and public about the increasing climate change conditions and the importance of the environment in controlling it, the Regional Laboratory Shimla in association with Crescent Senior Secondary School, Totu has organised a seminar on climate change at Totu. Students from Crescent Senior Secondary School in Totu presented various actions for environmental care and climate change prevention. Additionally, they showcased a documentary highlighting climate change and the importance of plants. *Contd. on page - 34*



Parwanoo offices join hands in earth day celebrations

On April 22, 2024, the Regional Office and Central Laboratory Parwanoo of the State Board celebrated World Earth Day 2024. This year's theme, "Planet vs Plastic," was emphasized during the event. HPPCB conducted an awareness session at Lotus School, Sector 4, Parwanoo, aimed at reducing plastic usage and eliminating single-use plastic. A brief lecture and discussion were held with the students on the importance of reducing plastic usage. Additionally, students actively participated in discussions regarding the ban on single-use plastic and its detrimental impact on the environment.



Plantation activities

RO Paonta conducts awareness activity on Earth Day

On the occasion of World Earth Day 2024, the Regional Office Paonta Sahib of the State Board organized an awareness program at Govt Senior Secondary School Rampurghat, Paonta Sahib. A brief lecture and discussion were held with students to highlight the detrimental effects of plastic on the environment and human health, emphasizing the importance of reducing plastic usage. Students were sensitized about the ban on Single-Use Plastic items and encouraged to adopt eco-friendly alternatives as per the Plastic Waste Management Rules 2016. Moreover, they were educated about environmentally sustainable practices to promote a greener and healthier planet.



RO Baddi partners with industries for earth day celebration



On April 22, 2024, the Regional Office Baddi of the State Board organized an awareness program to celebrate World Earth Day 2024, with the theme "Planet vs. Plastics." The program took place at Milestone Gear Unit 8, Torrent Pharmaceutical, MT Autocraft, and DS Drink. Participants were sensitized about the HP Non-biodegradable Garbage (Control) Act, 1995, focusing on the use of poly bags, banned Single-Use Plastic (SUP) items, the prohibition on non-woven plastic carry bags with a thickness less than 80 GSM, and the Plastic Waste Management Rules 2016. Additionally, a plantation drive was conducted in collaboration with Milestone Gears Part Pvt Ltd, DS Drink, and MT Autocraft in Tehsil Baddi, District Solan, HP.



RO Bilaspur arrange educational tours to students

As a continuation of the World Environment Day 2024 celebrations, an educational trip was organized for 36 students and teaching staff from Government Senior Secondary School, Harnora, Tehsil Bilaspur Sadar, on June 6, 2024. The visit included a guided tour of the Sewage Treatment Plant (STP) maintained by NTPC Kol Dam, with a capacity of 350 KLD. During the tour, students were briefed on the operations of the STP, and they displayed great enthusiasm in learning about the treatment technology and recycling procedures. The teaching staff expressed gratitude to the Himachal Pradesh State Pollution Control Board for their initiative in organizing the visit and extended their appreciation to NTPC for generously showcasing their facility.



एनटीपीसी कोल डैम पर्यावरण प्रबंधन समूह ने स्कूली बच्चों को करवाया सीवेज ट्रीटमेंट प्लांट का दौरा

■ कश्मीर ठाकुर, बढ़ते कदम

बिलासपुर। एनटीपीसी कोल डैम पर्यावरण प्रबंधन समूह ने बीते वीरवार को राजकीय वरिष्ठ माध्यमिक पाठशाला हर्नोड़ा के 35 विद्यार्थियों व अध्यापकों के लिए एनटीपीसी टाउनशिप जमथल स्थित सीवेज ट्रीटमेंट प्लांट का दौरा करवाया। इस अवसर पर पवन शर्मा क्षेत्रीय अधिकारी हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड बिलासपुर, जेई (एचपीएसपीसीबी) अर्पण ठाकुर और वीरेंद्र विशेष रूप से उपस्थित थे। उन्होंने विद्यार्थियों को सीवेज ट्रीटमेंट प्लांट (एसटीपी) की कार्यप्रणाली और अपशिष्ट जल के पुन-उपयोग और पर्यावरण संरक्षण के बारे में जागरूक किया। उन्होंने बताया कि अपशिष्ट जल एक प्रभावी वैकल्पिक जल आपूर्ति है। अपशिष्ट जल उपचार संयंत्रों से पानी का पुन-उपयोग पानी की कमी को दूर करने में मदद कर सकता है। यह पानी का एक सुरक्षित और अनुमानित स्रोत सुनिश्चित कर सकता है, साथ ही जल निकासों पर दबाव कम कर सकता है और जलवायु परिवर्तन की संभावना को



संतुलित कर सकता है। जलवायु परिवर्तन के कारण पानी की उपलब्धता में परिवर्तन हो रहा है, जिससे अधिक क्षेत्रों में इसकी कमी हो रही है। ग्लोबल वार्मिंग ने पहले से ही पानी की कमी वाले क्षेत्रों में पानी की कमी पैदा कर दी है और कृषि सूखे का खतरा बढ़ा दिया है, जिससे फसल की पैदावार प्रभावित हुई है, और पारिस्थितिकी तंत्र की भेद्यता बढ़ गई है। उचित उपचार के बाद पानी का पुनः उपयोग करने से इसका जीवन चक्र बढ़ जाता है, जिससे जल संसाधनों का संरक्षण होता है। पुनः प्राप्त पानी में नाइट्रोजन, फास्फोरस और पोटेशियम जैसे पोषक तत्व होते हैं, जो आमतौर पर उर्वरकों में पाए जाते हैं। यदि पुनः प्राप्त पानी का उपयोग पौधों पर किया जाता है, तो पौधे पुनः प्राप्त पानी में पोषक तत्वों का उपयोग कर सकते हैं।

र-बिलासपुर

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09, जून, रविवार, 2024

जल के पुनः उपयोग व पर्यावरण संरक्षण के बारे में जाना

एनटीपीसी कोल डैम पर्यावरण प्रबंधन समूह ने विद्यार्थियों को करवाया सीवेज ट्रीटमेंट प्लांट का दौरा

कश्मीर ठाकुर। बिलासपुर

एनटीपीसी कोल डैम पर्यावरण प्रबंधन समूह ने बीते वीरवार को राजकीय वरिष्ठ माध्यमिक पाठशाला हर्नोड़ा के 35 विद्यार्थियों व अध्यापकों के लिए एनटीपीसी टाउनशिप जमथल स्थित सीवेज ट्रीटमेंट प्लांट का दौरा करवाया। इस अवसर पर पवन शर्मा क्षेत्रीय अधिकारी हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड बिलासपुर, जेई (एचपीएसपीसीबी) अर्पण ठाकुर और वीरेंद्र विशेष रूप से उपस्थित थे। उन्होंने विद्यार्थियों को सीवेज ट्रीटमेंट प्लांट (एसटीपी) की कार्यप्रणाली और अपशिष्ट जल के पुन-उपयोग और पर्यावरण संरक्षण के बारे में जागरूक किया। उन्होंने बताया कि अपशिष्ट जल एक प्रभावी वैकल्पिक जल आपूर्ति है। अपशिष्ट जल उपचार संयंत्रों से पानी का पुन-उपयोग पानी की कमी को दूर करने में मदद कर सकता है। यह पानी का



एक सुरक्षित और अनुमानित स्रोत सुनिश्चित कर सकता है, साथ ही जल निकासों पर दबाव कम कर सकता है और जलवायु परिवर्तन की संभावना को संतुलित कर सकता है। जलवायु परिवर्तन के कारण पानी की उपलब्धता में परिवर्तन हो रहा है, जिससे अधिक क्षेत्रों में इसकी कमी हो रही है। ग्लोबल

वार्मिंग ने पहले से ही पानी की कमी वाले क्षेत्रों में पानी की कमी पैदा कर दी है और कृषि सूखे का खतरा बढ़ा दिया है, जिससे फसल की पैदावार प्रभावित हुई है, और पारिस्थितिकी तंत्र की भेद्यता बढ़ गई है। उचित उपचार के बाद पानी का पुनः उपयोग करने से इसका जीवन चक्र बढ़ जाता है, जिससे जल संसाधनों का

संरक्षण होता है। पुनः प्राप्त पानी में नाइट्रोजन, फास्फोरस और पोटेशियम जैसे पोषक तत्व होते हैं, जो आमतौर पर उर्वरकों में पाए जाते हैं। यदि पुनः प्राप्त पानी का उपयोग पौधों पर किया जाता है, तो पौधे पुनः प्राप्त पानी में पोषक तत्वों का उपयोग कर सकते हैं।



Regional Laboratory Shimla receives Environment Leadership Award

The Regional Laboratory Shimla of the State Board received the "Himachal Pradesh Environment Leadership Award, 2023." The Chief Secretary to the Government of Himachal Pradesh presented the certificate and a cash prize of Rs. 25,000 on World Environment Day 2024 (5th June 2024) at Gaiety Theater, Shimla. Dr. Praveen Sharma, Scientific Officer & In-charge, and his team accepted the trophy and cash prize.

Laboratories conduct impactful awareness activities on WED

The Central/Regional Laboratories in Parwanoo, Sundernagar, Paonta Sahib, Dharamshala, and Una conducted extensive campaigns to celebrate World Environment Day. These activities included a Rangoli Competition on the theme, an awareness rally with students and staff, a plantation drive, a declamation contest, a poster-making competition, a lecture on the LiFE pledge, and cleanliness drives. The laboratories held these events on different dates, with a focus on student-centric awareness campaigns.

Mandi Kesari
Jun 06, 2024 (IST)

पंजाब केसरी

नारा लेखन में तरुण प्रथम और अमृता द्वितीय

अखबार की छात्राओं ने पर्यावरण दिवस पर रचना प्रतियोगिता, पोस्टर बनाने का प्रतियोगिता प्रारंभ की। छात्रों ने अमृता प्रथम और प्रथम नारा लेखन में तरुण प्रथम और अमृता द्वितीय के रूप में जीत हासिल की।

राजकीय वरिष्ठ माध्यमिक पाठशाला बर्नोली व जगिंदरनगर स्कूल में भी कार्यक्रम किए आयोजित

बर्नोली, 5 जून (नि.स.) : राजकीय वरिष्ठ माध्यमिक पाठशाला बर्नोली में विश्व पर्यावरण दिवस के अवसर पर कार्यक्रम आयोजित किया गया। कार्यक्रम में ज्ञान प्रसारण निदेशक बर्नोली के क्षेत्रीय कार्यालय सुंदरनगर से चयन उत्कृष्ट वैज्ञानिक अधिकारियों ने बर्नोली प्रदर्शनोत्सव भाग लिया। बर्नोली के जलकचरे के लिए विकसाल एवं नारा लेखन प्रतियोगिताएं कराई गईं।

विकसाल जलकचरे के लिए प्रथम, सुंदरनगर में द्वितीय और अखबार में तृतीय, जलकचरे के लिए प्रथम, अखबार में द्वितीय और अखबार में तृतीय स्थान प्राप्त।

उपर, राजकीय वरिष्ठ माध्यमिक पाठशाला हरमणम में पर्यावरण दिवस पर विभिन्न प्रतियोगिताएं कराई गईं तथा जलकचरा जले निकाले गईं। प्रथम-चर्च में भाग लेने में पर्यावरण संरक्षण का संदेश दिया गया, शिवाजी, जयपुर, विजय, ईश, जयवंती, सुखदेव, चन्द्राणा, अखिल व युवा ने पुरस्त्रों में प्रतिभाएं, प्रतिभाओं से बुरावानी का संदेश दिया।

उपर, राजकीय वरिष्ठ माध्यमिक पाठशाला भाटु में पर्यावरण दिवस पर प्रतियोगिताएं आयोजित की गईं। प्रथम-चर्च में भाग लेने में पर्यावरण संरक्षण का संदेश दिया गया, शिवाजी, जयपुर, विजय, ईश, जयवंती, सुखदेव, चन्द्राणा, अखिल व युवा ने पुरस्त्रों में प्रतिभाएं, प्रतिभाओं से बुरावानी का संदेश दिया।

उपर, राजकीय वरिष्ठ माध्यमिक पाठशाला जलकचरे के लिए प्रथम, अखबार में द्वितीय और अखबार में तृतीय स्थान प्राप्त करने वाले विद्यार्थियों को सम्बोधित कर सम्बोधित किया गया। स्कूल उपस्थान-चर्च भाग लेने में बर्नोली के जलकचरे के लिए प्रतियोगिताओं में विजेता होने के लिए घोषित किया।

अभियंता (अखिल) : उपरोक्त के विभिन्न स्तरों में बर्नोली के पर्यावरण दिवस का आयोजन किया गया। जयपुर में द्वितीय स्थान प्राप्त। जयपुर में द्वितीय स्थान प्राप्त।

The State Board conducts 2nd EPR meeting

A meeting was held on 20.04.2024 under the Chairmanship of Shri Anil Joshi (IFS) Member Secretary, HPSPCB in the conference hall of HPSPCB along with Producers Importers, Brand Owners and Plastic Waste Recyclers and Urban Local Bodies to review the fulfilment of Extended Producer Responsibility (EPR) under provisions of Plastic Waste Management (Amendment) Rules, 2024. The meeting was held to review the status of the directions issued by Hon'ble High Court in matter of CWP 2369 of 2018. The Officials of HPSPCB, Urban Development, Department of Environment Science Technology and Climate Change, Urban Local Bodies, Brand Owners, Producers, Plastic Waste Processors and Waste Management Agencies were present in the meeting in person and via video conferencing. There are 109 Producers, 62 Importer, 09 Brand Owners, and 40 Plastic

Waste Processors registered under Plastic Waste Management Rules, 2016. During the meeting, as per detailed discussion, following important decisions were taken.

- Discouraging the collection/transportation of plastic recyclable waste to Rag pickers.
- Providing training to ULBs staff for segregation of Cat-I, II and Cat III plastic from other waste.
- Facilitating the agreement between urban local bodies and state registered recyclers for it ensuring the connectivity and transfer of waste.
- Assessment shall be done of plastic waste available at Dumpsites by ULBs by 30th June every year.
- UDD shall make an agreement with Cement Plants regarding exchange of EPR certificate on the centralized portal of CPCB for non-recyclable RDF being transported to such plants.



Shri Anil Joshi (IFS), Member Secretary, HPSPCB Chairing an EPR meeting at Head Office Shimla



In memory of Late Smt. Kamlesh Pathania

Smt. Kamlesh Pathania, a Supdt Grade-II, passed away on April 12, 2024, due to a severe heart attack. She leaves behind two children studying in Himachal Pradesh and her husband, who serves in Delhi Police. Shri Anil Joshi, the Member Secretary, HP State Pollution Control Board expressed his deep sorrow and chaired a condolence meeting. With tearful eyes, all employees of the State Board bid tearful farewell to Smt. Pathania, remembering her friendly demeanor and readiness to assist others. She also held the esteemed position of a founding member of the Himachal Pradesh State Pollution Control Board Welfare Association, garnering respect for her contributions. We cherish her beautiful memories with tearful eyes and hearts full of love, knowing that her legacy will endure through the countless lives she touched.

Five employees retired since March 2024

After years of dedicated service, five respected individuals of Himachal Pradesh State Pollution Control Board have officially retired from services on 31st March, 2024. They are Shri Vijay Kumar - Senior Lab Assistant - Regional Laboratory Shimla, Shri Safi Mohammad - Lab Attendant, Regional Laboratory Paonta Sahib, Shri Jeevan Ram, Clerk, Regional Office Parwanoo and Shri Surinder Kumar - Laboratory Assistant, Regional Laboratory Dharamshala. Later, Smt. Pritma Devi Peon at RO Rampur also retired from service on 30th April 2024. Himachal Pradesh State Pollution Control Board deeply appreciates their exemplary service and resolves to carry forward their legacy of environmental protection with unwavering dedication and commitment.



Honouring Shri Vijay Kumar



Honouring Shri Vijay Kumar



Honouring Shri Surinder Kumar



Honouring Shri Jeevan Ram



Honouring Shri Safi Mohammad



Honouring Smt. Pritma Devi

Honouring Retirees

“Ward Member Meenu Ka Safai Abhiyan”

Himachal Pradesh State Pollution Control Board has been conducting awareness activities to ensure the effective implementation and compliance of environmental regulations as mandated by various environmental legislations and court orders. Traditionally, the State Board has relied on print and radio media for these awareness activities. However, to specifically target school and college students,

the State Board has published a comic booklet titled “Ward Member Meenu Ka Safai Abhiyan,” which were distributed to over 18000 schools in Himachal Pradesh, including private schools in addition to government offices and ULBs. The primary objective of this comic booklet is to educate children and students about the critical environmental issue of waste management, which poses a serious concern for environmental managers and regulators.

The comic booklet features nine imaginative and cartoon-based stories. It begins with waste segregation and highlights various initiatives by the State Government and the State Board. The booklet also encourages readers to report any violations in waste management. It is crucial to instill good citizenship behavior in children, teaching them to keep their towns and villages clean and manage waste scientifically. The first story of the comic book is depicted below for your reference.



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The Chief Guest of the event Shri Anil Joshi (IFS), Member Secretary, HP State Pollution Control Board in his keynote address informed that many people think climate change mainly means warmer temperatures, whereas, temperature rise is only the beginning of the story. Since the Earth is a system, where everything is connected, changes in one area can influence changes in all others.

During the program, Shri Anil Joshi inaugurated the climate clock installed at Crescent Senior Secondary School, Totu. This clock is a graphic to demonstrate how quickly the planet is approaching 1.5°C of global warming. The Chief Guest of the occasion has stressed the need for more plantation to control the global warming.





Manufacturing Unit - III
Paonta Sahib,
Himachal Pradesh



Manufacturing Unit - II
Paonta Sahib,
Himachal Pradesh



Manufacturing Unit - I
Paonta Sahib,
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